

Montessori Core Beliefs and the Teachers Who Share Them

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By

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This master's thesis, written under the direction of the candidate's master's thesis advisory committee and approved by members of the committee, has been presented to and accepted by the faculty of the Kalmanovitz School of Education, in partial fulfillment of the requirements for the Master of Arts degree.

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Abstract

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The Montessori Method is built upon Maria Montessori's core beliefs. Despite evidence of the link between teacher beliefs and classroom outcomes, there is a gap in the research involving Montessori teacher beliefs and no measure with which to assess Montessori teacher beliefs. This study created and piloted a measure of Montessori core beliefs with 78 early childhood teachers. Parts of the measure were successful in identifying whether or not teachers held Montessori core beliefs. Compared with teachers from other philosophies, Montessori teachers in this sample were more likely to attribute children's growth and development to the child's efforts, to express a belief that children contribute to society while they are still children, and to cite a specific educational philosophy as influential to the development of their beliefs about children, while teachers from other philosophies were more likely to express different or opposite tendencies in their beliefs.

Dedication

This thesis is dedicated to all the students I've worked with, and all those who I will work with in the future. You inspire, entertain, and engage me on a daily basis!

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Chapter I

Introduction

Dr. Maria Montessori was an Italian physician and educator (1870-1952) who developed a revolutionary philosophy of the education of young children, especially those between the ages of three and six years (Lillard, 1972). Through extensive observation, she formed core beliefs about the nature of young children and developed a corresponding instructional method regarding what adults—specifically, teachers—can do to best support the social, emotional, and spiritual development of young children (Kramer, 1976; Lillard, 1972).

Montessori's core beliefs include her understanding of the role of the adult in a child's development (Lillard, 1972, p. 92) and the role of the young child in society (Montessori, 1949/2007). The Montessori Method is comprised of practical guidelines for teachers, such as how to cultivate discipline in the young child (Montessori, 1912/2002, p. 86-106) and the best way to introduce written language to the young child (Montessori, 1912/2002, p. 246-270).

Montessori's core beliefs and the Montessori Method are innately connected, as they are consistently discussed in tandem (Kramer, 1976; Lillard, 1972; Montessori, 1949/2007) and because the Method was developed from the core beliefs (Chattin-McNichols, 1991). Thus, a full understanding of Montessori's philosophy of education is incomplete without an understanding of both the theory and the instructional methods, and an implementation of Montessori's philosophy of education is incomplete without the implementation of both (Huxel, 2013; Monson, 2006; Standing, 1957).

While there is research that focuses on how Montessori teachers implement the Montessori Method (Chattin-McNichols, 1991; Daoust, 2004; Lillard, 2011), there was no empirical research which investigates Montessori teachers' core beliefs at the time of this study.

Moreover, there is no published measure with which to study the theoretical beliefs of Montessori teachers. Given that there is empirical evidence from studies focused on conventional classrooms that demonstrates a relationship between teacher beliefs and student outcomes (Harvey, White, Prather, Alter & Hoffmeister, 1966; Jones, Bryant, Snyder & Malone, 2012; Lofstrom & Poom-Valickis, 2013; McMullen et al., 2006; Roth & Weinstock, 2013; Sakellariou & Rentzou, 2011), it is important to develop a measure of Montessori beliefs so that empirical support for this relationship within the Montessori context can be conducted. Therefore, the purpose of this study was to develop and pilot a measure of Montessori core beliefs, based on the writings and teachings of Montessori, intended to measure the degree to which a teacher's core beliefs are shared with those of Montessori.

Statement of the Problem

It is challenging to define what it means for a school, teacher, or classroom to be *Montessori*. Since the name Montessori is not trademarked, schools can easily imply a connection with the Montessori Method by integrating the word Montessori into their school name. Thus, defining Montessori authenticity, or what it means to be Montessori, is the topic of much current research (Chattin-McNichols, 1991; Daoust, 2004; Lillard, 2011; Malm, 2004). In order to work towards a definition of Montessori authenticity, recent studies have investigated teacher practices and classroom outcomes (Chattin-McNichols, 1991; Daoust, 2004; Lillard, 2011; Malm, 2004). There have not been any studies, however, which investigate Montessori teachers' core beliefs.

In addition, at the time of this study, the accreditation criteria set by the two major Montessori organizations do not include any procedures for measuring teachers' core beliefs. The American Montessori Society (AMS) and the Association Montessori Internationale (AMI)

have criteria for recognizing schools which implement the Montessori Method. In each organization's summary of their accreditation standards, only practical considerations are mentioned, and teacher beliefs are not mentioned (AMI, 2015; AMS, 2014). AMS accreditation standards for a Montessori early childhood classroom include a study of the school's governance, curriculum, fiscal and personal policies, facilities, health and safety practices, teacher preparation, and learner outcomes (AMS, 2014). AMI's standards for a Montessori early childhood classroom include requirements related to teacher education, materials used in the classroom, class size, daily schedule, age range of students, and the need for regular consultations with AMI consultants (AMI, 2015). The full accreditation criteria for both organizations do mention teacher beliefs, but do not indicate how they are to be measured. The full-length *AMS Accreditation Standards and Criteria* document mentions teacher beliefs in several places, but gives no indication as to how these beliefs are to be evaluated or measured. For example, an AMS-accredited school must "establish a vision, educational goals, and philosophy in alignment with the school's mission statement and appropriate to the needs of the school population in harmony with Montessori's descriptions of the nature of the student, the needs of the family, the prepared environment, and the needs of the staff" (AMS, 2014, p. 2). The document provides step-by-step details on how a school will know if it is meeting criteria regarding curriculum, age groupings, school governance, preparing the physical environment and educational materials, and other practical considerations of the Montessori classroom and school, but does not describe how school and teacher beliefs will be evaluated.

One of the AMS teacher accreditation standards is that the teacher "demonstrates knowledge and internalization of the core beliefs of Montessori philosophy, such as respect for the individual learner, preparation of self and the environment, fostering independence, order and

concentration in the student, respect for and recognition of sensitive periods, planes of development, intrinsic motivation of the student, and the absorbent mind” (AMS, 2014, p. 9).

While these are accurate representations of tenets of Montessori’s philosophy, many of them are theoretical rationales for practice. For example, understanding how students learn—which many of these points fall under—directly correlates with actions teachers could take in their classrooms. A teacher who believes that student concentration is of utmost importance will not interrupt a child who is working; this is a teacher practice which can be observed.

While these pieces are vital to the Montessori philosophy, they do not quite reach the depth of Montessori core beliefs, which cannot be directly observed. For example, Montessori’s belief about the important role of the young child in society cannot be directly measured by observing for a particular behavior. The AMS Accreditation Standards hint at the importance of core beliefs by saying that a teacher must have “a written plan for and documentation of continuing professional growth that includes evidence of personal reflection in preparation of self (2014, p. 10). This indicates the importance of beliefs which are deeper than curriculum beliefs. However, the standards do not mention that this plan and reflection will be evaluated, and it does not seem likely that AMS would request and evaluate this plan from each AMS-certified teacher.

Despite multiple references to Montessori philosophy and beliefs, and one reference to teachers’ core beliefs, there is nothing in the AMS Accreditation Standards which indicates how AMS will assess whether or not a school’s or teacher’s core beliefs actually align with those of Montessori besides evaluating the school’s mission statement which, while being an indication of intention, does not necessarily reflect the actual core beliefs of an organization or any person in that organization. Thus, while the AMS Accreditation Standards indicate that a teacher’s

alignment with Montessori philosophy and core beliefs is important, they do not provide a method for evaluating whether or not Montessori core beliefs are actually internalized by teachers.

AMI's publicly available accreditation materials do not include anything regarding the philosophy or beliefs of the school or the teachers (AMI, 2015). Thus, the two major Montessori accrediting organizations offer methods of evaluating only tangible practices of Montessori teachers and schools, and lack a method for evaluating teachers' core beliefs.

Montessori's philosophy and beliefs are taught in AMS and AMI training programs. AMI's website states that teacher training instructors possess a deep understanding of "Montessori principles and applications," implying that these are two separate entities, and says that AMI teachers-in-training will receive instruction on educational theory (AMI, 2015). The Montessori Accreditation Council for Teacher Education (MACTE), the organization which accredits AMS-affiliated teacher training programs, states that all Montessori teacher training programs must teach only Montessori philosophy (MACTE, 2014). Furthermore, knowledge of Montessori philosophy is included as one of the competencies that Montessori teachers must have upon completing a Montessori teacher training program, as measured by written and oral assignments and examination reports (MACTE, 2014).

Though both AMS and AMI training programs include learning about Montessori philosophy, it cannot be assumed that a teacher integrates these ideas into his or her own core beliefs. Even if the training program does align a teacher's core beliefs with those of Montessori, it cannot be assumed that these core beliefs remain static throughout the teacher's career and life.

Montessori's writings, as well as writings by Montessori scholars, have consistently stressed the importance of Montessori's core beliefs. Montessori scholars and biographers have

consistently described Montessori's core beliefs in conjunction with descriptions of practical considerations of the Montessori Method, demonstrating their fundamental correlation (Kramer, 1976; Lillard, 1972; Montessori, 1949/2007). Chattin-McNichols (1991) went further, affirming that the Montessori Method developed from the core beliefs. Montessori extensively discussed her core beliefs in her writings, and often did so in conjunction with the practical considerations of her Method, implying an innate connection between the two, even when the core belief does not directly translate to a tangible practice or teacher action (Montessori, 1948/2007; Montessori, 1949/2007; Montessori, 1955/2007).

Some of Montessori's core beliefs are simply not observable because they do not correlate with observable teacher behaviors. For example, one of Montessori's core beliefs is that the young child has a useful and productive role in society, just as adults do (Montessori, 1948/2007; Montessori, 1949/2007; Montessori, 1955/2007). This core belief is not directly linked to a classroom practice, but it is part of an underlying philosophy on which the Montessori Method's tenets are built. Thus, it is not possible to observe whether or not someone holds this core belief, but it is important to know whether or not a Montessori teacher holds this core belief. If Montessori teachers' core beliefs do not correlate with Montessori's own core beliefs, their full and authentic implementation of the Montessori Method could be compromised, since beliefs are so central to her method (Huxel, 2013; Malm, 2004; Monson, 2006). Furthermore, studies outside of the Montessori field have shown that teacher beliefs directly affect classroom outcomes such as classroom atmospheres (Harvey et al., 1966), teachers' day to day decisions (Kim, 2011), and teacher interpretations of students' disruptive behavior (Brady & Woolfson, 2008; Kern, Edwards, Flowers, Lambert, & Belangee, 1999).

Since Montessori's core beliefs are so innately connected to the classroom practices which make up the Montessori Method, and since non-Montessori early childhood research shows the correlation between teachers' core beliefs and classroom outcomes, it is essential to study and evaluate the beliefs of Montessori teachers. Currently, there is no measure with which to evaluate the degree to which Montessori teacher beliefs correspond with Montessori's core beliefs. Such a measure is necessary in order to conduct empirical research on this topic.

