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Empowering adolescents: A multiple case study of U.S. Montessori high schools

Wendy J. LaRue
Walden University

Walden University

COLLEGE OF EDUCATION

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Wendy LaRue

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Chief Academic Officer

Denise DeZolt, Ph.D.

Walden University
2010

ABSTRACT

Empowering Adolescents: A Multiple Case Study of U.S. Montessori High Schools

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Wendy J. LaRue

M.S., Virginia Commonwealth University 1994
B.A., Mary Washington College, 1988

Dissertation Proposal Submitted in Partial Fulfillment
of the Requirements for the Degree of
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Education

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ABSTRACT

The standards-based, teach-and-test methods that have come to proliferate secondary education since the inception of the No Child Left Behind Act (NCLB) fail to adequately prepare students for higher education and employment. This system lacks opportunities for developing 21st century skills such as higher-level thinking, problem solving, and group dynamics, as well as opportunities for fostering spiritual growth and personal development. This problem impacts graduates of U.S. high schools because they are unprepared for higher education and the 21st century workplace. Using qualitative multiple case study methodology, this study examined five U.S. Montessori high schools through the lens of cultural–historical activity theory. Interview and blog-based focus group responses and document data were coded line-by-line using predetermined categories and codes as well as open coding. The coded data were analyzed by individual case and then collectively. Findings revealed that education in these settings addressed all areas of development and fostered 21st century skills. Some characteristics that typify Montessori education at lower levels, such as multi-age classes and the prepared environment, played less significant or different roles in the high school programs. Characteristics that were prominent across the cases included use of place-based, experiential learning; building of caring, family-like staff/student relationships; and emphasis on social development. Implications for social change within the Montessori community include informing practice at existing schools and development of teacher education programs. In the broader education community, the consistency in program emphasis, despite diverse school circumstances, suggests a Montessori approach may facilitate social change by inspiring a fresh approach to school reform in high schools.

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DEDICATION

This dissertation is dedicated to my children, Abby and Aaron Bobb, who sparked my interest in Montessori education and school reform as I have worked to educate them; to my husband, Michael Bobb, who has graciously stood by me as I have pursued my passions and dreams over the last 25 years; to my parents, Gene and Wanda LaRue, who have always encouraged me to learn; to my friend Cynthia DeWitte, PhD., who kept me inspired and on task as we shared our Walden journey; and to my dissertation chair and friend, Peter Hoffman-Kipp, Ph.D., who through his courage and indomitable spirit has taught me as much about life as he has about education.

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As Maria Montessori made so clear in her legacy of works on education, learning does not happen in isolation, but rather within the folds of life's social fabric. Thus, there are many who have shared in my doctoral journey, intentionally and accidentally, knowingly and unwittingly, to whom I am grateful. Among the many are a few people to whom I am especially indebted.

Michael, Abby, and Aaron Bobb, you let me work when you wanted me to play. You listened to me talk about school when you really had no idea what I was talking about. You tolerated three years of stacks of books and paper around the house. And you were there with comic relief when I needed it most. For these and the myriad other things you do that make my days bright and worthwhile, thank you.

I had the good fortune to work with a dissertation committee dream team that made the process easy, even during times of adversity. I am grateful to have worked with Peter Hoffman-Kipp, Ph.D., Laura Knight-Lynn, Ph.D., and Linda Crawford, Ph.D. I could not have picked a better committee.

The doctoral journey was more fun than it might have been because of my classmate, study partner, ex officio committee member, and friend, Cyndi DeWitte. Thanks for the highbrow conversation, the popcorn and chocolate, the dinners, and the companionship.

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CHAPTER 1: INTRODUCTION TO THE STUDY

The quest for improving school quality is an ongoing one. With rapid changes in technology and an increasingly global marketplace, change in the manner in which high school students are educated is called for (Partnership for 21st Century Skills, nd). In particular, school reforms at the high school level should address holistic needs, rather than just academic needs (Partnership for 21st Century Skills, 2006a). Education for the 21st century must address intellectual, social, psychological, physical, and spiritual development in order to adequately prepare students for higher education and adult work (Partnership for 21st Century Skills, 2006a).

Montessori education stands on a foundation of supporting the needs identified by the Partnership for 21st Century skills (Miller, 2004). Given the longevity of the Montessori approach (more than 100 years) and the proliferation of its use (more than 7,000 schools worldwide) Montessori high school practices merit serious consideration for implementation as school reform measures in other high school settings. This study considers how the curriculum, and the manner in which it is implemented, serve to help students discover ways in which they can be successful later in life and to allow them to make authentic contributions to the community, including the school community, the community in which they live, and the greater human community. The resulting conceptual framework can be used to study other Montessori high schools and to inform practices in diverse high school settings.

Background

For more than 100 years, the educational theories and practices advocated by Maria Montessori have served as the basis for a methodology used in schools around the world. During much of that time, the preponderance of Montessori schools in the United States have been limited to early childhood education, with increasingly more elementary schools appearing. More recently, interest in applying Montessori theory to secondary school settings has surged. Because there is no one source for identifying schools as Montessori, it is unclear how many Montessori high schools exist in the United States, but personal correspondence with the American Montessori Society (AMS) and the International Montessori Council (IMC) produced names of only a handful of schools that offer high school Montessori education (Abbie Kelley, April 30, 2009; Tim Seldin, April 25, 2009) The Association Montessori Internationale does not recognize schools that provide services for children younger than 3 or older than 12 (Katie McLaughlin, April 31, 2009). Phone calls to each of the schools identified by the two organizations netted removal of some schools from the list because they indicated they did not have Montessori high school programs. Conversations with staff at some of the schools led to additions to the list as well. Overall, 16 schools identified themselves as providing high school instruction, though the actual number of schools may be slightly higher. Both AMS and IMC provide increasingly more numerous, professional learning opportunities regarding secondary level education, as does the North American Montessori Teachers Association, which is affiliated with AMI.

Maria Montessori's legacy regarding secondary education is limited to one essay that is included as an appendix to one of her shortest works (Montessori, 1948/1994). The Erdkinder essay, as it is commonly called by Montessorians, gives a broad overview of what a secondary program might look like. It includes little detail, and Montessori never actually put this plan into action as she did her early childhood and elementary programs. The farm school model that is suggested (Montessori) has been adopted by some secondary programs that exist. Other programs have used key aspects of the model, such as entrepreneurial projects, place-based learning, and experiences in nature, to adapt it for application in urban and suburban schools where operating a farm is impractical. As Montessorians move forward in developing widespread implementation of Montessori practice at the secondary level, it will serve them well to first examine the programs that have already been implemented both in farm schools and urban compromise programs.

Maria Montessori, born in 1870 in Chiarvelle, Italy, later became one of the first female physicians in Italy. She was trained as a pediatrician and a psychiatrist. This background is reflected in her writings about her method. In 1907, when she was asked to create a program to keep the children in a government-run child care facility from running amok, she approached the challenge of creating an educational program for the children in the Casa de Bambini in San Lorenzo from the viewpoint of a scientist (Montessori, 1912/1964). Terming her approach scientific pedagogy, Montessori set out to observe the children and to discover how they learn and what they preferred to learn. In the process, Montessori developed the belief that children need to be provided the opportunity to express their personalities and address their studies in a spontaneous

manner. She argued that the public schools arrested the development of children through their repressive ways. "In such a school the children, like butterflies mounted on pins, are fastened each to his place, the desk, spreading the useless wings of barren and meaningless knowledge which they have acquired" (Montessori, 1912/1964, p. 14).

A school reformer in her own right, Montessori set clear expectations about how education needed to change. These reforms (Montessori, 1914/2005, 1918/1991) fall into four main categories: the role of the child (to acquire culture and shape the adult which she is to become), the role of the teacher (to serve as a guide who is ever-ready but never in the way), the role of the parents (to support the work of the child and the school) and the nature of work (to valorize the child by bringing him liberty and independence).

Although Montessori wrote about these needed reforms for secondary education more than a half-century ago, little research since that time has examined Montessori secondary programs. Rathunde and Csikszentmihalyi (2005b) have examined how the Montessori model, as applied to middle schools, might serve as a reform model for traditional settings. They also have compared Montessori students' school experiences with those of students in traditional schools by considering five variables: flow, affect, potency, intrinsic motivation, and salience with regard to the process of doing schoolwork (Rathunde & Csikszentmihalyi, 2005a). The Rathunde and Csikszentmihalyi studies were limited to middle school education and aimed to make comparisons with traditional education. In terms of high school Montessori education, there appears to be no published research in scholarly journals. Because so little is known about actual practice in the few high schools where Montessori approaches have been implemented, it

is impossible to make comparisons between Montessori and traditional high school education. In order to consider Montessori education for its potential effectiveness as a widespread high school reform model, it was essential first to identify what constitutes a Montessori high school program, and that is what this study has accomplished.

<div align="center">Research Problem</div>

There is a problem with the manner in which high school students are educated in traditional public school settings in the United States. Specifically, the standards-based, teach-and-test methods that have come to proliferate secondary education since the inception of the No Child Left Behind Act (NCLB) fail to adequately prepare students for higher education and employment (Hebel, 2001; Partnership for 21st Century Skills, 2006a; Partnership for 21st Century Skills, 2006b; Wagner, 2008). The instructional emphasis in public secondary education is on fact-based, teacher-directed learning measured by high-stakes summative examinations (Hursh, 2005; Kendall, 1992; Rathunde & Csikszentmihalyi, 2005a). Attempting to keep students in synchronicity with one another, school systems develop curriculum maps that prescribe when and how content will be delivered. Students are often benchmark tested throughout the school year, with those who fall short of expected marks provided content tutoring and test-taking coaching with the hope of raising their scores for the final tests. DiMartino and Castaneda (2007) asserted that standardized testing and the focus on core content that it assesses have distracted educators from providing students the skills they need for later success. This system offers limited opportunities for developing skills for higher-level thinking, problem solving, group dynamics, project planning, community development,

and time management (Glasser, 1969). Also lacking are opportunities for fostering spiritual growth, personal development (Lippman, Atienza, Rivers, & Keith, 2008) and passion for particular areas of study: "most of what they are asked to memorize is irrelevant to their world" (Glasser, 1969, p. 30). These findings illustrate the limitations of the standards-based, teach-and-test approach.

This problem impacts graduates of U.S. high schools because they are unprepared for the 21st century workplace, which demands flexible employees who can adapt to ever-changing situations (Partnership for 21st Century Skills, 2007). Competencies related to success in higher education and the work place are not limited to the cognitive domain (Lippman, Atienza, Rivers, & Keith, 2008). Lippman, Atienza, Rivers, and Keith identify four additional domains—physical, psychological, social, and spiritual—that they consider essential as well, though largely ignored in school settings. Gambone, Klem, and Connell, (2002) presented an over-arching framework of adolescent development that included what they identify as all the major frameworks in this field of study. Their work included more than 70 attributes for positive adolescent development, most of which are not related to academics or cognitive development. The abundance of adolescent development frameworks (Gambone, Klem, & Connell) indicates that adolescents are most likely to experience healthy development and greater success in higher education and work when all aspects of their development are addressed, yet secondary schools continue to focus their efforts solely on cognitive development.

This study will contribute to the body of knowledge needed to address this problem by examining how Montessori education, known for practices that are

antithetical to traditional school practices and aimed at supporting the development of the whole child, approaches high school education. This contribution will be accomplished by exploring how students in U.S. Montessori high schools learn and develop and how educators in these schools support students' learning and development. More importantly, however, this study will serve as a catalyst for social change by documenting an emerging and primarily unstudied approach to high school education. If practices in U.S. Montessori high schools are found to be consistent with Montessori philosophy, they should not only support cognitive development, but also foster a wide variety of adolescent developmental attributes in the social, psychological, physical, and spiritual domains.

Nature of the Study

This research is a multiple-case study of five Montessori high school programs. The programs represent three different types of school organization: public, charter, and private nonprofit. The schools were chosen because they are representative of these structures and because of their geographical diversity. Data were collected via program document review, teacher and student interviews, and student online focus groups.

Program documents included handbooks, curriculum, and school newsletters, as these three categories of documents were readily available. Additional documents, when available, were also considered. Each school was requested to provide any school documents that might elucidate the nature of teaching and learning, the relationships between students and teachers, the content and approach to educational, and developmental opportunities, and the degree of focus on preparation for higher education

and adult work. Data from documents were coded according to general categories based on the research questions listed below. They were further coded to create subcategories within each broader category.

Focus groups were used to gather data for two of the five Montessori high school programs. The groups included students only. The questions posed in these discussions were used to generate data regarding the overall programs. They were coded in the same manner as data generated by the school documents.

Participants for interviews were selected from the pool of prospective participants who submitted consent/assent forms. They were asked questions about their personal experiences and opinions with regard to the Montessori high school program. By focusing on the personal implications, the individual interviews generated additional, rather than identical, information about the programs. Interview responses were coded to divide them into categories based on the research questions, and then into subcategories, in a manner similar to the focus groups and document reviews.

Research Questions

1. How are traditional Montessori approaches that appear in lower levels integrated into Montessori high school programs?

2. How are concepts of the Erdkinder model integrated into Montessori high school programs?

3. In what ways do the curriculum, class structure, pedagogy, and approach serve to meet the developmental needs of high school students as outlined in Montessori's Four Planes of Education and current literature?

4.   In what ways do the curriculum, class structure, pedagogy, and approach

serve to prepare adolescents for higher education and adult work?

Purpose

This multiple case study explored and documented the ways traditional

Montessori philosophy and techniques are implemented in five Montessori high school

programs and identifies other practices that are common to these programs. The study

documented Montessori high school practices in one public school, two charter schools,

and two nonprofit private schools, in order to identify common traits in the three different

organizational structures, as well unique traits that may be implemented in the other

settings.

In recent years, traditional public education has become increasingly focused on

preparing students for exit exams that provide data for determining NCLB compliance.

At the same time, there has been a concerted effort in the U.S. Montessori community to

encourage widespread application of Montessori educational practices at the secondary,

and particularly high school, level. With little of Montessori's own legacy to call upon for

guidance, contemporary Montessorians are left to forge their own way through the legacy

that does exist, and that of compatible theorists and practitioners, to formulate curriculum

and classroom practices. What constitutes a Montessori high school classroom? How do

the students learn? With what sorts of work do students occupy themselves? How do

teachers support the educational process? And ultimately, how does all occurs in a

Montessori high school setting lead to empowerment of the students?

To address these questions, this multiple-case study aimed to accomplish a variety of goals. First, it aimed to identify traits of traditional Montessori practice, and explain how these traits are implemented with Montessori high-school-age students. Second, it aimed to identify aspects of Montessori's Erdkinder model that are practiced in Montessori high school programs, and identify how they are being adapted to the various school structures and geographic settings. Third, it aimed to contribute to addressing the gap in the professional literature related to Montessori secondary education in general and Montessori high school education in particular. Finally, it aimed to provide a catalyst for school reform by contributing to the body of literature regarding alternative methods for high school education.

Conceptual Framework

This research followed a case study format in the qualitative tradition, which was accomplished using a multiple-case approach to explore what constitutes a Montessori high school based on finding the common threads among five programs, each located in different parts of the country, and each following one of three different school structures. Program details were gathered by facilitating online focus group discussions for students, interviewing students and teachers about their daily practice, and reviewing program documents. The study describes in depth the characteristics of the programs that create the essence of a Montessori education.

For this study, identifying and understanding the activities and interactions within the classroom community was key. The overarching theoretical framework for this study is cultural–historical activity theory (CHAT) (Engeström, 2000, 2001; Holzlman, 2001;

Wertsch & Tulviste, 1992). CHAT originates from the works of Russian psychologist Lev Vygotsky (Vygotsky, 1926/1997, 1978) and other constructivist theorists (Leont'ev, 2009). It asserts that development must be considered in the cultural context in order to fully understand its manner, breadth, and depth.

Montessori educational theory also played a vital role in the study. Maria Montessori published an extensive body of work regarding child development and education. The majority of this work is focused on early childhood education (Montessori, 1914/2005, 1964, 1966, 1967/1995, 1979/1989), and a smaller, but still significant portion of her legacy focuses on elementary education (Montessori, 1916/1999, 1918/ 1991, 1948/1989, 1948/1994). Montessori addressed high school education only in identifying four developmental planes and in a brief essay in the appendix of one of her shorter works. Major themes from Montessori's theory were used to guide the collection and analysis of data. In addition to considering the aspects of traditional Montessori educational theory as it relates to relationships between students and adults, relationships among students, type of work, manner in which work is evaluated, use of materials, implementation of multi-age grouping, and extended work cycles, this study examined key components addressed in the Erdkinder essay.

The Erdkinder essay (Montessori, 1948/1989) outlines a theory of secondary education that is consistent with theory for the lower levels, but it also adds several important components. Montessori suggested that students have opportunities to build confidence in their ability to be productive members of adult society by providing them meaningful work that allows them to make real contributions (Montessori, 1948/1989).

She also recommended providing students opportunities to work toward gaining financial independence.

These reforms advocated by Montessori require provision of opportunities for authentic social interaction, establishment of community roles for students, and development of connections to the environments in which the students live and work. They are rooted in the notion that learning is a contextual process in which the people, places, and events are inextricably connected to the learning that ensues. These notions are the heart of cultural–historic activity theory. Because Montessori practices clearly illustrate the cultural-historical connection in learning, one cannot consider Montessori theory without also considering CHAT. Both CHAT and Montessori theory will be discussed in depth in chapter 2.

Methodology

This study used case study methodology. Case study research is a preferred approach for studying contemporary phenomena for which little or no previous research has been conducted (Yin, 2003). Case study methodology is intended to answer how and what questions (Creswell, 2007). Ethnographic research focuses on culture, requiring that researchers not only gather data about cultural components such as beliefs, practices, and relationships within a community, but also that they interpret the data from a cultural perspective (Merriam, 2002). This multiple-case study used ethnographic techniques in order to provide rich details regarding Montessori high school programs. Methodology will be discussed in detail in chapter 3.

Definition of Terms

This research is concerned with discovering what constitutes a Montessori high school program. The following terms were used throughout the study and are defined below:

Cultural–Historical Activity Theory: A developmental theory grounded in the works of Russian psychologist Lev Vygotsky and similar constructivist theorists. It states that mental processes take place in, and cannot be separated from, social and cultural processes, and should consequently be studied in that context (Engeström, 2000, 2001; Holzlman, 2001; Wertsch & Tulviste, 1992).

Experiential Education: Practical educational opportunities that allow students to participate in real-life experiences in order to gain or hone skills (Cole, 2007; Kemp, 2006).

Flow: Experiences when a person is completely engrossed in an activity for an extended period of time and to the extent that he or she may have diminished awareness of the passage of time and of events transpiring in the vicinity (Csikszentmihalyi, 1990; Rathunde & Csikszentmihalyi, 2005a) .

Hands-on Learning: Study that takes place through use of manipulative materials and real-life experiences, rather than through the use of lecture and textbooks (Montessori, 1912/1964, 1916/ 1999, 1918/1991, 1948/1994).

Higher-Order Thinking: May be used interchangeably with high-level thinking and comprises thought that is creative, imaginative, and/or critical (Amrein & Berliner, 2002; Burke-Adams, 2007).

High-Stakes Testing: Standardized testing that has attached to it high stakes such as a student's ability to be promoted or to graduate from high school (Amrein & Berliner, 2002, 2003; Hursh, 2005).

High School: Grades 9-12 or in schools where alternative terminology is used, the final four years of instruction before graduation.

Lower-Order Thinking: May be used interchangeably with lower-level thinking and comprises thought that is focused on memory and recall (Amrein & Berliner, 2002; Burke–Adams, 2007).

Montessori Schools: Schools that declare themselves as such and follow practices outlined by Maria Montessori (Montessori, 1912/1964, 1916/1999, 1918/1991). As a minimum, these schools must include multi-age classes, student-centered learning, self-paced studies, hands-on learning opportunities, and experiential education.

Place-based Pedagogy: An approach by which students learn about their environment through shared, lived experiences within it (Knapp, 2005; Smith, 2002, 2007).

Student-centered Education: An educational philosophy under which students play a major role in choosing what work they will do and how they will accomplish their work (Cossentino, 2005; Deboer, 2002; Martin, 2004). Students' individual needs rather than general curriculum requirements determine form and content in student-centered classrooms.

Traditional Schools: Schools in which grades are assigned to student work, instruction is presented primarily by the teachers, course content is divided into clearly

defined single-subject classes with little or no opportunity for cross-over of content.

These schools will also have traits that are commonly associated with the majority of

public schools (Glasser, 1998a; Kohn, 1999).

Assumptions

This study was conducted under the following assumptions: (a) all staff and

student participants engaged voluntarily in the data collection process, (b) all staff and

student participants provided candid and honest responses to interview questions and

provide candid and honest feedback during online focus group discussions, (c) all staff

and student participants provided candid and honest feedback during member checking,

(d) all documents provided by schools were authentic documents used regularly by the

school.

Limitations

This study was limited to five Montessori high school programs, each of which is

part of one of three different school structures (public, private nonprofit, charter). The

diversity of the school structures and the limited number of schools that were studied will

make it challenging to generalize the data collected to other Montessori school settings,

as is typical for case study research (Merriam, 2002). The cases chosen for this study

were chosen intentionally to represent each of the three types of school structures listed

above. Yin (2003) suggested that when external conditions might produce different

results, two or more literal repetitions within each subcategory are called for. This

technique was accomplished for all but the public school category, for which gaining

institutional cooperation proved to be considerably more arduous. Purposive sampling

was used to solicit participants for this multiple case study, with the clear recognition that this method of sampling relies on the researcher's judgment regarding the most useful cases (Bloor & Wood, 2006).

Scope

The scope of this study included exploration of characteristics that constitute a Montessori high school program. It examined the interactions among students, teachers, curriculum, and the learning environment through interviews, virtual focus groups, and document analysis.

Delimitations

This study, as is typical of case study research, is limited. Data collection was confined to five programs. There was no attempt to classify students or teachers by race, age, or other demographic category. Instead, the focus was on providing a socio-cultural interpretation of activity and underlying structure of Montessori high school programs. The study only included participants (students and staff) at the high school level. Students' ability level was not considered in this study, and thus students are not classified as having special needs or as being gifted. It was assumed that participants represent typical staff and students at the selected schools.

Significance of the Study

Knowledge Generation

This study is significant in terms of knowledge generation in that Montessori learning theory has been applied to high school settings on a limited basis in the United States. There is increasing interest in adolescent education among Montessorians, yet

there is a sizable gap in the literature relating to Montessori secondary education. A few studies regarding middle school education appear in scholarly journals (Rathunde & Csikszentmihalyi, 2005a, 2005b), but studies related to high school education appear to be limited to trade journals. This study generated knowledge of common practices among Montessori high schools.

Professional Application

Knowledge generated via this study will have practical professional applications. By identifying common characteristics of Montessori high school programs, the study provides Montessori educators with a basis for developing new high school programs. It also provides a basis for studying other existing programs. As more Montessori schools seek to create high school programs, knowledge of what constitutes a Montessori high school program will also provide Montessori teacher trainers with a basis for developing teacher education programs.

Social Change Implications

Beyond the implications for expanded training and services in the Montessori community, this study has the potential to be a catalyst for social change in the broader educational realm. Maria Montessori's work with early childhood and elementary children has left an indelible mark on how children are educated. Though traditional education has not adopted all of the practices that constitute Montessori education at these levels, many innovations of Montessori's, such as child-sized furniture, center-based learning, and concrete manipulatives, are now commonplace in U.S. schools. This study, by beginning the process of formalizing the expectations for Montessori high

schools in the United States, has the potential to be a catalyst for spillover, and even intentional impact in the traditional realm.

Summary

There is increasing interest among Montessorians in the United States regarding application of the Montessori method to high school education. There is a limited body of scholarly research related to Montessori secondary education, such as two studies by Rathunde and Csikszentmihalyi (2005a, 2005b), but searches of educational literature via various online databases have not revealed any research regarding application of Montessori methods to high school settings.

This introductory chapter identified the need for research regarding the implementation of Montessori theory in designing Montessori high school programs. It also suggested that study of Montessori high school programs may create opportunities not only for enhancing Montessori practice at institutions that have identified themselves as being Montessori schools, but also for informing reform efforts in traditional high schools.

Finally, in this introductory chapter the problem addressed in this multiple-case study was explained and conceptualized. The purpose and significance of pursuing this research was also elucidated. In chapter 2, a survey of the existing literature related to school reform, cultural-historical activity theory, Montessori educational theory, and case study research is explored in detail.

CHAPTER 2: LITERATURE REVIEW

Chapter 2 is organized into four sections. In the first section, the literature regarding school quality, as it relates to school reform, is discussed. School reform literature pertains here because the study focuses on the need for alternatives to the traditional high school model. The second section examines the literature regarding cultural–historical activity theory. This theoretical framework focuses on learning as a cultural process. Because the study sought to portray overall Montessori high school classroom culture as a key alternative to the traditional high school model, it makes sense to consider this theory. The third section provides a summary of basic Montessori philosophy as outlined in the works of Maria Montessori and in recent literature regarding Montessori education. Additionally, where pertinent, this section relates Montessori concepts to similar educational theory and to current research in educational practice. Finally, the last section reviews the literature related to usage of a case study approach and justifies its use in this research.

School Improvement

Glance at the letters-to-the editor of a metropolitan newspaper, pass through the education section of a high-quality book store, peruse an academic database, and one is likely to find evidence that high-stakes testing has a highly visible role in education in the United States. Enter into a staff room in one of America's public schools, and one is likely to hear an ear-full about the concerns educators have about this testing. The No Child Left Behind Act (NCLB), a reauthorization of the Elementary and Secondary Education Act of 1965, puts high-stakes testing squarely in the forefront of American

education by resting on what the U.S. Department of Education describes as the Act's four principles: "accountability for results, more choices for parents, greater local control and flexibility, and an emphasis on doing what works based on scientific research" (U.S. Department of Education, 2007). Despite the intention of improving schools that underlies NCLB regulations, the legislation's effectiveness in creating school improvement is questionable (Ives & Obenchain, 2006; Hursh, 2005; Burke-Adams, 2007). This section will look at some of the possible effects of high-stakes learning environments and then identify ways in which hands-on, student-centered approaches to school improvement can present alternatives for school reform that emanate from and are consistent with Montessori theory and philosophy. In doing so, this section establishes a bridge between Montessori practice and school reform in order to address the research problem of this study.

Alternative Viewpoints

It would be remiss to present a case for considering Montessori education as an approach for school reform without first acknowledging that the call for wholesale reform is not universal. Popham (2009), a reputed measurement expert, for example, suggested five modifications to how Adequate Yearly Progress (AYP) is addressed, stating that to eliminate this measure altogether might be perceived as a lack of concern about student progress on the part of educators. Davies (2008, p. 7) identified assessment as "a fundamental aspect of the teaching and learning process" and advocated improved defining and labeling of grade-level proficiency as the primary change needed. Lawrence-Brown (2004) suggested providing differentiation based on student ability

within the standards-based structure, while Ernst, Taylor and Peterson (2005) outlined a plan for using engaging activities to meet student needs in a standards-based environment.

It should also be noted that in the eyes of some educationists, NCLB and related practices are considered to be among the very reforms needed in K-12 education. William Bennett (1987), Chester Finn, Jr. (2004), and Diane Ravitch (2005) are among those who posit that education in the United States is at least heading in the right direction. Bennett (1987, p. 138) defined reform as a matter of improved results that "aims directly to bringing about measurable improvement in the knowledge and skills of American students." Bennett's answer to school reform is "more testing, better teachers, lots of homework, longer hours, tougher discipline, harder work, increased quality, a clean and orderly building, and more motivation for achievement" (1987, p. 139), all ideals situated in NCLB rhetoric. Finn (2004) and Ravitch (2005) both advocate NCLB-style reform as well as school choice through options such as charters and vouchers. Finn expressed optimism regarding standards-based reform, identifying as his reasons presumed achievement gains in Texas, Florida, and Massachusetts, and public popularity of "tough tests and firm accountability measures" (Finn, 2004, p. 80). Finn (Finn & Hess, 2004) also favors the free-market approach to reform that is characterized by competition. Similar to Finn, Ravitch & Viteritti (1996) like the charter school model for its do-or-die accountability. Ravitch (2005) also favors approaches that teach and test prescribed content, rather than student-centered approaches, as demonstrated in her clear contempt for thematic approaches.

These examples are certainly just a few among many. Given that the purpose of this research is to explore the Montessori approach as an alternative to traditional high school education, however, an in-depth review of literature that advocates so-called tough standards, status quo, or minimal reform is not called for here.