Purpose of the Study

The purpose of this study was to create and pilot a measure which will be used to conduct empirical research regarding what Montessori teachers' core beliefs are, and the extent to which they correlate with Montessori's core beliefs. In assessing Montessori's own core beliefs, it became apparent that she was a prolific writer and had many things to say about children, humanity, the world, and the future of the world. Thus, it became necessary to focus the measure on one aspect of Montessori's core beliefs. So, the first purpose of the study was to identify one of Montessori's most important core beliefs and develop an inventory instrument which would indicate the degree to which the teacher's responses reflected a correlation with that belief. The focus became Montessori's belief that young children have an important role to play in society, just as adults do. This core belief is not directly observable, yet it is mentioned and explained in various Montessori texts and underlies theoretical beliefs such as why adults should respect children, how they should demonstrate that respect, and how this respect is seen in classroom practices such as giving choice, honoring concentration, and avoiding punitive discipline (Montessori, 1912/2002; Montessori, 1948/2007; Montessori, 1949/2007; Montessori, 1955/2007).

The purpose of the Montessori core beliefs inventory instrument was to address a gap in the scholarship on the implementation of the Montessori Method. Since there is a lack of empirical research regarding Montessori teachers' core beliefs, and since this lack of research is likely due to a lack of a measure with which to study these beliefs, the purpose of this study was to address the missing element of teacher core beliefs and enable empirical research regarding the core beliefs of Montessori teachers.

The larger purpose of this study was to contribute to the conversation regarding what it means to be a Montessori teacher and to explore the correlation between teachers' core beliefs and their classroom outcomes within the Montessori context. This is necessary given the strong empirical basis for the importance of teacher beliefs on classroom outcomes (Harvey et al., 1966; Jones et al., 2012; Lofstrom & Poom-Valickis, 2013; McMullen et al., 2006; Roth & Weinstock, 2013; Sakellariou & Rentzou, 2011).

Since the purpose of the study required a measure which effectively evaluates the beliefs of Montessori teachers in comparison to the beliefs of Montessori, part of the study was to pilot the measure with current Montessori teachers as well as teachers from other philosophies, to determine the extent to which the inventory instrument accurately identifies the degree to which a teacher's core beliefs align with Montessori's own core beliefs regarding the nature of young children.

Research Questions

The research questions guiding this study were:

1. What are Montessori's core beliefs regarding the role of young children in society?

2. What type of beliefs inventory instrument would be most effective in representing Montessori's core beliefs on this topic and comparing them with those of Montessori teachers who participate in a survey using the inventory instrument?
3. How well does a pilot Montessori beliefs inventory instrument determine the extent to which a teacher's beliefs are aligned with Montessori core beliefs?

Limitations

The first limitation of this study was the personal interpretation and bias inherent in the process of analyzing themes and ideas found in Montessori's writings. I identified each time a particular core belief emerged, and investigated the context in which it emerged and the message which is conveyed in each instance. In analyzing, I aimed to be as objective as possible, but was inevitably limited by my own bias. This analysis procedure relies heavily on the tone and connotation in which a theme is presented; interpretation of tone and connotation are largely influenced by a reader's cultural background, personal connection and history with the material and theme, and, in this case, the interpretation of an early 20th century Italian text by a graduate student in the US in the 21st century. The translation of ideas from one person to another, across decades and language/cultural barriers, comes with inherent limitations in terms of objective accuracy (Stanford Encyclopedia of Philosophy, n.d.). The context of the original work—Montessori's culture, and the times in which she lived—is altered when analyzed by someone who is part of a different culture during a different time period. This is especially important in consideration of Montessori's books written around World War II; she wrote extensively regarding Peace Education, and her ideas carried a special weight in those times. Some argue

that she wrote in direct response to World War II, which creates a cultural context of her ideas which is different than the cultural context in which I interpreted her texts and ideas.

This study was also limited by the sample size of Montessori's writings which were used for content analysis of her core beliefs. Montessori wrote many books and, additionally, many of her lectures have been transcribed. This study utilized only three of those books, which were chosen based on personal interpretation regarding their relevance to this study.

The study was also limited by focusing on a specific aspect of Montessori's philosophy—that of the role of the child in society. Limiting the study to a specific aspect of her philosophy was necessary for the manageability of the study, but it did limit the scope and showed an assumption that this topic was significant and representative of the whole of Montessori's core beliefs.

The sample size of pilot study participants was also a limitation of this study.

Assumptions

The first assumption inherent in this study was that teacher beliefs are related to classroom outcomes (Harvey et al., 1966; Jones et al., 2012; Lofstrom & Poom-Valickis, 2013; McMullen et al., 2006; Roth & Weinstock, 2013; Sakellariou & Rentzou, 2011). This assumption provided the underlying basis for placing importance on the study of Montessori teacher core beliefs.

Another assumption of the study was that the sub-topic of Montessori beliefs which was chosen for the focus of this study—the role of the young child in society—is an important element of the Montessori philosophy. This sub-topic was chosen based on personal interpretation of the breadth of Montessori's writings.

The study also assumed that the books which were studied in order to create the inventory instrument accurately demonstrated Montessori's core beliefs regarding the role of young children in society.

The method of content analysis, used to synthesize an understanding of Montessori's core beliefs regarding the role of young children in society, was built on an assumption that Montessori's writings hold the key to understanding her core beliefs.

The pilot-test portion of the study assumed that teachers would respond to the survey honestly and accurately.

Operational Definition of Terms

Montessori philosophy. Dr. Montessori's belief system regarding the education of children, based on her observations of children (Lillard, 1972, p. 29).

Montessori Method. The practical considerations which connect the Montessori philosophy with day-to-day practices in teacher behavior and the classroom environment (Lillard, 1972, p. 50).

Beliefs (conglomerate; as in, a belief system). Whenever we take something to be the case or regard it as true; knowledge is a type of belief, as knowledge is defined as justified true belief (Stanford Encyclopedia of Philosophy).

Montessori teacher. A person who is credentialed by the American Montessori Society or Association Montessori Internationale to teach in a Montessori classroom for students ages 3-6 (AMI, 2015; AMS, 2014).

Implications

The creation of this inventory instrument took the first step to enable empirical research regarding the degree to which Montessori teachers actually share the core beliefs which Montessori herself held. The instrument could be used to study how Montessori teacher beliefs are correlated with classroom outcomes. For example, are teachers whose core beliefs resonate more strongly with Montessori's more likely to implement more authentic Montessori classroom practices? Are they more likely to have higher job satisfaction? Is it really essential to agree with the core beliefs of Montessori, in order to successfully implement the Montessori Method in the classroom? This inventory instrument could play a valuable role in contributing to these conversations.

This inventory instrument could also be used to evaluate the success of Montessori training programs in conveying an accurate understanding of Montessori's beliefs and preparing Montessori teachers to implement an educational method which is based on a series of core beliefs. It would also be interesting to explore the degree to which a teacher-in-training can have his or her core beliefs modified during the course of a Montessori training program and the degree to which these core beliefs are maintained over the teacher's career and life.

Relatedly, this instrument could be used to pursue a more multi-faceted definition of what it means to be a Montessori teacher. AMS and AMI both define a prepared Montessori teacher as a person who has completed a Montessori training program; these organizations have, as a method of evaluating Montessori teachers, a process of observing schools and classrooms to monitor the implementation of the Montessori Method (AMI, 2015; AMS, 2015). This instrument could allow empirical study of what Montessori teachers, and Montessori teachers-in-

training, actually believe. Since core beliefs and classroom practices are innately connected, this is an essential missing piece in the definition of what it means to become (via training) and truly become (via experience) a Montessori teacher.

A better definition of a Montessori teacher can, in turn, help us study the differences that exist between Montessori teachers and teachers from other philosophies. Utilizing a clearer, more multi-faceted definition of a Montessori teacher will increase the validity and value of such comparative studies.

Chapter II

Literature Review

“When I am with children I am nobody, and the greatest privilege I have when I approach them is being able to forget that I even exist, for this has enabled me to see things that one would miss if one were somebody—little things, simple but very precious truths” (Montessori, 1949/2007, p. 85).

During years of observation, Maria Montessori developed a unique theory of young children’s development and created a teaching philosophy and method to support this natural development. The philosophy behind the method is integral for Montessori teachers to understand and integrate into their own belief systems because it is the basis for all practical applications of the Montessori Method. The current scholarship lacks empirical research about the connection between Montessori teacher beliefs and classroom outcomes. Since this type of research has demonstrated meaningful correlations in non-Montessori research (Harvey et al., 1966; Jones et al., 2012; Lofstrom & Poom-Valickis, 2013; McMullen et al., 2006; Roth & Weinstock, 2013; Sakellariou & Rentzou, 2011), it has become essential to study this correlation in the Montessori field. At the time of this study, there was no measure with which to study Montessori teacher beliefs. Thus, the research questions used to guide this study were:

1. What are Montessori’s core beliefs regarding the role of young children in society?
2. What type of beliefs inventory instrument would be most effective in representing Montessori’s core beliefs on this topic and comparing them with those of Montessori teachers who participate in a survey using the inventory instrument?

3. How well does a pilot Montessori beliefs inventory instrument determine the extent to which a teacher's beliefs are aligned with Montessori core beliefs?

Overview of the Literature Review

This literature review will explore the theoretical rationale and current empirical research related to this study. First, the literature review will examine Montessori's beliefs regarding the contribution of the child to society, including points about the nature of the child and how the role of the young child in society is unique and important. Second, the review of related research will demonstrate the gap in the Montessori scholarship regarding teacher beliefs, as well as the importance of beliefs and philosophy in implementing the Montessori Method authentically. These Montessori studies demonstrate the importance of exploring Montessori teacher beliefs, as the beliefs are so closely connected to the teaching method. The review of related research will then discuss teacher belief research from outside the Montessori field, exploring how different kinds of teacher beliefs (about students, about own abilities, etc.) correlate with classroom outcomes such as classroom environment, discipline styles, and teacher retention. Each of these empirical studies shows the importance of understanding teacher beliefs, and that it is essential to study the beliefs of Montessori early childhood teachers in order to increase our understanding of the outcomes of teacher beliefs. The articles included in the literature review were found using key search terms such as: teacher beliefs, Montessori beliefs, Montessori philosophy, teacher worldview, early childhood beliefs, and beliefs and teaching. Databases such as ERIC, Google Scholar, and the Saint Mary's College library database were used to locate appropriate articles for this study.

Theoretical Rationale

Maria Montessori (1947/2007) believed that children are special beings who are capable of doing some of the most important work in society. Children alone are capable of revealing “simple but precious truths” about humanity, and they make other contributions to the welfare of adults and society (Montessori, 1949/2007, p. 85). Often, the truths that children reveal are the flaws in adult society; Montessori argued that children are the best-suited to reveal these flaws, and are the only ones who can work to repair them (Montessori, 1949/2007). This deeply held core belief is central to Montessori’s educational philosophy and serves as an underlying basis for the pedagogical techniques used in the classroom. Thus, this core belief is intrinsically connected to the Montessori Method and formed the basis for the theoretical rationale of this study (Montessori, 1912/2002, 1948/2007, 1949/2007, 1955/2007).

The nature of the child. Montessori (1948/2007, 1949/2007) believed that children are not small, limited, minimally competent adults; they are different beings altogether who have different capabilities and contributions in society. The most unique trait of young children, according to Montessori, is their immense adaptability to the world around them. Instead of being born predisposed to a culture or language, children are born with the ability to adapt to any environment. Humankind as a species does not have one track of development, but rather myriad methods of communicating and living. Montessori wrote, “in man’s case, we are not dealing with something that develops, but with a fact of formation; something nonexistent has to be produced, starting from nothing” (1948/20067, p. 20). Humans are the only creatures who are free to invent themselves, who are not bound to a blueprint of speaking a specific language and living in a particular way. A child is not born knowing a language, nor is a child born knowing all languages; a child is born without language, but with the capability of learning any language

(Montessori, 1948/2007, 1949/2007, 1955/2007). Young children's capabilities for adaptation are vital for the adaptability of society and humanity as a whole (Montessori, 1955/2007).

Montessori referred to children from birth through 6 years old as having "absorbent minds," likening children's minds to sponges which absorb everything around them without discrimination and without consciously working at it. This absorbent mind is the key to the adaptability of young children, which in turn is the key to the adaptability of humankind. According to Montessori, children's minds have sensitive periods when they are especially able and motivated to acquire specific skills. For example, children between birth and 6 years old have a sensitivity for language and learn their mother tongues effortlessly, "simply by continuing to live" (Montessori, 1948/2007, p. 24). There is no other time during human development when this ability returns. Older children and adults have to labor to learn a new language and acquire skills and knowledge from their environments, while young children do this with ease during sensitive periods. The minds of young children are truly unique and have capabilities which adults do not have, showing that they are not inferior adults-in-training but actually a different type of being than the adult. These capabilities give children a unique role in society. Thus, Montessori (1949/2007) determined that education needed to respond directly to these unique capabilities by honoring them and helping them fully develop.

The child's role in society. Montessori (1912/2002, 1948/2007, 1949/2007, 1955/2007) believed that children are contributing members of society for two reasons directly related to the nature of their adaptability and absorbent minds. First, they hold the key to improving society because they alone are capable of altering the future of humanity. Second, they inspire the spiritual development of adults. This represents another unique contribution of children to society that should be honored and developed through education.

In *Education and Peace*, Montessori argued that children are the only people who can truly work towards humanity's positive progress. Montessori wrote *Education and Peace* in 1949 in Italy, in the aftermath of World War II. The book is a radical treatise on the true meaning of peace; Montessori argued that peace is not the absence of war; it is not the aftermath in which one group has lost and then agrees to stop fighting. She maintained that true peace will only come to be on Earth if humanity continues to evolve socially and emotionally. While the progress of humanity in technology, communication, and other material areas has been quick and vast, humanity has developed much more slowly in terms of social, emotional, and spiritual life. Humanity has learned to split an atom and clone life forms, but has not discovered how to meet the basic human needs of the world's population, despite an abundance of materials, methods, and labor in many parts of the world. The methods have developed far more quickly than humanity's understanding of how to use them to care for others, themselves, and the world. Thus, as Montessori wrote, the potential of the human race is stunted due to humanity's inability to use their skills and technology to improve human life.

Montessori argued that young children are closer to the nature and full potential of the human race than are adults and that therefore, children are the ones who "lead the march of civilization" (1961, p. 64). The adult's role, then, is to "assist the progress of the child which is identical with the progress of civilization" (Montessori, 1961, p. 62). To be an aid to humanity's positive progress, adults must assist children's development in a way that respects that children are the ones who really hold the key.

Montessori (1949/2007) wrote that conventional schools in her time treated children like vessels meant to receive the wisdom of adults without exploration or critical thinking. (I would argue that this notion is not so far off from many conventional schools in the U.S. today.)

Montessori argued that this emphasis on receiving wisdom diminishes (or perhaps destroys) children's ability to construct their own personalities and own understanding of how society works and should work. Thus, conventional education can severely discount the value that the child brings to the table (Montessori, 1949/2007).

Montessori wrote, "our hope for peace in the future lies not in the formal knowledge the adult can pass on to the child, but in the normal development of the new man" (1947/2007, p. 58). The child will become "the new man," a member of a society that is different than the one his parents and teachers grew up in. Adults do not form the minds of children; rather, children's minds form independently and thereby define what the next generation of society will look like. Society will never see "the new man" if adults educate and guide children by believing that they hold all the pieces for assembling the future and ignore how much children have to add. The Montessori Method is built upon the core belief that children possess the power to change society, and thus, the Method's pedagogical techniques are formed to support the development of this power. Without an understanding and respect of this power, a Montessori teacher would be unable to fully and authentically practice the pedagogical techniques.

Montessori believed that adults should hold a deep respect for children, one that honors the unique power they hold. Montessori wrote:

The child is the constructor and maker of the adult man. The child is the father of man...
We wish to secure for the child a sense of gratitude and affection similar to that which we bear towards our parents so that we may not consider the child as the product of the adult but that we may regard him as the producer of the adult. It is only a cycle in which both adults and children take their places and it is necessary to recognize the parts both play.
(1961, p. 17)

Both children and adults have an essential role in the continuation and progress of society. Since Montessori's pedagogical methods are based on this core belief, it is essential to internalize this belief in order to authentically practice the Montessori Method which has, at its center, the goal of supporting the child's potential and purpose.

In addition to holding the power to help humanity move forward towards peace, children's vital energy inspires the spiritual development of the adults around them. This is a very real contribution to society and shows that the relationship between children and adults is truly reciprocal. Montessori wrote, "the child's psychic energy, once awakened, will develop according to its own laws and have an effect on us as well. The mere contact with a human being developing in this way can renew our own energies. The child developing harmoniously and the adult improving himself at his side make a very exciting and attractive picture" (Montessori, 1949/2007, p. 59). Montessori described the relationship as reciprocal; adults do care for children, but children inspire adults to grow. This is a unique contribution that young children provide to society. It is important to know whether Montessori teachers actually internalize this idea.

The role of education in improving society: help the child flourish. Montessori's (1949/2007) recommendation for teachers, and all adults who come into contact with children, was to be an aid to the unfolding of the child's personality with the knowledge that the child is capable of creating a world that is better than the one in which we live. This recommendation comes directly from Montessori's core belief that children possess the vital energy and guiding forces for their own development, and that they alone hold the key to bringing humanity closer to true peace.

In regards to the adult's primary role in children's development, Montessori wrote:

The adult must realize above all else that his task concerns a revelation of the child's soul. If he does so, the steps he subsequently takes and the aid he offers the child will be of great importance; if he does not do so, all his work will go for nothing. This work must have a twofold objective: constructing a suitable environment and bringing about a new attitude toward children on the part of adults. (1949/2007, p. 77)

If the adult does not realize the primary goal of his work with children, which is to assist in the unfolding of the children's souls (which could also be referred to as their personalities, or their potential), the adult's work with children will be much less effective or even "for nothing."

If a teacher merely uses Montessori pedagogical techniques—Montessori teaching materials, and Montessori recommendations for structuring class time, grouping ages together, and discipline—this is not enough and essentially, according to Montessori, misses the entire point of the Montessori Method. The Montessori Method is merely a shell without the internalization of Montessori core beliefs (Montessori, 1949). The core goal of serving the child's potential must lie at the basis of all curriculum and day-to-day practices.

In further discussion of the adult's role in children's development, Montessori wrote extensively about the adult's personal journey to understanding how to best support the child. She argued that adults must be "educated and re-educated," showing her belief of how to best work with children is not necessarily intuitive and/or is dissimilar from common perceptions of how to work with children. It needs to be taught to teachers, and they need to work to internalize it.

Montessori wrote:

The task of protecting [the child], which is also a task of educating and re-educating adults, is an effort to guard the greatest treasure we possess, one that can guide us toward that light that we sum up in a single word: peace. (1949/2007, p. 87)

Adults must be “educated and re-educated” in this core belief about the nature of the child and his value and contributions. Teachers must acquire and internalize the understanding of how valuable young children are, and how to support that value. Montessori believed that education should directly respond to the unique contributions of the child to society, and thus it is imperative to understand and be aligned with her core beliefs regarding the role and contributions of the child in society.

The Montessori Method came from this core belief regarding the nature of the child; all of her pedagogical methods sprung forth from it and are rootless without it. Thus, it is extremely important to know the extent to which Montessori teachers share this core belief.

In regards to the connection between Montessori philosophy and the Montessori Method, Montessori herself said it best:

I have not evolved a method of education. As a matter of fact, when one attempts to explain this method in concrete terms, it is necessary to discuss child psychology, for it is the psychology of the child, the life of his soul, that has gradually dictated what might be called a pedagogy and a method of education (1947/2007p. 76).

Review of Related Research

Since research documents the relationship between teacher beliefs and classroom outcomes, studying teacher beliefs is essential in order to understand how teachers approach their practice. While research in non-Montessori education has shown that teacher beliefs correlate

with teacher behaviors and classroom outcomes (Harvey, et al., 1966; Kim, 2011; McMullen et al., 2006; Sakellariou & Rentzou, 2011), research in the Montessori early childhood education field has been limited in terms of studying teacher beliefs and how they affect teacher practices. Recent empirical research regarding Montessori early childhood education has focused on defining what it means to be a Montessori teacher, and defining authenticity in the practice (Huxel, 2013; Lillard, 2011; Monson, 2006). The link between teacher beliefs and teacher actions shown in empirical research from outside the Montessori field demonstrates the importance of studying the beliefs of Montessori teachers and how they affect classroom practices. The research included in this review provides the empirical basis for the development of the measure of Montessori teacher beliefs that was the focus of this study.

Montessori authenticity. Recent Montessori early childhood education research has worked to define what it means to be a Montessori teacher and to explore the authenticity of Montessori practices. This research has had multiple aims including to provide an empirical basis to improve Montessori practice (Huxel, 2013; Lillard, 2011; Monson, 2006), to validate comparative studies on Montessori in comparison with other methods of education (Daoust, 2004), as well as to deepen understanding of effective Montessori practice (Chattin-McNichols, 1991; Malm, 2004). These studies are united by the implicit question: What is a Montessori teacher? In order to deepen the study of Montessori teachers and their practice, it is important to explore the beliefs which Montessori teachers actually hold.