Student Motivation and Learning

In *Pedagogy of the Oppressed* (1968/1993), Paulo Freire compared the traditional school interactions to a "banking approach" in which the teacher deposits information that is passively accepted by the student. Freire indicated that this oppressive relationship between educators and students mirrors oppression in society in general and suggested that it serves to discourage creative, critical thinking and action on the part of the student. "Verbalistic lessons, reading requirements, the methods for evaluating 'knowledge,' the distance between the teacher and the taught, the criteria for promotion: everything in this ready-to-wear approach serves to obviate thinking" (Chap. 2 ¶ 19). Freire suggested that education should, instead, focus on posing problems to be solved, thus creating a symbiotic learning environment in which teachers and students learn from each other and knowledge is constructed together. This sort of empowerment is contrary to high-stakes testing and high-pressure comparison that characterize traditional education. Educational traditionalists tend to perpetuate the myth that nontraditional education is less rigorous, when in fact, a constructivist model, under which students are actively engaged in the co-construction of knowledge, is inherently more demanding (Kohn, 1999). Work and assessment are not separate enterprises in the student-centered environment. Instead, assessment—taken here to be the evaluation of ideas, spoken and written language,

actions and so forth—is the key mode for carrying out work. "Students in such classrooms are thinking and arguing about controversial issues from the very beginning, playing an active role in making sense of ideas" (Kohn, 1999, p. 186). This constant need to analyze, assess, and articulate what one knows, amalgamating knowledge and skills learned in various settings and using them in new contexts in unexpected ways, provides unfettered opportunities for learning that standards-based teaching, with its emphasis on memorization and assessment by objective measures cannot possibly produce. Inherent in the type of schoolwork described above is the opportunity for doing quality work, which Glasser (1998a) argued is the only type of work worth doing. Glasser (1969) identified quality work by the role it plays in the student's development: Quality work allows children to think rather than to memorize.

In standards-based classrooms, students are often expected to memorize information, and "most of what they are asked to memorize is irrelevant to their world" (Glasser, 1969, p. 30). What they memorize is subsequently measured using high–stakes tests. High-stakes testing is so named because of the rewards and consequences—for students, teachers, schools and districts—associated with the tests that are administered. Rewards and consequences in education have a long history that is not the focus of this study, but for further reading see Glasser (1969, 1988, 1998a, 1998b) and Kohn, (1993, 1996, 1999, 2006). Although the purpose of high-stakes tests and the standards associated with them is purported to be raising academic achievement across the board, Amrein and Berliner (2002) reported that in many cases just the opposite has occurred.

Amrein and Berliner (2002) examined a number of factors in their analysis of the impact of high-stakes testing in 16 states. Of these states, 62% had increased drop-out rates after high-stakes testing was implemented, and 67% reported decreased graduation rates. Not everyone who leaves high school before graduation counts in the drop out rates. Some students opt for taking the General Educational Development (GED) exam in order to leave school. The number of students opting for a GED certificate rather than graduating from high school increased in 56% of the states, while the age at which students were taking the test decreased in 63% of the states (Amrein & Berliner). In other words, more students are opting for a GED, and they are doing so at a younger age than before high-stakes testing was implemented. Schools may even suspend or expel students who are not expected to perform well in order to keep them from negatively impacting their scores (Amrein & Berliner, 2002; Davis & Dupper, 2004). Schools also retain students in years prior to testing years if they believe the students may not perform well on high-stakes tests the following year (Amrein & Berliner).

The decreasing motivation to graduate demonstrated in the increasing dropout and GED rates may be tied to the implementation of a rigid curriculum and emphasis on high-stakes testing. A rigid approach to curriculum led one participant in a qualitative study of dropouts to leave school, when, despite reporting boredom with an algebra class and repeated requests to be moved up or to take only the exams, the school refused to accommodate the student (Golden, Kist, Trehan & Padak, 2005). Another student in the study said that she felt like her low-scoring school took advantage of her because of her high test scores, and that making the school look good was more important than meeting

her needs. She reported that once the school saw her high-ranking test scores, including the number-one score on one test, she was not allowed to do things unless she took tests. When she refused to comply, the situation became negative, and she ultimately dropped out. Eventually, both participants and others included in the study earned GED certificates and attended college. Participants reported that the college environment was one in which instructors were more interested in their individual learning than educators had been in high school.

This negative outlook toward high school may be in part because in settings where goals are achievement-focused, students must not only focus on the work at hand, but also how their work compares to that of others and how they look as a result of that comparison (Maehr & Anderman, 1993). Kohn (1999) identified the focus on grades and test scores as undermining student interest, magnifying the impact of failure, rendering students fearful of challenges, eliminating opportunities for real learning, and diminishing the value of effort. Task-based learning, on the other hand, allows students to focus on their own individual process of understanding and applying course content (Maehr & Anderman). Montessori wrote, "If work comes from an inner source," "it is much more intense and much more fruitful" (1989, p. 85).

Higher-order Thinking in Student-Centered Versus Standards-based Environments

The discussion of student motivation can be characterized as a debate of thinking versus memorizing. In considering the differences between thinking and memory, Glasser (1969) noted that the focus on memorization of facts and algorithms discourages and even precludes higher-level thinking. He pointed out that traditional schools are generally

dominated by the desire to produce education that is characterized by certainty and memory, which is to say these schools focus on teaching content that has right and wrong answers that can be easily measured. Glasser warned that this emphasis is contrary to the goals of education: "Memory is not education, answers are not knowledge. Certainty and memory are the enemies of thinking, the destroyers of creativity and originality" (1969, p. 38). If what Glasser argued is true, and the goal of both broad-based school reform and school-specific improvement efforts is to better prepare students for the ever and rapidly changing future, the curriculum must be designed and presented in a manner that inspires higher-order thinking.

High-stakes testing is about memorizing, not higher-order thinking. Hursh (2005) presented a literature review that addressed issues associated with the high-stakes testing movement, using New York and Texas as examples. He highlighted the origin and nature of the testing practices in these states and their relationship to the No Child Left Behind Act and subsequently discussed the impact of NCLB. He noted that testing programs, which are presented as offering a measure of certainty with regard to what children know, have failed to produce the objective measure of achievement that they are touted as providing. Hursh noted that high-stakes test have also failed to close the achievement gap between students who are socioeconomically disadvantaged and those who are not. In a review of literature related to student–teacher relationships and dropouts, Davis and Dupper (2004) identified the over-emphasis on academic skills as one of the key causes of student disengagement and subsequent failure.

Hursh (2005) raised the concern that standardized testing requirements ended up lowering expectations for students because the basic skills that are tested become the focus of education. These basic skills are often lower-level thinking skills, characterized by what Glasser (1969) called certainties. They are processed through memory, which, according to Glasser (1996), would preclude the instruction from promoting critical, creative, or original thinking on the part of the students.

Experiential Education

As a different approach, experiential education, as described by Deboer (2002), provides a successful method of student-centered education. Experiential education provides students the opportunity to learn through real-life exercises, rather than textbooks and testing. Ives and Obenchain (2006) conducted a quantitative study, using a pre and posttest design, to addresses this type of education with regard to its ability to foster higher-level thinking. The purpose of the study was to evaluate the effectiveness of experiential education techniques in high school classrooms. The study involved six classes, four of which were taught with traditional techniques and two of which were taught with experiential education techniques under the guidance of the researchers. The students were tested for both higher-order thinking and lower-order thinking. The scores for lower-order thinking remained consistent for both the control and experimental groups. The scores for higher-order thinking improved for the experimental group, which was taught using experiential techniques, but not the control group, which was taught using traditional techniques. This result indicated a positive relationship between experiential education and higher-order thinking.

Ives and Obenchain (2006) identified the focus on lower-order thinking skills as being a negative by-product of high-stakes testing. They noted that high-stakes test questions tend to be recall, rather than in-depth oriented, which narrows the curriculum considerably. The research hypotheses stated the expectation that students in the experimental (experiential) group would show increased higher-order thinking skills in the post-test and that these same students would not show a change in their lower-order thinking. These hypotheses were supported. Montessori education uses experiential education extensively, and Montessori suggested that it be the cornerstone of secondary education (1948/1994).

Exploring the effects of the teach-and-test model that is connected to NCLB is fertile territory for researchers. Ives and Obenchain (2006) make a case for introducing experiential education as a means for encouraging the development of higher-order thinking skills without compromising the lower-level thinking skills that are required for typical standardized tests used for NCLB purposes. Their work supports implementing or increasing the use experiential education as a component for school improvement.

Creativity Versus Standards

Burke-Adams (2007) argued that the movement toward standards-based education has reduced and in some instances nearly eliminated opportunities for creative expression in academic work. This process, she noted, occurs because adherence to strict standards and encouraging creativity are antithetical to one another. For gifted learners who need choices and freedom in their learning, the prescriptive nature of standards-based instruction may leave these students without appropriately challenging work.

The standards-based movement operates under the assumption that the strict accountability of high-stakes testing will create more equity in student performance (Burke-Adams, 2007). Educators who value the goals of standards-based learning may fail to see benefit in more creative approaches. It is creativity, Burke-Adams noted, that is needed in problem-solving and leadership situations. Standards-bases teaching tends to be linear, as described by Burke-Adams, and to address only skills that involve recall and analysis. Instruction revolving around these skills allows for little control on the part of students and leads them to be disengaged in school, according to a five-year longitudinal study of student engagement at the high school level (Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003). This focus on linear thinking could lead to a generation of students who are unable to think imaginatively and to go beyond the boundaries of what is directly presented to them. One of the debates attached to creativity-based education is whether creativity can be taught. Regardless of whether it can be taught, approaching education from a multiple intelligences, rather than a narrow academic approach, supports better overall achievement and fosters growth in all areas of intelligence (Özdemir, Güneysu, & Tekkaya, 2006). Providing opportunities for freedom, time for reflection, and patience for allowing creativity to develop is key (Burke-Adams).

School Improvement Efforts

If educators are to serve students well, all schools should be engaged in the process of continued improvement efforts, continuous reflective assessment, and recommitment to the methods of student-centered education seen in non-traditional schools such as Montessori schools. Additionally, schools should employ student-

centered practices such as those suggested by Glasser (1969, 1988, 1998a, 1998b) and Kohn (1996, 1999, 2006) to improve their service to students.

Martin (2004) provided an overview of nine alternative methodologies of schooling that represent child-centered, holistic approaches. Included among these are democratic and free schools, folk education, Friends schools, home schooling, unschooling, deschooling, Krishnamurti schools, Montessori schools, progressive education, open schools, and Waldorf schools. In addition to identifying the main characteristics of each of these alterative school approaches, she identified the traits that they have in common and makes the distinction between these approaches, which are alternative in terms of their philosophy, rather than in terms of the specific student populations they serve (such as special education). Martin addressed a number of characteristics for each of the school types, using as a common thread the manner in which each of the various approaches address conflict. In creating this link, Martin shows that student-centeredness is important to each philosophy and that this notion is what sets such schools apart from their traditional counterparts. Though it will require, in some cases, a change in mindset regarding what constitutes education and regarding the role of students and their relationships with their work and their teachers, traditional schools could certainly use student-centered practices as a tool for school improvement as well.

The literature on school reform includes studies that support employing not only student-centered practices, but also direct student participation in school improvement efforts. Students in one qualitative study (Foster, 2004), for example, consistently commented that they could contribute more to school improvement if they were given the

opportunity to do so. One of the most illustrative comments was, "The teachers and principals here are good at everything. I think students could be organizing special events, and go to staff meetings and give our ideas about making the school even better. If given the chance, I think students could add to the school" (Foster, p. 42). Lambert's (2006) study of leadership capacity supports the need for student involvement in reform efforts as well. The qualitative study linked high leadership capacity and successful school improvement with shared leadership that is characterized by involvement, collaboration, and collective responsibility.

One challenge in creating a collaborative school reform effort is making sure that the stakeholders, including the students, see themselves and each other as equals in the process. Foster (2004) looked at perception of leadership for principals, teachers, parents, and students. She found that parents' and students' views of leadership were different than teachers' and principals', even though the participants were from schools where administrators were working to create shared leadership responsibility. Students and parents, despite teacher and principal efforts to include them, felt alienated from the school's efforts to set goals and make decisions (Foster).

Creating school reform efforts in which all the stakeholders, and especially the students, view themselves as having an equal voice is essential, however, in order to create a collaborative environment. Glasser (1998a) said that shared leadership occurs only when authority figures employ a lead-management versus boss-management style. Lodge (2005) suggested that there are levels of involving students in reform from no involvement at all—a setting in which boss management is predominant—to the level at

which students, rather than teachers, are initiating the reform—a setting in which lead management predominates. Lodge created a matrix that described four approaches to student participation in school improvement, and identified the dialogic version as the one that honors both the students and their involvement. This approach is community oriented and active in nature. Lodge concluded that much of what school personnel categorize as student involvement is superficial at best: "A dialogic approach, however, can enhance the learning of both teachers and their students, through developing a community approach to the enquiries of learning" (p. 144).

Summary

The desire to improve schools appears to be universal, however, the methods by which schools are attempting reform in response to NCLB may be ineffective at best and destructive at worst. This section identified ways in which the high-stakes testing model of school improvement may be impacting student achievement and motivation in a negative manner. It also examined possible effects of high-stakes testing models on higher-level thinking. Finally, this section examined some alternative options for school improvement. A common theme among these alternative school improvement models was the need for considering school improvement from a social-cultural point of view. Consequently, the next section will review the literature on cultural–historical activity theory—also referred to by terms such as cultural activity theory, socio–cultural theory, and activity theory—to gain a sense of how learning is structured under such theory.

Theoretical Framework

Montessori school settings do not just focus on transmission of factual

information. Instead, they provide microcosmic societies in which intellectual, social,

psychological, physical, and spiritual development are supported and in which students

and teachers learn together through collaborative processes. Because of Montessori

schools' unusual structure and purpose, the study of Montessori settings requires a

theoretical framework that is socio-cultural in nature. Cultural–historical activity theory

(CHAT) is just such a framework.

CHAT is rooted in the work of Russian psychologist Lev Vygotsky and other

Eastern European psychologists who wrote in the Marxist tradition. There have been

three distinct generations of CHAT (Engreström, 2001, p. 134), including the first, which

centered directly on Vygotsky. The major idea of this generation was the concept of

mediation and the notion that cultural mediation has direct bearing on the stimulus–

response relationship (Engreström, 2001, p. 134). In this relationship the individual was

tied to his or her culture. The second generation of CHAT stems from the work of A.N.

Leont'ev (Engreström, 2001, p. 134). This iteration of CHAT recognized the limitation of

using a unit of analysis that was individually focused. Leont'ev based his work on the

notion that the individual was inextricably a part of the social structure. He wrote

(Leont'ev, 1979/2009, p. 83): "In all of its distinctness, the activity of the human

individual represents a system included in the system of relationships of society. Outside

these relationships human activity simply does not exist." The third generation of CHAT

is currently evolving and involves the consideration of multiple interacting activity systems (Engreström, 2001, p. 136).

Engreström (2001) identified five principles by which he summarized CHAT. First, the primary unit of analysis for CHAT is the "activity system" (Engreström (2001, p. 136), or in more informal terms, the culture. Next, the activity system is "multivoiced" (Engreström, 2001, p. 136). In other words, those who comprise the culture have different backgrounds, skills, interests, and knowledge to offer. Activity systems are characterized by historicity and must be studied in their own history (Engreström). History here constitutes the shared experiences of the cultural group over time. Activity systems are open systems and therefore are subject to contradictions (Engreström). By allowing for contradictions, activity systems provide opportunities for sharing knowledge and co-constructing new knowledge. Finally, there is possibility for large-scale change in activity systems. Engeström noted that underlying the activity within a system is a communal motive.

To apply this concept to a school environment, the activities on the part of administrators, teachers, and the students themselves are driven by the motive *student learning*. Issues that continually arise with regard to the educational social system's ability to address that motive are evidence of the contradictions that pose an ever-present sense of instability. Identifying these contradictions will help school reformers identify sources that are propagating the problems and work toward creating a collective vision for addressing them (Engeström, 2000).

Holzman (2006) pointed out that there are not clear-cut principles that define CHAT, but rather an emergence of themes that characterize it. He noted that there are several key points with regard to CHAT that emerge in trying to define it. Holzman (p. 6) identified CHAT as "the study of the human mind in its cultural and historical contexts." For this study, the cultural context will be the Montessori high school, and the historical context will Montessori high school culture as it is situated in the rich legacy of Montessori education. Holzman (p. 6) further defined CHAT as "a general conceptual system with these basic principles: the hierarchical structure of activity, object-orientedness, internalization/externalization, tool mediation and development." This aspect of CHAT applied to the study at hand given that the study aimed to identify the nature of Montessori high school education. By utilizing a case study approach, this study placed "culture and activity at the center of attempts to understand human nature" as indicated by Holzman (p. 6). By gathering data from school documents, focus groups and individual interviews, this study created an overall picture of Montessori high schools. This approach is consistent with Holzman's definition of CHAT as "a psychology that focuses not on the individual but on the interaction between an individual, systems of artifacts and other individuals in historically developing institutional settings" (p. 6). Finally, this study addressed Montessori high school education from a holistic view where there are not necessarily right and wrong ways of doing things or of being. This approach is consistent with "a non-dualistic approach to understanding and transforming human life that takes dialectical human activity as its ontology" (p. 6). These descriptions

of CHAT create a framework for analyzing Montessori high schools that is consistent with the Montessori approach.

Vygotsky's Views on Education and Child Development

The section above aligns components of contemporary CHAT theory with various aspects of this study. Early CHAT theory, as presented by Vygotsky, pertains as well. Vygotsky's emphasis on education merits particular attention when considering CHAT as it relates to describing educational communities and contemplating school reform. Vygotsky conveyed disdain for the traditional approach of teacher-controlled learning environments. He wrote:

> If, speaking from a scientific standpoint, we have to reject the thesis that the teacher has the power to produce an immediate educational influence, that he possesses a mystical ability to directly 'mould another person's soul,' this is precisely because we are assigning to the role of teacher something incomparably more important. (Vygotsky, 1926/1997, p. 48)

This greater role that Vygotsky wrote of is the same one identified by Montessori: that of being preparer of the environment. Vygotsky likened the teacher to train rails, stating that the teacher's role is to provide only enough direction for the students to know which direction in which they might travel (1926/1997). Just as the rails allow a train to move freely and independently within certain limits, so must the teacher help the student to move in this manner. Vygotsky boiled the entire educational process down to the student's experiences, which he asserted are the direct result of the environment. This assertion establishes the teacher's single focus as preparing the environment, so as to provide for the most plentiful and ideal experiences. In terms of the student, Vygotsky

viewed education as a process by which people gained new reactions and behaviors as a result of their experiences within the environment.

With the role of the teacher relegated to observing the child and tweaking the environment so that it meets his or her ever-changing needs, the importance of the child's role is elevated. Games, for example, from a Vygotskian perspective, are not just a pleasant manner of squandering time for the child. Rather, they are opportunities for children to actively master various aspects of life, depending on the nature of the play (Vygotsky, 1926/1997). Childhood games become increasingly complex and require ever more ability to analyze and synthesize information, to evaluate situations, to plan responses, and to react to the behaviors of others. In the special social situations that childhood games provide, children become increasing better able to coordinate and control their own behaviors (Vygotsky, 1926/1997).

The children's interests hold an important role in their learning as well. Interests change over time in a manner that is specifically related to their developing needs (Vygotsky, 1926/1997). In describing the evolving interests of the child, Vygotsky identified levels of development that are similar to those outlined in Montessori's four developmental planes, which are discussed below (Montessori, nd). The infant is interested in his own body, developing his senses by becoming increasingly aware of how his eyes, ears, nose and hands allow him to gain information from and interact in his environment (Vygotsky). As children become more mobile, the environment expands and subsequently the children's interests are not limited to what they can grasp at arm's length, but what they can explore by climbing, crawling, walking, running, and all other

manner of moving about. Infants are interested in discovering themselves, yet toddlers are interested in discovering their surroundings (Vygotsky, 1926/1997). Practical activities and spontaneous discoveries become the avenues through which children begin to control their own actions and to develop concentration and task perseverance. Elementary-age children, well versed in their own environment, look to their broader surroundings for interest (Vygotsky). This stage of development is a time when adventure and wonder stimulate the curiosity and drive the actions of the child. At adolescence, youth are again interested in themselves, but this time not in the physical manner of infancy, but in a philosophical manner that leads to exploration of the ego and to exploration of their place in the world at large (Vygotsky).

Based on his study of the evolving interests of the child, Vygotsky drew three conclusions with regard to education (Vygotsky, 1926/1997). First, he noted that in order to hold both the individual and collective interest of students in a course, the topics must be interrelated so as to elicit a sustained response to the content. Repetition and memorization undermine learning by violating the expectation that the child's interest must be stirred. The teacher instead must provide a broad base of information on a given topic that is sufficient to generate the child's interest and then to revisit the topic, not to repeat what has already been presented, but rather to provide added detail and new perspectives that will readily drive the child to revisit the topic with great interest and enthusiasm. Vygotsky concluded that in order to present information that is new, educators must start with what is already familiar and interesting to the child as a preparation and then introduce the new information within that context (Vygotsky,

1926/1997). "For an analogy, just think of how we loosen the soil before planting the seeds" (Vygotsky, 1926/1997, p. 87).

Language provides another area of development for which Vygotsky identified stages. Language and the ability it provides humans to act with intention are what separate the species from other higher animals (Vygotsky, 1978). Early on, speech is used for labeling and allows the child to differentiate items in the environment and begin to communicate meaningfully. In the next stage, language is used for synthesizing information, and as such allows for more complex cognitive perceptions. Through synthesis, objects are not just labeled, but given meaning in the context of the environment and subsequently may become the object of intentional attention. As speech continues to develop, attention can be directed to the past and present, allowing children to utilize temporal perceptions in their synthesis of the environment. Incidentally, Vygotsky's notion of temporal perception ties to the work of fellow Russian theorist Mikhail Bahktin (Bahktin, 1982), though Bahktin's work focused on written communication, rather than spoken. His theory of dialogism essentially stated that communication does not merely respond to previous communication, but rather serves to inform it and to be informed by it—an idea that clearly is in the cultural-historical frame of thought (Bahktin, 1982). Finally, at its most sophisticated level, according to Vygotsky, speech can be used to express intentions and to create symbolic representations of action.

Vygotsky's notion of the zone of proximal development provided an especially interesting perspective for contemplating development. Vygotsky noted that experts

generally consider child development from a retrospective viewpoint, measuring

development based on skills the child has mastered alone (Vygotsky, 1978). The zone of

proximal development, however, identifies the level at which children can complete tasks

with the assistance of an adult or more capable peer and provides a glimpse into

children's future by revealing the skills and abilities of which they will soon be

independent master. The distance between independent and assisted accomplishment

provides vital knowledge. Children who posses a wider range between what they can do

on their own and what they can do with assistance will develop at a faster rate than peers

who are at the same level, but have a smaller variance between these two capabilities.

The zone of proximal development is also evidence of the social nature of learning that is

the cornerstone of CHAT.

Summary

Cultural–historical theory posits that human learning is situated in cultural

contexts (including the many and diverse artifacts that comprise them) in which

individuals rely on other more experienced individuals to assist them. This theory

presents human development as an entity that can only be understood by looking at

individuals in their connections to each other and the culture they comprise. In examining

Montessori education in the section that follows, an effort is made to consider the

educational construct from the holistic CHAT point of view.

Montessori Education

Montessori identified four planes of development and the needs that are

associated with each (Montessori, nd). Of these four planes, the first three comprise the

years before adulthood. There is certainly variation among individuals, but the general time frames include the first plane, which comprises children from birth through age 6; the second plane, which includes children from 6 to 12 years old; and the third plane, which includes adolescents from age 12 through the point of financial independence. In the first plane, the children have a need for spontaneous activity, a need for work with a practical aim, a need for sensorial exploration, an affinity for the concrete and a desire to build their individual personalities. In the second plane, children desire to know the reasons, to explore concepts like fairness and justice, to investigate and experience the world outside the school building, and to work to acquire culture. In the third plane, adolescents develop the concept of abstract love (empathy), desire the opportunity to investigate and experience society independently, and develop self-respect through work. This research will focus on education in the third plane, particularly on children from age 14 to 18.

Montessori education has experienced three major surges in the United States: the first beginning in 1911, the second spanning the early 1950s to late 1970s, and the most recent beginning in the mid-1990s (Whitescarver & Cossentino, 2008). These surges in interest and popularity of the Montessori method in the United States have definitely left their mark on traditional education. Innovations such as multi-age classrooms, child-centered teaching, and didactic materials can be traced back to Montessori origins (Whitescarver & Cossentino, 2008). Despite its obvious influences, the Montessori method continues to be a fringe movement, perhaps in part because so little research is focused upon it. The review of the literature provided here will include an overview of

key characteristics of Montessori education in general as outlined in Montessori's works and as discussed in contemporary Montessori research. Given the dearth of scholarly examinations of Montessori education, much of this section will focus on Montessori's own works and the system of education outlined within them.

Key Characteristics of Montessori Education

Today's U.S. teachers' union Web sites (aft.org, 2008, nea.org, 2008) tout the supposed benefits of small class size; never-the-less, classes of 13 to 17 students are decidedly too small for a Montessori environment, and, according to Montessori, may detract from the educational opportunities available (1967/1995). In a Montessori classroom, there are as many teachers as there are people present in the room, and the focus is on independent, rather than whole-class teaching (Brehony, 2000). Montessori suggested that a minimum of 25 students is necessary to see good results in the classroom, but as many as 40 can be optimal. Students are responsible both for teaching themselves and teaching their classmates. The more diverse, and to a point, large, the class is, the more opportunities students have to imitate and learn. Montessori noted, "When the classes are fairly big, differences in character show themselves more clearly, and wider experience can be gained. With small classes, this is less easy" (1967/1995, p. 225). Not only are small classes an impediment to auto- and peer education in a Montessori environment, but also so is narrow age grouping of students such as the one-year grade system that most U.S. schools utilize.

Contemporary theorists Kohn and Glasser both advocate smaller classes than the Montessori ideal, but they both also acknowledge that other factors may supersede class

size in their impact on achievement (Kohn, 1999; Glasser, 1998b). Kohn argued that it may be the act of giving students a voice and creating a sense of community that is more important than the actual class size. He goes on to identify looping, a model in which a "class, including its teacher, stay together for two or three years," and "multiage or nongraded education," a model in which students of a two- or three-year age span are in one class, as examples of structural models that may be effective regardless of class size (1999, p. 156). Glasser (1998b) stated that there is a need to create a sense of community among the students in order to create a quality school. Glasser noted that students' willingness to do quality work is dependent on how well they know their teachers and how much they like their teachers. Glasser (1998b) used a much broader sense of the word *teacher* in this discussion, indicating that students make the most appropriate assistants in the classroom. In the end, Kohn's focus on the intimate relationship between teacher and students and Glasser's focus on students as teachers, support the notions that Montessori maintained are the benefits to large classes.

In lecturing future Montessori teachers in 1942, Montessori conceded that her contemporaries often believed that very small class sizes were necessary so that teachers could provide individualized instruction—the same argument made today (Montessori, 1979/1989). In such a setting, the students are acted upon by the teacher, who initiates the lessons. This relationship is not the case, however, in a Montessori environment. "There is individual education included in our environment," Montessori wrote, "but it is not the teacher who gives the product of our deductions; our individual education is based on the free will of the child" (1979/1989, p. 62). This free will is the basis of Glasser's Choice

Theory. And, in fact, Glasser identified "information that students express a desire to learn" (1998, p. 39) as the most important category of information that is appropriate to be taught in schools. Kohn is similarly adamant regarding the importance of allowing the students a prominent voice in the process of teaching and learning and in selecting the content that will be the objects of these processes (1999). Like Montessori, Kohn emphasizes that students must have real choice in their academic pursuits, and not just collectively, but also individually.

In *The discovery of the child* (1967/1986), Montessori exemplified the teaching role that students play as she described the processes that are used to facilitate learning to write. The children receive lessons only when they express an interest in learning to write, Montessori explained. They develop this desire from watching the older children and wanting to imitate what they are doing. "Some learn to write without ever receiving lessons but simply by having observed those given to others," she noted (1967/1986, p. 225).

The role of the student and the work supersedes that of the adult in the Montessori environment. Subsequently, many Montessori schools prefer the term "guide" to "teacher." Because students hold the primary responsibility for teaching and learning, the adult's job focuses on facilitating that process. They do so by observing students, presenting lessons and providing minimal (strictly necessary) assistance and direction.

By continuously observing the students, the guide is ready to assist when called upon, but he or she must refrain from being an obstacle to the children's exploration and subsequent learning by interfering unsolicited (Montessori, 1914/2005). Kohn confirmed

the need for constructivist educators to watch and listen in the classroom as a means for determining how the students perceive and process the lessons at hand (1999). He suggested that this sort of continuous assessment provides educators sufficient information to supplant pencil and paper tests.

Cossentino (2006) focused on the role of the teacher in the context of work. In her observations and descriptions, she noted that the teacher's job is not the traditional one of imparting knowledge, but rather is focused on directing attention to the work—but not with the usual authoritarian sort of direction. Cossentino said that the most important observations she made of the teachers were not with regard to their actions, but with regard to what they do not do: "chastise students," "offer praise," "engage in extended conversation," and "interrupt students at work" (2006, p. 77).

In examining the language of the classroom, "work" Cossentino observed, is the most prominently used word. She asserted that the repeated use of the word serves to emphasize the values of the community and to underscore the meaningfulness of the students' occupations (2006, p. 82). Based on her observations and Montessori's writings, Cossentino equated the work of the Montessori classroom with being "self-perfection," a process by which children foster social harmony—the ultimate purpose of education according to Montessori—as well as individual development (2006, p. 85).