In the quest to define Montessori authenticity, researchers have begun to identify traits that unify Montessori teachers across the United States and internationally. Some researchers have focused on classroom practices. Lillard (2011) surveyed 29 Montessori teacher-trainers to classify Montessori teaching materials into four categories: necessary, desirable, acceptable, or

negative. The study found that Montessori teacher trainers agreed on the classifications of a core set of materials, showing a unified link between teacher trainers' beliefs regarding the practical considerations of the Montessori Method (Lillard, 2011). This shows a degree of consistency amongst some of the practices of Montessori teachers. However, the study also showed that teachers were sometimes unsure about whether or not a material belonged in a classroom, showing that there may be a disconnect between Montessori teachers' classroom practices and their feelings about why those practices are implemented (Lillard, 2011). This implies a possible disconnect between teacher training (the Montessori Method), and the beliefs that teachers actually hold once they get into the classroom and begin to practice. Thus, it is essential to know what teachers actually believe in order to better understand their practice.

Daoust (2004) explored the reasons teachers would or would not utilize teaching materials and techniques which are considered standard Montessori materials and practices. Daoust interviewed 66 Montessori early childhood teachers, exploring the extent to which they deviated from the method outlined by Montessori in her writings and generally accepted by organizations such as the American Montessori Society and Association Montessori Internationale. Daoust explored whether the teachers' reasoning for deviating from the Montessori Method was more closely related to the assertion that their own method was better, or rather due to a lack of knowledge about how or why to implement a Montessori practice. Daoust's study had many facets, and two of her findings are most relevant to this study. First, some Montessori teachers who are blending the Montessori curriculum with other methods may not be aware of the degree to which they are modifying the method. Teachers whose self-reported practices showed that they did modify the Montessori Method heavily also self-reported that they perceived their level of modification at a similar level to teachers who practiced the

Montessori method more traditionally. This suggests that the teachers' beliefs and understandings are either so ingrained or so dynamic that teachers may not even realize how far they have moved from the methods they learned and implemented while in Montessori teacher training. This demonstrates the need for further study of Montessori teacher beliefs and how they relate to teacher practices.

Another one of Daoust's (2004) findings was that teachers who self-reported as implementing the most traditional Montessori practices tended to be more relaxed about redirecting children in the classroom than teachers who implemented a highly modified version of the Montessori Method. Daoust surveyed teachers regarding how comfortable they would be responding in described ways to hypothetical classroom situations. Her findings showed that beliefs about when to redirect children, and when to let it be may be, correlated to the degree to which a teacher practices the Montessori Method authentically. Since beliefs are so closely linked with practices, this shows another connection between Montessori teacher beliefs and Montessori authenticity. In concluding her study, Daoust calls for more research regarding Montessori authenticity. Because the word "Montessori" is not trademarked, and due to variance in teacher training programs and the inevitability of Montessori teachers being humans who are all very different, there is a significant amount of variance between Montessori programs. This variance in how the method is implemented threatens the identity of Montessori education, especially since the core beliefs and practical considerations are all so connected—and thus, picking and choosing elements from the Montessori Method is likely to be ineffective. Since Montessori practices are so integrated with the philosophy that they are founded on, there is a need for more research in the area of teacher beliefs in order to continue the conversation that Daoust started regarding authenticity of Montessori practices.

In addition to empirical studies on Montessori teachers and their beliefs and actions, Montessori scholars and researchers have explored what, exactly, is at the heart of the Montessori Method. By and large they conclude that it is the philosophy; the beliefs about instruction and learning, rather than the identifiable practices. So, although Montessori teacher core beliefs have not received treatment as a measurable element of Montessori authenticity, core beliefs and philosophy tend to emerge as an important element to authenticity, regardless of the topic of a particular article or study (Huxel, 2013; Malm, 2004; Monson, 2006).

In a review of recent literature, Monson (2006) wrote that “it is the responsibility of the leader of an authentic Montessori school to facilitate the thoughtful interpretation of Montessori philosophy and to foster respectful dialogue about Montessori practice” (p. 43). In other words, going back to Montessori’s philosophy is at the heart of running an authentic Montessori school. Monson agreed that the philosophy is at the heart of the Montessori Method. This supports the importance of studying the degree to which Montessori teachers are aligned with the Montessori philosophy.

Also in an article reviewing recent literature, Huxel (2013) wrote about Montessori authenticity in the context of teachers’ beliefs about children:

Authentic Montessori teachers view the classroom each day, each year, as fluid and ever changing... We respect the child before us who is becoming the person she is meant to be. On the child’s long journey, we aim to be never an obstacle, but instead a discreet guide. All the while, we question ourselves. We reflect on our work. Have we done enough? Have we done too much? This is what authentic Montessori means (p. 15).

Huxel found that authentic Montessori is about the willingness of the teacher to reflect, constantly, on his or her practices— that the key element of Montessori practice is not the

materials used or lessons taught, but rather the mindset of the teacher. Huxel's point of view seems to contrast with that of Daoust (2004), as Huxel sees authentic Montessori as changing and fluid and Daoust refers to authentic Montessori as traditional and adhering to the original principles; however, they agree that Montessori core beliefs are at the center of the Montessori Method. Both researchers emphasize teacher beliefs as incredibly important for Montessori teachers and as a key to learning more about authenticity in Montessori practices.

Malm (2004) also found that beliefs were the cornerstone of the Montessori Method. In a qualitative study with 8 Montessori teachers, Malm found that a major unifying factor between them was that they "feel an affinity with Montessori's philosophy to the extent that they are subjective, i.e. in order to embrace a philosophy you must share the same values" (p. 405). She pointed to values, which can be likened to deeply held or core beliefs, as the foundation of how Montessori teachers self-identify. This is important because it implies that Montessori values are what unites Montessori teachers, further supporting the findings that the Montessori Method of teaching is impossible to separate from the philosophy which underlies it.

Non-empirical scholarship also supports the idea that the Montessori Method is founded on Montessori core beliefs. According to Standing (1957), Montessori's major contribution to the world of education was not her practical considerations or guidelines for teachers, but rather her philosophy about the nature of children. In her book surveying Montessori's life, Standing wrote, "Montessori's real claim to our gratitude lies not so much in the fact that she has invented a new method of education, as that she has revealed to us many and beautiful traits in 'normalized children,' traits so unexpected and so new that many writers have coined the phrase 'the new children' in describing them" (p. 297). Thus, Montessori's core beliefs about the fundamental nature of children are at the heart of all other elements of her Method (Standing,

1957). This supports the idea that the Montessori Method is based firmly on Montessori's core beliefs and philosophy.

These studies invite future researchers to explore the beliefs which Montessori teachers hold, and to investigate how they are correlated with different classroom outcomes. Although some empirical research has investigated the factors surrounding authentic Montessori practice (Daoust, 2004; Lillard, 2011), there is still a large gap in the Montessori empirical research regarding teachers' core beliefs and the effects they have on authentic Montessori practice. Additionally, studies and non-empirical articles in the Montessori field have shown that core beliefs (values, worldviews) are often viewed as the single most important thing which defines a Montessori teacher (Huxel, 2013; Malm, 2004; Monson, 2006; Standing, 1957). Thus, the present study proceeded further in investigating Montessori teacher beliefs.

Overview of current empirical research on teacher beliefs in early childhood education. Empirical research in the area of teacher beliefs outside of the Montessori field has shown that beliefs and actions are intrinsically connected. Teacher beliefs are correlated to classroom outcomes such as teacher practices, classroom environments, and teacher interpretations of child behavior (Harvey et al., 1966; Kim, 2011; McMullen et al., 2006; Sakellariou & Rentzou, 2011). Studies have investigated the extent to which beliefs are correlated with various classroom outcomes. Some find that there is a direct correlation and some find that self-reported beliefs may not directly correlate with observed practices. Kim (2011) surveyed 65 early childhood pre-service teachers using the Teacher Beliefs Scale, which is based on the Developmentally Appropriate Practices as defined by the National Association with the Education of Young Children (NAEYC). Kim found that teachers' daily decisions are based on their beliefs and that it is possible to infer teacher beliefs from studying their behavior.

Sakellariou and Rentzou (2011), however, found a misalignment between how teachers self-report their beliefs, and their actions as seen by an observer. Sakellariou and Rentzou studied 68 pre-service kindergarten teachers and, using a self-reported beliefs and intentions scale, found that kindergarten teacher beliefs predict intentions, but also found that teacher stated beliefs tend to be more developmentally appropriate than their intentions (Sakellariou & Rentzou, 2011). This indicates a correlation between beliefs and actions, but also indicates that beliefs may not directly translate into actions, as teachers may hold beliefs that are more idealistic than the actions they find themselves doing on a day-to-day basis. Beliefs do not directly translate to actions; the correlation is more complicated and should be studied further.

Despite the fact that beliefs may not directly translate to actions, there is evidence that self-reported beliefs strongly correlate with observable practices. McMullen et al. (2006) surveyed 57 preschool teachers about their beliefs and practices, then conducted observations of those teachers, and concluded that teacher behaviors can, in fact, be predicted by looking at a teacher's self-reported belief system. This is important because it shows the strong connection between teachers' self-reported beliefs and their observable actions.

In summary, the studies reviewed in this section, and those which follow in subsequent sections, show that teacher beliefs are strongly linked to several types of teacher actions and classroom outcomes. The following sections of this literature review will discuss different types of beliefs and how they are correlated with specific teacher practices or classroom outcomes. First, it will discuss teacher beliefs about their own abilities and the classroom outcomes with which they correlate. Then, studies regarding more deeply held beliefs that are not directly related to curriculum will be discussed. Next, teachers' core beliefs, which are even further abstracted from the day-to-day teaching they practice, will be explored along with the classroom

outcomes with which they correlate. Last, the nature of beliefs and how they are acquired will be explored through a synthesis of empirical research. Throughout, implications for the importance of this study will be explored.

Teacher beliefs about their own abilities and role affect their beliefs about students.

Teachers' beliefs about their own abilities and their role in the classroom affect how they think about and treat their students. Teachers' beliefs about themselves are linked to retention rates of beginning teachers (Lavigne, 2014). Lavigne studied how 67 teachers' beliefs changed through their first, second, and third years of teaching, and found that teachers' beliefs about teaching and students became more positive as they gained experience and felt more confident in their teaching. Teachers' personal beliefs about themselves affected how teachers felt about teaching and about their students; more positive beliefs in these areas leading to a higher probability that a teacher would continue with the profession of teaching, showing a direct link between beliefs and actions.

Brady and Woolfson (2008) compared the responses of 118 elementary teachers on surveys measuring their self-efficacy, their interactions with disabled students, and how they attribute student behavior, and ultimately showed that teachers with more efficacy and more experience working with children with special needs are more likely to attribute children's difficulty in class to external factors (rather than attributing the difficulties to some fault of the child). Brady and Woolfson explored the link between teacher efficacy and teacher interpretations of student behavior. The more experience and efficacy a teacher has, the more likely that teacher is to look for challenging conditions surrounding a child's learning, instead of blaming that child for his or her difficulties in learning. This suggests that teachers who have stronger beliefs about their own abilities are more likely to hold a higher view of the child, noted

by not assuming the child is to blame for whatever difficulties he or she is facing. This implies that teachers have more positive view of students when they have more positive beliefs about themselves. This adds to the argument that teachers' deeply held beliefs correlate with their classroom practices.