In a qualitative examination of a Montessori elementary class, Cossentino noted that the subtleties of the classroom interactions communicate expectations on the part of the teacher and the students (2005). Cossentino used an extended description of a math lesson with a child to illustrate ritual in the classroom and its focus on valorizing the

student. She concluded this description of a particular interaction between a teacher and student by writing, "The absence of praise in her interactions with Alex communicates the desire for Alex to derive satisfaction from work itself rather than through external rewards" (p. 232). This focus on intrinsic rather than extrinsic feedback is a vital concept.

The role of the students and the students' connections to the curriculum, the teachers, and each other are also key aspects of the Montessori classroom, and may serve as a starting point for examining the possibilities for applying Montessori techniques to reform in traditional settings. Two studies by Rathunde and Csikszentmihalyi support this idea. Coming from a theoretical basis of middle school education reform that suggests a number of factors are key in predicting student motivation and achievement, Rathunde and Csikszentmihalyi compared Montessori and traditional students' views of their schools and teachers, peer interaction, and time spent on passive educational tasks (2005b). Among the factors considered were the teachers' efforts to be nurturing, the teachers' expectation of student maturity, the teachers' provision of opportunities for student autonomy, teachers' provision of a setting that focuses on engagement and mastery, rather than public performance, students' successful relationships with peers, students opportunities for peer interaction and teachers' facilitation of collaborative and real-world learning opportunities (Rathunde & Csikszentmihalyi, 2005b). In examining these areas, the researchers found that Montessori students perceived their schools, teachers, and classmates more positively and spent more time on academics, and specifically more time on active learning.

In another quantitative study of middle school students, Rathunde and

Csikszentmihalyi (2005a) explored what students were doing at school, who they were spending time with, and how they perceived their schools, teachers, and classmates. The Montessori students showed decidedly more positive feelings toward their work, their school environment and the people in it, and the traditional students perceived their work as more salient and more drudgery-oriented (2005a, p. 363). Rathunde and Csikszentmihalyi suggest that their findings indicate the need for considering the efficacy of employing nontraditional models that are based on "ideals of intrinsic motivation, student self-direction, and initiative" (2005a, p. 366) rather than continuing in the direction of equating "intellectual skills with a thin set of cognitive skills" (2005a, p. 367). Montessori students reported higher presence of flow, affect, potency, and intrinsic motivation, and the traditional students reported higher salience, a higher sense of divided interest, and a higher degree of drudgery (Rathunde & Csikszentmihalyi, 2005a). These results are not surprising in light of a study involving 300 high school students in Virginia who were gathered to talk about school reform needs and their ideas for meeting them (Comfort, & Giorgi, 1997). Though the ideas expressed by the students were diverse, they fell into three main categories: providing a curriculum that is more connected and focused, allowing for more flexible instruction, and engendering a stronger sense of community. These results suggest that students might be amenable to reforms in the Montessori spirit.

Vaughn (2002) examined power issues in the Montessori classroom. She noted that the students were at the heart of every aspect of the environment, such as the way lessons were presented, personal space was identified, time was managed, and rules were

enforced. Vaughn, like Cossentino, Rathunde, and Csikszentmihalyi, noted that the central role of the children in the Montessori classroom leaves the adults in a different role than that of traditional educators. "Their role is not merely to supply information for students to memorize. Rather, they must symbolically construct knowledge as something that individuals share and learning as something that individuals are intrinsically motivated to do" (Vaughn, 2002, p. 194). Choice, Vaughn observed, is an underlying theme of the Montessori classroom. Whether this choice was with regard to choosing work, accepting responsibility, modifying behavior, or some other aspect of the environment, the teachers were constantly emphasizing the fact that students have the option to make choices and the responsibility to then live with the results of their choices.

Kendall (1992) observed another key component of child-centered practice in her comparative case study of Montessori and traditional elementary students. Although Vaughn focused on the activities of the classroom with a focus on the locus of power, Kendall specifically focused on the relationship between the students and the adults. She evaluated students' classroom interactions looking to compare autonomy between the two settings. Kendall used a team of observers to document and code student behaviors using the Classroom Autonomous Behavior Checklist and the Social Interaction Continuum Scale. These assessments showed that the work in the traditional classrooms was decidedly more teacher directed, with 73.1% of the activity being directed, as compared to 4.4% in the Montessori classrooms. Kendall illustrated the different practices of the Montessori and traditional classes not only through numeric description, but also through ethnographic description. She presented detailed drawings of the classroom

configurations and descriptions of how the students and teachers interact within these settings, showing that the Montessori classrooms are set up for freedom of movement and independent work on the part of the students, but the traditional classrooms are set up to focus the attention of the students on the teacher and to create an environment that is conducive to extensive whole-group interaction.

The Nature of Work

Work in a Montessori classroom is defined differently than the traditional, utilitarian version of the concept. In a broad sense, work in this setting comprises intellectual, social, and spiritual development (Cossentino, 2006). The nature of work in the Montessori classroom is clearly defined. "Work belongs to the children; work is the focus of the classroom; work is revered" (p. 80). From the classrooms with the very youngest students to secondary programs, the term "work" is central to classroom operations and iterations.

If the child plays the primary role in a successful education by taking responsibility for teaching and learning, assessment and discipline, then the work itself becomes the tool by which students assume this responsibility. The work provides students the opportunity to learn about themselves and their environment, to develop skills in creating cooperative relationships, to acquire skills for lifelong learning, and to discover passions that may lead to adult occupations by allowing them to explore their own interests and desires. The work of education is thus not physical labor, but rather spiritual labor (Montessori, 1914/2005).

Unlike physical labor, which one can avoid by relying on others, the spiritual work that takes place as children transform themselves into adults, is organic in nature and can only be accomplished by each individual. "This difficult, inevitable labour," Montessori wrote, "this is the 'work of the child'" (1914/2005, p. 4). Although this labor is the work of the individual, it is not carried out in isolation, but rather in the community where children first absorb the social environment—Montessori's period of the *absorbent mind*—and then later capitalize on *sensitive periods* of development during which they are particularly ripe for taking in certain information and experiences (Montessori, 1976/1992).

Montessori, trained as a physician and psychologist, did not limit her discussion of work to simply describing the classroom apparatus or detailing lessons to be given with the materials. The materials and their presentation are vital elements used in facilitating work, but what is important is not the process of using the materials, but rather the traces of the experience this process leaves on the subconscious memory, to which she refers as mneme (Montessori 1948/1989). Montessori argued that the traditional mode of schoolwork, which requires memorizing massive quantities of information, produces a shallow form of education because only a minute amount of that information can be retained in the conscious memory (Montessori, 1948/1989). She believed that a more appropriate approach to school work would be to provide children with abundant experiences that are imprinted in the mneme as engrams (the traces of the experiences) and can be recalled to the conscious memory to serve as an avenue for remembering past experiences and understanding new ones (Montessori, 1948/1989).

Montessori noted, "By our use of this fact, it follows that in our schools the child's intellectual powers become much augmented, whereas in ordinary schools the only object is to store knowledge in the conscious memory, and no opportunity is given to the child, by continuous and varied experiences, to increase his engrams" (1948/1989, p. 14). Consequently, emphasizing experience over memorization is best practice in a student-centered environment.

Montessori advocated a learning environment that extended beyond the classroom, (1948/1994). She argued that when children go out for real experiences they can then use their imagination to understand and know the world around them. "This is a universal means of organizing culture," Montessori wrote (p. 18). Classification exercises in the classroom help children imagine what they cannot see by comparing characteristics of unfamiliar objects or animals to familiar ones. Likewise, real-world adventures in the community help children imagine what they cannot see by giving them a repertoire of objects and experiences that can form the basis of comparison. "It is self-evident that the possession of and contact with real things brings with them, above all, a real quantity of knowledge," Montessori wrote (p.18). By providing opportunities for learning outside the classroom, instruction becomes a dynamic process. "Instead of being illustrated, it is brought to life. In a word, the outing is a new key for the intensification of instruction ordinarily given in the school" (Montessori, p. 18).

Assessment

Once students have been provided the opportunity to choose their own academic pursuits and to gather and share information freely among the members of the academic

community, the next logical step is to involve them in the evaluation of this self-selected work. The materials of the Montessori early childhood class and much of what is housed in the elementary classes are designed specifically to allow students to independently and immediately assess the accuracy of their work and to make modification on the spot. Montessori wrote, "It is not enough that the stimulus should call forth activity it must also direct it" (1917/1965, p. 75). To achieve this goal, the materials have control of error incorporated into their design, which allows the students to check the accuracy of their work with the materials themselves.

Montessori's writings include very little reference to secondary programs, and what is there does not suggest a plan for assessment, though much of the work students would likely do at that level is not conducive to the use of didactic materials with imbedded control of error. Kohn and Glasser, however, have suggested assessment options that are consistent with Montessori's child-centered approach.

One angle from which Kohn addressed assessment is grading, asking the question, "How do traditional grades affect the quality of student achievement?" (1999, p. 40). His answer is that if anything, grades affect achievement in a negative manner by undermining student interest, magnifying the impact of failure, rendering students fearful of challenges, eliminating opportunities for real learning, and diminishing the value of effort (1999). Kohn suggested replacing tests and grades with portfolios in which students compile their work and through which students participate in the evaluation of their work as they determine what should be included within the portfolios, a practice that Seldin and Epstein (2003) indicate is common among Montessori schools.

Glasser not only suggested self-evaluation for students, he also suggested extensive training to help the students identify what constitutes quality in order to prepare them for this self-evaluation (1998a). Though he differs from Kohn in that he does not advocate altogether eliminating the use of grades, he does suggest a radically different approach to grading. In Glasser's (1998a) model, only when students have been able to achieve quality work in a class is it recorded on the transcript. Quality work is labeled with a B, where work that is of even greater quality is labeled with an A or A+. Both the student and the teacher evaluate the work, and together they agree upon the grade, always with the option that the student may do increased quality work to increase the grade and that the work is not considered complete until it is considered quality (1998a). The portfolios that Kohn recommended could, undoubtedly, provide the evidence of quality that Glasser's plan required.

DiMartino and Castaneda (2007) asserted that standardized testing, and the focus on core content that it assesses, have distracted educators from providing students the skills they need for later success. They argue that authentic instruction and assessment would provide the essential opportunities for learning that fulfill this need. "Authentic assessments require students to use prior knowledge, recent learning, and relevant skills to solve realistic, complex problems" (DiMartino & Castaneda, 2007, p. 38). As Cheek (1993) pointed out, there are diverse and plentiful means for demonstrating knowledge authentically such as performances, projects, and plays. Montessori educators are in a unique position. On a daily basis the learning opportunities they support, and the assessment of the work students do in conjunction with those opportunities, meet these

requirements of authentic assessment. "Authenticity: What has become a buzzword in some educational circles is a concept that Maria Montessori wrote about at length, emphasizing the importance of creating authentic tasks as learning experiences" (Hubbell, 2006, p. 16).

Gulikers, Bastiaens and Kirschner (2004) suggested a five-dimensional framework for authentic learning to give context to the feedback provided in authentic assessment. These dimensions include the learning tasks, physical context, social context, assessment results, and criteria and standards. In applying such criteria to authentic assessment, educators need to consider Montessori best practice, so that the manifestations of authentic assessment become an enhancement, rather than an aberration, of Montessori education.

By involving students in the evaluation of their own work, and by creating opportunities for authentic assessment, assessment becomes something students do for themselves, rather than something the teacher does to them. Consequently, the goal of assessment is to help students improve their own work and enhance their knowledge, and it is one component of an active and ongoing process. Self-assessment and collaborative assessment between the student and teacher serve as the catalyst for the next revolution of the learning cycle—depicted as an upwardly progressing spiral in which the curricular elements are treated with increasingly more depth and breadth (Seldin & Epstein, 2003). Rather than serving as the barrier that forms the ending point in a linear learning progression, authentic assessment serves to connect one learning experience with the next.

Respect for Children

Respect for the child is arguably more important and more elemental to

Montessori education than any other of the qualities commonly associated with the

pedagogical method, especially when it comes to addressing student behavior

(Montessori, 1914, 2005). One of the tasks set forth for the Montessori educator is to

relinquish the desire to be the keeper of the power in the classroom and instead to become

a meticulous observer of the development that is revealed by the children (Montessori,

1989). Maria Montessori argued that the teacher must support the child in building

himself up, rather than engage in a process of tearing the child down in order to achieve

desired behavior. Like Dewey (1909/1990) and Freire (1968/1993), who maintained that

treating students as banks into which educators deposit facts was grossly ineffective,

Montessori was quite firm in her admonishment of authoritative intervention on the part

of the adult:

> The old-fashioned teacher…had empty beings in front of him to be filled
> with facts, and created morally in his own likeness—God help them!
> Those beings who still had in their souls another far greater creator were
> forced to resemble the teacher, who was resolved to mould them to his
> model of 'goodness' or punish them for disobedience. Such a teacher is
> not even a tyrant, for it takes intelligence to become a tyrant. (1989, p. 84)

According to Montessori (1912/1964), discipline is an internal process, rather

than an external one, and an active process, rather than a passive one. Montessori (p. 86)

noted that the child who is silent and still is not disciplined, but "annihilated." The focus

of discipline, according to Montessori is on self-control. "We call an individual

disciplined when he is master of himself, and can, therefore, regulate his own behaviors when it shall be necessary to follow some rule of life," Montessori wrote (p. 86).

Montessori believed that when the behavior expected of students meets one of their needs, it comes naturally, without the need for punishment or rewards (Montessori, 1912/1964). It is in an environment bereft of coercive discipline that the child becomes master of his universe and the boundaries of what he may learn are removed. "If work comes from an inner source," Montessori wrote, "it is much more intense and much more fruitful" (1989, p. 85). She argued that traditional schools arrest the development of children through their repressive ways (Montessori, 1912/1964).

When it comes to addressing children's behavior, Montessori believed that adults fail to provide the respect that is needed (Montessori, 1914/2005). In fact, she said that adults forgo consideration of children's individual needs, instead expecting children to follow the adults' demands. Montessori suggested that adults are overbearing, rude, and domineering, without regard for the sensitive nature of children that leads them to imitate adults, even when the model they provide is a negative one. "Let us treat them, therefore, with all the kindness which we could wish to develop in them," she wrote (Montessori, p. 89). Montessori's indictment of adults with regard to their role in children's behavior does not stop there. She argued that what adults identify as evil in children all too often is nothing more than what annoys us as adults. Adults—teachers and parents alike—should trust children, work to inspire confidence within them, and inspire obedience rather than require it (Cottom, 2002).

Montessori (1914/2005) identified the behaviors for which children are often reprimanded by adults as those that are natural to the children's development—part of the process of making sense of their world. She noted that the behaviors that adults see as problematic are often just manifestations of children meeting their developmental needs. In other words, when adults unnecessarily control children's behavior, they risk arresting their development by denying them the outlets through which development will occur. The job of educators then, is not placing constraints on the child's existence, but rather "removing obstacles from it which were the cause of violence and of rebellion" (Montessori, 1914/2005, p. 136).

Ultimately, in Montessori education, behavioral development is approached as an effort to promote peace, both within the individual and in the global sense (Edwards, 2002). Teaching tolerance for differences as a peace-promoting effort is one example of how obstacles to productive, pro-social behavior are removed. Exposure of students to world religions and universal ideals that they share in common is one of many ways in which this goal is accomplished (Cottom, 2002).

Montessori in the Third Plane of Development

The Montessori secondary program includes students in the third plane of development, from age 12 to age 18. It is intended to be a continuation of the traditional Montessori programs of the early childhood level, which addresses the first plane of development, from birth to age 6, and elementary level, which address the second plane of development, from age 6 to age 12. As such, the secondary program focuses on meeting the unique needs of adolescents. Though the majority of Maria Montessori's

written legacy focuses on programs through the elementary level, the points she makes

regarding adolescent development and the needs of children in this stage of life serve as a

basis for secondary Montessori programs. Montessori argued that the key component to

be incorporated into the secondary program is an effort "to put the adolescent on the road

to achieving economic independence" (1948/1994, p. 64). The twin purposes of

providing these components are to valorize the adolescents' personality by helping them

know they can survive in the world independently and allowing them to participate in

authentic social interaction of adult society (1948/1994).

With these outcomes in mind, the Montessori secondary program is intended to

provide the students not only a quality academic program, but also a hands-on

exploration of the world beyond the classroom. Having acquired culture in the second

plane (Montessori, 1948/1994), students in the third plane turn inward and begin to

contemplate what their place in the world is by continuing to explore the realm beyond

the classroom. Montessori suggested that much of this exploration should come in the

form of physical labor, which provides an outlet for the adolescent whose body is

plagued by the manifestations of puberty (Montessori, 1948/1994). She also suggested

that physical labor could provide the opportunity for adolescents to connect with the land

and each other and to explore science, math, and other academic subjects from an

applicative perspective (Montessori, 1948, 1994).

Erdkinder and Related Learning Theory and Research

In Erdkinder, an essay on secondary education that is included as an appendix to

From Childhood to Adolescence (1948/1994), Montessori provided her only discussion

particularly addressing secondary education. She set the tone of the discussion clearly in the first paragraph when she asserted that the need for major reform of secondary education was not merely an educational problem, but a problem of human society. She maintained that a single sentence could characterize the problem: "Schools as they are today, are adapted neither to the needs of adolescence nor to the times in which we live" (Montessori, p. 59). She continued, "The schools have remained in a kind of arrested development, organized in a way that cannot have been well suited even to the needs of the past, but that today is actually in contrast with human progress" (p. 59). Ironically, though her words were written more than 60 years ago, their indictment of secondary education is even more relevant today, given that there has been no widespread change in school structure despite continued and rapid changes in the way people live.

Montessori astutely pointed out that young adults do not have the luxury of taking for granted security in the prospect for employment (Montessori, 1948/1994, p. 60). The assumption that children may learn a trade from their parents and rest assured in a means for financial independence will follow is no longer valid. Montessori argued that educators must "foresee new difficulties arising from the insecurity of modern condition" (Montessori, p. 60). These are especially insightful words given that they were written long before information technology such as the Internet and cell phones started impacting the workforce.

Montessori said that needed reforms of secondary education could be divided into two main categories: those that address the "present form of society" and those that address "the vital needs of the adolescent" (Montessori, 1948/1994, p. 64). The main

reform Montessori suggested from the societal perspective is to prepare students for achieving economic independence by providing them experiences that would support this goal. She said that the value in doing so is not so much to provide the students with specific skills that they will eventually use, but rather to allow the adolescents the opportunity to valorize their personalities by providing the opportunity for them to discover their ability to succeed in life by their own volition. The work of the students, Montessori maintained, should be both physical and intellectual in nature, so that students understand that both types of work are essential and valuable (Montessori, 1948/1994). This emphasis on work is simply a continuation of the mission of the earlier levels of Montessori education and is synonymous to the practical life lessons such as spooning, pouring, and dressing that allow the early childhood students to gain the independence they crave with regard to meeting their physical needs.

The main reform Montessori suggested for meeting the vital needs of adolescents was to create a farm school setting where adolescents could derive the physical health benefits of life in the outdoors and of fresh nutritious food, while enjoying the mental health benefits of peace and wonder that the tranquil environment might inspire (Montessori, 1948/1994, p. 67). Montessori is clear that the purpose of being on the farm would not be to serve as laborers, for as she points out, modern technologies preclude much of this need, leaving us to "wonder at the greatness of man as well as the greatness of God" (Montessori, 1948,1994 , p. 68). Instead, the students are to learn about the origins of civilization as they relate to agriculture. The general idea that emanates from

the farm school concept is that adolescents should be indoctrinated into society by having the opportunity to do real work that makes an authentic contribution to the community.

Montessori's holistic approach to learning in adolescence is more closely aligned with the multiple intelligences (MI) theory of Howard Gardner than the rationalist views of traditional education. There are certainly critics of MI theory (Waterhouse, 2006; Humphrey, Curran, Morris, Farrell &Woods, 2007); however, there are numerous examples of its successful application. Özdemir, Güneysu, and Ceren Tekkaya (2006), for example, identified MI theory as enhancing education by creating a framework through which teachers can both explore teaching styles and plan student-learning experiences. Their quantitative study regarding MI theory application in a school setting showed both that when MI theory informed instruction, students acquired and retained information presented more successfully and that students developed their weaker intelligences (Özdemir, Güneysu, & Tekkaya, 2006). Similarly, Köksal and Yel (2007) in a quantitative study found that biology students who were presented material from a multiple intelligences approach were more successful academically than their traditionally taught peers. Gardner and Moran (2006), in responding to Waterhouse's criticisms, stated that an MI approach "requires an interdisciplinary perspective, cultural sensitivity, and an interactionist-dynamic" approach. These ideals are consistent with Montessori's assertion that "there is one thing that education can take as a sure guide, and that is the personality of the children who are to be educated" (Montessori, 1948/1994, pp. 60-61).

Though a farm school complete with market and hostel (Montessori, 1994/1948) may not be practical in every community, the principles of place-based pedagogy can be applied in any setting in order to provide the types of opportunities Montessori sought for adolescents. Kemp (2006), in a review and analysis of the literature on place-based learning, emphasized that though critics might say that place-based study is too narrow in scope, it actually provides a starting point for studying universal concepts by first examining them in the local community. "A curriculum that starts with a place and expands to the world would enable students to understand each better" (Kemp, p. 140). Kemp pointed out that the possibilities for place-based study are limitless, and that these opportunities provide a sense of history and an understanding of humans in their environment, a message that is similar to Montessori's emphasis on civilizations and agriculture through the land-based school.

In looking at how the field of environmental education can be expanded, Cole (2007) addressed literature that focuses on socio-cultural issues. Cole noted that although there is nothing wrong with approaching environmental education from an empirical, scientific standpoint, doing so does limit the possibilities for how one *knows* about environmental issues. She warned that the danger in favoring this approach is that it fails to consider the cultural aspect of the environment. Place-based pedagogy provides one avenue for examining the environment outside the bounds of traditional Western scientific thought.

Free-choice learning offers opportunities for place-based learning, while precluding the need for an extensive set-up such as a farm school. Falk (2005) defined

free-choice learning as "learning that occurs when individuals exercise significant choice and control over their learning." These are generally opportunities that take place outside the school setting in community-based places such as parks, museums, and zoos as well as through community organizations and through various media outlets (Falk, p. 270). Montessori said that when children go out for real experiences they can then use their imagination to understand and know the world around them. "This is a universal means of organizing culture," Montessori wrote (1948/1994, p. 18). Classification exercises in the classroom help children imagine what they cannot see by comparing characteristics of unfamiliar objects or animals to familiar ones. Likewise, real-world adventures in the community help children imagine what they cannot see by giving them a repertoire of objects and experiences that can form the basis of comparison.

"It is self-evident that the possession of and contact with real things brings with them, above all, a real quantity of knowledge," Montessori wrote (p. 18). By providing opportunities for learning outside the classroom, instruction becomes a dynamic process. "Instead of being illustrated, it is brought to life. In a word, the outing is a new key for the intensification of instruction ordinarily given in the school" (Montessori, p. 18). Given Montessori's emphasis on *going out* to learn, free-choice learning would be a logical choice for Montessori secondary students.

Place-based pedagogy of today corresponds to the notion of experiential learning advocated by Dewey (1902/1990). Dewey's pragmatism shares many common traits with Montessori philosophy. Having identified competitive comparison of student marks as the only way that success is measured in traditional school settings, Dewey argued that

real-life experiences and the atmosphere of positive energy they create provide a

preferable school environment. Dewey advocated providing students the opportunity to

engage in occupations that would allow them to bring together intellectual and physical

skills in order to create practical experiences in education, just as Montessori noted that

the purpose of a farm school would not be the farm labor itself, but rather the social

experience of working together in a community (Montessori, 1948/1994). Dewey said

that the purpose of so-called occupations in school should not be seen as an opportunity

to teach students a trade, but rather "the growth that comes from the continual interplay

of ideas and their embodiment in action" (p. 133).

Dewey identified one of the problems of elementary and secondary education as

the focus on trivial information rather than meaningful truths (1902/1990). He noted that

as a result of the lack of communication between universities and elementary and

secondary schools, much of what is taught as fact is not factual at all. Furthermore,

Dewey said, opportunities for real inquiry on the part of students is limited by the

physical structure of the traditional classroom where the desks are lined in rows and the

furnishings are arranged for listening, rather than doing. Dewey suggested that more

appropriately, schools should provide a "genuine form of active community life" (p. 14)

Smith indicated he would take Dewey's notions a step further, saying, "valuable

knowledge for most children is knowledge that is directly related to their own social

reality, knowledge that will allow them to engage in activities that are of service to and

valued by those they love and respect" (2002, p. 586). He noted that it is not necessary

for place-based pedagogy to be tied to outdoor education, though that is often a venue

with which it is associated. Providing an expanded notion of place-based pedagogy, Smith (2007, p. 191) presented five domains of place-based education: "cultural and historical investigations, environmental monitoring and advocacy, real-world problem solving, entrepreneurialism, and involvement in public processes." These domains relate closely to expectations Montessori mapped out for secondary programs.

The work of Helen Parkhurst, Montessori's most trusted protégé, provides an interesting extension of Montessori's ideals (Lee, 2000). Parkhurst was the only person authorized by Montessori to provide teacher training and to employ others to assist her, and she was chosen by Montessori to serve as the teacher for a glass-walled classroom at the 1915 San Francisco Exposition. She developed her Dalton Laboratory Plan, rooted in the ideals of fostering independent learning and peer teaching and providing opportunities for meaningful involvement in the school community and the community at large. Under the Dalton Plan, students are provided assignments, often open-ended, with a deadline for completing them, a plan that is embraced as a viable secondary education approach in the Montessori community (International Montessori Council, 2007). The students were then free to manage their own time and learning in order to complete their work (Lee). Lee concluded that overall the Dalton Plan provided a successful method for inspiring students to be self-motivated, self-directed learners, such as one former student who said her education in a Dalton school left her feeling like she could accomplish any goal if she set her mind to it. Respect for students lies at the heart of the Dalton Plan, just as it does for Montessori education, with freedom, cooperation, and self-imposed

budgeting of time being the core components (Parkhurst, as cited by International

Montessori Council, 2007).

From the perspective of one who saw the adolescent soul as a vessel of hope for

the future of humanity, Montessori once again reiterated her demand for respect for

young people in the Erdkinder essay. She asserted that adolescents should never be

treated as if they are children, because they have moved beyond that stage of life

(Montessori, 1948/1994). She wrote:

> It is better to treat an adolescent as if he had greater value than he actually
> shows than as if he had less and let him feel that his merits and self-
> respect are disregarded. This is not to say that there should not be rules to
> be followed, but rather that whatever rules there are should be
> institutional, rather than individual in nature and should be limited to only
> those essential to maintaining order and supporting progress. (Montessori,
> p. 73).

With regard to the academic aspects of the secondary program, Montessori

suggested a three-part approach comprising opportunities for self-expression, education

for psychic development, and education for preparing for adult life (Montessori,

1948/1994). In nurturing these areas of development, the Montessori secondary program

aims to foster adaptability within the students. Montessori noted that adaptability is

essential in a world where change occurs continually and where new careers are arising

while others are being revolutionized or eliminated. The self-expression portion of the

academic program suggested by Montessori includes music, language, and art. She

indicated that opportunities within these areas should comprise a combination of both

individual opportunities and cooperative group activities, and the nature of the work

should involve free choice (Montessori). The psychic development aspect of Montessori's education plan for secondary students includes moral education, mathematics, and language. Finally, the preparation for adult life, according to Montessori, should include the study of the earth and all living things, the study of human progress and civilization, and the study of history of mankind.

Montessori's discussion of the Erdkinder concept advocated a setting in which students have the opportunity for meaningful experiences that include clear-cut goals and genuine feedback (Montessori 1948/1994). Csikszentmihalyi (1990) described these characteristics as *flow experiences*. These optimal experiences allow individuals to commit themselves fully to achieving goals "because there is no disorder to straighten out, no threat for the self to defend" (Csikszentmihalyi, p. 40). Montessori advocated a farm setting for fostering these experiences, yet Seldin and Epstein (2003) noted that the setting does not necessarily have to be a farm school, which would be altogether impractical as a large-scale model for public school reform. Instead, they listed a number of characteristics regarding the types of learning situation and school relationships that are more important than the specific venue, and can be applied at rural, urban, and suburban campuses.

As reviewed in this section, Montessori's writing, the literature regarding Montessori education, and the theory and research in related areas of education indicate that flow experiences should characterize Montessori high school programs. With this notion in mind, a study that looks at the bounded system of Montessori high schools to

determine if this is indeed a culture of empowerment, and if so how it is achieved, makes sense. In the section that follows, the approach for investigating this system is explored.

Qualitative Research Methods

In order to answer the research questions presented in this study, multiple sources of data were required. This study was not designed to provide an experimental perspective, but rather to create a snapshot of the bounded system known as *Montessori high school programs in the United States*. This system is relatively new and unstudied, necessitating an approach that is conducive to theory development, rather than theory testing. Qualitative paradigms provide the appropriate methods when the questions at hand ask how and why and the goal is to produce a theory, as is the situation with this study. Creswell identified five traditions of qualitative research (Creswell, 2007), and all were considered in regard to their appropriateness for this study.

The approaches that Creswell identified include narrative research, phenomenology, grounded theory, ethnography and case study. Narrative research involves the written and/or spoken accounts of events/actions relating to an individual and is chronological in nature (Creswell, 2007). Biographies and histories are two frequently used styles of narrative research. The narrative approach does not apply to this study, which is neither biographical nor historical. Although narrative research was eliminated simply because of its focus on an individual, phenomenology did require at least initial consideration, in that it "describes the meaning for several individuals of their lived experiences" (Creswell, 2007, p. 57). The experiences of the participants were considered in this study, but the focus on larger cultural context eliminated

phenomenology as a research option. So does the method of data gathering, as phenomenological data are generally, though not always, limited to interviews, yet a wide variety of data collection techniques were called for in this study (Creswell, 2007; Yin, 2003).

Grounded theory was an option that on the surface appeared to merit consideration for this research study in that the method takes the descriptions of individual experiences and uses them to generate a theory. The aspects of grounded theory that rendered it inadequate for this study, however, are the fact that it seeks to establish causal relationships in a postpositivist fashion (Hatch, 2002; Creswell, 2007), which was not desired, and that it does not focus on the relationships among the individuals, which was desired.

A common theme among the approaches rejected above is that they fail to consider culture with any depth. For this study, the goal is to understand the culture of Montessori high schools in the United States. Creswell stated, "Ethnographers study the meaning of the behavior, the language, and the interactions among members of the culture-sharing group" (2007, pp. 68-69), and thus ethnography was a possible fit. The rich descriptive nature of ethnography was appealing as well. Case study research is closely tied to ethnographic research in that it attempts to describe a culture (Creswell). The main component that sets case study apart from ethnography is that the latter aims to discover and describe how the culture works (Hatch, 2002), and the former seeks to understand a problem, using the cases to illustrate this understanding (Creswell). This study certainly sought to describe how the Montessori high school culture works, and it

went further by considering the culture in terms of how it might contribute to addressing school reform issues. Thus case study methodology was indicated, and more specifically, because five cases were examined, multiple case study was used. Because the rich cultural description that comprises ethnography contributed to meeting the goals of this research, they were employed in this case study.

The focus on culture of this study, the multiple data collection methods required for the study, and the overall purpose of the study necessitated a multiple case study approach. Each school served as an individual case; however, the overall study examined the five individual cases as a whole, requiring a multiple case design (Yin, 2003, p. 53).

Summary

This chapter included a review of literature that relates to the study of Montessori high school programs. Because there is a clear dearth of studies directly related to this topic, the literature review included a detailed examination of Maria Montessori's own work, as well as references to the work of compatible theorists. The review also included discussion of the limited research directly related to Montessori education and research related to concepts embodied in Montessori education. Finally, the literature review provided an overview of qualitative research methodology and a justification for choosing a case study approach. The methodology will be further elucidated in chapter 3.

CHAPTER 3: RESEARCH METHOD

Introduction

This chapter provides a description of the methods that were used to collect and analyze data in a multiple case study that sought to gain an understanding of what constitutes a Montessori high school program. Five Montessori high schools provided the cases for this study. One goal of the study was to identify program characteristics through analysis of school documents, a type of data collection that is considered unobtrusive (Hatch, 2002). Another was to identify program characteristics through interviews of students and teachers conducted using formal interviews to gain in-depth perceptions of the participants (Hatch) and online focus-group techniques in order to gather data from a wider pool and thus increase the potential quality of the study (Hatch). Collecting data from multiple sources provided an opportunity for triangulating data (Creswell, 2007).

Research Design

As discussed in chapter 1, the problem addressed in this study was the need to find viable alternatives that provide better preparation for higher education and the 21st century workplace than the teach-and-test model of high school education. Although a number of well-established alternative models exist, this study focuses specifically on Montessori programs at the high school level. Because these programs are few in number and largely unstudied, this research was intended to create a framework for what constitutes a Montessori high school program, to set the stage for creating and assessing subsequent programs, and to inform reform efforts in traditional public schools. To that end, the study addressed how traditional Montessori principles are applied to the high

school setting, how Montessori's ideas regarding secondary education are applied in Montessori high schools, and how Montessori high school programs serve the developmental needs of the students and prepare them for higher education and the 21st century workplace.

Because little is known about Montessori high schools, and because this study was used to create a model of what constitutes a Montessori high school, a multiple case study method (Creswell, 1998; Yin, 2003), within a qualitative framework, formed the overall design of this study. The case study describes in depth and analyzes characteristics of Montessori high school programs (Merriam, 2002). Though the study focused on case-study methodology, it also employed some ethnographic techniques in that it attempted to recreate for the reader the culture of the Montessori high school (Merriam).

Qualitative research was chosen because there is a lack of research regarding Montessori high schools. The qualitative approach identified key characteristics that could suggest avenues for future qualitative studies or be used as variables for future quantitative studies of Montessori high schools (Creswell, 2007). Creswell differentiates between ethnography and case study by stating that ethnography intends to focus on how a culture works, but case study considers an issue within a bounded system, comprising one or more cases (Creswell). Multiple case study methodology was used for this research because the five schools that comprise the cases are clearly defined within the boundaries of Montessori high school programs (Creswell) and were conducive to producing data that are both plentiful and from diverse sources (Yin, 2003). Additionally,

rich description of the culture of Montessori high schools is incorporated in the presentation of the data, as the culture is a key component of Montessori education. This emphasis on culture, the essence of ethnography, supports the use of ethnographic techniques for the case study (Creswell, 2007).

The study incorporated several sources of evidence identified by Yin (2003): archival records, interviews, and focus groups. Archival records included school documents such as curriculum guides, handbooks, and newsletters. Interviews included both online focus group interviews with students and formal interviews with individual staff members and students. Each data source was used to answer the study's four research questions:

1. How are traditional Montessori approaches that appear in lower levels integrated into Montessori high school programs?

2. How are concepts of the Erdkinder model integrated into the Montessori high school programs?

3. In what ways do the curriculum, class structure, pedagogy, and approach serve to meet the needs of high school students as outlined in Montessori's Four Planes of Education?

4. In what ways do the curriculum, class structure, pedagogy, and approach serve to prepare adolescents for higher education and adult work?

Case Study Method

Case study methodology entails the study of a bounded system in order to elucidate an issue or problem (Creswell, 2007). Yin (2003) suggested that case study methodology is appropriate when the research will focus on *how* and *why* questions, when there is no need to control behavioral events, and when the research focuses on contemporary events. More specifically, Yin (2003) defines case study research using a two-part approach. First, case study "investigates a contemporary phenomenon within its real-life context…when boundaries between phenomenon and context are not clearly evident" (Yin, p. 13). Additionally, case study addresses situations for which there exist "many more variables of interest than data points" resulting in use of "sources of evidence, with data needing to converge in a triangulating fashion" (p. 13). Because of its nature, case study benefits from proposed theories used to guide the process of collecting and analyzing data.

Case study methodology is used widely in social science research, across many disciplines (Creswell, 2007; Hatch, 2002). Regardless of the discipline, case study is used when researchers want to examine a "complex social phenomenon" (Yin, 2003, p. 2). Though Yin noted that case study research can be either quantitative or qualitative in nature, this study took a qualitative approach with the goal of generating a theory from an inductive approach, rather than proving a theory from a deductive approach (Creswell).

The overall intent of this study was to use the participants' views of Montessori high school programs to document how meaning is constructed in these environments through their cultural norms (Creswell, 2007). Montessori high schools in the United

States are limited in number, and while the concept of Montessori education at the

secondary level is not new, overall, the practice of it in the United States is, especially at

the high school level. Consequently, there is a lack of research on Montessori high school

programs. Using a qualitative approach to derive a theory of what constitutes a

Montessori high school program will create a foundation for future research on this

emerging style of high school education.

The Role of the Researcher

Qualitative researchers serve as collectors of data, rather than relying on the use

of instruments and questionnaires (Creswell, 2007). For this case study I served as

interviewer, observer, and document interpreter, working to formulate a worldview and

subsequently create the narrative that tells the collective story of the multiple cases

(Creswell). Yin (2003) identifies five skills that a case study researcher should possess:

(a) ability to ask good questions, (b) ability to listen well without being influenced by

preconceptions, (c) adaptability and flexibility to adjust to unanticipated encounters, (d)

understanding of precisely what is being said, (e) sensitivity and responsiveness to

evidence that contradict preconceptions. Possession of these skills served me well in

collecting data from the multiple data sources.

One of the challenges associated with qualitative research is the need for the

researcher to keep personal feelings, experiences, and biases separated from the reporting

of data, while recognizing that the very act of engaging in qualitative research will impact

the research context (Hatch, 2002). Qualitative researchers need to exercise the practice

of reflexivity—the act of acknowledging what one brings to the research in terms of

biases, feelings, and experiences—in order to enhance the credibility of the study. Creswell (2007) indicated that researchers generally provide direct discussion of the reflexive process. With bracketing, one way to address these concerns, the researcher uses techniques such as marking the text, writing in extended margins or even literally putting brackets around passages to separate the descriptive data from other notations (Hatch). Another technique for keeping the researcher's biases and feelings in check is keeping a research journal (Hatch). I used two research journals to help address bias concerns. I used one of these journals for tracking contacts with prospective cooperating schools and the five schools that ultimately participated, and recording impressions as conversations and correspondence took place. I used the other journal specifically as a tool for journaling personal feelings regarding various aspects of the research process, so that they could be separated from the research itself.

My biases for this study included a general interest in Montessori education and a particular interest in Montessori high school education and how the methods might be applied to general school reform at the high school level. This interest stems from more than 20 years of working in education and related fields, 9 years as a Montessori educator at the elementary and secondary levels. I have been a Montessori parent for 12 years and founded a Montessori school that serves children from preschool through high school, where I am currently head of school and have part-time teaching responsibility for the secondary program.

Context of Study

       The context of a study must provide the researcher the opportunity to gather data that will answer the research questions, and the kind of research is a key factor in determining contextual needs (Hatch, 2002). Because this research study is a case study, data were generated from multiple sources, and thus multiple contextual layers were called for. The broadest context was the five Montessori schools that agreed to participate: one public school, two charter schools, and two nonprofit, private schools. Consistent with the general expectation for qualitative research, purposeful sampling was used for this study (Hatch). By choosing schools that represent three different organizational structures and then searching for the common elements, the data collected has the potential to be more useful in creating a comprehensive conceptual framework that can be used to study other Montessori high schools.

       The original research plan called for including three cases, one for each governance format. The goal was to gather documents, conduct phone interviews, and conduct online focus group interviews for all three sites. Principals were contacted by phone and then e-mail (see Appendix A) to gain access to documents, staff, and students and to document consent for gathering data from these sources. Each principal received an electronic letter explaining the purpose of the study, the types of data that were to be collected, the expected timeframe for the study, and the reasons for conducting interviews, facilitating online focus groups, and reviewing documents. Principals at the three originally identified schools provided signed letters of cooperation (see Appendix B). Complications arose with two of the three schools, and when it appeared that actual

participation was doubtful, I began contacting other Montessori high schools to ascertain their willingness to be involved. One private school joined the study through this effort, and the head willingly supported full participation. The head of a charter school also agreed to participate, but expressed concern that full participation might be challenging. After evaluating the impact on the quality of the study to include only two private schools, and after conferring with a qualitative methodologist, I decided to include five school in the study. The two private schools participated in all thee types of data collection, and included student participants. With the modification of using publicly available documents and conducting a confirming interview with at least one staff member, rather than requiring full participation, the remaining two schools from the original group and the additional school from the second recruitment effort were able to participate.

Populations and Sample

The population from which the five schools for this case study were chosen is the group of schools that identify themselves as both Montessori schools and schools having high school programs that include students from grades 9 to 12. I did not have any prior personal or professional relationship with any of the included schools or their respective staff members and students. What made each school a unique case is the organizational structure and the geographic location. Although the Erdkinder model proposed by Montessori was specifically a farm school, with the goal of achieving the greatest generalizability possible, schools in suburban and urban areas were included. School

documents provided an overarching sense of the characteristics of each school and its implementation of Montessori practices.

Yin (2003) suggested that multiple case study design would net a more solid study, even if only two cases were used. Creswell (2007) stated that increasing the number of cases in a study serves to dilute the impact of each case by reducing the degree of depth for each case. He continued by adding that four to five cases generally are the maximum number used by qualitative researchers. The use of five cases for this study provided a degree of depth that will help make the collected and analyzed data more generalizable, a goal for qualitative researcher, according to Creswell.

For the two full-participation cases, I reviewed documents (see Appendix C) that were publicly available first in order to familiarize myself with the basic structure of each school. During this review period, I contacted staff members at the schools and obtained consent forms from various staff members. I invited all staff members who provided consent to participate in online focus group forums. Over the course of four weeks, I made repeated invitations to staff members to participate in the focus group forums; however, after repeated invitations by e-mail and phone failed to generate any participation, this data source was not further pursued. I interviewed three staff members from one school and two from the other. Heads of these two schools were requested to provide additional documents as well.

For the remaining three schools, there was no expectation of focus group participation, so that was not pursued. I interviewed two staff members at one of the

schools and one at each of the other schools. Additionally, I collected readily available public documents, including newsletters, curricula, and student handbooks.

Each of the full-participation schools was to facilitate presenting the opportunity to participate in the study to students and to provide a letter of introduction, a consent form, and an assent form to interested students. One school provided 15 signed sets of consent/assent, forms representing nearly the entire qualifying student body. Of those students 9 actually participated. The other school provided 16 signed sets of consent/assent form, and 11 students actually participated. The total group was well balanced in terms of sex and grade-level of students. This division of student participants is an example of a maximum variation sample (Hatch, 2002). Of the total number of students who signed on for the study, participants for formal interviews were chosen from among the focus group participants based on the appearance that they were typical case representatives based on their responses (Hatch).

Ethical Protection of Participants

Ethical considerations were key for this study because the research was set in schools. As Hatch (2002) pointed out, qualitative researchers ask for a great deal of trust from their participants by asking them to share explicit details of their daily lives. It was important to recognize that Montessori high school teachers are aware of the dearth of research regarding their practice and the emphasis in the Montessori community on expanding the prevalence of secondary programs. These two considerations could have made it difficult for educators to decline participation (Hatch), though concerns in that regard did not prove to be a factor in this research. The ethical concerns regarding the

student participants were even greater (Hatch). The adolescents at the research sites may have been eager to share information about their unique school experiences, and may have lacked the life experience to understand how participating in a research study might effect them.

Several measures served to address the need to conduct the study in an ethical manner. I sought Institutional Review Board approval (IRB approval number 0721090355453), and written approval as required by each school. All prospective research participants were provided a detailed written description of the research. Additionally, each actual participant was required to complete a consent form. Students were required to obtain parental permission to participate as well.

Relationship building was key to this study (Hatch, 2002). Hatch suggested that one way to build appropriate relationships with participants is to offer some degree of reciprocity—giving as well as taking in the relationship with the participants. In this situation, the staff and student participants will benefit by gaining a better sense of how their daily activities fit into the larger Montessori context by reviewing the study results.

The consent form for participating teachers and students included a section that explained participation was entirely voluntary. It also notified the participants of their right to decline participation in the study at any point once the study had begun. Hatch (2002, p. 67) emphasized the importance of being upfront with adult participants: "To take advantage of teachers by not giving them the full right to refuse participation is wrong." And in the end, a number of teachers who initially agreed to participate chose not to do so. Hatch also pointed out that protecting the vulnerabilities of children is even

more important: "A genuine effort should be made to help children understand exactly

what their participation will mean, and a thoughtful attempt to assess their degree of

agreement should be part of the research design" (p. 67). To further protect their interests,

participants were encouraged to ask the researcher for clarification at any point during the

data collection process.

Participants received contact information for the researcher so that they could

communicate regarding unexpected concerns and circumstances related to the study. The

names of participants and the schools at which they attend and work are not identified in

the study, nor will they be identified at any point. The schools are referred to by the

following pseudonyms: Private School, West Coast Charter School, Midwest Charter

School, Rural Private School, and Urban Private School. Students and staff are referred to

by their role at the school and in some cases gender-specific pronouns are used to refer to

them, but in no circumstances have they been referred to by name. In cases where

people's or places' names were used by participants, the actual names were replaced by

descriptors placed in brackets.

Data Collection

In defining case study research, Creswell included "in-depth data collection

involving multiple sources of information" as a key component (2007, p. 73). Yin pointed

out that use of multiple sources of information provides the opportunity for triangulation

of data—the appearance of repeatedly producing the same data from different sources—

which renders data "more convincing and accurate" (2003, p. 98). Merriam divided

qualitative data sources into three main categories: documents, interviews, and

observations (2002). Data for this study were collected over a 12-week period and included an examination of school documents, online focus groups, and semi-structured phone or online interviews.

A variety of documents were sought from participating schools such as curriculum, student and/or parent handbooks, and newsletters. These documents provided information about the general components of Montessori high school education at each institution.

Creswell (2007) encouraged qualitative researchers to use new and emerging data collection techniques. One such technique is online focus groups. For this study, students used password protected discussion forums for online focus groups. Only the respective participants were provided password information, in order to facilitate open and honest participation in discussion. The online forum allowed for use of focus groups despite the geographic distance between the study participants and me. Focus groups provide an opportunity for group interviewing, but they are also intended to serve a greater purpose than simply allowing the researcher to interview several separate individuals at once. Instead, focus groups are intended to generate discussion among the participants, allowing them to address the topic at hand in depth (Hatch, 2002). The online forum facilitated the opportunity for participants to respond not only directly to the questions I posed (see Appendix D), but also to comments posed by each other, creating rich sources of data.

Following an interpretive constructivist model, the semi-structured interviews provided the opportunity to gather specific details and to build an understanding based on

the data gathered in advance of the interviews (Rubin & Rubin, 2005). Rubin and Rubin indicated that in some cases interviewees are selected to provide complementary information about the research problem, as was the case with this study. Both students and staff members were selected for one-on-one interviews (see Appendixes E and F). By interviewing students, teachers, and administrators, I was able to gather information from multiple perspectives, creating a complex view of Montessori high school education. This maximum variation strategy allowed for identifying outlying variations while documenting key patterns that are common among the cases (Creswell, 2007).

Data were collected over a period of 12 weeks, and included examination of documents; examination of online focus group transcripts; and semi-structured, individual interviews. I conducted all the interviews. Phone interviews and video conferencing interviews were audio recorded, then subsequently transcribed. Transcribed data were read and compared to the recording to check for accuracy. For e-mail interviews, the messages themselves served as the transcript.

Data Analysis

Five Montessori high school programs, each representing a case, first were studied in detail as separate entities, providing for in-depth analysis and allowing within-case themes to be identified. Then, the cross-case synthesis (Yin, 2003) occurred. Data analysis was ongoing, inductive, and interpretive (Hatch, 2002). The nature of the interpretive approach allowed the analysis to be ongoing. Additionally, the combination of the interpretive and inductive approaches allowed the study "to be richer and findings more convincing" (Hatch, p. 181).

As a multiple case study, this research provided the opportunity to posit a theory regarding what constitutes a Montessori high school program. The inductive analysis model is consistent with the goal of theory development (Hatch). Using inductive analysis, I read the data and identified domains within in it based on semantic relationships. These domains provided the body of data from which themes were identified.

Categories and codes (see Appendix G) were created in advance of data collection for use during analysis. In general, a line-by-line coding approach was employed in the research (see Appendix H). I did, however, employ the open-coding technique of identifying themes in the data as they arose and creating corresponding categories and codes as the need for additional categories and codes became apparent during data analysis. Once categories for analysis had been defined, the interpretive approach was applied to the focus group and interview data. Hatch said interpretive data analysis is "about making sense of social situations by generating explanations of what's going on within them" (2002, p. 180). For this research, the categories that were designated and those that emerged served as the memos for the interpretive analysis.

Each case first was analyzed and synthesized separately as if it were a single case. Then data from the individual cases were aggregated and considered as a whole (Yin, 2003). Yin, who discussed both quantitative and qualitative case study, indicated that one drawback of cross-case synthesis is that it is argumentative, rather than numeric in nature (2003, p. 135). For this qualitative study, however, in which data were relayed through description, the argumentative approach was ideal.

Validity and Reliability

Yin described four standard tests of quality for empirical research: construct validity, internal validity, external validity, and reliability (2003). Construct validity was established through several methods, based on the tactics described by Yin. The multiple case approach of this study, and the multiple sources of data within each case provided several sources of evidence. This triangulation of the data provides corroboration of the information gathered and is a strength of case study data collection (Hatch, 2002; Creswell, 2007; Yin). This evidence was presented so as to create a chain of evidence that carefully connects the research steps from research questions to conclusions (Yin). Finally, staff members from each school were asked to review a compiled case study report for accuracy (Hatch, p. 92).

Generally, internal validity is more pertinent to experimental and quasi-experimental designs, where the goal of research is to consider the possibility of a causal relationship between one variable and another (Yin, 2003). Because this multiple case study describes similarities, rather than establishes causal relationships among the cases, internal validity was not considered. Instead, external validity is demonstrated. Cross-case synthesis provided the opportunity to apply a sort of repetition logic to the case study, and allowed for establishing external validity.

The fourth major test of research quality is reliability—providing the means for exact replication of a study. An overall case study protocol was applied to this research (Yin, 2003). Additionally, protocols for specific aspects of the research were used.

Summary

This chapter addressed the methodology utilized to explore the research questions for this multiple case study. The research design, context, population, sample, data collection methods and procedures, and data analysis were described and discussed in detail. The chapter presented a rationale and justification for the qualitative paradigm, as well as the multiple case study.

CHAPTER 4: RESULTS

Introduction

This chapter presents an analysis of the data gathered throughout the course of the study. The pool of cooperating schools included two full-participation schools and three schools with limited participation (see Table 1). This study aimed to accomplish the following goals: (a) identify traits of traditional Montessori practice, and to document how these traits are implemented with Montessori high-school-age students; (b) identify aspects of Montessori's Erdkinder model for secondary education that are practiced in Montessori high school programs, and identify how they are being adapted to the various school structures and geographic settings; (c) contribute to addressing the gap in the professional literature related to Montessori secondary education in general and Montessori high school education in particular; and (d) provide a catalyst for school reform by contributing to the body of literature regarding alternative methods for high school education. The data presented below provide the basis for serving this purpose.

Table 1

Types of Data Collected from Participating Schools

Data	West Coast Charter	Midwest Charter	Public	Rural Private	Urban Private
Staff Interviews	Phone	Phone	Phone	Video Chat Phone	Video Chat Phone
Student Interviews	—	—	—	Phone	Phone e-mail

Documents	Handbook Newsletters Curriculum Charter	Handbook Newsletters Curriculum Web Articles	Handbook Newsletters Curriculum Class Web Sites Web Articles	Parent Handbook Student Handbook Newsletters Curriculum Profile	Handbook Newsletter Curriculum Student Evaluation Form School Web Site
Focus Group	—	—	—	Online Blog	Online Blog

Data Collection and Analysis

Over the course of the 12-week data collection period, I accessed documents that were available online and downloaded them to text files, and then I requested other documents from school heads by e-mail, making follow-up phone calls as needed. I made initial contact with study participants by e-mail, and then followed up with phone calls and subsequent e-mails as needed to obtain necessary permissions. Adult participants were asked several times by e-mail and once by phone to participate in an online focus group. After four weeks, given that there was no participation, and knowing that I had sufficient data streams to achieve triangulation and data saturation without the adult focus groups, I decided to forego them. Student focus groups were left open for a period of four weeks, and students from the two private schools participated in them. Students and staff from these two schools participated in interviews that I conducted by phone, by Internet video conferencing, and by e-mail. Staff members from the charter schools and the public school were interviewed by phone. Phone and video interviews were audio-recorded using Audio Highjack computer-based recording software. They were played back using

Hyper Transcribe software, and I transcribed the interviews verbatim from the recordings and saved the transcripts.

For each of the five schools, I used a minimum of three types of documents: school newsletters, student handbooks, and school curriculum documents. When additional documents were provided by the school or were available online, they were considered as well, in order to facilitate creating a detailed profile of each school. Each of these documents was read in its entirety and evaluated for its relevance to the research questions. Any documents that included information related to the research questions were converted from their original form into text documents in order that they could be used with Hyper Research. All sections that pertained to the research questions were coded. Document content that did not relate to the research questions was not coded in any manner. Some examples of content sections that were not coded include information about activities of lower-level classes, information about school finances, and information about student parking.

During the process of identifying participants, I maintained a research log in which I kept information about contacts, attempts to reach them, and their responses. I also maintained a researcher journal in which I wrote my about my feelings and reactions throughout the data collection process. The research journal served as a bracketing tool in order to separate out personal reactions to the data.

Using Hyper Research, I read each data file and coded it using a set of predetermined codes. In the process of coding, I modified the code for adult–student relationships to include student–student relationships, and added a code for items that

were specifically contrary to Montessori philosophy or practice. These changes allowed

me to account for addressing school relationships as an over-arching topic and to more

easily identify nonconfirming data.

After all the data were coded, I created a case profile for each school (Appendixes

I-M). These profiles included an identifier for the school, information about school size,

grade range offered, and school day structure. These sections were followed by a brief

narrative analysis of the data related to each coding category. I then used the profiles to

look for patterns in the data, referring back to the coded files as reference material, and to

identify passages in the text that supported perceived patterns. Using this approach, I

considered how the data related to the research questions.

Findings

Overview

No two schools operated in precisely the same manner or offered precisely the

same services. In order to provide the reader with a context for understanding the

findings related specifically to each research question, I shall first provide a brief

description of the five schools based on the research data.

The Public School is located in an urban area in the Midwest. It serves students in

7th through 12th grade. The junior high (7th and 8th grades) is housed in the same

building as the high school (9th to 12th grades), though they are for all practical purposes

discrete programs. There are approximately 400 students in the high school program and

about 600 in the entire school. The school day is structured by traditional, 50-minute

class periods on Mondays, Tuesdays, and Fridays and by 100-minute blocks with half the

classes meeting each day on Wednesdays and Thursdays. The school also does two two-week Intersession periods where students participate in themed work. The first Intersession is predetermined based on grade-level and for the second Intersession, which is multi-age, students can choose from dozens of options.

The Midwest Charter School serves approximately 600 total students from preschool through high school on two campuses in a suburban area. Ninth grade is part of the middle school program, which is farm-based. The high school program (10th to 12th grades) is classroom-based. The 9th-graders start their day with a morning meeting, followed by math and Spanish. The remainder of the morning comprises integrated humanities and what the school calls occupations (the farm-based program), both of which are curriculum that is presented in eight-week units of study. The afternoon offers either an extension of the humanities or occupations studies, depending on which unit the students are in, or a time during which more reading/writing instruction takes place. High school is much like an upper-elementary classroom in that the teachers put up on the blackboard the lessons that they are teaching for the day. Each morning the students sign up for the lessons they need. When they are not in a lesson, the students have uninterrupted work time. After lunch, the structure is more traditional, in that students have elective classes for which they have signed up.

The West Coast Charter School is located in a suburban area and serves approximately 200 students from 7th to 12th grade. Ninth-graders are part of the junior high school program. This is an experiential, farm-based program. High school students are on a block schedule with four classes each day in a classroom-based program. High-

school students all have a 90-minute tutorial period during which they can engage in any work they choose and the staff member in charge is available for assistance as needed. Other staff and school materials may also be available. On Wednesdays, there are no regular classes. Either the students participate in elective activities, or they take field trips.

The Rural Private School serves approximately 200 students total from preschool to high school. Among the students, 17 are high school age. Students have classes that generally last about 45 minutes each, but there is considerable flexibility, nonetheless. Lessons may be longer or shorter in duration based on staff and student needs, student interest, and other considerations. All the high school classes meet in one room, so that the effect is more like being called to a lesson in a lower-level Montessori class than the bell-schedule-driven changing of classes in traditional high schools. Ninth-graders are part of the middle school program officially, but do work in the high school class as well; meanwhile, 11th and 12th grade students, and certain second-semester 10th graders, take classes at the nearby community college some afternoons. Fridays, after tests, provide open time during which students do service work and other student-selected projects. Every student also has at least one 45-minute period a day of open time.

The Urban Private School offers day school and boarding options and serves 72 students from 9th to 12th grade. Lessons are provided by grade level or subject area as appropriate. At least 50% of the day is spent with students doing independent work spread throughout the school building. Students have great latitude to work in the setting that is most conducive to them individually. Approximately 30% of the students' time is

spent working or studying at neighboring institutions with which the school has formal arrangements. Students are free to leave the school building to visit other institutions independently, as long as they are with another student.

Research Question 1

How are traditional Montessori approaches that appear in lower levels integrated into Montessori high school programs? For this study, the following characteristics of a traditional Montessori program were considered: multi-age classrooms, student directed learning, relationships between students and staff, prepared classroom environment, experiential learning, focus on natural world, and use of authentic assessment.

Overview. The multi-age classroom, the prepared environment, and authentic assessment characterized by control of error provide a foundation for Montessori classrooms at the early childhood and elementary levels; however, they appear to play a lesser role at the high school level. Self-directed and experiential learning play a much more prominent role. Of all of these characteristics, the relationship between students and staff, however, was by far the most prominent in the data.