Similarly, teachers who have a more positive view of their classroom management skills seem to value different outcomes in the classroom. Rubie-Davies, Flint and McDonald (2012) surveyed 68 teachers regarding their efficacy, goal orientation in regards to reading, and teacher expectations. Then their students' reading achievement skills were tested. Rubie-Davies et al. (2012) found that teachers who were more confident in their classroom management skills were less likely to focus solely on achievement and mastery. This suggests that teachers with higher self-efficacy are more likely to have more holistic goals for their students, perhaps because they are less worried about meeting criteria and maintaining control over the classroom. Rubie-Davies et al. (2012) reflected that their study attempted to investigate several interrelated factors and concluded that much more research in this area is needed to determine the factors related to teacher beliefs, goals, and actions which most strongly affect their classroom outcomes. Although the present study investigated a different population and was based on different research questions, it was also a response to such calls for further research in the area of teacher beliefs.

Furthermore, teacher beliefs about their own role in the classroom have an effect on student achievement. In a study of 35 teachers and 494 elementary students, Polly et al. (2013) showed that students of teachers with more student-centered beliefs showed the highest gains in math and problem-solving assessments. This indicates that a teacher's self-perceived role, whether he or she believes the classroom should be centered on the teacher or the students,

affects the achievement of the students. Caprara, Barbaranelli, Steca, and Malone (2006) also showed a correlation between teacher self-efficacy and classroom outcomes. In a study comparing over 2000 middle school teachers' self-reported self-efficacy beliefs with the final grades of students from two different years, they found that teachers with higher self-efficacy are more likely to create classroom environments which result in higher student achievement (Caprara et al., 2006). This is another example of teachers' beliefs about themselves and their role in the classroom correlating with significant change in student outcomes.

This section provided empirical evidence that teachers' beliefs about their own abilities correlate with their overall goals in the classroom and for their students. Teachers' self-efficacy beliefs are deeply held notions that transcend a teacher's work in the classroom and touch on how successful they feel and how much they value their work. These beliefs also have tremendous power to affect how teachers perceive, treat, and teach students. These studies have shown that teacher core beliefs are important to study, and that deeply held beliefs such as self-efficacy can pervade all teaching practices and classroom outcomes. Research in this area in the Montessori early childhood field may yield interesting results about the correlation between what Montessori teachers deeply believe, and what they do as teachers.

Teachers' core beliefs affect classroom practices. In previous sections, it has been shown that teacher beliefs regarding their own abilities as teachers, about themselves, and about what are appropriate practices in the classroom, affect how they interpret student behavior and interact with students, and how their students achieve academically. This showed that deeply held beliefs affect classroom practices, even if the beliefs and practices do not seem, on the surface, to directly correlate. For example, a teacher with higher self-efficacy is less likely to blame a student for a challenging behavior (Rubie-Davies et al., 2012).

This section will continue the argument that the deeply held beliefs of teachers affect classroom practices. The previous section focused on one type of deeply held belief, that of self-efficacy or one's beliefs regarding one's own abilities. This section will continue to discuss studies regarding core beliefs that are less directly related to teaching. In the Montessori philosophy, many of the core beliefs introduced by Montessori and shared with teachers-in-training are not directly related to curriculum or class management, but rather are related to teachers' core beliefs about the way that people, knowledge, and the world operate. Examples of these ideas can be found throughout Montessori's writings and particularly in *Education and Peace*. This section will explore the effect of teacher beliefs on teacher actions, focusing on teachers' closely held core beliefs, their worldviews and overall belief systems, and what happens when core beliefs come head to head with curriculum-related beliefs.

First, teacher beliefs about the nature of knowledge play a part in teacher effectiveness as well as teacher behaviors in the classroom (Jones et al., 2012). In a study of 270 pre-service teachers and in-service teachers in three university teaching programs, Jones and colleagues found that 25% of the participating pre-service and in-service teachers believed that intelligence was fixed, which they concluded to mean that teacher education programs should be more proactive in ensuring that pre-service teachers are developing a growth mindset, in which they believe that student effort is important and factors into the development of intelligence. However, Jones et al. showed that even when teacher education programs emphasized that intelligence is not fixed, some teachers still maintained their old beliefs about fixed intelligence. Thus, their beliefs about the nature of knowledge are stronger and/or more deeply held than other beliefs, and make them unable to fully learn and use some of the methods taught in their teacher education programs.

Roth and Weinstock (2011) had similar findings regarding teachers' understanding of the nature of knowledge, and showed how they connected to classroom practices. Roth and Weinstock found that teachers' theories of knowledge affected the degree to which they supported autonomy in their students. Roth and Weinstock refer to epistemologies as "theories-in-action," showing the important link between what someone believes and what they do. They surveyed 622 middle school students about the extent to which their teachers supported autonomy in the classroom, and found that teachers with more absolutist epistemologies, believing that knowledge is fixed and objective, were less likely to support student autonomy in their classroom practices (Roth & Weinstock, 2011). Teachers' personal understandings about knowledge affect how they aim to guide their students toward expanding and deepening their own knowledge. This shows that teachers' worldviews affect the type of climate they create in their classroom. And considering the findings from Jones et al., it is problematic if teachers' views of knowledge are directly correlated to the way they teach and are not malleable. This has serious implications for teacher training programs, as it suggests that some pre-service teachers simply will not fully learn and will not practice the techniques they are learning in their teacher education programs. Malleability and development of teacher beliefs will be discussed in detail later in the review of related research.

The past two studies (Jones et al., 2012; Roth & Weinstock, 2011) showed that teacher beliefs about knowledge affect their teaching, and sometimes cannot be changed by teacher education. Rattan et al. (2011) added to this empirical base with findings that showed that teacher beliefs about how mathematical knowledge is formed, and whether or not it is truly possible to significantly improve one's mathematical mind, are directly related to how they approach their students who are not doing very well in math. Rattan et al. (2011) found that math

teachers who believe that math learning is fixed are more likely to provide comfort to their students, which makes students feel okay about not being good at math, instead of providing encouragement to continue giving effort. These teachers are well-intentioned, of course, but their version of encouragement is actually very demotivating for their students. Because they believe that math knowledge is fixed, they are likely to give up on their students who are struggling, even if they do so with the intention of comforting the student about his/her inherent lack of math knowledge. These three studies (Jones et al., 2012; Rattan et al., 2011; Roth & Weinstock, 2011) show that teacher beliefs about the nature of knowledge and learning are correlated to measurable classroom and student outcomes.

Second, teachers' general/broad worldviews and personal belief systems affect how they treat students in the classroom. Harvey et al. (1996) studied 30 preschool teachers, comparing their observed behaviors with their self-reported beliefs. They found that teachers with more abstract belief systems (in which they were less likely to have fixed ideas, and more likely to be comfortable with uncertainty and see truth as relative) produced more educationally desirable atmospheres—classrooms which were warm, encouraged creativity, and were less punitive. This study demonstrates that a teacher's core beliefs and interpretation of the world can accurately predict aspects of a teacher's classroom practices. Thus, teachers' core beliefs, even when completely unrelated to teaching, affect their teaching practices. Kern et al. (1999) studied 62 elementary-school teachers regarding elements of their personal lifestyles such as social belonging and tendency to be cautious. Teachers also rated students' behavior in the classroom. This study found that teachers who value control in their lives are more likely to rate children as disruptive, while teachers who rank highly on the Belonging/Social Interest test are less likely to

rate children as disruptive. Thus, the core beliefs that teachers hold about the world, even those which do not directly pertain to their teaching, have an effect on how they perceive students.

One study shows a particularly vivid example of core beliefs correlating with instructional practices. Chan and Wong (2014) found that mathematics teachers' religious beliefs were correlated to their beliefs about mathematics. In a qualitative study of three teachers, Chan and Wong showed that the subtleties of teachers' religious beliefs, including how their religious beliefs have developed over time and how they feel about them, sometimes directly relate to the way the teacher approaches teaching math. Chan and Wong concluded that this phenomenon is due to the fact that spiritual beliefs include "a vast system, from how to see the world, to how to behave" (p. 270). This study draws conclusions about the importance of a teachers' worldview not only in how they approach teaching, but even down to the very specific element of how they approach teaching a particular subject. This implies that worldviews, or core beliefs, underlie everything that teachers do, pervade everywhere, and are at the heart of the "teacher" who is, fundamentally, a human being.

Core beliefs have been shown to trump curriculum-related beliefs (Borg, 2011). In a qualitative longitudinal study of six English language teachers, Borg (2011) discovered that teachers' specific beliefs about curriculum, such as supporting or rejecting a specific method of teaching grammar, are often overridden by a deeper belief such as that all class activities should respond to the situation that the teacher observes in the classroom on a daily basis. The implication of this study is that perhaps the beliefs that most affect a teacher's day-to-day behavior in the classroom are those that do not directly relate to materials, topics, and activities at hand. This relates back to Daoust's (2004) study of teachers' beliefs about implementing certain aspects of the Montessori Method; both studies question the degree to which teacher

curriculum training really influences what teachers do. If their core beliefs are so strong, can they act against them for the sake of following a set curriculum or curriculum guidelines? This question is especially important for Montessori teachers as the curriculum is based upon Montessori's core beliefs which are not directly related to definable, observable daily practices.

This section has shown that teachers' fundamental beliefs, such as how human beings acquire knowledge, are directly correlated to teacher actions, perhaps more so than the teachers' beliefs about the curriculum, materials, or daily activities. Since Montessori's core beliefs are based upon the assertion that young children have distinct contributions society, it is essential to study Montessori teacher beliefs and discover correlations between these types of fundamental beliefs, and teacher actions.

Can beliefs be taught? Where do they come from? The previous sections have discussed how teachers' beliefs, and especially teachers' core beliefs, affect teaching practices. This section will address empirical research regarding how those core beliefs are formed, and the role teacher education plays in the formation of those beliefs. This empirical research explores whether or not teacher beliefs can be learned, which holds interesting implications for the field of Montessori education.

Research suggests that teacher education is not the strongest factor in developing a teacher's system of beliefs, which opens up the question of which factors in a teachers' life, education, and experiences influence the beliefs most strongly. Lofstrom and Poom-Valickis (2013) studied 80 university students regarding their beliefs about teachers' roles in their first and third years of university study, focusing on the differences between students who chose to go into education, and those who chose another field. Participants who saw teachers more as 'pedagogues' than subject matter experts were more likely to become teachers. Participants who

viewed teaching as a more holistic process were more likely to go into teaching, showing that personal beliefs and perceptions of a teacher's role affects a person's desire to go into teaching as a profession. Lofstrom and Poom-Valickis also found that the beliefs a teacher holds *prior* to attending a teacher education program affect how they respond to the curriculum in that program. This suggests that the beliefs a teacher holds before that person becomes a teacher are important.