Multi-age classrooms, the prepared environment, and authentic assessment. For early childhood and elementary Montessori programs, multi-age classrooms, the prepared environment, and authentic assessment that is imbedded into the classic Montessori materials and hand-made supplementary materials are essential elements. Without these elements, a program would be hard-pressed to bear the Montessori descriptor. For the high schools included in this study, although each of these three elements figured into the

programs in some way, they were not elemental in the manner in which they are at lower levels.

To at least some degree, each of the five schools offered multi-age opportunities for students, but for some, this approach is not the norm. At the Public School, multi-age learning takes place in elective classes and during certain Intersession programs. The core academic classes are overtly divided by grade level. Although students do not have much opportunity for multi-age classes, looping, an arrangement where students have the same teacher for a given content area for two or more consecutive years, is used in some core classes. Still, the school is committed to providing multi-age opportunities where possible, as is stated in a document explaining Montessori posted on its Web site:

> Another way is having multi-age learning environments. When older and younger students mix, opportunities to provide leadership are created for older students and opportunities for guidance and direction from their peers are provided younger students.

At both the Rural Private School and the West Coast Charter School students take classes and follow a particular schedule, but the schedule is less rigid than the Public School schedule and provides more opportunities for multiage grouping. Though some classes at the West Coast Charter School may be grade-level oriented, at both schools the students work in common spaces, so there is ample opportunity for mixing among the age groups.

At the Urban Private School, which includes only high school students, at least half the day, students are working independent of teachers, which provides ample opportunity for mixed-age groupings. Working with neighboring institutions enhances

students' opportunities for being in mixed-age groupings as they work side-by-side with

adults. The situation is similar at the Midwest Charter School, where the morning is spent

in an open-ended, three-hour work cycle with students grouped in three-year age spans.

The school's family handbook describes the benefits of this situation:

> Grouping students of different ages offers them the chance to function as
> both learners and leaders within a diverse community. This setting
> provides many opportunities for students to demonstrate their own cultural
> differences, personal skills, and expertise in a purposeful way.

The prepared environment of the early childhood and elementary programs, in

which a vast array of beautiful materials neatly line the shelves beckoning to the children

to use them, does not necessarily pertain to the Montessori high school setting, where the

learning environment extends far beyond the confines of the classroom. And while

preparing the environment is very much a teacher's job at the lower levels, it is a shared

responsibility that is largely assumed by students in the high school setting.

The Public School students share responsibility for maintaining the environment,

including the classroom and the lunchroom. "The kids take care of the environment. They

are issued brooms and vacuums in the classrooms and the kids clean up the tables and

that kind of stuff," a teacher explained. They are responsible for preparation work related

to an annual camping trip.

At the Midwest Charter School, students have a common room and a kitchen that

they care for in addition to their classroom environment. "They are expected to help keep

their environment beautiful. And then they created an outdoor environment that they are

responsible for as well," the head of school explained. Similarly, students at the West

Coast Charter School are expected to help maintain the school:

> All students will be expected to participate in activities which include cleaning, caring for plants or animals, setting up for lunch or special events, tidying up shared spaces, and performing occasional routine chores and classroom maintenance.

Daily chores are a key part of maintaining every aspect of the prepared

environment, indoor and outdoor, for students at the Rural Private School. Additionally,

there are special times of the year specifically designated for bigger maintenance tasks

that extend beyond the daily chores.

> Twice a year we do something called the Big Clean. And the high school kids helped out. We have a little indigenous garden of plant life from [the southern part of the state], and we put it in last spring and it needed work this year. They went out and did it. And they don't have a path to go directly inside their classroom. There is a little porch outside their classroom. So we put stones in, made a path. We mulched it, and it's wonderful. They pretty much did it all.

Students at the Urban Private School have similar responsibilities for helping to

maintain the environment, but also some of the students add aspects of home life because

of their boarding status:

> About 40 percent of our students are residential. They live here, so they have all the aspects of dorm life. The students have really good involvement in running most of the chores of the house, cooking dinner, cleaning up from dinner, things like that are just kind of part of life.

Preparation of the environment is not limited to cleaning and yard work. Students

at all the schools are also responsible planning and organizing experiences outside the

school settings. These venues become an extension of the Montessori environment. Both

the increased level of responsibility for maintenance work, and the high degree of

involvement in creating vastly expanded learning environments, demonstrate an increased level of responsibility on the part of students at the high school level.

There is great variation in how students are assessed at the various schools, but within that variety, there are some common threads (see Figure 1). In the early childhood and elementary years, much of the work has control of error specifically designed into the materials so that students can see for themselves if they are doing it correctly or not. In these environments, it is the teacher's job to observe and to present lessons again if students appear to be having difficulty with a particular task.

Traditional Montessori
Specialized Materials
Control of Error

Shared
Group Projects
Portfolios
Narrative Evaluation
Papers
Presentations

Montessori High Schools
Self-evaluation
Quizzes/Tests
Community Involvement
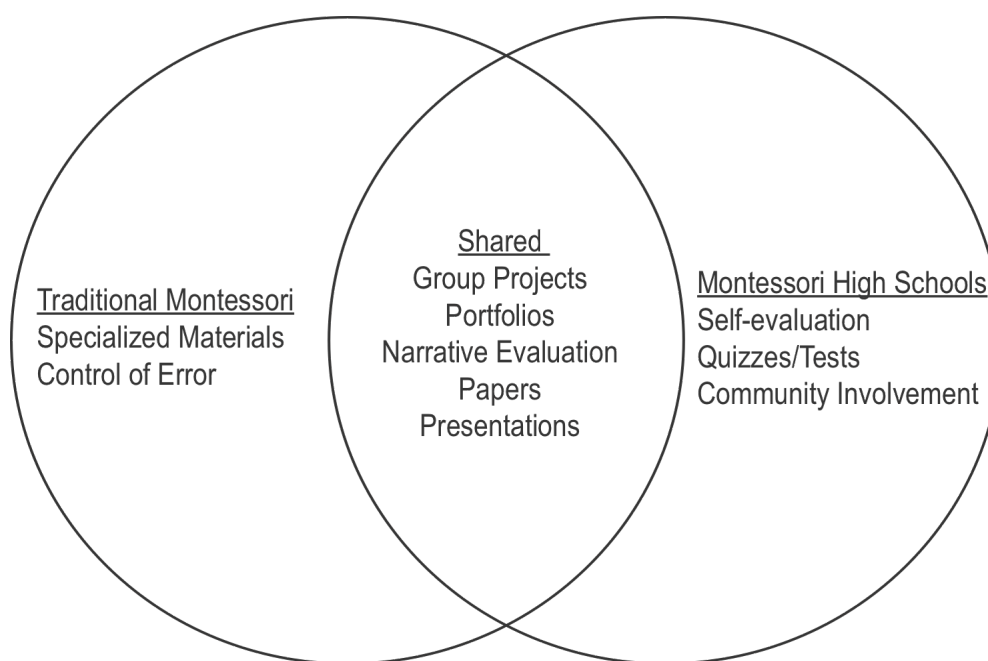
Figure 1. Comparison of traditional Montessori assessment techniques and assessment techniques used in Montessori high schools.

At all the participating schools, more traditional methods of assessment like quizzes, tests, essays, and projects are used. Students receive grades on the work they complete. Despite the many traditional aspects of assessment, authentic assessment is a

part of the programs as well. Students express their knowledge through authentic means such as presentations, group projects, and community involvement. The over-arching concern expressed in terms of assessment was that schools want to be able to communicate student progress in a manner that is meaningful for higher education institutions and for receiving schools if students have to transfer to a traditional school before graduation.

There are several techniques that the schools use to encourage students to take responsibility for their own assessment. At the Rural Private School, students make a PowerPoint slide show to present to their parents at their quarterly parent conferences. They also maintain portfolios of their work, which they can share with their parents. Students at both charter schools maintain work portfolios, too. Students at the Midwest Charter School organize their portfolios to demonstrate how they have met the school's overarching objectives, creating an integrated approach to presenting what they have learned. Portfolios at the West Coast Charter School are organized by subject area.

Students at the Rural Private School, Midwest Charter School, West Coast Charter School, and Public School receive grades that are based on percentages. At the Urban Private School, though students receive grades, they are derived differently, and they are presented with a narrative evaluation. The head of school explained how the evaluation system works:

> The typical evaluation package that went out is 12 pages front and back. It's a good amount of information. It's got a lot of documentation from the course. We made the decision with having…I mean our students are trying to get in to really competitive universities, which is good, so we do use a letter grade. There's a

rubric on which that's based. So it's not percentage based. It's a um, it is a rubric that defines: OK this is how it goes.

Self-directed learning, experiential learning, and focus on the natural world.

Even in cases where the structure of classes is somewhat more traditional, the approach to the content is not. Self-directed and experiential learning are key components of the Montessori high school programs. And when possible, these aspects of the curriculum are tied to study of and exploration in the natural world.

At the Rural Private School, the farm provides a venue for 9th-graders to focus on the natural world using experiential and student-centered techniques. The 10th-through 12th-graders also do work at the school that takes them outdoors for learning. The school has a greenhouse, where students compost, as there is an emphasis on environmental concerns. Each year, 9th-graders travel out of the country and learn to navigate unfamiliar places both through their preparation and during the trip. All students participate in other trips as well.

Ninth-graders at the West Coast Charter School and the Midwest Charter School also integrate all three of the characteristics addressed in this section into their learning on a daily basis through farm-based experiences. Older students at these schools and at the Public School have opportunities for self-directed, experiential, and nature-based learning as well. Internships, service work, and travel are the main sources for these experiences.

The school staff aims to encourage experiential learning as broadly and often as possible at the Urban Private School. Students individualize their experiences by virtue of the great freedom they have to create their own experiential opportunities at nearby

museums and other institutions. Additionally, students take part in a wide variety of special-interest opportunities that the many nearby institutions provide. The students also do service work in area parks and have a cooperative arrangement with a farm-based Montessori middle school among their conduits for integrating nature studies into their learning.

Relationships between students and staff and among students. By policy, as stated in its handbook, the Urban Private School expects congenial relationships between adults and students: "It is vital that the community be one of mutual respect, cooperation, trust, and appreciation. All the faculty and staff share the commitment to education through a rich and noble vision of adolescence." Students recognize that the relationships they have with their teachers are different from those in traditional schools and understand that this situation is the mission of the staff. As one student wrote:

> We call every teacher by their first name and some of the students even
> joke around with certain teachers like they were classmates! This is
> drastically different from my grade school, but I love it. The principal says
> that the teachers are only there to help us achieve our goals in our classes.

Students and staff alike talk about having a family atmosphere at the Rural Private School. Many of the students have been at the school since preschool, and they know the staff well. Students feel comfortable talking with the staff about personal matters. One student explained that her friends at nearby public schools have expressed concern about where to turn when they need help at school. She elaborated, "If we have trouble we can go right up and talk about it with our teachers, and that's what I like about our school."

Students at the school are also very close to their peers, and when a student graduates or moves on, the loss is felt deeply in the community.

The Public School's relationships between students and staff are similarly casual. Students refer to teachers by first name. Camping trips and Intersession classes, where staff and students are living together, often under less than pristine circumstances, serve to eliminate barriers between students and staff. The school advisory system, through which students are assigned to a particular teacher for mentoring and support, creates strong bonds as well. During the advisory time, students focus on the school's and overall Montessori core values.

Relationships at the two charter schools seem to set them apart from other more traditional publically supported institutions. Although the relationships at the West Coast Charter School are not exactly peer relationships, they are comfortable relationships. Staff has repeated interaction with students throughout their enrollment, so their relationship extends beyond that of teacher and student. Trust is a key component of the relationships, and it helps remove barriers in the relationships between adults and students. Staff is attuned to student concerns and willing to let students complete their work in alternative ways and venues when the need arises. The culture is caring and cooperative, rather than adversarial. The staff at the Midwest Charter School is clear about the bounds of relationships with students, but the expectation that students will feel safe and secure and be able to share personal information is clear also, as described by the head of school:

I do think they have strong healthy adult–student relationships where they can trust the staff. They can go to the staff with difficult issues. They can go to the staff with concerns. So I, I'm really pleased with the adult–student relationship.

The relationships among students are quite overt and unpretentious. "Students are very comfortable with being not only socially close, but also physically close," a teacher at the Public School said. "I often notice that kids are holding hands like Europeans. It's just very comfortable and intimate." A student at the Rural Private School explained that the bonds that are built through experiences such as camping make the loss of community members difficult:

The fall trip we go out to the middle of nowhere and go camping. And you're really stuck on the other people. If they don't do something, something is going to go dreadfully wrong. It's a bonding experience in and of itself. And then you remember, oh man, remember that time we went camping to the mountains, and we did this and this. And wasn't it funny when he did this and this…but now he's not here, dangit! But the relationships are definitely great.

A classmate at the same school compared the relationships among students at her school to relationships at friends' and relatives' schools. She said the difference is clear: "We're like brothers and sisters. We're like family here. Then I look at my cousin who goes to a public school in [a nearby town]. She talks about all these people, but she's just friends. Do you know what I mean?"

Summary. Seven characteristics of traditional Montessori practice were coded in the data. The nature of the relationships between students and staff and among students was a prominently appearing traditional Montessori trait, as were experiential

learning and student-centered learning. Other traits were present, although to a lesser degree (see Table 2).

Table 2

Frequency of Codes Related to Research Question 1

Traditional Montessori Trait	Frequency
Relationships	180
Experiential Learning	173
Student-centered Learning	167
Authentic Assessment	103
Prepared Environment	51
Nature-based Learning	44
Multi-age Classroom	22

Research Question 2

How are concepts of the Erdkinder model integrated into the Montessori high school programs? Erdkinder means earth children, and this term specifically refers to situating secondary school learning in a farm setting as described in an essay on secondary education written by Maria Montessori (Montessori, 1949/1994). Today's Montessorians talk of actual Erdkinder programs and urban-compromise programs that use Erdkinder concepts but do not apply them in a farm setting.

Overview. Of the five high school programs comprising this study, three included a farm component. At all three schools, the farm program is specifically part of a middle school program, and 9th-graders are incorporated into the middle school as part of the traditional three-year Montessori age grouping. Although they are not directly involved

in the operation of a farm, the 10th through 12th grade students at these three schools, and the high school students at the other two schools, are all involved in work that supports the main objectives of the Erdkinder model (See Table 3). These objectives include developing intellect through hands-on, integrated, place-based experiences; developing a sense of community though interdependence of the students and connections to the broader community beyond the school, and developing skills that support the transition to adult life and financial independence.

Table 3

Types of Erdkinder Experiences

Data	West Coast Charter	Midwest Charter	Public	Rural Private	Urban Private
9th-grade Farm	X	X		X	
HS Farm Opportunities	X			X	X
Internships	X	X	X	X	X
Special Sessions	X		X		X
Service Work	X	X	X	X	X
Travel	X	X	X	X	X

For the purposes of coding data, I divided Erdkinder characteristics into the following categories: place-based pedagogy, opportunities for gaining authentic skills through work, opportunities for valorizing oneself through authentic community contribution, integrated learning experiences, and experiences supporting economic independence. I did not include a subcategory regarding social development because that topic was specifically included in two other areas: (a) traditional traits of Montessori education as student-teacher relationships, and (b) areas of development as social development.

Place-based pedagogy. The two charter schools and the Rural Private School offer farm programs that incorporate ninth-graders. For these schools, work on the farm is the primary source of place-based pedagogy for ninth-graders. One ninth-grader at the Rural Private School described the farm experiences like this:

> At my school, when you are in seven through ninth grade, you go to our head of school's farm and do things like test the water of her pond and creek and we do compass work, learn how to survive in a survival situation, and we learn how to cook different meals every Friday. In the wintertime we go ice-skating on her pond, which is a lot of fun.

Another ninth-grader at the same school recognized that the farm experience encourages a more active lifestyle among the students:

> I think that really teaches how to go out and really do more things besides just stay inside and watch television and stuff. It kind of shows us there's a world outside.

Experiences on the farm vary by school. Physical labor is a common element, as is participating in crop management. At two of the schools—the charter schools—the

students' responsibilities are quite involved, and at the third the actual farm work is one

portion of the connection to the land, and other activities such as stream ecology and

wilderness skills are equally prominent. The description below, provided by a staff

member at the West Coast Charter School exemplifies the degree to which students can

be involved in the actual labor of the farm:

> We go out and plow the fields and come up with marking strategies. And
> we decide what to put in the fields. We're talking with the local farmers
> and figuring out what they do and trying to get them to show us the
> techniques.

The farm-based studies are focused primarily on science including topics such as

botany, animal husbandry, animal sciences, lifecycle development, nutrition, and

sustainability. Food preparation also is a common thread among the farm-based

programs, with students often preparing food with items they have grown themselves.

Regular academic classes are generally taught in thematic units that tie together language

arts and social studies, and may tie themes back to the farm by looking at topics such as

agriculture in ancient cultures or transportation across time.

For all the high school students, regardless of whether they are in a farm program

or not, field trips are a part of the place-based experience. One of the private schools

requires international travel of all students, and the plan and purpose of the trip varies,

but independence is always an emphasis. For the 2009-10 school year, for example, the

students at the Rural Private School will take a trip to Belize to perform service work. At

Midwest Charter School, international travel is tied to course content in social studies or

science, and students must be enrolled in the corresponding class and a travel class in

which they plan for these experiences. At the other three schools—the Public School, the West Coast Charter School, and the Urban Private School—international travel is one option among a number of opportunities provided during special multi-week programs. One school does one, 2-week session called Winterims, one school does two, 2-week sessions called Intersessions, and the third school does three, 2-week programs called X-terms. For all of these programs the staff and students collaborate to determine the content for the sessions, which may take place close to home or abroad. Student fund-raising provides the primary means for financing student trips. Offering a variety of options, including ones that require minimal financial contribution on the part of the students, seems to be a conduit for the public and charter schools, which have limitations on how much financial contribution they can require from students, to support international travel programs.

The nature of special-term trips is diverse. At the Urban Private School, a group of students took a trip to Mongolia to work on an archeological dig site with an anthropologist from a local museum, while another group of students took a bike trip from their Great Lakes Region state to Toronto, Canada. Students at the Public School have participated in trips such as a recreational vehicle tour of East Coast literary landmarks during which they studied writing of authors associated with the landmarks. The school also has provided trips such as a study of Bohemian and Caribbean literature that took place on a sailboat. At the West Coast Charter School, a group of students, after determining that a trip to Japan was out of reach financially, decided to take a tour of all the Japantown areas in their state.

Camping trips are another popular option among the five schools. Students and staff identified learning about the global community as a purpose of international travel, but camping trips are aimed at fostering relationships in the school community and developing self-awareness. A staff member at the Public School noted that camping trips become a source for leveling the relationship between students and staff. "These are kids that we're sleeping in tents with them. I was on an outing with 12 smelly kids. The boundaries really sort of melt away," she recalled. At the West Coast Charter School, relationship building is the specific mission of the camping trip, as described by a staff member:

> We do mostly bonding activities…Let's talk about culture. Let's talk about how we get along. This is more than just a school. This is life. This is our community. These are the people we rely on and things like that.

Partial- and single-day field trips play a role in place-based learning to varying degrees. The Public School's opportunities in this regard are somewhat limited. The staff does not want to take away from class time given that the school already spends a total of four weeks out of the building for Intersession activities. Still, the staff works to bring experts into the school setting as an alternative. One staff member at the school explained, "We don't do a lot of what traditional schools call field trips, because, frankly, they're a little shallow for the kids after their Intersession experiences." The Urban Private School's campus is situated in the middle of a district that houses a major university, a medical center, historical museums, art museums and other institutions. Students are permitted to visit the surrounding sites, generally at will, to use their resources through contracted relationships.

Internships and service work create additional opportunities for place-based learning. Internships provide students with the opportunity to experience the day-to-day activities and atmosphere of environments that might relate to potential work interests. All five schools have some level of internship and service requirement. They may be tied to the same place over time, or they may be short-term relationships.

Opportunities for gaining authentic skills. Montessori noted the uncertainty regarding work opportunities of her own time, which certainly pertains today as well. Also, she stated that students must not take the possibility of finding adult work for granted (Montessori, 1948/1994, p. 60). She suggested that adolescents should be provided opportunities to explore both manual and intellectual labor in order to discover which type of work was most suitable for them individually. As originally conceived by Montessori, the work component of Erdkinder can present some challenges for modern-day Montessorians in the United States trying to implement the method at the high school level. The actual costs, along with the assessed risks of operating a large-scale farm and inn as she suggested, are generally prohibitive. In urban, and even suburban areas, land availability may create a further challenge. Finally, in the 21st century, the sorts of future occupations from which students might choose are vastly different than what Montessori could have foreseen when she wrote the Erdkinder essay, and Montessori high schools appear to be adapting the model accordingly.

At the schools included in this study, while farm labor and other outdoor work are program components, intellectual opportunities such as internships, service projects, and fund-raising ventures meet the demand for authentic work experiences as well. Farm

work provides ample opportunity for authentic work for ninth-graders at the three schools

with farm programs. At the West Coast Charter School, for example, students plow,

plant, harvest and sell crops on the farm, care for animals, and repair equipment and

facilities. At the Midwest Charter School, the farm becomes a laboratory for learning

consumer awareness, sustainable living practices, and culinary skills as students do their

daily work. By creating businesses with the products they grow on the farm, students not

only learn authentic work skills, but also develop an understanding of how people have

met their fundamental needs over time. As the school handbook explained:

> In the farm environment students can analyze their resources and develop
> specific occupations and operate micro-economies. Through these
> business enterprises students grow to understand their society and
> previous civilizations as they have authentic academic application to real
> life situations.

Farm work helps students to gain a broad view of humanity and explore roles they

might play within society, yet as secondary students get older, the intensity of their

exploration sharpens. "The Montessori approach to high school is to have students learn

deeply about other cultures and discover how they can contribute to the world through

developing their *inner vocation*," the Midwest Charter School's handbook explained.

Students in the Urban Erdkinder class at the Public School gain real-life work skills by

running a pizza business using the school's brick oven. For this class, students are

assessed solely on their profitability, as they learn organizational, relationship, and

management skills.

The nearby institutions provide a venue for gaining authentic skills for the Urban

Private School. The students begin with nominal involvement at the institutions, work

their way into menial contributions, and ultimately serve in some sort of an internship capacity. With numerous and diverse institutions all in walking distance, students can explore individual interests in more than one venue with ease.

Even at schools where ease of access is not as great, internships and service work provide work experience. At the Public School, for example, all students complete 50 hours of service work each year, and seniors complete a practicum. The head of the Midwest Charter School noted that students prepare themselves for the workplace when they participate in internships by writing résumés and attending interviews.

At all the schools, students do fund-raising to help pay for their travel, and as they plan and implement these projects, students gain skill in organization, negotiation, and more. One student at the Rural Private School likened the process to a lesson in government:

> There's a head of every fundraiser, and there's a teacher who is assigned to help. So the student is in charge of it and can go to the teacher for help. Like the spaghetti dinner. The student is completely in charge of it, and if she needs things to be done, she just goes to the teacher and says what she needs. Like this is what I want to do, this is how I think it should be. Can we make it happen? And the teacher would say, "I would try it this way. Or maybe if we tweak this, maybe we do this, go run it by [the head of school]. "And then we have to go to [the head of school] and present our idea in a way that will make her like it. And then show her where the…basically it's like trying to pass a law in Congress. You have to go to the Senate then you have to go to the President. And then if she vetoes it, you take it back to the Congress and Senate and start all over again.

Opportunities for Authentic Community Contribution. At the early childhood level, Montessori practical life lessons focus on helping the individual students gain skills that will support their burgeoning independence. At the elementary level, much of the

practical life work that students tackle has to do with forging relationships and figuring out how to function as part of a group. Secondary students meld the needs for independence and community ties as they work on their magnum opus: involvement in the adult community. "You have in the children's house care of self, care of others, care of the environment," the head of the Urban Private School said. "This is the same on a more advanced scale." And so, students continue to contribute to the school community, but students at all five of the schools also stretch their efforts into the their local and global community.

Students make contributions in their local community by volunteering for a variety of organizations. At the Urban Private School, the very same relationships within the community that provide students work experiences also provide them opportunities to make authentic contributions to the community. Students from the school are working on projects like documenting the history of a poor neighborhood located nearby that was instrumental in the Civil Rights movement. They also work with an organization that supports women who are addicts and abuse victims.

For the Rural Private School, local community service happens on a nearly weekly basis. Most Friday afternoons the students do some sort of service project in the community. Projects have included efforts like creating a global awareness video for Hispanics, helping the Salvation Army pack food and classify toys for distribution to destitute families, and tutoring students at a local library. Even the students are struck by the magnitude of what they do:

> Ever since first entering the Montessori community, I have been astounded by the fact that in such a small community, so many people are willing to join in to help out…the Montessori community is one of the most generous groups I have ever been a part of.

The good will and excitement that the service projects engender among the students is what a teacher from the West Coast Charter School described as, "That whole valorization process, as 'How am I going to contribute to myself as I contribute to society.'" A comment in a service project flier from the Midwest Charter School reinforced this idea:

> Through the Service Intensive Project, students become active participants in the work of creating peace. Our goal is that every student graduates with a passion for changing the world through their own efforts.

The effect that these community-spirited teens have reaches far and wide. A student at the Rural Private School used her senior project to coordinate a fund-raising effort for Hurricane Katrina victims. Students from the various schools have also raised money for organizations such as Pennies for Peace, which helps build schools in remote parts of southwest Asia to help empower young people, and especially women; The Heifer Project, which helps poor families around the world feed themselves by providing them with food producing animals; and UNICEF, which helps children around the world.

A staff member of the Public School said she actually talks to students quite directly about the aim of work in the community:

> Typically I use the word valorization with the kids. I say you're becoming adults. Your frontal lobe is growing…you know…you take note of when you're proud of yourself. But we go so deep and wide, as I said. And we…it's even like a joke. How are we going to make the world a better place? And I see them doing that kind of stuff all the time.

Integrated Learning Experiences. Students at the Rural Private School take discrete classes; however, because the staff works with them over a number of years, teachers are constantly relating what students are turning back to things they have previously learned. Service work, internships, and international travel all provide opportunities for integrated learning.

At the West Coast Charter School, outcomes are not content-area specific, but rather comprehensive objectives that specifically support integrated learning. Work on the farm is integrated across the curriculum with the work of the farm being a common thread that ties the disciplines together. At the high school, field trips are work–study opportunities that allow students to make connections between ideas and places. Wednesday electives also frequently become avenues for combining diverse skills. The Praxis project specifically aims to integrate learning. For this project, each quarter a question is posed and students are expected to answer it using knowledge from across the curriculum.

Integrated learning is occurring within practically every aspect of the Urban Private School. History, for example, is studied in the context of a changing planet and is integrated closely with science. Beyond integrating classroom-based curricular content across disciplines, integrated learning is facilitated by the connection between the classroom instruction and community interaction. This code was one of the most frequently occurring for the Urban Private School.

The internships, community service, and Intersessions all serve as opportunities for integrating learning at the Public School. Additionally, classroom content is integrated across the curriculum.

Experiences supporting economic independence. Montessori, in describing the four planes into which she divided development, said that the final plane was reached at the point of financial independence (Montessori, nd). With that in mind, she noted that adolescents should be engaged in activities aimed at fostering economic independence for which they might receive a financial incentive as well. Fund-raising for field trips is the primary means by which these opportunities are accomplished in the schools studied. At one school, students create their own fund-raisers, which they plan, prepare, and implement. "We have done a lot of fund-raising work, and that really shows how we can work with the money," a ninth-grader from the Rural Private School explained.

Internships provide another means for acquiring skills to support economic independence. Students at all five schools take part in some sort of internship experience. Although some schools expect their students to intern with no remuneration, the West Coast Charter School encourages students to seek paying positions so that they can reap the benefits of personal economic gains. Students at the Urban Private School may be compensated as well.

Microbusinesses also support learning how to achieve economic independence. At the Public School, students can opt for a class in which they run a pizza business and are graded based on their profitability. Ninth-graders at the Midwest Charter School sell crops they raise on the farm. At the Urban Private students are supported in their

individual efforts to create businesses, and the school is also seeking ways to create collective business opportunities that can provide all students experience with planning, marketing, inventory management, and business relationships.

Research Question 3

In what ways do the curriculum, class structure, pedagogy, and approach serve to meet the developmental needs of high school students as outlined in Montessori's Four Planes of Education and current literature? In the third plane of development— adolescence—feeling and finding empathy, investigating and experiencing society independently, and developing self-respect are the primary needs that must be met (Montessori, nd). The Montessori high school, as exemplified by the five schools that participated in this study, provides a learning environment in which students can meet these needs in a manner that is tailored to their own personalities and interest.

Finding and feeling empathy. Relationships that students build, inside and outside the school community, are the conduit to both learning to understand others and learning to be understood. Because relationships between students and teachers, and among students, are characterized by strong emotional bonds, empathy plays a prominent role in the classroom. A teacher at the West Coast Charter School offered an example of how the cycle of empathy develops:

> You know teens need to have that freedom for the administration to be OK with saying, 'You're not feeling well today. Why don't you go out and sit in the orange groves and do your work. Do the assignment out there,' or, 'Why don't you just go to the couch downstairs.' You know, being able to recognize their needs, meeting their needs nurtures their spirit, and then creates a different type of culture around the school.

A student at the Urban Private School expressed a similar situation with regard to experiencing an empathic approach:

> Student/teacher relationships are definitely more functional in our school than I've experienced in the past; even if we aren't all happy with it all the time, there is a sort of bond where, if a student is really struggling, a teacher will help them with compassion and sincerity rather than a sense of duty.

A teacher at the Public School indicated that empathy is also evident in students' peer relationships. "One of the typical things I noticed on the first day is how easily the kids turn to one another to help each other. It's just a real closeness," she said. The head of the Midwest Charter School said that the empathic nature of relationships at her school is deeply ingrained in the school's culture. She explained, "Cultural norms at the school support pro-social behavior and the expectation is that students want to be socially responsible within the community."

The head of the Rural Private School indicated that creating a culture of empathy is an ongoing effort. "I do think it's important to come back to always building in that sense of what I do has an impact on others; and therefore, I do have to be aware of others." Students at the school appear to be hearing the message. A ninth-grader commented:

> I think that the Montessori education will help me be more open to other ideas. I think people—I'm not saying all people—some people are close-minded. And I think Montessori people are open-minded, and I think that's going to help me a lot with working on my life.

Investigating and experiencing independence. Internships, service projects, special projects, and practical life activities are all opportunities for students to

experiment with independence. These program components have been discussed

extensively already in the sections above related to student-centered learning, integrated

learning, place-based learning, and experiential learning, and their ability to address

students' growing need for independence has been elucidated there.

Developing self-respect. One of the ways that Montessori high school students are

supported in developing self-respect is that they function in communities that rely on

mutual respect, rather than rewards and punishments, for maintaining order. The head of

the Rural Private School said her school depends greatly on community standards, which

are formulated in cooperation with the students, and create opportunities for building

self-respect at her school:

> It's not as if you broke a rule, but as if it was an affront to the community.
> So if you cheat on a test, it really takes away from the community in that
> we won't be able to trust you any more, etc. I am not big on reward and
> punishments. It is not in my nature to punish people. It's not in my nature
> to say, 'Oh no, you're kicked out,' or whatever. So I have a hard time
> responding that way. I always just come back to 'How are we going to
> make this work so we can all do the right thing?' It seems to work.

Community standards are key at the Midwest Charter School as well. The head of

school explained, "We establish a culture that to be cool at our school this is what you do.

I think it's cultural setting. I'd rather say it's culture, and then there's peer pressure to be

that great student." The school's handbook talks about self-respect in terms of how

students present themselves in the community:

> If your pants are sagging, your eyes are covered by hair or hats, your
> bras/bellies are showing, or you choose to wear shirts with offensive
> language or images, we'll ask you to change PR style. Again, as the
> oldest, you have the most responsibility for role-modeling respectful

behavior…including how you dress, and how you present yourself as a Montessori student.

Furthermore, at the Midwest Charter School, the culture of respect is presented to the students in a very positive light, as the handbook makes clear: "These norms of respect and responsibility offer us a generous amount of freedom, which of course, is where all the crazy-learning-fun begins."

At the Public School, the foundations of self-respect are incorporated into the school's five core values: peace, hard work, community, respect, and being kind. And it plays out as a community in which diminished social barriers support respect of oneself and others. A teacher at the school explained, "Just think of a 14-year-old girl who isn't feeling good about being close to a person of another gender, or another race, or another socioeconomic group. You know I say like all that goes by the wayside, here." At the West Coast Charter School that culture is nurtured through a formal mentoring system. Students sort themselves into the various adults' groups based on shared interests and skills, and the students build themselves up by being part of the group and participating in the group's activities. Besides having assigned mentors to guide them, residential students at the Urban Private School develop respect for themselves and others by virtue of sharing household space and duties and negotiating the social situations that arise.

Culture definitely supports the development of self-respect, and consequently, all the schools have topics such as peace education, care of oneself, and care of the environment as part of their day-to-day curriculum. Related values are shared in the community through classroom instruction, egalitarian relationships, and cooperative

approaches. Additionally, students gain self-respect as they explore ways that they can contribute to the greater good through volunteerism and work.

Research Question 4

In what ways do the curriculum, class structure, pedagogy, and approach serve to prepare adolescents for higher education and adult work? At the earlier levels of Montessori instruction, students work to meet their current developmental needs while simultaneously preparing for the next developmental plane. For example, early childhood students spend much of their time participating in activities that develop pincer grip, facilitate left-to-right orientation, and build concentration. While these skills are presented in lessons that help preschoolers meet the developmental need to do things for themselves, they simultaneously help prepare the children for the second plane of development by fostering skills needed for reading and writing. Elementary students begin going out into the community on field trips that meet their developmental need for contemplating the vastness of the universe, while they prepare for the place-based focus of the secondary program. When the students reach the secondary level, once again as they work to meet their present needs of feeling and finding empathy, investigating and experiencing society independently, and developing self-respect, they are at the same time preparing themselves for higher education and adult work.

At the Public School, one of the ways that students prepare for higher education and adult work is by doing their schoolwork in a manner that is collective or collaborative. Portfolios that demonstrate students' mastery of the Midwest Charter School's curriculum serve as a tool for them to present themselves to prospective

universities and employers. The high school newsletter specifically states that the
independent work expected of students is aimed at helping prepare them for college. It
also states:

> Graduating students from [the school] generally get in to their first choice
> university. Our students not only meet the college entrance credit
> requirements, but also have a distinct advantage with our Montessori
> requirements: service work, educational travel experience,
> career/internship experience, senior practicum work, and their Montessori
> outcomes portfolio.

The school provides opportunities for students to visit college campuses and to explore
which schools will best suit their needs. Students also participate in special instruction
regarding test preparation and stress management to support success in getting into and
succeeding in college. The head of school said her staff works to directly prepare students
to excel in the workplace. "Our internships certainly prepare them to get jobs," she said.
"And it means our kids will have written résumés before they graduate. They will know
how to be interviewed for a job before they graduate. They, many of them, will be
working."

A portion of the preparation for college and adult life is very practical at the West
Coast Charter School. The head of school explained that practical life electives tend to
focus on providing skills that will serve students in the five years after high school. The
school offers sessions on financing and food preparation and melding arts and culture.
She explained, "We're training them how to take care of yourself in college. They often
have a class on how to navigate around planned-parenthood and that kind of stuff." A
teacher at the school explained that by planning and funding their extended learning

opportunities, students learn how hard it is to make money and the amount of work it takes to be successful.

At both the Rural Private School and the Urban Private School students have the opportunity to interact with college students on a regular basis, and directly prepare for this next step. At the Urban Private School, this interaction is accomplished through the cooperative arrangement the school has with the nearby university. At the Rural Private School, the preparation comes from actually attending classes at the neighboring community college. At the Urban Private School, preparation for adult life comes not just from internships, service projects, and micro-economies, but also from ventures where there is no shelter from negative outcomes and the impact of the work is real. "We have students who are paying their tuition through photography, things like that," the head of school mentioned. A student at the Rural Private School said that simply being at her school encouraged skills for adulthood. She said, "When I talk to an adult they are surprised about how much I know and how mature I am. Then I think, 'I can pull this off.'"

Synthesis

The data collected supported the idea that Montessori education can take place in private, charter and public schools at the high school level. It showed that there is a great deal of variation in these programs in terms of how the school day is structured, how classes are configured, and how student work is assessed. These variations do not appear to be specifically related to the school governance structure. Although the Public School had the most structures that appeared traditional in nature, the West Coast Charter School

and the Urban Private School appeared to operate in a manner that was most consistent with Montessori practice at lower levels. Even in cases where students attended grade-level segregated classes on a rigid bell schedule, there appear to be efforts to create a multi-age community. Traditional letter grades were used in all the schools, even at the school where students worked the most independently, yet all schools reported being mastery-oriented.

Discrepant Cases and Non-confirming Data

In general, the data collected demonstrated that even with great variations in the participating schools' governance structures, school culture and make-up, and curricular content and approach, the five high school programs share common threads that were consistent with what one might expect based on traditional Montessori methodology and Montessori's writings about secondary education and adolescence. Despite these findings, it must be noted that some of the data collected provided unexpected information.

With regard to school governance and its effect on how Montessori programs are implemented at the high school level, it should be noted that the data revealed an approach to student behavior management at the Public School that is antithetical to Montessori best practice. A course syllabus on the school Web site discussed a class tardy policy that included the use of detention as a punitive measure for repeated lateness, though Montessori best practice would discourage use of rewards and punishments. Because determining the underlying forces behind discrepant practices was not the focus of this research, the practice was noted, but further information about it was not pursued.

Without more in-depth investigation, it is impossible to determine if this punitive

approach is simply school system policy being enforced, if it is a manifestation of the fact

that teachers at the school come from traditional backgrounds, or if some other factor or

factors foster such traditional vestiges within a system that is, overall, focused on student-

centered approaches.

The use of letter grades in reporting student progress, which was universal among

the participating schools, was one of the most notable discrepancies with regard to

traditional Montessori. Some of the participating schools assigned letter grades based on

percentage scores associated with student work, and others used more subjective

approaches for determining grades. The charter and public schools were required to use

traditional grades because of their governance structure, and the private-school heads

both expressed concern about college matriculation as a motivation for assigning grades.

These justifications are plausible; however, the lack of training programs equivalent to

the lower levels for staff and the often-traditional background of the staff members may

play a part in schools' use of grades.

The use of traditional class periods to structure the school day was unexpected.

The approach at the Midwest Charter School, which includes the traditional Montessori

morning work cycle, was the exception. Each of the other schools, to some degree,

divided the day into distinct periods. The Urban Private School appears to do so while

still managing to offer students a great deal of flexibility. The other schools all build

some degree of student choice. As with the use of grades, the use of traditional class

periods was generally justified by staff as a means for helping students meet graduation requirements in a manner that would support college matriculation.

The practices that seem most traditional at the schools studied do not appear to be supported in the Montessori literature or initiated in response to local action research or more globally oriented research. Instead, these decisions appear to be based on perceived expectations from receiving institutions. These practices did not appear to prevent the schools from creating Montessori environments. The desire of school officials to operate programs that are perceived as being Montessori could lead them to present a picture of their daily operations that minimizes the negative impact of practices such as those mentioned above. Because this study did not include direct researcher observation, there is a possibility that the documents and interviews present the programs as being more Montessori-oriented than they might appear through direct observation.

Evidence of Quality

A number of techniques were used to enhance the quality of the research, including triangulation, member-checking, and bias-management. Each technique served to enhance the research in its own way, and the collective use of these quality-assurance techniques supported the overall quality of the study.

Triangulation of data occurred on multiple levels. One type of triangulation that I used was multiple data sources. The use of human sources in the form of focus-groups and personal interviews and document sources allowed each type of data to serve as a check on the other. The study included public, charter, and private schools as another means of triangulation. I chose to include schools of all three governance types, to reduce

concern that observations might pertain to only one type of school. Once data were collected and coded, I created a profile for each school that was organized by coding category. The descriptions under each heading represent a synthesis of the data collected related to each code. I then formulated overall observations about the schools, using the individual case profiles to check the accuracy of the observations.

The school profiles were also used in the member checking process. After I created the profiles, I provided them to the cooperating schools via e-mail for review. Schools were asked to respond by e-mail to any discrepancies between the summaries and actual practice at the schools.

Given my personal interest in Montessori education and my involvement in creating and implementing one of the few Montessori high school programs in the United States, it was vital that I work diligently to separate my own biases from the study. I approached schools at which I had no prior institutional or individual relationships. I created research questions and data codes that were specifically tied to the literature, rather than to my personal experience or the program I created. I used several bracketing techniques to address my personal feelings and to separate them from the data collection, coding, analysis, and synthesis. I maintained a journal for tracking contacts with prospective cooperating schools. In these journals I kept notes on conversations with the schools and documented general impressions. As I worked to over come challenges with the original group of cooperating schools and identified potential additional cooperating schools, I decided I needed a second journal, which was used exclusively for bracketing frustrations that arose in securing adequate participation.

Although the challenges with securing participation eventually necessitated changes to the research protocol, these changes actually strengthened the quality of the study. In the early data collection phase only one private school was participating, and it was clear that going with a single case design would meaningfully reduce the potential social change implications of the study. In consultation with a qualitative methodologist, I decided to include schools for which I was able to procure a set of basic documents and confirm their content with at least one staff interview. This change in protocol led to five case sites. This structure created an unexpected additional level of triangulation. The charter and public schools had the common thread of state oversight, but the private schools had minimal state intervention. By having multiple members of the two groups, I was able to make comparisons within state-controlled and private groups and between the two groups. This level of comparison would not have been possible in a meaningful manner under the original protocol, which included one private, one public, and one charter school. Consequently, the change in protocol ended up enhancing the quality of the study, rather than undermining it.

Summary

The following patterns emerged from the data. In terms of traditional Montessori practice, student–staff relationships, student-centered learning, and experiential education were prominent themes. The most prominent Erdkinder characteristics were integrated curriculum and place-based learning, though opportunities for authentic work and contribution to the community and opportunities supporting economic independence were part of all programs. Opportunities for preparing for adult life were slightly more

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prominent than opportunities for preparing for higher education. All areas of development—intellectual, physical, social, emotional, and spiritual—are supported. Emphasis on social development was especially prominent in all programs. The conceptual framework (see Figure 2) presents a graphic representation of the synthesized data and an overall picture of the essential elements of a Montessori high school program as characterized by five schools in this.
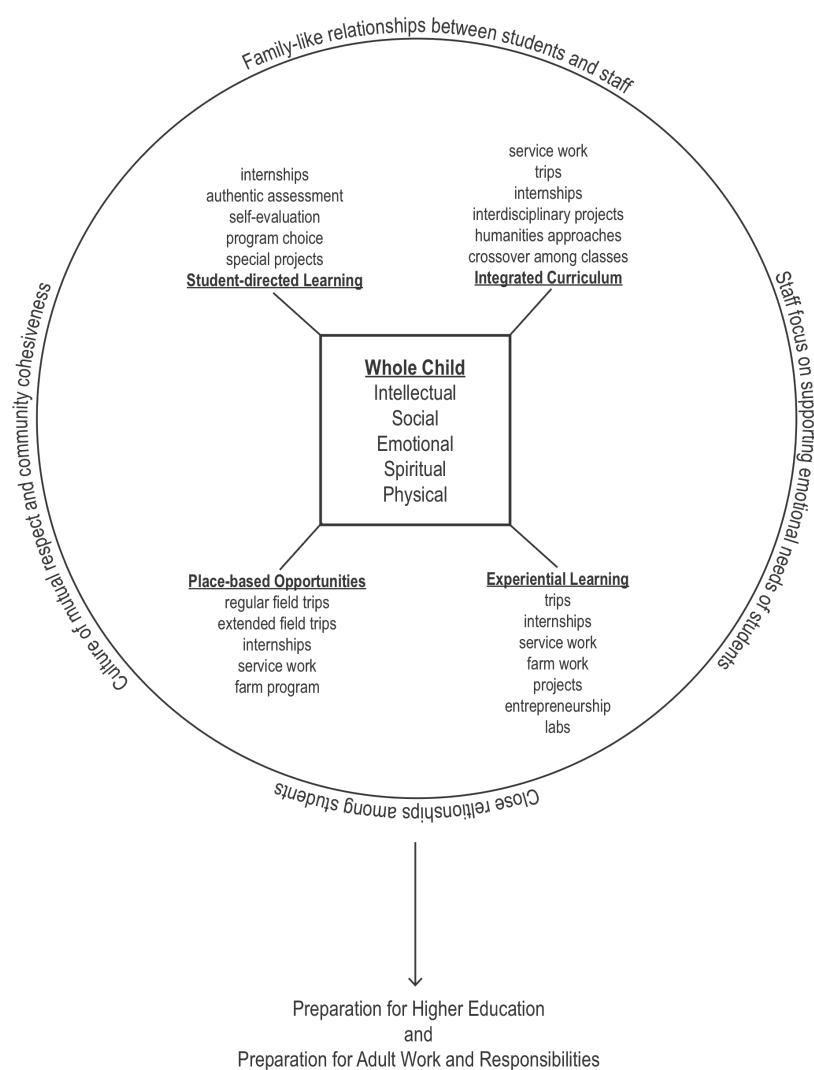
Figure 2. Conceptual framework of U.S. Montessori high school programs.

CHAPTER 5: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Introduction

This chapter features a discussion of the summative interpretations of the data related to each of the four research questions. It also presents the implications for social change, recommendations for action, recommendations for further research, and reflections of the researcher. A concluding statement ends chapter 5.

Summary and Interpretation of Findings

The theoretical framework that guided this study was cultural-historical activity theory (CHAT). CHAT focuses on learning as a cultural process in which acquisition of knowledge is inextricably connected to social relationships. This framework proved to be particularly apt for examining Montessori high school learning communities. As elucidated below, the social nature of learning appears to be a key element in all four aspects of Montessori high school education addressed by the research questions.

Research Question 1

How are traditional Montessori approaches that appear in lower levels integrated into Montessori high school programs? A total of eight characteristics of traditional Montessori practice were considered for this study. There was evidence to support that all eight characteristics likely play some role in a Montessori high school program; however, they were not all relevant to the same degree.

There was evidence that multi-age classrooms, the prepared environment, and authentic assessment, are areas where there is major discrepancy from or modification of ideals of the early childhood and elementary levels, and these characteristics play

diminished roles in the high school programs compared to their roles in the lower levels. Concern about preparing students for university matriculation appeared to be at least one factor in decisions made in this regard.

There was wide variation in terms of multi-age practices, with some schools maintaining three-year age cycles and others relying more on single-grade class structures. Still, students at all five schools had opportunities to interact with students from the full program age range. Regardless of the structure in the classroom, community interaction through internships and service work, which were part of all five programs, greatly expanded the age range of the people with whom students regularly interact. This widening of the age bracket is consistent with the idea that students in the third plane of development are working to integrate themselves into the adult community.

The instructional environment at the high school level is broader than that of the early childhood and elementary levels, and so is the notion of the prepared environment. Vygotsky, like Montessori, said preparing the environment was the teacher's primary role in education (1926/1997). In the Montessori sense, this preparation has a somewhat narrow context, namely referring to the arrangement and maintenance of learning materials. Vygotsky appears to take a broader perspective, comparing the preparation to setting the track that guides a train (1926/1997). Preparing the environment at the high school level, based on the evidence provided in this study, requires that the teacher create connections with environments outside the school campus, for at the high school level, the environment stretches beyond the classroom and even beyond the school building. Furthermore, the evidence suggests that students take on a heightened role in preparing

the environment, not only assisting with configuring and maintaining the physical presence of the classroom and school, but also seeking opportunities for personally meaningful extended environments for their studies.

Assessment practices at the high school level appear to be the most unlike what might be expected at the early childhood and elementary levels, with grades being used in some manner across the board, which would indicate at least some degree of standardization and comparison of students' work. School reform literature highlights concerns regarding standards-based teaching (Glasser, 1969; Kohn, 1999; Maehr & Anderman, 1993) such as a reduction in creativity and higher-level thinking; however, the Montessori programs, even the public and charter schools, which are held to state and local high-stakes testing requirements, appear to have circumvented potential risks by mitigating them with greater emphasis on other Montessori characteristics.

Self-directed learning, experiential learning, and focus on the natural world were a part of all five of the programs. At the three schools that offered farm-based programs, there was a particular emphasis on experiential learning in nature. Older students at those schools, as well as students at schools with no farm component, still had learning experiences that incorporated these characteristics extensively. Ives and Obenchain (2006) identified this type of education as supporting use of higher-order thinking skills, and doing so may be a factor that helps to minimize negative impact of the use of grades and administration of standardized testing.

There is evidence in this research that the relationships between students and staff and among students play an important role in Montessori high schools. The give-and-take

environment in which teachers and students are learning together described by Freire (1993) is exemplified repeatedly in all five cases. The interest in individual students' learning that was articulated in the data may be another factor that minimizes the negative impact of the use of grades and standardized tests (Golden, Kist, Trehan & Padak, 2005).

Research Question 2

How are concepts of the Erdkinder model integrated into the Montessori high school programs? None of the programs follow the Erdkinder model precisely as described by Montessori (1948/1994); yet, all five of them incorporate elements of the plan, based on the evidence. Three of the five schools specifically include a farm program; one of the schools that does not include a farm program does have a boarding component. And the school that includes neither of these elements offers a course specifically intended to create Erdkinder-like business experiences in the urban, public school setting. The evidence indicates that all of the programs work to address the reform Montessori (1948/1994) suggested with regard to what she called the present form of society. This reform, according to Montessori, should be aimed at preparing students for economic independence, and the service learning and internship experiences incorporated into the five schools' curricula do just that. In order to meet what Montessori called the vital needs of the adolescent, the other major category of reform she suggested, the general idea of the farm school concept was that adolescents would experience adult society by doing real work that makes an authentic contribution to the community. Even though actual farm experiences at the high school level were limited to ninth-graders at three of the schools, opportunities to do meaningful work in the community at large

abound in all five programs. It will be the job of the Montessori high school pioneers to observe the degree to which their programs are effective in actually meeting the Erdkinder goals in order to further develop the Erdkinder ideals for today's society. In the same way that Montessori herself developed her early childhood program through mindful observation of children in the classroom (Montessori, 1918/1991), Contemporary Montessorians will need to develop high school programs by observing students in their varied learning venues. "It was thus that the soul of the child gave its revelations, and under their guidance a method exemplifying spiritual liberty was evolved" (Montessori, 1918/1991, p. 54), and it is thus that the adolescent's soul will similarly guide Erdkinder methodology.

Research Question 3

In what ways do the curriculum, class structure, pedagogy and approach serve to meet the developmental needs of high school students as outlined in Montessori's Four Planes of Education and current literature? Kemp (2006), in writing about place-based learning, said that when education is rooted in a place and students are encouraged to expand their experiences there to the world, they develop better understanding of both the place and the world. Data from this study show that in the third plane, adolescents develop the concept of empathy, begin to experience society independently, and develop self-respect through this place-based work. In other words, the opportunities for authentic work and authentic contribution to the local and global community assist Montessori high school students in meeting the developmental needs of Montessori's third plane of

development, during which these adolescents gain skills to become members of adult society.

Not only Montessori (1948/1994), but also Dewey (1902/1990), suggested that during adolescence the learning environment must surpass the confines of the classroom. Smith (2002), in terms consistent with the CHAT perspective, posited that meaningful education is directly related to the students' own social reality. Given the frequency with which the data addressed social development, the evidence suggests that integrated curriculum that encourages students to make connections in their learning, the freedom students are afforded in the classroom, the caring relationships that are forged between students and teachers, and the experiential approach to learning all work to relate the education experiences to the students' roles in society, thus meeting their developmental needs.

Research Question 4

In what ways do the curriculum, class structure, pedagogy and approach serve to prepare adolescents for higher education and adult work? There seems to be a slightly greater focus on preparing students for adult work than for higher education, yet there is evidence in the data that demonstrates that both goals are incorporated into the five participating schools. Integrated curriculum, which was apparent in the data, fosters higher-level thinking needed for success in both post-secondary venues (Glasser, 1969). The class structure of the Montessori high schools provides a great deal of autonomy for students, yet encourages interdependence as well, creating activity systems as described in the CHAT literature (Engreström, 2001) that foster skills needed in the adult world.

The egalitarian relationships among students and staff and the expectation that students hold a great deal of responsibility for their learning, as described in the data, also foster skills for higher education and adult work by giving students the opportunity to experience learning in an adult social context.

<div align="center">Implications for Social Change</div>

The problem statement identified in chapter 1 indicated that the standards-based, approach necessitated by the No Child Left Behind Act (NCLB) fails to adequately prepare students for higher education and employment. In an effort to consider how this problem might be addressed, this study serves as a starting point for understanding how Montessori education is being practiced at the secondary level. This study has the potential to inform both classroom practice and teacher preparation. Additionally, this study may serve as a catalyst for future research that considers how the program characteristics identified in the findings might be incorporated into traditional educational practice as reform measures.

Situated in the context of cultural-historical activity theory (CHAT), the data from this study provided an understanding of the socio-cultural settings of each of the five schools individually and collectively. Interestingly, the common threads among the programs were not related to specific didactic materials or core content, as might be the case for Montessori early childhood or elementary programs for which there is a century of history, an extensive written legacy, a vast array of scientifically created and selected materials, and a network of training programs aimed at preparing Montessorians to practice their art in a precise and uncompromising manner. Instead, the common threads

are firmly tied to social constructivist roots. The structure of the communities studied for this research and the nature of the relationships within them appear to be the elements that give the schools a Montessori feel, even though there is a great deal of variation regarding curriculum, instruction, and assessment. This finding is especially encouraging in terms of the potential for creating broad social change based on this research.

The environment of a Montessori early childhood or elementary class is expensive to create, as it requires an extensive set of specially designed materials available from a limited number of vendors (Seldin & Epstein, 2003). In order to teach in this environment, educators require specific training to understand the presentation and purpose of each of the materials and to develop a sense of the scope and sequence of the learning associated with them (Seldin & Epstein). These characteristics may serve as barriers to creating new Montessori schools, encouraging existing schools to become Montessori, and recruiting potential new Montessori educators. Given that the elements that appear to comprise Montessori high schools are more about mindset and approach than materials, public schools might be more willing to consider Montessori as a reform option at the high school level. The 10 characteristics of Montessori high school programs with the highest overall frequency ratings in this study could all be integrated into traditional public high schools without requiring schools to make a wholesale change to Montesssori education (see Table 4).

Table 4

Recommended Practices for School Reform in Traditional Settings

Frequency Ranking	Characteristic
1	Address social development needs
2	Integrate curriculum
3	Address intellectual development needs
4	Address spiritual development needs
5	Create family-like teacher/student relationships
6	Address psychological development needs
7	Provide opportunities for experiential education
8	Focus on student-centered learning
9	Provide opportunities for place-based learning
10	Provide opportunities for authentic adult work

Note. Frequency rankings are based on overall data code frequency. Characteristics represent descriptions of the top-10 codes by frequency.

Emulating the models examined in the five participating schools would have a number of benefits to society. First, if students were provided greater opportunities for using more critical thinking, cooperation, and collaboration, they might be better prepared for higher education in an adult occupation in the 21st century. If all areas of development were nurtured, students might feel more connected to their learning, to their community, and to humanity, because they would be supported in developing a deeper understanding of the web of life. If students were provided plentiful opportunities to valorize their personalities through authentic work via service learning and internships, they would be better prepared to be good stewards of themselves, other people, and the environment. And finally, and perhaps most importantly, if schools provided a system in which deep personal relationships between students and teachers were supported rather

than thwarted, students might be more vested in their education for the short term and the long haul. Going back to constructivist ideals, implementing the practices observed as essential in the five schools included in this study could benefit educators and students alike by creating an environment where, through side-by-side learning, everyone's needs are more likely to be satisfied.

<div align="center">Recommendations for Action</div>

Results of this study suggest a need for action in two distinct areas. On one hand, the study should be used to inform practice in traditional public education. On the other, it sets the stage for informing Montessori practice. Within each of these areas, there are several specific opportunities for action, as described below.

Based on the conclusions of this study, it is reasonable to expect that the core elements of Montessori high school practice—student centeredness; experiential, place-based learning; familial relationships among students and teachers; authentic opportunities that support development of 21st century workplace skills; and an emphasis on all areas of development, including intellectual, physical, social, emotional, and spiritual—can be implemented as reform measures in a diverse array of schools.

Specific training is not absolutely necessary in order to implement characteristics of Montessori high school programs in traditional settings, but the availability of training might encourage more widespread implementation, as well as support sustainable change and measurable results. With these thoughts in mind, various components of Montessori high school education should be broken down into discrete skills and practices that can be

addressed in a series of training modules, and then modules will need to be designed and field tested.

The identified characteristics of Montessori high school programs have tremendous potential for integration as large-scale reform measures in traditional public schools. Educators who are committed to a process of self-reflection and personal development, could likely implement many of these characteristics independently. The best opportunities for meaningful reform, however, would come from training preservice teachers and prospective administrators to integrate the Montessori characteristics into their practice before less student-oriented habits become ingrained. Long-term, in-house, staff development programs that introduce these characteristics and support their integration, coupled with measures to ensure implementation, could be employed to introduce Montessori high school philosophy and techniques to traditional high school programs without requiring a wholesale conversion to Montessori education. Ideally, such training would be lead by Montessori educators who are committed to general Montessori approaches and who have received training on Montessori high school practice that is informed by this study and subsequent research.

Though Montessori teacher training was not specifically addressed in this study, the overall diversity of programs studied and the comments regarding training on the part of adult participants indicate that there is a need for enhancing the options for, and increasing the availability of, Montessori teacher training at this level. At this time, there appear to be three programs that specifically provide Montessori training at the high school level. Two are affiliated with the American Montessori Society (AMS) and are

structured in a manner that is similar to training programs for Montessori early childhood and elementary levels. The third is affiliated with the North American Montessori Teachers Association (NAMTA) and is considered an orientation, rather than training. It does not require a practicum phase. Given that there is no published scholarly research regarding Montessori high schools, these three programs appear to be derived from factors other than a strong research base. Montessori training programs for high school educators, both those that exist and those to come, should consider the actual practice that is occurring in existing schools when developing curriculum. This research can serve as a starting point for informing training program development. Research-based training programs that lead to an endorsement of some variety will be important if Montessori practice is to have any chance at being implemented in the public education sector on a large scale.