Another study found that teacher beliefs are quite unlikely to shift during their first teaching experiences. In a study of 28 teachers, White and Chant (2014) found that the teachers tended to hold onto their core beliefs; instead of seeing their beliefs as something to examine and evolve, the teachers tended to “[seek] out evidence—good or bad—to justify them” (p. 7). Despite the fact that White and Chant had encouraged the teachers to investigate their beliefs, teachers showed very little change in their beliefs during their first teaching experiences.

Fives and Buehl (2014) found that some teachers are more likely to allow their beliefs to grow and change with experience and new information (such as theory). In a study of 443 teachers who were assessed using the Teacher Ability Beliefs Scale, Fives and Buehl measured how teachers attribute their abilities as teachers, whether they thought their abilities were innate, learned, or somewhere in between. Teachers who believed their abilities were more learned than innate were willing/able to pursue development by reading, integrating new theory, and assessing and modifying their own beliefs (Fives & Buehl, 2014). This study implies that some people are more inclined to have beliefs that can develop and evolve over time. The implication for teacher education is that pre-service teachers are not all blank slates; some of them are partially covered slates, and some of them have been colored over many, many times and their beliefs may be extremely unlikely to change or evolve.

The above studies suggest that it is not easy to teach beliefs about the nature of the work

that teachers do, and that the beliefs that a person holds before their first teaching experiences are deeply held and tend to remain mostly intact, even if the teacher has experiences that encourage re-examining of beliefs. These findings have important implications for Montessori teacher training. If the authenticity of the Montessori Method is so closely tied to core beliefs, it presents a significant challenge when teachers are not aligned with the beliefs. Thus, it is important to study Montessori teacher beliefs and the extent to which they are aligned with Montessori's own core beliefs. The present study also examined teachers' perceptions of how their beliefs have changed since becoming a teacher. Although this is not the main focus of the study, it is interesting to consider the implications these findings could have for Montessori teacher training.

Conclusions

This literature review showed that it is important to study the core beliefs of Montessori teachers. First, the Montessori method is founded upon, and inseparable from, Montessori's core beliefs. Scholars in the Montessori field have begun investigating the beliefs of Montessori teachers, how they correlate with practices, and the degree to which they are shared by Montessori teachers, but there still remains a gap in the research that the present study hoped to start to fill. Second, the literature from the non-Montessori field shows that teacher beliefs are very powerful; they implicate behaviors, define how teachers perceive their students, and predict classroom outcomes. Third, teacher beliefs about themselves, their efficacy, and their role in the classroom affect classroom and student outcomes. Fourth, teacher core beliefs, those non-teaching beliefs and worldviews that run deep, have been shown to affect teacher practices. Fifth, empirical research has shown that teacher beliefs are tightly held and are not necessarily significantly influenced by teacher education or experiences as a teacher, but rather are a part of a person before he or she becomes a teacher and can tend to remain relatively fixed. Since

Montessori education is so firmly rooted in Montessori core beliefs, it is essential to study the degree to which Montessori teachers actually share these core beliefs. The studies discussed in this literature review show that studying Montessori teacher beliefs could have important implications for teachers and teacher education.

Chapter III

Method

Maria Montessori's core beliefs about children are central to her method of education (Huxel, 2013; Malm, 2004; Standing, 1957). Montessori scholars highlight the deep connection between Montessori's core beliefs and her method of education, and current scholarship calls for further empirical research about the connection between Montessori teacher beliefs and classroom outcomes. Since empirical research has demonstrated meaningful relationships between teacher beliefs and classroom outcomes in a non-Montessori context (Harvey et al., 1966; Jones et al., 2012; Lofstrom & Poom-Valickis, 2013; McMullen et al., 2006; Roth & Weinstock, 2013; Sakellariou & Rentzou, 2011), it is essential to examine these variables in the Montessori context. At the time of this study, there was no measure with which to study Montessori teacher beliefs and the purpose of this study was to create and pilot one such measure. The research questions used to guide this study were:

1. What are Montessori's core beliefs regarding the role of young children in society?
2. What type of beliefs inventory instrument would be most effective in representing Montessori's core beliefs on this topic and comparing them with those of Montessori teachers who participate in a survey using the inventory instrument?
3. How well does a pilot Montessori beliefs inventory instrument determine the extent to which a teacher's beliefs are aligned with Montessori core beliefs?

Setting

This study was conducted using an online survey. Participants were recruited via email using both the researcher's personal network of early childhood educators as well as through an online community for teachers. The online communities were groups on the professional networking site LinkedIn that were expressly for early childhood educators. One group contacted was for Montessori teachers while two others were for early childhood educators from any teaching background or philosophy. Thus, the participants came from a variety of settings including Montessori, Waldorf, Head Start, Reggio Emilia and others.

Participants

Potential participants were recruited using the online professional networking website LinkedIn, as well as by email invitation. Introductory letters (see Appendix B and Appendix C) were posted to the LinkedIn groups and emailed to teachers in the researcher's personal network. Potential participants were asked to self-select and participate in the survey only if they met at least one of these two criteria: 1) had a degree related to working with young children (ages 2-6) and/or 2) had at least one year of experience working with young children (ages 2-6). Participants came from various types of schools and teaching philosophies including Montessori, Waldorf, Head Start, Reggio Emilia, Creative Curriculum, Piaget, Standard Education Practices of the Japanese government, Bildung, research-based, High Scope, whole child, play-based, Te Whariki, and relational curriculum (see Table 1).

Thirty-five of the 78 participants identified as Montessori teachers (45%), 17 identified as Head Start teachers (22%), 6 identified as Reggio Emilia teachers (8%), and 20 identified as other types of teachers (27%). For the purposes of this quantitative analysis, the data was compared based on two groups: Montessori teachers and teachers from other philosophies.

Of these 78 teachers, 59 (or 76%) of them had eight or more years of experience working with young children. The study was open to all teachers with at least one year of experience or a degree or credential for working with young children, so it is interesting to note this very high percentage of experienced teachers who participated in this study. Please see Table 1 for more details on the participants in this study.

Table 1

Summary of Demographic Information

Number and percentage of teachers who...	Montessori teachers	Other teachers
Have any credential / degree related to working with young children	35 (100%)	40 (93%)
Work in the United States	27 (77%)	30 (70%)
Have a BA	25 (71%)	31 (72%)
Have an MA	17 (49%)	29 (67%)
Have a state-issued Elementary certificate	7 (20%)	8 (19%)

Design

This was a mixed-methods study. A questionnaire survey was used to collect both quantitative and qualitative data in the form of multiple choice items as well as open-ended questions. Teachers’ responses to both quantitative and qualitative questions were used to collect information about their core beliefs about young children.

Measurements/Instruments

The purpose of this study was to create and pilot a measure with which to study Montessori core beliefs. Thus, a measure was created specifically for this study. The full text of the measure can be found in Appendix A.

This measure was created with the intention to obtain the most honest information about teachers’ core beliefs. Many studies have shown that self-reported beliefs, as measured using

beliefs inventories, are successful in measuring teacher beliefs (Dellinger et al., 2008; Fives & Buehl 2005; Kim, 2011). However, in the case of Montessori teachers, it is possible that it would be easy to agree with statements of Montessori core beliefs without them actually matching the teacher's personal beliefs, given the nature of training in Montessori education programs. It is likely that self-reported belief scales, such as those offering statements and a Likert scale with which to select the degree to which one agrees with the statements, might create the illusion of "right answers." Thus more accurate information could likely be procured by asking the teachers to explain their own beliefs. Furthermore, there is no standard list of Montessori teacher beliefs with which to create statements which can be responded to using a Likert scale. Smith created a teacher belief survey scaled to measure the degree to which teachers' beliefs correlate with developmentally appropriate practices as defined by the National Association for the Education of Young Children's position statement (1992). There is no such position statement for Montessori beliefs, which adds further difficulty to the idea of using a belief inventory to measure Montessori teacher beliefs.

Thus, considering that self-reported belief scales can give leading information, and that there is no list of Montessori teacher beliefs, it was concluded that more accurate information about teacher beliefs could be acquired by asking participants to respond to hypothetical situations, to explain responses to hypothetical situations, and to respond to open-ended questions about teachers' beliefs. Researchers have found that only asking about teachers' self-reported beliefs leads to a limited understanding of what they truly believe (Reeve et al., 2014). Therefore, although the present study included only a survey, the diversity of types of questions was intended to create multiple avenues from which to understand teacher beliefs using multiple types of questions requiring a variety of responses.

Hypothetical situations immerse survey participants in a situation which likely results in more honest answers about what they would really do. Daoust (2004) used hypothetical situations in order to measure teachers' motivation styles; in her study, participants rated their degree of comfort with various classroom practices or actions. Since the present study aimed to collect a broader scope of information, the participants' core beliefs about children, participants were given the option to choose as many responses to the hypothetical situation as they desired, then to explain their answers. Teachers were asked to choose as many of the responses as they liked because classroom situations are incredibly varied, and much of a teacher's actions depend on the context of who the child is, what is going on in the classroom, and the child's mood and needs leading up to any particular event.

Kemple et al. (2008) developed a teacher belief scale in which participants ranked teaching strategies based on several traits; although they believe their measure was effective in measuring teacher beliefs, they mentioned that further research using their measure should integrate a qualitative piece where participants are asked to explain their answers. Thus, the present study included this type of question in the survey (see Appendix A for the entire survey). In order to learn more about the teachers' responses, each hypothetical situation was followed with an open-ended question asking the teacher to explain his/her choices. This was necessary to understand the conditions in which the teacher would respond to the situation in any specific way, giving more information about the underlying beliefs that accompany the actions.

Teachers' self-reported beliefs were also collected. Instead of presenting a measure with a Likert scale, asking teachers to self-report their beliefs according to how much they agreed with particular statements, this part was left open-ended, asking questions such as "What do children contribute to their families and to society?" Open-ended questions were chosen so that the ideas

would come entirely from the participants, not from leading questions or statements from the survey. Fives and Buehl (2008) created a measure using similar techniques, a series of open-ended questions, to measure teacher beliefs, and reported that the data collected from this method was reliable.

By combining quantitative and qualitative data in the measure created, the present study tested the effectiveness of both types of data in determining whether or not a teacher who took the survey was aligned with Montessori core beliefs.

Procedure

First, I secured approval for the study from the Saint Mary's College of California Institutional Review Board. Then, I looked on LinkedIn professional networking groups for both Montessori and other early childhood educators. I chose these because they would be likely to have early childhood education teachers with at least one year of experience working with young children, and/or a degree or credential related to working with young children. In addition, a list of personal contacts who are early childhood educators was collected. Two introductory letters were written, one for Montessori participants and one for teachers of other philosophies, both including a link to the survey and an overview of the purpose of the study, and mentioned the option of being entered for a \$50 Amazon gift card if the participant was willing to enter his or her email address. This introductory letter was posted on the aforementioned social and professional networking group pages, and sent to my list of personal contacts who are early childhood educators. After the introductory letter was posted to these sites and emailed to my personal contacts, the survey was open for approximately one month, during which time 78 participants responded. At that time, the response document was downloaded so that no further responses could be catalogued.