Several adult participants in this study suggested that traditional Montessori training is not particularly necessary at the high school level. One school head stated that her preference would be for high school staff to have Montessori elementary training, and then to have in-house training to support her school's specific program. Another educator indicated that a general understanding of student-centered practices and a willingness to have collegial relationships with students was most important. Schools that are creating their own programs and are not relying on models endorsed by the three training programs should base their work in research such as this study. In addition to offering a foundation for action in both the traditional and Montessori arenas, this qualitative case

study offers also suggests the need for further research regarding Montessori education at the high school level and the application of this approach in traditional settings.

Recommendations for Further Study

Results of this study suggest a number of avenues for future research. Subsequent research should, as a minimum, center around two themes: informing Montessori practice at this level and exploring ways to integrate Montessori high school practice into traditional high school settings.

Identifying Montessori high schools is challenging in that there is no exhaustive list of Montessori schools available. Based on my personal quest for finding Montessori high school programs, there appear to be at least 16. The conceptual framework created as part of this study should be used as a starting point for examining the remaining identified schools. The comprehensive study and resulting confirmed or revised conceptual framework would create a strong foundation upon which to develop school and teacher training programs and future research projects. Additional case study research, as well as grounded theory and narrative research, can answer questions about how each of the universal themes identified in either the original framework or a subsequent version of it plays out in daily practice at schools and what factors determine how these practices are implemented at specific school sites.

A question that begs answering is how closely aligned current Montessori high school teacher education programs are with actual Montessori classroom practice. Research in this area can be addressed immediately using the conceptual framework derived from this study. It can also be considered subsequently in light of a revised

framework when one becomes available. Research in this vein will be a step toward aligning training and practice. As theory and practice become more consciously connected, the study of each can serve to inform the other.

Informing and improving Montessori practice in settings where there is already commitment to Montessori ideals is a logical outgrowth of this study. Considering how Montessori high school practice, as described here, can be applied as a reform model in traditional public high schools, however, may provide a forum for more widespread impact. My dissertation research was aimed at laying the groundwork for considering Montessori high school practice as a model for large-scale school reform. The most prominent aspects of Montessori high school programs include student–staff relationships; attention to social (and also emotional and spiritual) development; integrated, experiential and place-based learning; and preparation for adult life. Given that the relationship between students and staff and the emphasis on social development were among the most emphasized characteristics of these programs, it makes sense to consider them first in studying the applicability and employability of Montessori high school practices in traditional public school settings.

Traditional teacher preparation programs focus on training educators to deliver academic content, but do not generally offer extensive training in relationship development and child development. In Montessori teacher preparation programs, by contrast, formation of positive student–teacher relationships and keen understanding of child development are supported by both direct instruction in these areas and through a constant emphasis on their consideration in all aspects of instruction. A long-range

project intended to evaluate the effectiveness of providing Montessori-inspired training to traditionally prepared high school teachers as a tool for improving teachers' and students' perceptions regarding their relationships and reducing the need for discipline referrals provides a practical place to start research that specifically addresses the application of Montessori approaches in traditional schools. Additionally, each of the main themes identified above could be studied separately and then collectively.

Researcher Reflections

Because researchers serve as instruments for data collection in case study research, their role in the research is not one of passive observation, but rather of actual participation. As it became clear that some schools that had agreed to participate in the study were not able to do so as the original research plan required, the need for identifying and bracketing feelings and reactions became imperative. Journaling provided a confidential venue for expressing frustrations regarding the lack of participation and the challenges faced in finding new participants, and ultimately new methodology. It also provided an opportunity for keeping these feelings in check and out of the study.

Considering that I am a staff member at one of the handful of Montessori schools in the United States with a high school program, I did come to this project with a vested interest and definite biases and preconceptions. Having created a Montessori high school curriculum from scratch, I am particularly proud of my own work, and incredibly curious about how the work of others measures up to mine. As an avid student of Montessori theory, I had certainly formulated my own thoughts about elements of Montessori high schools that I considered exemplary or unacceptable through my own Montessori

practice. I also brought a bias to the study relative to the degree to which Montessori could be practiced in settings that did not have sustained uninterrupted work cycles. I made a continual effort to separate my own expectations from my data collection. Opportunities for bias to negatively impact the research were mitigated by the bracketing technique described above and by the triangulation that occurred as a result of using five cases and of using various sources of data (Creswell, 1998; Hatch, 2002; Merriam, 2002; Yin, 2003).

When I started the research, I assumed that when principals signed letters of cooperation they intended to support the process of finding participants within their schools, that adults and students who provided signed consent documents would fully participate, that the participants would provide honest and candid feedback for interviews and online discussions and during member checking, and that documents provided were authentic. The first two assumptions proved to be invalid in some cases and necessitated changes in the research procedures.

Originally, three schools had agreed to participate in the study. For two schools, it was difficult to coordinate forward progress with data collection. After numerous attempts, I then chose to contact other schools with the hope of securing cooperation from them. Ultimately, two schools were added to the study as a result of this effort, a private school and a charter school. My preconceptions that the research would lack merit if participating schools were exclusively private institutions and if schools failed to generate data utilizing all of the originally desired data sources did add an element of challenge. Throughout the process of addressing this problem, I maintained a journal of

my efforts and bracketed feelings associated with the process of attempting to recruit additional schools. Finally, recognizing that having an emergent design that changes and shifts as needed to address the research questions and to obtain the information needed to do so is an expected part of the qualitative research process (Creswell, 2007), I modified the research plan. I created two groups of cases based on the types of data I was able to collect from the individual schools. One case study group included the two private schools. These schools were considered to be in full participation, though staff at neither school participated in the online forum. The other group included the public school and charter schools. For these schools data included school documents coupled with at least one interview with a school staff member to confirm, clarify, and complement data where needed. I made this choice in consideration of the fact that using multiple sources of data is an ideal in qualitative research (Creswell). Had I insisted on only using full participation schools, I would have been limited to using the two private school cases, which would have severely limited the impact of the findings. On the other hand, if I had expanded the case pool but only used documents and the confirming interviews for all schools, I would have lost the student voice, which would have created a different set of limitations for the study. The themes that emerged from the two groups were similar, which served as an unexpected level of triangulation.

As I collected and examined data, a number of unexpected items surfaced. I was surprised to read about a detention policy at the public school that seemed contrary to Montessori philosophy. I feared that I might find a setting where the relationship between adults and students was authoritarian and perhaps even adversarial. I was concerned that

the school might prove to be nominally, rather than actually, Montessori. After bracketing my concern and moving ahead, both document data and interview data presented friendly, supportive relationships at the school and multiple conduits for encouraging positive interactions in the school community.

As I began to consider how the individual cases that comprise the study contributed to an overall picture of Montessori education at the high school level, I was struck by the perceived need to compromise some Montessori ideals, in particular, the use of grades rather than narrative evaluation and traditional class schedules rather than open work cycles. In a time when colleges and universities are already faced with addressing nontraditional school records presented from the growing home school populations, it may be prudent for Montessorians to take the time to educate higher education institutions about Montessori practices and to educate themselves about the real, rather than perceived expectations of higher education admissions offices.

<div align="center">Concluding Statement</div>

The Montessori community is faced with a number of challenges if high school Montessori education is to become widespread. Within the existing Montessori community, educators will need to come to some level of consensus as to what program characteristics are elemental. A group of educators associated with the North American Montessori Teachers Association (NAMTA) and the Association Montessori Internationale (AMI) have sponsored adolescent colloquiums and created frameworks that are implemented at the Urban Private School. Meanwhile, the American Montessori Society and the International Montessori Council continue to publish articles in their

trade publications and provide sessions at their conferences addressing adolescent education. Previously existing factional tension among these major Montessori organizations may create challenges as individuals and schools work to implement secondary Montessori programs.

For the early childhood and elementary levels there is an extensive legacy of works by Montessori herself and a vast array of classic materials that account for a great deal of the common ground among programs. Emerging secondary programs, and particularly high school programs, on the other hand, must create their own legacy. In order to do continue this effort in the Montessori way, the pioneering schools must approach their work as Maria Montessori did, through the eyes of a researcher. They will need to evaluate their work not in terms of how it compares to traditional education, but in terms of how it supports the developmental needs of the adolescents while maintaining the general Montessori spirit. Given Montessori's emphasis on incorporating place-based learning, (Montessori, 1949/1994) Montessorians should start with the understanding that by virtue of the diverse communities in which Montessori high schools are likely to arise, there will be a need for tremendous flexibility regarding specific curriculum. By adolescence, students are operating in the abstract, and the common characteristics of Montessori high school programs will have to be equally abstract in the same way that the common characteristics among early childhood and elementary programs are consistent with the students' need for concreteness in their first plane of development and their gradual journey toward abstraction in the second plane. This degree of

programmatic flexibility will likely be hard for many Montessorians to accept, given that it may be contrary to their previous experience and training.

Montessori teachers at the early childhood and elementary levels are expected to know how to present hundreds of lessons using the Montessori materials with a great deal of precision, and their training supports this expectation. At the secondary level, in the quite different. The programs should be based on research regarding existing high school Montessori programs. This study, future studies suggested by the findings, and additional lines of research that examine Montessori high school programs, will perpetuate Montessori's demand for scientific approach to program development. Creating teacher education programs that are rooted in research will not only encourage adherence to Montessori best practices, it will also aid in establishing credibility for these training programs and the educators that emerge from them.

This study demonstrated that Montessori practice can be implemented in diverse settings. Of the 16 Montessori high school programs I identified, two are charter schools and three are public schools, which means there are opportunities for making a case for Montessori practices as a reform measure in public high schools through scholarly research. Coming to some level of consensus regarding common practices at the high school level and developing quality teacher education programs will also support the possibility of approaching school reform from this perspective.

Though high school level Montessori education in the United States is in its infancy, given that the key components identified in this study are not exclusive to Montessori education, they could be employed in schools where staff members are open-

minded regarding educational enterprise and willing to modify their thought processes

and behavior patterns.

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APPENDIX A: LETTER TO PRINCIPALS

125 Olde Greenwich Dr., Suite 100
Fredericskburg, VA 22408
 <Insert Date>

<Principal's Name>
<School Name>
<Street Address>
<City, State ZIP>

Dear <Name of Principal>,

I am soliciting your help and the help of some members of your faculty and student body
with a research effort. I am currently involved in a study of U.S. Montessori high schools
and the ways in which they meet Maria Montessori's assertion that high schools need to
be adapted to the times in which we live and the needs of the adolescent. There is a
significant lack of scholarly research regarding Montessori high school programs, yet
these programs have the potential to serve as models for school reform. My study will
examine farm-based and urban/suburban schools that are public, charter, and private,
non-profit institutions that offer grades 9 through 12.Your school has been identified as
having a secondary Montessori program that meets the parameters of the study, and I am
writing to ask your permission to include your school in my study.

If granted permission to work with your school, I would collect and review school
documents such as handbooks, curriculum, newsletters, and sample student work plans
that will provide information about the high school program. I would also conduct focus
group discussions using online technology and individual interviews via telephone
conversation, e-mail, or video conferencing. Overall, my data collection would have only
minimal impact on school operations because most of the contact with staff and students
will take place outside the school day. Of course protecting the confidentiality of your
school, your staff, and your students would be a priority, and measures to do so are
included in the study design.

I deeply appreciate your consideration in this matter, look forward to working with
students and staff at your school, and hope to hear from you within the next ten days. For
your convenience, I have attached a sample agreement letter that you can use for your
response if you are willing to have your school participate in my study.

Cordially,
Wendy LaRue

APPENDIX B: SAMPLE LETTER OF COOPERATION

Wendy LaRue
125 Olde Greenwich Dr., Suite 100
Fredericksburg, VA 22408

<Your School>
<Street Address>
<City, State ZIP>
<Date>

Dear Ms. LaRue:

Based on my review of your research proposal, I give permission for you to conduct the study titled Empowering Adolescents: A Multiple Case Study of U.S. Montessori High Schools within <insert name of school.> As part of this study, I authorize you to gather school documents that may provide information about the form, structure, policy, procedures, and relationships of the Montessori high school program at <insert name of school>. I will assist as requested in identifying individual participants for the study. I understand that individuals' participation will be voluntary and at their own discretion. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,

Your Name
Your Title
Additional Contact Information

APPENDIX C: DOCUMENT ANALYSIS FRAMEWORK

Title of Document: _____

Type of Document: _____Date of Document: _____

School: _____ Document Provided By: _____

Research Questions	Pertinent Content	No Pertinent Content
How are traditional Montessori approaches that appear in lower levels integrated into Montessori high school programs?		
How are concepts of the Erdkinder model integrated into the Montessori high school programs?		
In what ways do the curriculum, class structure, pedagogy and approach serve to meet the developmental needs of high school students as outlined in Montessori's Four Planes of Education and current literature?		
In what ways do the curriculum, class structure, pedagogy and approach serve to prepare adolescents for higher education and adult work?		

APPENDIX D: DISCUSSION PROMPTS FOR ONLINE FOCUS GROUPS

Below are discussion prompts that will be used for the online focus groups. The number in parentheses at the end of each question indicates the research questions to which the prompt corresponds.

1. Describe how instruction is presented to high school students at your school. Include a description of how instructional time is structured during the day and address issues such as the volume of group instruction versus individual instruction and self-instruction. (1)

2. How much say do students at your school have in how they complete their schoolwork? (1)

3. Identify opportunities students at your school have for going on field trips. Explain how trips are integrated into students' studies. (2)

4. Discuss the ways in which students at your school are involved community activities within your school. (1, 2, 3, 4)

5. Discuss the ways in which students at your school are involved in community activities in the community at-large. (1, 2, 3, 4)

6. Describe any practical life activities in which students at your school are involved. (2, 4)

7. Describe any internship or entrepreneurial activities in which students at your school participate. (2, 3, 4)

8. Describe the role of the teachers/guides at your school in terms of planning and carrying out instruction. (1)

9. Explain the relationship between students and teachers/guides at your school. (1)

10. How is student work evaluated at your school? Are portfolios used in any manner? If so, describe how? (1)

11. Do you receive grades at your school? If so, how are they determined? If not, how is student progress reported? (1)

12. How are behavioral issues addressed at your school? (3, 4)

13. Does your school provide any activities, classes, or services that indirectly or specifically aim to prepare students for becoming financially independent adults? Describe them. (4)

14. What accommodations does your school offer for meeting the needs of adolescents? (2, 3)

APPENDIX E: INTERVIEW QUESTIONS FOR STUDENTS

Below are interview questions that will be used for individual interviews. The number in parentheses at the end of each question indicates the research questions to which the prompt corresponds.

1. Have you attended a traditional school at any point in your education? If yes, to question 1, identify similarities and differences in your educational experiences in the traditional and Montessori environments. (1)

   The following topics will be addressed, as needed, as follow-up prompts:
   - Relationships between students and adults
   - Relationships among students.
   - Type of work
   - Manner in which work is evaluated
   - Use of materials
   - Age groupings
   - Work cycles/schedule

2. How does the high school experience you are having compare with that of your friends who are not attending a Montessori high school? (1, 2)

   The following topics will be addressed, as needed, as follow-up prompts:
   - Relationships between students and adults
   - Relationships among students.
   - Type of work
   - Manner in which work is evaluated
   - Use of materials
   - Age groupings
   - Work cycles/schedule

3. If you attended a Montessori school for preschool or elementary school explain compare your experience at that level to your experiences as a high school student. (1, 2)

   The following topics will be addressed, as needed, as follow-up prompts:
   - Relationships between students and adults
   - Relationships among students.
   - Type of work
   - Manner in which work is evaluated
   - Use of materials
   - Age groupings
   - Work cycles/schedule

- Practical life
- Sensorial development
- Math
- Language arts
- Social studies
- Science
- Emotional/social development
- Spiritual development

4. What opportunities have you had for learning entrepreneurial skills? How have you been involved in these activities? (2)

5. What opportunities have you had for learning outside the classroom? (2)

   The following topics will be addressed, as needed, as follow-up prompts:
   - Connection between place-based learning and regular curriculum
   - Frequency of place-based learning
   - Relationships developed through place-based learning
   - Benefits of place-based learning

6. In what ways is your school experience helping you become the adult you hope to be? Anecdotes and specific examples will be solicited. (3)

   The following topics will be addressed, as needed, as follow-up prompts:
   - Academic development
   - Social development
   - Physical development
   - Emotional development
   - Spiritual development
   -

7. In what ways is your school experience helping you prepare for continuing your education and prepare for obtaining adult work? Anecdotes and specific examples will be solicited. (4)

   The following topics will be addressed, as needed, as follow-up prompts:
   - Practical life activities
   - Entrepreneurial activities
   - Internships
   - Community service activities

8. In what ways is your school experience helping you prepare for being financially independent? (2, 3, 4)

   The following topics will be addressed, as needed, as follow-up prompts:

- Academic development
- Social development
- Physical development
- Emotional development
- Spiritual development
- Practical life activities
- Entrepreneurial activities
- Internships
- Community service activities

APPENDIX F: INTERVIEW QUESTIONS FOR TEACHERS

Below are interview questions that will be used for individual interviews. The number in parentheses at the end of each question indicates the research questions to which the prompt corresponds.

1. In what ways would you consider your own schooling in traditional educational environments similar to and different from those offered in Montessori environments. (1)

    The following topics will be addressed, as needed, as follow-up prompts:
    - Relationships between students and adults
    - Relationships among students.
    - Type of work
    - Manner in which work is evaluated
    - Use of materials
    - Age groupings
    - Work cycles/schedule

2. How does the high school experience you are providing students at your school compare with that of what is offered in traditional public schools in the geographic area where you teacher? (1, 2)

    The following topics will be addressed, as needed, as follow-up prompts:
    - Relationships between students and adults
    - Relationships among students.
    - Type of work
    - Manner in which work is evaluated
    - Use of materials
    - Age groupings
    - Work cycles/schedule

3. If your school offers early childhood and/or elementary programs, how does the high school program compare to these other programs. If you are at a school that does not offer these lower levels, but you are familiar with Montessori teaching at the early childhood/elementary levels, compare what you know about the lower levels in general with what your high school programs offers. (1, 2)

    The following topics will be addressed, as needed, as follow-up prompts:
    - Relationships between students and adults
    - Relationships among students.
    - Type of work
    - Manner in which work is evaluated
    - Use of materials

- Age groupings
- Work cycles/schedule
- Practical life
- Sensorial development
- Math
- Language arts
- Social studies
- Science
- Emotional/social development
- Spiritual development

4. What opportunities have does your school offer students for learning entrepreneurial skills? Describe the roles of teachers and students in these activities? (2)

5. What opportunities does your school provide for learning outside the classroom? (2)

   The following topics will be addressed, as needed, as follow-up prompts:
   - Connection between place-based learning and regular curriculum
   - Frequency of place-based learning
   - Relationships developed through place-based learning
   - Benefits of place-based learning

6. In what ways does the high school experience your school provides help students to become well-adjusted adults? Anecdotes and specific examples will be solicited. (3)

   The following topics will be addressed, as needed, as follow-up prompts:
   - Academic development
   - Social development
   - Physical development
   - Emotional development
   - Spiritual development
   -

7. In what ways does the high school experience your school provides help students to prepare for continuing their education and obtaining adult work? Anecdotes and specific examples will be solicited. (4)

   The following topics will be addressed, as needed, as follow-up prompts:
   - Practical life activities
   - Entrepreneurial activities
   - Internships
   - Community service activities

8. In what ways does the school experience your high school program offers help students prepare for being financially independent? (2, 3, 4)

    The following topics will be addressed, as needed, as follow-up prompts:
    - Academic development
    - Social development
    - Physical development
    - Emotional development
    - Spiritual development
    - Practical life activities
    - Entrepreneurial activities
    - Internships
    - Community service activities

APPENDIX G: DATA CODES AND CATEGORIES

The following categories and codes were established in advance of data collection. Although data will generally be coded line-by-line, open coding will be allowed as unanticipated categories and codes emerge.

Traditional Montessori Practice (mp)

mp.multi (multi-age classroom)
mp.student (student directed learning)
mp.relate (relationships between students and staff)
mp.envir (prepared classroom environment)
mp.exp (experiential learning)
mp.nat (focus on natural world)
mp.assess (authentic assessment)
mp.nctradition (not consistent with traditional Montessori)

Secondary Montessori Practice (sp)

sp.place (place-based pedagogy)
sp.work (opportunities for gaining authentic skills)
sp.valor (opportunities for authentic community contribution)
sp.integrate (integrated learning experiences)
sp.econ (experiences supporting economic independence)

Whole-child Development (wc)

wc.intellect (practices that support intellectual development)
wc.physical (practices that support physical development)
wc.psych (practices that support psychological development)
wc.social (practices that support social development)
wc.spirit (practices that support spiritual development)

Reform Goals (rg)

rg.ed (practices that facilitate preparation for higher education)
rg.adult (practices that facilitate preparation for adult work)

APPENDIX H: SAMPLE PAGE FROM CODED INTERVIEW

Below is screen shot of a page from an interview coded using HyperResearch.

APPENDIX I: SCHOOL PROFILE FOR PUBLIC SCHOOL

School Pseudonym: Public School

School Descriptor: Urban public school

Size: 400+ students in high school program (with an additional 200 students in the junior high program)

Grade Range Offered: Clark includes a junior high with 7th and 8th grade and a high school with 9th–12th grade.

School Day Structure

The school day is structured by traditional 50-minute class periods on Mondays, Tuesdays, and Fridays and by 100-minute blocks with half the classes meeting each day on Wednesdays and Thursdays. The school also does two 2-week Intersession periods where students participate in themed work. The first Intersession is predetermined based on grade-level and for the second Intersession, which is multi-age, students can choose from dozens of option.

Traditional Montessori Traits

Authentic Assessment/Self-Assessment: As a public school, this school is required to follow the system's grading policies, which include using a 10-point scale and issuing grades A, B, C, D, and F. Grades are derived from papers, projects, group work, homework, tests, etc. Rubrics are used for assessing writing. Students are required to take state standardized tests, but the school is given flexibility to follow a thematic approach to content and to test objectives as they fit into the school's curriculum, which is significantly different from other schools in the district, except for the other Montessori school there. There is an emphasis on collective and shared work at the school, across the curriculum.

Prepared Environment: Students share responsibility for maintaining the environment, including in the classroom and in the lunchroom. They are responsible for preparation work related to an annual camping trip.

Experiential Education: The camping trip and Intersessions provide opportunities for experiential education. For the fall Intersessions 9th-graders attend a session on getting used to high school and complete extensive activities related to self-reflection. 10th – graders do community service work in a variety of local agencies. 11th-graders do a college tour and learn about the application process and financial aid. 12th-graders do an internship. The spring Intersessions range from doing something like service work in the local community to traveling overseas.

Multi-age Classroom: Multi-age learning takes place in elective classes and during certain Intersession programs. While students do not have much opportunity for multi-age classes, looping, an arrangement where students have to same teacher for a given content area for two consecutive years is used.

Focus on Natural World: Camping trips and certain special activities bring students into the natural world. The school is currently housed in a temporary location, but when it moves back into it's newly renovated building, a network of maple trees will be tapped for syrup production, creating and on-going outdoor project.

Student-Directed Learning: The Intersessions allow opportunities for student-directed work. In the classrooms, students are given considerable latitude with regard to how they complete assignments. Students are provided parameters for the lessons, but they work on their own as much as possible. The approach is thematic, and work from one class may be tied into another, for example, writing an economics paper in English class. Seniors complete a senior project that is an in-depth study of a topic of their choice. They then present to project in an exhibition.

Relationships Between Students and Staff: Relationships between students and staff are casual. Students refer to teachers by first name. Camping trips and Intersession classes, where staff and students are living together, often under less-than-pristine circumstances, serves to eliminate barriers between students and staff. The school advisory system, through which students are assigned to a particular teacher, creates strong bonds as well. During the advisory time students focus on the school's and overall Montessori core values. The relationships between and among students are close as well. Students are very comfortable with being not only socially close, but also physically close.

Secondary Montessori Practice

Place-based Pedagogy: The Intersessions, internships, and service work provide opportunities for place-based learning. Students do not generally go on outings beyond the Intersessions. The Urban Erdkinder program allows students to use their school campus as a place-based learning opportunity. The school is currently housed at a temporary site while a new building is constructed on its permanent site. When the school moves to the permanent site, which is surrounded by maple trees, they will be tapping the trees and create produce products.

Opportunities for Gaining Authentic Skills (work): Students in the Urban Erdkinder class run a pizza business using the school's brick oven. For this class, students are based solely on their profitability. 12th-graders do a job shadow internship as their fall Intersession activity. All students complete 50 hours of service work. The maple-tapping project will be an opportunity for developing authentic skills as well.

 Opportunities for Authentic Community Contribution: The internships, community service, and Intersessions all serve as opportunities for making authentic community contributions. A constant focus at the school is contemplating how to make the world a better place.

Integrated Learning Experiences: The internships, community service, and Intersessions all serve as opportunities for integrating learning. Additionally, classroom content is integrated across the curriculum.

Experiences Supporting Economic Independence: Students participate in extensive fund-raising throughout the school year in order to pay for Intersession projects, and they are expected to raise money for the trips.

Whole-child Development

Practices That Support Intellectual Development: Students assume a great amount of responsibility for their learning. Classroom presentation is often in the form of seminar or Socratic discussion. Assignments are frequently tied to real-life situations. Students complete the equivalent of a one-semester class for each of the Intersessions. The school graduated 100 percent of its seniors last year and does so on a regular basis.

Practices That Support Physical Development: As a public school, this institution offers a wide variety of extracurricular competitive sports. The school also offers a variety of extracurricular physical activities that are life-fitness oriented such a ski and board club, bowling club, and disc golf club.

Practices That Support Psychological Development: Group initiatives serve to facilitate trusting relationships between staff and students and among students. The staff works to build relationships that reduce the impact that factors such as gender, race, and socioeconomic standing have in relationships. The school focuses on five core values that are aimed at creating a healthy environment for the entire school community. These values include peace, hard work, community, respect, and being kind. Class assignments are designed to support these values and to help students gain skills and habits that allow them to integrate the values into their daily lives. Intersession activities, camping, and other relationship-building activities provide emotional support, foster self-exploration, and encourage sound mental health.

Practices That Support Social Development: Intersessions, camping, and school activities support socialization among the students and staff and help to form a strong bond in the school community. The staff's casual dress policy and first-name familiarity with students, helps create a sense of everyone being on a team, rather than putting students and staff in an adversarial relationship. Intersessions, community service projects, senior projects, and special interest clubs are among the conduits for fostering a sense of social

responsibility and sources for stretching the social impact beyond the immediate school environment.

Practices That Support Spiritual Development: The same activities that support social interaction and responsibility also nurture spiritual development. Additionally the school offers students a wide variety of opportunities for arts instruction and exploration. The school's steel drum band has performed worldwide and has forged relationships with groups like a band at a school for the blind. There is frequent discussion about what students can do to make the world a better place.

Reform Goals

Practices that Facilitate Preparation for Higher Education: The college tour and related activities support preparation. The academic program, which requires active participation from the students, as well as collaboration, cooperation, and higher-level thinking also work to prepare students for college.

Practices that Facilitate Preparation for Adult Work: Students participate in extensive fund-raising throughout the school year in order to pay for Intersession projects, and they are expected to raise money for the trips. The internships, community service, and Intersessions all serve as opportunities for integrating learning.

APPENDIX J: MIDWEST CHARTER SCHOOL PROFILE

School Pseudonym: Midwest Charter School

School Descriptor: Public charter school

Size: 600 total students

Grade Range Offered: Preschool to high school on two campuses. 9th-grade is part of the middle school program, which is farm-based. The high school (10th to 12th grades) program is classroom-based.

School Day Structure

The ninth-graders start their day with morning meeting. And then they do math. Then they do Spanish, then they do an integrated humanities unit and occupations. And both are occurring during an eight-week unit. Their afternoon is either an extension of their humanities or occupations work, depending on which unit they are in, or they may have more reading writing instruction. Occupations is the farm-based part of the curriculum. High school is very much like an upper-elementary classroom in that the teachers put up on the blackboard the lessons that they are teaching for that day. That morning the students sign up for the lessons they need. When they are not in a lesson, the students have uninterrupted work time. Then they have lunch. Then in the afternoon it is a little more traditional looking in that they have elective classes that they have signed up for.

Traditional Montessori Traits

Authentic Assessment/Self-Assessment: Most student work, especially projects, writing, and lab work, is graded using rubrics. Students do take tests and quizzes for math and science. The rubrics are used as a version of control of error. Students maintain portfolios of their work. 9th-graders maintain four separate portfolios, one for each major curriculum area. 10th to 12th-graders maintain one comprehensive portfolio of their best work. This portfolio has examples of how students have met each of the school's nine outcomes. Report cards use letter grades, which are determined largely through project, paper, quiz, and test grades; however, participation and time management are considered in the grade as well.

Prepared Environment: On the farm, the prepared environment includes classroom space and the farm itself. Maintaining the environment and helping with farm work are the main manifestations of the prepared environment. In the high school, students are expected to help maintain the school environment. In addition to their regular classroom space, they have a common room area and a kitchen that they maintain. The students have also created an outdoor environment that they are expected to maintain.