Data Collection

The introduction letter to the survey was posted to several closed, professional networking groups for Montessori and other early childhood educators on LinkedIn, and emailed to teachers within my personal network. The survey remained open for about one month. Participants could choose to take the survey at any time during that month. Google Forms was used to administer the survey and automatically created a responses spreadsheet that was used for the analysis.

Data Analysis

The software program SPSS was utilized to analyze the quantitative data. First, frequencies were run for the demographic questions. Then, the responses to the hypothetical situations which teachers selected from a set of seven responses were analyzed to determine which teachers provide which responses and to examine whether or not the Montessori teachers differed from teachers from other philosophies in the response option(s) they chose. Because participants were allowed to provide multiple responses to each hypothetical scenario, the responses were coded as either yes or no depending on whether the participant indicated that he/she might act in that way in response to the action in the scenario. Then, the frequency of yes and no responses was calculated for Montessori teachers and teachers from other philosophies. Patterns of responses to each scenario were very similar, and it was decided that further statistical testing to determine whether there were significant differences or not was not needed.

A Pearson correlation was also run to look for correlations between the various responses and to determine the interrelatedness of the responses. This was done to investigate the internal reliability of the survey.

For the qualitative data, text analysis was used to identify a limited number of broad themes which emerged in the qualitative, open-ended questions, including the participants' explanations regarding how they answered the hypothetical questions. At first, dozens of themes arose, and they were consolidated into broader themes representing overarching beliefs about the nature of young children, which was the core belief primarily being examined in the present study. For each broad theme regarding the nature of the young child, the Montessori teachers group was compared with the group of teachers from other philosophies, in order to determine if the two groups showed different patterns in their responses. Then, themes were compared with Montessori core beliefs, in order to determine the degree to which the Montessori teachers in this study held Montessori core beliefs (see Appendix D for detailed list of themes).

Chapter IV

Results

Maria Montessori's core beliefs about children are the foundation on which the Montessori Method of education is built (Huxel, 2013; Malm, 2004; Standing, 1957). Despite this generally well accepted idea, there has been limited empirical research regarding the core beliefs of Montessori teachers. Empirical research outside of the Montessori context has shown meaningful relationships between teacher beliefs and classroom outcomes (Harvey et al., 1966; Jones et al., 2012; Lofstrom & Poom-Valickis, 2013; McMullen et al., 2006; Roth & Weinstock, 2013; Sakellariou & Rentzou, 2011). Thus, it is important to examine the relationship between teacher beliefs and classroom outcomes in the Montessori context. As there is currently no measure with which to study Montessori beliefs, the objective of the present study was to create and pilot a measure of Montessori core beliefs. The research questions used to guide this study were:

1. What are Montessori's core beliefs regarding the role of young children in society?
2. What type of beliefs inventory instrument would be most effective in representing Montessori's core beliefs on this topic and comparing them with those of Montessori teachers who participate in a survey using the inventory instrument?
3. How well does a pilot Montessori beliefs inventory instrument determine the extent to which a teacher's beliefs are aligned with Montessori core beliefs?

This chapter includes the findings from the present study.

Overview of the Method

In this study, quantitative and qualitative data was collected from 78 participants. All participants met the sampling criteria of either having worked with young children (ages 2-6) for at least one year, and/or having a credential or degree related to working with young children. Qualitative and quantitative data were collected using a single, online survey created with Google Forms (see Appendix A). The survey contained multiple-choice questions, which were analyzed quantitatively, and open-ended questions, which were analyzed using qualitative methods. Participants varied in several ways: the teaching methods and philosophies they were aligned with; the types of degrees, certificates, and other training they had; and the number of years of experience they had working with young children. All of these demographic dimensions were documented in their responses. The rest of this chapter includes sections that detail the findings from both the quantitative and qualitative questions on the survey.

Quantitative Data

Participants were presented with three hypothetical classroom situations, and were given six options representing possible responses to each situation. Participants could select multiple options for each question if they felt there were multiple ways in which they may respond to the situation. There was also a space for participants to write in their own responses, if they wanted to add an option other than the six options presented. As a follow-up, which became part of the qualitative data for this study, participants were asked to provide the reasoning for their responses to the hypothetical situations. This section will discuss the way the participants reported they would respond from the six options reported, focusing on the frequency of responses to each possible option and comparing Montessori teachers with teachers from other philosophies.

The quantitative data from this study looked at how participants reported they would respond to hypothetical classroom situations. Participants read three hypothetical situations, and were presented with six possible responses to each, as well as a choice to write in their own response to the situation. Participants were asked to select all options that they *might* have done if they had experienced this situation, because a level of context relevant to teacher responses is not possible to construct in a survey. Thus, most participants chose more than one response for each hypothetical situation. Tables 2, 3, and 4 provide the frequency of responses for each of the options in each scenario comparing Montessori teachers to teachers from other philosophies.

The first scenario presented on the survey was as follows: A 4-year-old child is running across the room with scissors in his hand, pointing downwards. There are no children in his path. He used to run with scissors a lot, but hasn't done it at all for the past month. As seen in Table 2, more than half of Montessori teachers reported they would respond to the scenario with the response: *Try to figure out why the child was so excited with the scissors by observing or asking what he was doing with the scissors.* Approximately one fourth of Montessori teachers selected the following option: *Wait until he stops running, then ask if he thinks running with scissors is a good idea.* There were no Montessori teachers who chose the option: *Forbid the child to use scissors and use the child as an example at circle time to show other children that there will be consequences for unsafe behavior.* It was not only Montessori teachers who reported they would act in these ways, but teachers from other philosophies showed very similar patterns in their choices. Table 2 shows the number of teachers from each group who selected each response, as well as the percentage of the group which that quantity represents.

Table 2

Teacher Responses to Scissor-running Scenario

Response Option	Type of teacher	
	Montessori teacher	Teacher from another philosophy
Call out to the child to stop immediately.	6 (17%)	14 (33%)
Wait until he stops running, then ask if he thinks running with scissors is a good idea.	16 (26%)	15 (35%)
Run up to the child and grab the scissors away or stop the child from running	4 (11%)	3 (7%)
Try to figure out why the child was so excited with the scissors by observing or asking what he was doing with the scissors	22 (63%)	28 (65%)
Tell the child he cannot use scissors for the rest of the day, since you're afraid he will get back into the pattern and you want to break it before it fully forms again.	2 (6%)	0 (0%)
Forbid the child to use scissors and use the child as an example at circle time to show other children that there will be consequences for unsafe behavior.	0 (0%)	0 (0%)
I would do something different.	6 (17%)	7 (16%)

The second scenario was as follows: A parent tells you that her four-year-old child is always trying to set the table for dinner and often drops plates. As seen in Table 3, almost three fourths of Montessori teachers noted that they may respond in the following way: *Celebrate with the parents that their child is attempting to contribute her skills to the family effort.* Another frequent response amongst Montessori teachers, chosen by over three fourths of participants, was: *Try to figure out if there's a reason the child drops the plates. Maybe they could be placed on a shorter shelf so the child doesn't have to stand on tip-toes to reach?* An unpopular option, chosen by less than five percent of Montessori teachers, was: *Advise the parent to find another household activity that the child can help with, and to have the parent choose the chore.* In general, teachers from other philosophies showed similar patterns, favoring the first two options

mentioned in this paragraph, and also choosing the third option very infrequently. It is notable that, although both groups (Montessori teachers and teachers from other philosophies) chose the section option mentioned above, 88% of Montessori teachers chose it while only 70% of other teachers chose it. While the patterns are quite similar between the two groups, in terms of how they responded to this hypothetical situation, this shows some differentiation between the groups in regards to this particular option. Table 3 shows details about the frequency with which each group chose each response.

Table 3

Teacher Responses to Plate-breaking Scenario

Response Option	Type of teacher	
	Montessori teacher	Teacher from another philosophy
Tell the parent, "That's just what kids do!" and share a laugh.	2 (6%)	4 (9%)
Celebrate with the parents that their child is attempting to contribute her skills to the family effort.	26 (74%)	33 (77%)
Comfort the parent, saying that the child will surely become less clumsy in time.	2 (6%)	4 (9%)
Advise the parent to find another household activity that the child can help with, and to have the parent choose the chore.	1 (3%)	4 (9%)
Advise the parent to find another household activity the child can help with, and to have the child choose the activity.	4 (12%)	10 (23%)
Try to figure out if there's a reason the child drops the plates. Maybe they could be placed on a shorter shelf so the child doesn't have to stand on tip-toes to reach?	31 (88%)	30 (70%)
I would do something different.	5 (14%)	10 (23%)

The third scenario was as follows: A three-year-old child who often squirms during nap time is having a particularly rough time. He is making animal noises and kicking his feet while

other children are trying to fall asleep. As seen in Table 4, nearly three fourths of Montessori teachers selected the following option: *Check in with your coworkers to see if they know any reason the child might be particularly upset today*. In addition, nearly three-fourths of Montessori teachers selected this option: *Ask the child if something is wrong*. None of the Montessori teachers selected the following option: *Hold the child's legs down so the child cannot kick anything*. Teachers from other philosophies showed similar patterns in the options they chose with the most and least frequency. Overall, both groups provided very similar patterns in their responses to this scenario. Please see Table 4 for details.

Table 4

Teacher Responses to Nap-kicking Scenario

Response Option	Type of teacher	
	Montessori teacher	Teacher from another philosophy
Check in with your coworkers to see if they know any reason the child might be particularly upset today.	24 (69%)	25 (58%)
Hold the child's legs down so the child cannot kick anything.	0 (0%)	0 (0%)
Tell the child that if he stops making noises and kicking, that he can be the first person to wake up.	2 (6%)	3 (6%)
Ask the child if something is wrong.	22 (71%)	25 (58%)
Pick up the child and move him to another room if he doesn't stop doing these things when asked.	1 (3%)	2 (5%)
Ask the child to come talk with you in another room if he doesn't stop doing these things when asked.	10 (29%)	11 (26%)
I would do something different.	15 (43%)	22 (51%)

A comparative analysis of the frequency data revealed that the differences in responses from Montessori teachers compared to teachers from other philosophies was not statistically significant. In fact, most of the teachers in the sample responded that they would utilize the same options regardless of the type of early childhood environment they taught in. Possible improvements to the design of this quantitative part of the study will be assessed in Chapter V. While the quantitative data collected from teachers about how they might respond to hypothetical scenarios did not succeed in distinguishing Montessori teachers from teachers from other philosophies, participants were also asked to provide the reasoning for their responses. These open-ended responses did, in fact, demonstrate a difference between Montessori and teachers from other philosophies, and a detailed analysis of these results follows in the next section.