Experiential Education: The senior practicum offers students the opportunity to work in a broad array of environments. Students can choose a local, national, or international practicum and a responsible for finding a host site, coordinating between the host site and the school, producing written reports, and producing a final visual report. High school students participate in international travel that is coupled with curriculum objectives. 9th-graders participate in farm work, which integrates topics of health, science, and entrepreneurship. 10th- and 11th-graders participate in the AWOL (Authentic World of Learning) program for which they work on service projects on a weekly basis.

Multi-age Classroom: The school program is divided into traditional three-year age groupings at every level. 9th-graders are part of a three-year grouping with 7th- and 8th-graders. 10th- to 12th-graders are grouped together.

Focus on Natural World: The farm program offers an obvious tie to nature for the 9th-grade students. School trips, such as camping opportunities, internships, and service work provide opportunities as well. Environmental education is integrated into the daily life of the school.

Student-Directed Learning: Farm work is collective in many ways, but is intended to support personal growth for the individual students. The high school program is completely student directed and is structured in a manner similar to that of the elementary program, where students are working at their own pace.

Secondary Montessori Practice

Place-based Pedagogy: Service work, educational travel experience, career/internship experience, senior practicum work create opportunities for place-based learning for high school students. International-studies trips and service-intensive trips serve that purpose as well. The farm is the main place-based venue for 9th-grade students.

Opportunities for Gaining Authentic Skills (work): Students are expected to raise a third of the cost of their travel, and they do so through a variety of fund-raising projects. Students also participate in internships for which they write resumes and attend interviews skills that help them prepare for the workforce.

 Opportunities for Authentic Community Contribution: Farm-based students contribute to the community by doing the work of the farm. High school students contribute through service projects. All help maintain the environment of the school.

Integrated Learning Experiences: Service work, internships, and international travel all provide opportunities for integrated learning. Students who plan to participate in the international trip must be enrolled in the science or humanities class to which it pertains. They also must be enrolled in an international travel class in which they help plan the trip and participate in instruction specifically aimed at supporting their travel. The school

outcomes are not content area specific, but rather comprehensive objectives that specifically support integrated learning.

Experiences Supporting Economic Independence: The farm program allows students to participate in the production and sale of crops and subsequently fosters skills for economic independence. Fund-raising helps support gaining economic skills for high school students. Students also participate in instruction related to economics.

Whole-child Development

Practices That Support Intellectual Development: The school's nine expected outcomes intellectual development by expecting analytical thinking and by drawing connections across the curriculum.

Practices That Support Physical Development: Many of the occupations objectives at the farm support physical development through health and ecology education.

Practices That Support Psychological Development: The goals and outcomes objectives of the school specifically state that emotional development will be a part of the everyday emphasis at the school. One of the main methods for building a positive psyche for students is through developing strong relationships with adults, so that students feel they can turn to staff members if they are in need of emotional support.

Practices That Support Social Development: Social awareness is an underlying theme throughout the curriculum and is supported through programs such as service work and work around the school, relationship building, and classes designed to explore related topics. The school has high expectations with regard to the nature of students' interactions with each other and the staff. Cultural norms at the school support pro-social behavior and the expectation is that students want to be socially responsible within the community.

Practices That Support Spiritual Development: The human spirit is nurtured through opportunities to serve the basic needs of others, through travel, through studies that support exploring, the spiritual domain.

Reform Goals

Practices that Facilitate Preparation for Higher Education: During 11th and 12th grade students have the opportunity to go on a college campus tour. The school follows its state commission on higher education's guidelines for graduation. Students are permitted to leave campus for lunch. All high school students participate in a test prep trip designed to help them prepare for state standardized tests and ACT tests.

<u>Practices that Facilitate Preparation for Adult Work:</u> Many of the farm programs allow for career exploration and development of household skills. Practicums and internships provide older students with real-life experience doing adult work.

APPENDIX K: WEST COAST CHARTER SCHOOL PROFILE

School Pseudonym: West Coast Charter School

School Descriptor: Suburban charter school

Size: 200

Grade Range Offered: 7th, 8th, 9th and 10th, 11th, 12th

School Day Structure

Ninth-graders are part of the junior high school program. This is an experiential, farm-based program. High schools students are on a block schedule with four classes each day. Students all have a 90-minutes tutorial period during which they can work on any work and the staff member in charge is available for assistance as needed, and other staff and school materials may be available. On Wednesdays there are no regular classes. Either the students participate in elective activities or they take field trips.

Traditional Montessori Traits

Authentic Assessment/Self-Assessment: 9th-grade students are evaluated using terms such as progressing and mastered, rather than grades. Much of their work is collective, team-oriented exploration. . In order to move to the senior high level, ninth-graders must complete a capstone project that demonstrates the competencies they have gained in the three-year program. High school students are graded using percentage grades that are translated to letter grades. Their work is more likely to be focused on individual tasks. All students maintain portfolios of their work in each academic discipline. The portfolios include student reflection about their work. Student portfolios are evaluated using a standard rubric that is specific to the level (junior high or high school). Twice a year students receive a competency review that summarizes the competencies they have worked on and those they have mastered, which includes grades for the high school ($10th$-12th) students. Additionally, students prepare an annual self-evaluation. Students perform presentation of their service projects and this is evaluated by the students, so that each student receives evaluations from peers and provides each peer an evaluation. While high school students receive grades, there are no D's or F's. If students do not have mastery at least at 70 percent, they are expected to relearn and redo until they have reached the minimum cut-off.

Prepared Environment: For 9th-grade students the prepared environment is the farm. Much of their work is tied to farm work in some way. When the environment is extended outside the farm, outside venues are generally tied to farm work in some way. For the 10th-12th grade students the environment includes the classroom and the greater

community, with semi-monthly field trips a regular part of the curriculum. Much of the preparation and maintenance of the environment is done by the students.

Experiential Education: For the 9th-grade students virtually all of their work is experiential in nature since it is almost all related to the farm in some way. For the 10th to 12th grade students, even though they attend classes, much of the work within that structure is open-ended and project oriented. Lecture is limited. The Wednesday mini-courses are generally experiential in nature. Additionally, the X-terms, which may involve activities like travel, service work, and exploration of special interests are experiential in nature as well. General service work and internship requirements add another element of experiential education.

Multi-age Classroom: On the farm 9th-graders are in a truly multi-age environment where there is a great deal of flexibility in how students are approaching subjects area. For example, while students can take pre-algebra, algebra and geometry at the farm, they have to opportunity to fluidly move among them meeting their needs and interests.

Focus on Natural World: Work on the farm extensively based in the natural world. Environmental awareness is an everyday part of the school. Recycling is encouraged. Field trips for farm students are tied to farm operations, and therefore nature. Many of the high school trips, and the Winterim trips are also tied to experiences in nature.

Student-Directed Learning: Students help determine the topics for the Wednesday electives and for the X-term programs. Also, within the context of their work, they have flexibility in what they do as well. The overall structure may be tweaked to meet the needs of the currently enrolled students also.
Relationships Between Students and Staff: While the relationships are not exactly peer relationships, they are comfortable relationships. Staff has repeated interaction with students throughout their enrollment, so their relationship extends beyond that of teacher and student. Trust is a key component of the relationships, and it helps remove barriers in the relationships between adults and students. Staff is attuned to student needs and willing to let students complete their work in alternative ways and venues when the need arises. The culture is caring and cooperative, rather than adversarial.

Secondary Montessori Practice

Place-based Pedagogy: Place-based learning for 9th-graders revolves almost exclusively around the farm. For the 10th-12th grade students' place-based learning occurs during the Wednesday outings, X-terms, internships, and service projects.

Opportunities for Gaining Authentic Skills (work): Farm work provides ample opportunity for authentic work for 9th-graders. They plow, plant, harvest and sell crops on the farm. They care for animals. They repair equipment and facilities. Students are

responsible for raising funds for the trips they take during the X-term. They create micro-businesses doing things like mucking pods and hanging Christmas lights.

Opportunities for Authentic Community Contribution: Within the school community, students are responsible for helping to maintain the environment. The farm work serves the community through products sold at the local farmer's market. Service learning at the farm is group oriented. At the high school service work may serve a larger community, but it is more likely to be individually chosen projects.

Integrated Learning Experiences: Work on the farm is integrated across the curriculum with the work of the farm being a common thread that ties the disciplines together. At the high school field trips are work–study opportunities that allow students to make connections between ideas and places. Wednesday electives also frequently become avenues for combining diverse skills. The praxis project specifically aims to integrate learning. Each quarter students a question is posed and students are expected to answer it using knowledge from across the curriculum.

Experiences Supporting Economic Independence: At the farm students develop skills for economic independence by selling their crops and reinvesting in their operation. At the high school, student businesses established to fund field trips provide opportunities for learning economics skills. Often Wednesday elective classes support this objective as well. In planning X-term activities and field trips, students learn additional skills that support developing economic independence. Students are permitted to earn pay for their internships, and students often use part-time jobs to fulfill this requirement, providing them the opportunity to reap personal economic gain from their efforts.

Whole-child Development

Practices That Support Intellectual Development: When students leave the school, they tend to report that schools they attend subsequently are not as challenging as their Montessori experience. As a charter school, students are required to meet state learning objectives and to pass content area tests in the same manner as students at regular public schools. Students typically score well on these tests despite though the staff does not emphasize specifically preparing for the tests. The school aims to prepare students to enter the state university system, and there are specific content requirements dictated by that goal, state standards, and accreditation standards.

Practices That Support Physical Development: Students participate in daily outdoor work. The focus on physical development is on maintaining balance in life and on learning to meet physical challenges as well as learning about health and safety. Field trips and X-term classes often involve physical components such as hiking.

Practices That Support Emotional Development: Students have a close bond with each other and their teachers. This bond is developed through work on the farm, overnight

trips and other side-by-side work. There is a strong degree of trust between the students and staff that helps remove traditional barriers between students and teachers. Each student is assigned to an adult mentor, and there is an especially close bond. Mentor groups tend to be formed around common interests, and so the members have a fair amount in common, which facilitates a greater degree of emotional support among the members and with the teacher.

Practices That Support Social Development: The mentor groups are an avenue for social development in that they serve as a small community. Capstone and senior projects, internships, and service work all aim to support social development as well, as the students explore how they can contribute to the community. Students may be offered relationships and ethics classes during the Wednesday workshops, which certainly support social development as well.

Practices That Support Spiritual Development: The school aims to foster well-rounded individuals. Service work helps develop the human spirit. Many of the Wednesday classes are artistic in nature, aimed at nurturing the spirit. Students attend arts events. Students' feelings and emotions are acknowledged and supported throughout the school day and staff works with students to help uplift them.

Reform Goals

Practices that Facilitate Preparation for Higher Education: Students visit nearby universities. They attend classes that teach independent living skills and foster skills for taking care of oneself at college. The curriculum is planned to encourage critical thinking and reflection with the goal of encouraging life-long learning. Independence and self-motivation, both traits that are vital to success in higher education, are supported in the daily life at the school.

Practices that Facilitate Preparation for Adult Work: Planning and budgeting for trips helps students have an awareness of financial needs and provides authentic opportunities for practicing adult organizational skills. Participating in the agriculture program and internships helps students learn to function in a work environment and learn about the economic aspects of work. Wednesday classes can include topics such as financial management, cooking on a budget, and sex education.

APPENDIX L: RURAL PRIVATE SCHOOL PROFILE

School Pseudonym: Rural Private School

School Descriptor: Private, nonprofit school

Size: 200 students total. 17 are in the high school program, including 9th-graders who are in the farm program

Grade Range Offered: Schoolwide, Pk-12th grade. 9th grade is part of the middle school farm program. 10th to 11th grade are considered high school.

School Day Structure: Students have classes that generally last about 45 minutes each, but there is a lot of flexibility in that. All the high school classes meet in one room, so that the effect is more like being called to a lesson than the traditional bell schedule high school. Ninth-graders are part of the middle school program officially, but do work in the high school class as well. 11th and 12th grade students, and certain second-semester 10th graders, take classes at the nearby community college some afternoons. Fridays after tests are open time during which students do service projects and other student-selected projects. Every student has at least one 45-minute period a day of open time.

Traditional Montessori Traits

Authentic Assessment/Self-Assessment: Assessment is relatively traditional at this school with weekly tests in many subject areas. Ninth-graders, as part of the middle school have the ongoing opportunity to redo work to improve their grade. At the high school, students no longer have this option, but they can work with their teachers individually to create opportunities for additional work to support their mastery and improve their grade. Effort is considered in grading. Students track their own grades using Excel, and the create a PowerPoint presentation regarding their work to present to their parents at a quarterly conference. Students maintain portfolios of their work.

Prepared Environment: Students are responsible for maintaining the school environment, including the outdoor environment. Twice a year they participate in The Big Clean, which includes in-depth projects both indoors and outdoors.
 The environment is open with tables, rather than desks, making it more conducive to collaborative work.

Experiential Education: 9th-graders travel out of the country each year, and learn to navigate unfamiliar places both through their preparation for the trip and during the trip. All students participate in other trips as well. Students tutor at a local library. They are required to do a Make A Difference project before they graduate. They also work to support the grater community through fund-raising projects.

Multi-age Classroom: Some of the classes students take are oriented toward a single grade, others are multi-grade classes. But the students all learn in one classroom and there is constant interaction among the entire group, including having the ninth-graders work in both the middle school class and high school class. The multi-age concept is stretched even further by having the students take classes at the community college.

Focus on Natural World: The farm provides a venue for 9th-graders to focus on the natural world, but 10th-through 12th-graders do work at the school that takes them outdoors for learning as well. The school has a greenhouse, students compost, there is an emphasis on environmental concerns.

Student-Directed Learning: Students share responsibility for teaching lessons in the classroom. They have the option to take classes at the nearby community college. Friday afternoons are spent working on projects driven by student inter.

Student-Teacher Relationships: Students and staff alike talk about having a family atmosphere. Many of the students have been at the school since preschool and they know the staff very well. Students feel comfortable talking with the staff about personal matters. They are also very close to their peers, and when a student graduates or moves on, the loss is felt deeply in the community.

Secondary Montessori Practice

Place-based Pedagogy: School field trips provide a venue for place-based learning. Internships and volunteer work also play a part in place-based learning.

Opportunities for Gaining Authentic Skills (work): Students are responsible for raising the money to pay for their trips. They create their own fund-raiser, which they plan, prepare, and implement. Students also participate in internships and service projects.

 Opportunities for Authentic Community Contribution: Students contribute to the school community by maintaining the indoor and outdoor environments. Students make contributions in their local community by volunteering for a variety of organizations. On a larger scale, students have done fund-raising for organizations that support global needs.

Integrated Learning Experiences: While students take discrete classes, because the staff works with them over a number of years, teachers are constantly relating what students are learning back to things they have previously learned.

Experiences Supporting Economic Independence: The extensive fund-raising efforts support building economic independence skills.

Whole-child Development

Practices That Support Intellectual Development: The staff goes to great lengths to hold students accountable for their academic work, including providing a weekly conference with students to review their progress and to make sure they are keeping up with their work, and quarterly conferences with parents at which students discuss their own progress.

Practices That Support Physical Development: Students focus on physical development through physical labor around the school and through participation in informal sports. Yoga and running clubs as well as a cross-country team meet after school.

Practices That Support Psychological Development: There is a focus on helping students learn to solve problems, rather than using a punitive approach. The close relationships between students and staff also support strong mental health by providing students with a multitude of outlets for seeking support when they need it.

Practices That Support Social Development: The school emphasizes community, including contributing at school and in the greater community. Staff focuses on helping students see how their actions impact others. There are high community standards and students are expected to be honest, and follow the rules. Volunteer work helps build a sense of social responsibility.

Practices That Support Spiritual Development: Students participate in arts instruction, including either strings or woodwinds. There is a drama club and a knitting club that meet afterschool. These efforts support student expression. Additionally, students participate in a wide variety of activities that support development of the human spirit by serving others.

Reform Goals

Practices that Facilitate Preparation for Higher Education: Students gain skills to support higher education by actually taking college classes.

Practices that Facilitate Preparation for Adult Work: The responsibility students take for preparing for field trips, raising funds to pay for them helps prepare them for adult life. So do internships and service projects.

APPENDIX M: URBAN PRIVATE SCHOOL PROFILE

School Pseudonym: Urban Private School

School Descriptor: Urban private day/boarding school

Size: 72 students

Grade Range Offered: 9-12 grade only

School Day Structure

Lessons are provided by grade level or subject area as appropriate. At least 50 percent of the day is spent with students doing independent work spread out throughout the school building. Students have great latitude to work in the setting that is most conducive to them individually. Approximately 30 percent of the students' time is spent working or studying at neighboring institutions with which the school has formal arrangements. Students are free to leave the school building to visit other institutions independently, as long as they are with another student.

Traditional Montessori Traits

Authentic Assessment/Self-Assessment: Students receive letter grades, but only at the semester and the end of the year, and the grade is only finalized on the year-end report card. Individual pieces of work do not receive letters grades. Students are given repeated opportunities to review and revise their work. C is considered the minimal acceptable level of work. Students and their parents also receive an extensive narrative reports regarding student progress, and students are expected to write a narrative self-evaluation as well. Much of student work is project oriented. Students also write essays and take quizzes and tests.

Prepared Environment: The environment at this school includes the school building, the residence, and the greater community of institutions including a major university, museums, arts organizations, a hospital, and research facilities. The school building is set up for approaching work in a collaborative manner with tables, rather than desks. And couches and other similar furniture provide students with opportunities to work in more casual situations. Relationships with neighboring institutions significant expand the environment, allowing students to use tangible and human resources in formal settings and on demand. For residential students the environment extends into the homelike environment housed in a historic mansion near the school. The residence is set up to allow students significant independence and responsibility for their own cooking, cleaning, laundering and so forth, under the supervision of house parents. In cases where the environment is school property, students hold a great deal of responsibility for the maintenance and preparation.

Experiential Education: The school staff aims to encourage experiential learning as broadly and often as possible. Students have great freedom to create their own experiential opportunities through use of museums, and other institutions. Additionally, groups of students take part in a wide variety of special interest opportunities.

Multi-age Classroom: Students are classified by traditional grades (9th, 10th, 11th, 12th) and the curriculum includes specific courses at each grade level. Thus, on the surface, it appears that students are not receiving multi-age instruction. The setting is, however, in effect. Students are working throughout the school building and are free to interact with students of all ages as needed.

Focus on Natural World: The curriculum ties study of the natural world into all aspects of the curriculum. The focus of science is on understanding the natural world. Relationships with institutions also support this. X-terms are tied to activities in the natural world as well. Students have opportunities to participate in agrarian activities at a nearby Montessori middle school also.

Student-Directed Learning: Most of the work is student directed, within the framework of the curriculum. The staff works to determine the amount of time needed for direct contact with the students for lessons, and aims to keep that time to a minimum. Over a two-week period the focus of instruction alternates daily between math/science and humanities. Teachers in all areas are available for support during open work times. Arts instruction is offered through an open-studio approach. Students are free to use any available space within the building to do their independent work. Additionally, they are free to use the extended community as their personal needs dictate.

Relationships Between Students and Staff: The school has a formal advisory system in which students are paired with staff members. Students develop close relationships with staff through opportunities to travel with them. The small size of the school and the side-by-side work environment foster family-like relationships for all students, as does the living situation for boarding students.

Secondary Montessori Practice

Place-based Pedagogy: Place-based learning is a key element at this school, and is viewed from both theoretical and tangible perspectives. In the theoretical realm, place is used to talk about one's position in the world, and the universe. In the practical realm, place-based learning involves studies outside the school building both in the institutions of the neighboring community and in nature. Studies outside the school are aimed at both supporting and inspiring that that take place in the classroom.

Opportunities for Gaining Authentic Skills (work): The nearby institutions provide one venue for gaining authentic skills. The students begin with nominal involvement, work

their way into menial contributions, and ultimately serve in some sort of an internship capacity. Students have created their own micro businesses as well. For boarding students dorm live provides ample opportunity for authentic work as students plan and prepare meals and other activities that keep their residence functioning.

 Opportunities for Authentic Community Contribution: The very same relationships within the community that provide students work experiences also provide them opportunities to make authentic contributions to the community. Students also participate in service projects during regular school periods as well as during the three, two-week periods they call X-terms.

Integrated Learning Experiences: Integrated learning is occurring within practically every aspect of this school. History, for example, is study in the context of the context of a changing planet and is integrated closely with science. Beyond integrating classroom-based curricular content across disciplines, integrated learning is facilitated by the connection between the classroom instruction and community interaction. This was one of the highest frequency codes for this school.

Experiences Supporting Economic Independence: Students have opportunities for internships, for which they may be compensated. The school supports the formation of student business, and is also seeking ways to create collective business opportunities that can provide the students experience with planning, marketing, inventory management, business relationships and so forth.

Whole-child Development

Practices That Support Intellectual Development: The curriculum at this school is designed to pose thought provoking questions to students and to encourage them to explore the answers in diverse ways. Students participate in a Montessori program that is supplemented by an International Baccalaureate program.

Practices That Support Physical Development: Students study their developing bodies as part of the psychology and health classes as well as through biology and anthropology. The pursuit of balance is stressed in multiple disciplines. Students have opportunities for exercise as well.

Practices That Support Psychological Development: Students take psychology classes in which they learn about human development. Problem solving is emphasized at the school and is the main approach for addressing conflict and other behavior matters. The arts program at the school is designed to help form self-identity. The study of cosmology provides a venue for students to contemplate their place in the universe in the context of science.

<u>Practices That Support Social Development:</u> The trust and freedom students are provided is key in their social development. Their involvement in the community at carious levels including the school, the surrounding community, the city, the country and the world helps students see that their role from a social responsibility perspective extends way beyond the their immediate surroundings.

<u>Practices That Support Spiritual Development:</u> Students have frequent experiences for exploring the arts both in terms of participation and observation. The human spirit is considered in many content areas of the instruction. Students participate in projects such as helping Habitat for Humanity.

Reform Goals

<u>Practices that Facilitate Preparation for Higher Education:</u> The independent nature of the learning and the extended learning venue help prepare students for university level work. Courses are specifically designed to prepare students for college. The school also offers support in terms of helping students consider colleges, prepare applications and so on.

<u>Practices that Facilitate Preparation for Adult Work:</u> The rich array of opportunities working with professionals in the field serves to help prepare students for adult work. Also, the independent work that students do supports their increasing ability to work without direct supervision, which develops skills needed for the adult work place. Other practices that support adult work include activities such as completing self-evaluations and participating in the evaluation process, organizing and fund-raising for X-term activities, and interacting with staff in a collaborative manner.

CURRICULUM VITAE

Wendy J. La Rue, Ph.D.
wendyjlarue@gmail.com

EDUCATION

Ph.D. Education
Walden University, Minneapolis, MN..   Nov. 2006–Feb. 2010

M.S. Mass Communications, urban affairs reporting
Virginia Commonwealth University, Richmond, VA.   June 1990–May 1994

Graduate Studies, English, journalism education
George Mason University, Fairfax, VA.   Jan. 1988 to Sept. 1990

B.A. English, writing concentration
Mary Washington College, Fredericksburg, VA.   Aug. 1984 to Dec.1987

ADDITIONAL TRAINING

Montessori Elementary Teacher Training
Montessori Educators International, Louisville, TN.

Montessori Peace Academy 2002–2007
International Montessori Council Conference, Clearwater Beach, FL.

Secondary Montessori Practices
Montessori Foundation, Clearwater Beach, FL.

Harmonious Relationships with Boards and Heads of School
Montessori Foundation, Sarasota, FL.

Master Teachers, Model Programs
Montessori Foundation, Alexandria, VA.

T. Berry Brazelton National Seminar Series
Touchpoints Foundation, Richmond, VA.

WORK EXPERIENCE IN EDUCATION

Head of School, Odyssey Montessori, Fredericksburg, Va. Oversee academic programs and develop curriculum for rapidly growing Montessori school. Hire, train, and supervise staff members and contract employees. Supervise maintenance of physical plant and grounds of school. Coordinate recruitment and enrollment of new families. Serve as liaison between school and community. Dec. 2000 to present.

Head Teacher, Odyssey Montessori, Fredericksburg, Va. Prepared curriculum materials, planned and presented lessons for elementary- and secondary-age

Montessori students. Facilitated communication with parents regarding students' academic progress and participation in school programs. Aug. 2001 to June 2005.

Adjunct Instructor, Northern Virginia Community College, Annandale, Va. Taught technical writing and freshman composition. Aug. 1996 to Dec. 1996.

Journalism/English Teacher, West Springfield High School, Fairfax County, Va., and Gar-Field High School, Prince William County, Va. Sponsored monthly newsmagazine and served as yearbook advisor. First teacher in Virginia to produce a completely desktop-published yearbook. Taught introductory and production journalism and photojournalism, Advanced Placement journalism and English. Aug. 1988 to May 1994

Writing Center Assistant, Lake Braddock Secondary School, Fairfax County, Va. Prepared materials, planned and presented lessons for 7th through 12th grade students. Jan. 1988 to June 1988.

CURRICULUM DEVELOPMENT

Montessori Early Childhood/Elementary Program, Created curriculum framework and learning objectives for Odyssey Montessori's programs for children ages 2.5 to 12, facilitated curriculum review process.

Montessori Secondary Program, Created curriculum framework and learning objectives and set graduation requirements for Odyssey Montessori's programs for adolescents ages 12 to 18, facilitated curriculum review process.

High School Journalism Programs, Wrote district level curriculum for Journalism I-IV classes for Fairfax County Public School. Wrote Advanced Placement Journalism curriculum for West Springfield High School.

OTHER WORK EXPERIENCE

Freelance Writer/Editor, Wrote articles and edited copy for iParent and Nurture parenting publications. Developed educational activities for teacher package to accompany Yak's Corner children's page distributed by Knight-Ridder Tribune Media Services. Proofread Selling Power Magazine. Feb. 2001 to Jan. 2005.

Section Editor, The Free Lance-Star newspaper, Fredericksburg, Va. Edited a weekly, zoned newspaper section; weekly teen news section; and weekly teen entertainment section. Feb. 1996 to April 2001.

Virginia Press Association Teacher Intern, for The Free Lance–Star. Wrote news and feature stories while working as a full-time reporter for nine weeks. Continued to contribute to the paper on a part time basis after the internship. June to Aug. 1992

SERVICE WORK

Pennies for Peace, fund-raising and awareness activities at Odyssey Montessori and within the Fredericksburg, VA area for organization that helps provide education in Pakistan and Afghanistan. Sept. 2008 to present.

Project Amman Imman, fund-raising and awareness activities at Odyssey Montessori and within the Fredericksburg, VA area for organization that helps build deep-bore wells in the Azawak region of Niger, Africa, bringing educational opportunities to children in the region. Sept. 2008 to present.

Habitat for Humanity, coordinate collection of aluminum cans that are donated to local chapter for recycling. Aug. 2004 to present.

Board of Trustees, Odyssey Montessori, 2001 to present.

PROFESSIONAL AFFILIATIONS

International Montessori Council, member
American Montessori Society, member
North American Montessori Teachers Association, member

PRESENTATIONS

Poster:	"Empowering Adolescents: A multiple Case Study of U.S. Montessori High Schools"	January 2010 Walden University Winter Research Symposium
Poster:	"Empowering Adolescents: A multiple Case Study of U.S. Montessori High Schools" Proposal presentation	July 2009 Walden University Summer Research Symposium
Workshop:	"Encouraging Parent Partnership: using T. Berry Brazelton's Touchpoints Model to Build Better Relationships"	November 2007 International Montessori Council Conference
Workshop:	"Incorporating youth media in daily newspapers"	July 2007 Virginia Press Association
Workshop:	"Editing youth-produced copy for daily newspapers"	March 2001 American Copy Editor Society
Workshops:	Topics including First Amendment rights, copy editing, publication	1990–1994 Virginia high School

design, feature writing, and newsgathering

League, Columbia Scholastic Press Association, and National Scholastic Press Association

HONORS AND AWARDS

Newspaper Association of America, Won four awards for work in youth news field, including award for best youth section and best school–newspaper partnership.

National Press Women, Won two first-place awards for youth products.

Virginia Press Women, Won four awards, including two first-place awards for youth products and one first-place award for design work.

Virginia Press Association, Won first place for special sections for youth product and second place for design of special section.

Douglas Freeman Award for outstanding service as a publication advisor, awarded by the Virginia Association Journalism Teachers and Advisors.

Certified Journalism Educator through Journalism Education Association's national Journalism Teacher Certification Program. Second person in Va. to hold title.

GRANTS RECEIVED

High School Partnership Grant, Newspaper Association of America grant provided funds to Caroline High School for production of the school's newspaper. Worked with students to develop budget, redesign product and generate additional means of income. Supervised disbursement of funds.

Youth Content Grant, Newspaper Association of American grant provided funds for developing a youth section in The Free Lance–Star newspaper. Coordinated with advertising department to create section, recruited and supervised contributing youth writers, promoted product in community.

Special Project Grant, USA Weekend grant from Gannet News Service provided funds for printing special sections of newspaper to report on youth surveys. First year received grant award for work on special section on teens and money. Second year received grant award for work on special section on teens and family. Was the only newspaper to receive the award in two consecutive years.

PTSA Grant, West Springfield High School grant provided funds to outfit a darkroom for the school's newspaper and yearbook staff, enabled students to learn film developing and photo printing.