In addition to the frequency analysis, I investigated the internal reliability of the survey. A Pearson correlation was run to examine whether correlations between the various responses to the hypothetical questions were significant and to determine the interrelatedness of the responses. Overall, no correlation, weak correlations, and one moderate correlation were found between the 18 hypothetical-situation responses (6 from each of the 3 questions). It is likely that this was primarily due to the fact that the questions were not intended to measure the same things. For example, there is not one response for each hypothetical situation which represents a teacher believing that children are valuable to society. Since the core beliefs which this instrument attempted to measure are not directly observable, the instrument intended to gather various information about a teacher's actions, instead of focusing on representing a limited number of categories into which participants could be placed depending on their answers to the hypothetical questions.

Despite this general lack of correlation between responses, there were some correlations detected between responses, showing that there were some ideas that emerged more than once and that internal reliability was found to some degree between responses which conveyed similar ideas. For example, there was a correlation between the following responses to the Plate-breaking scenario: *Comfort the parent, saying that the child will surely become less clumsy in time* and *Advise the parent to find another household activity that the child can help with, and to have the parent choose the chore*. This was statistically a weak correlation, but it is meaningful because it shows a correlation between two responses that seem to value the parent's comfort and well-being. Table 5 shows a detailed list of statistically significant correlations found between the responses to the hypothetical situations.

Table 5

Significant Correlations between Hypothetical-Situation Responses

Response 1	Response 2	Correlation strength (Pearson r value)	Analysis
From the Scissor-running Scenario: Try to figure out why the child was so excited with the scissors by observing or asking what he was doing with the scissors.	From the Plate-breaking Scenario: Try to figure out if there's a reason the child drops the plates. Maybe they could be placed on a shorter shelf so the child doesn't have to stand on tip-toes to reach?	.317**	Both indicate the teacher's inclination to learn more about the situation before acting upon it. In addition, they demonstrate the need to develop an understanding about the child's motivation and whether or not there is a way to scaffold the task in order to allow the child to complete it independently. These responses are in alignment with Montessori core beliefs as they show the teacher trying to understand more about the child and guide the child or alter the environment so that the child may be successful independently.
From the Scissor-running scenario: Run up to the child and grab the scissors away or stop the child from running.	From the Nap-kicking Scenario: Pick up the child and move him to another room if he doesn't stop doing these things when asked.	.404**	Both are active responses in which the teacher takes control of the situation by force. These responses conflict with the Montessori core value of valuing and respecting the child and his need to construct his own development.
From the Scissor-running Scenario: Try to figure out why the child was so excited with the scissors by observing or asking what he was doing with the scissors.	From the Nap-kicking scenario: Ask the child to come talk with you in another room if he doesn't stop doing these things when asked.	.273*	Both responses show the teacher engaging the child in conversation about his motivations and/or needs. These support the Montessori core belief that children are the primary constructors of themselves, that their needs and motivations are important, and that their teacher respects them as human beings.
From the Nap-kicking scenario: Ask the child if something is wrong.	From the Plate-breaking Scenario: Try to figure out if there's a reason the child drops the plates. Maybe they could be placed on a shorter shelf so the child doesn't have to stand on tip-toes to reach?	.313**	Both responses show the teacher investigating the situation further and whether the environment could be changed so the child might be more successful independently. These are also in alignment with Montessori core beliefs as they show the teacher trying to understand more about the child and guide the child or alter the environment so that the child may be successful independently.
In response to Nap-kicking scenario: Ask the child if something is wrong	In response to Nap-kicking Scenario: Check in with your coworkers to see if they know any reason the child might be particularly upset today.	.252*	In both responses, the teacher is attempting to get more information about the apparent misbehavior before reacting. Both sources—the child himself and an observer—may have clues to the needs and motivations behind the behavior. These responses are in alignment with Montessori beliefs, as they represent a desire to understand the child's needs more fully before reacting.

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

Although the correlations in Table 5 are statistically weak or moderate at best, they show that there was some degree of internal reliability between responses which conveyed similar ideas. As shown in Table 5, there were meaningful conclusions drawn from each of the correlations found between responses, as they relate to Montessori core beliefs. This suggests that a measure using hypothetical scenarios could, in fact, be quite effective in determining the degree to which a teacher's core beliefs are aligned with Montessori core beliefs. It would be useful to consider the responses that did, and did not, demonstrate internal reliability upon revising this measure.

Qualitative Data

Participants were asked two kinds of qualitative questions. First, they were asked to explain why they chose certain responses to the hypothetical scenarios. Second, they were asked questions regarding their work with children and beliefs about children (see Appendix A for the full text of the survey).

The qualitative data was analyzed in several steps. First, participant responses were analyzed in order to identify themes; a theme represented what a response revealed about the participant's core beliefs regarding young children. Several dozen themes were generated, as new themes were generated each time a theme emerged that was not already represented. Table 6 provides examples of some of the themes, showing two examples for each theme in order to demonstrate how similar themes are included in different responses.

Table 6

Examples of Responses and Themes

Participant's Response	Themes(s)
Sometimes taking a nap is not what needs to be done for a single child, but that child needs to be respectful of his buddies who do need a nap.	1) Teacher focuses on needs of individual child 2) Teacher considers the needs of the group
Finding out if there is anything wrong which is causing them to be restless is important as it may be able to be solved easily. Which is best for everybody.	1) Teacher focuses on needs of individual child 2) Teacher considers the needs of the group
Their contribution to society comes later. If society has done well by the children, the children will become productive contributing members of society.	3) Teacher believes young children will contribute to society in the future (not in the present)
A child with a critical mind will be an excellent citizen in the future and will make the difference among the others.	3) Teacher believes young children will contribute to society in the future (not in the present)

After the first round of analysis, several key themes emerged; these were themes which were broad and often comprised several smaller themes which were found frequently in participants' open-ended responses. It was also discovered that these key themes could be analyzed together, instead of individually, since they represented binary distinctions. For example, some teachers expressed that children contributed to society while they were still children, and some teachers expressed that children will contribute to society later when they are adults. Both of these themes emerged frequently in the qualitative analysis of open-ended questions; since they are opposing ideas, and since the strategy of the pilot test is to compare the two groups of participants (Montessori and teachers from other philosophies), the binary themes were analyzed in tandem. Thus, the next step of qualitative analysis involved focusing on six individual themes, each of

which possessed an opposite, binary theme, in order to create the following statements. Each statement represents two binary themes.

1. Some teachers attributed children's growth and development primarily to the teacher's efforts, and some teachers attributed children's growth and development primarily to the children's efforts.
2. Some teachers believed that young children contribute to society while they are still young children, and some believed that young children will contribute to society later.
3. Some teachers mentioned specific educational philosophies amongst the factors that had influenced their core beliefs about young children, and some did not mention specific educational philosophies amongst their list of factors.

The next step was to investigate whether there were patterns indicating any variation between Montessori teachers and teachers from other philosophies within each of these three themes. For example, were Montessori teachers more likely to attribute a child's growth and learning to their own (the teacher's) efforts, more likely to focus on the child's effort, or not significantly more likely to do either? This analysis was vital in order to examine whether or not the measure was successful in distinguishing Montessori teachers from teachers from other philosophies. If the measure was successful in doing so, two things would occur:

1. There would be differences between the themes expressed amongst the Montessori teachers, when compared to those expressed by teachers from other philosophies.
2. The themes expressed by the Montessori teachers would reflect Montessori core beliefs.

The following will summarize the findings related to the three sets of binary themes mentioned earlier, by examining whether or not these two criteria were met for each. Groups included Montessori teachers and teachers from other philosophies. Data from the Montessori

teacher group was analyzed in comparison/contrast with the cumulative data from all teachers from other philosophies. Each theme is presented and described in the following sections with examples from participant responses included in the description of the findings.

Theme 1: Attribution of children’s growth to self or to child. All responses with content related to this theme, whether the teacher attributes children’s growth to him or herself or to the child primarily, were collected and analyzed by group. Table 7 shows the number of teachers from each group whose responses related to either of these binary themes, and shows the number and percent from each group (Montessori and teachers from other philosophies) whose responses related to each of the two binary themes.

Table 7

Attribution of Child’s Growth to Self or Child: Comparing Montessori Teachers and Teachers from Other Philosophies

Type of teacher	Number of teachers in group who gave responses related to this theme	Attributed child’s growth and development to <i>child</i>	Attributed child’s growth and development to <i>teacher</i>
Montessori	23 (66% of the Montessori group)	21 (91%)	2 (9%)
Teachers from other philosophies	28 (65% of the teachers of other philosophies group)	14 (50%)	16 (57%)

Note: Some participants from the teachers from other philosophies groups gave responses which expressed both themes.

As seen in Table 7, 23 Montessori teachers provided responses which related to one of these two binary themes regarding attribution of child’s growth and development. Of those 23 teachers, 21 (91%) reflected the theme that the teacher attributed the child’s growth and development to the child’s own efforts. Montessori teachers used verbs such as *foster, nurture, assist, inspire, celebrate, empower, support, observe, and watch* to describe the teacher’s role in the child’s development. Several teachers wrote that their job was to create the environment

necessary for the child's growth, which is distinctly different from attributing the growth entirely to oneself. Many teachers also wrote that children are much more capable than they are often given credit for. Some teachers emphasized the inherent personality of the child. For example, one wrote, "[personality] is very much there from the beginning and something to be worked with rather than changed." Some teachers also emphasized the idea of child-centered learning. One Montessori teacher wrote, "I've learned to 'not impose knowledge.' I try not to teach or tell them anything (unless directly asked) but to set up a scenario in which they can figure it out or make a discovery and not know that I had a thing to do with it. If I do anything for a child, I try to show them how to do it, then undo it and give them a turn. I watch a lot more and wait to see what they come up with before jumping in with suggestions." This teacher emphasized the background role of the teacher, and purposely de-emphasized his/her presence in the child's learning.

Overall, the theme of attributing child's learning to the child's own efforts is aligned with Montessori core beliefs. When a teacher steps back and fosters (or nurtures, assists, etc., to use some of the terms provided in participant responses) the actions of the child, the teacher acknowledges that the child is the one who drives the development, and that the adult does not necessarily "know more" than the child, especially in areas that matter the most. Montessori's belief is that the child is the one with the key to improving society; thus, a teacher who believes this would be likely to act as though the child was contributing more to his/her development, and that the teacher's role is as guide/supporter/nurturer, instead of a person who "imposes knowledge" and shapes the child into the image of the adult. Instead, the child creates a new image of the adult.

Amongst teachers from other philosophies, a different pattern emerged. Overall, 14 (50%) of teachers from other philosophies whose responses involved the attribution of children's learning attributed the learning primarily to the child, and 16 (57%) attributed the learning to the teacher's actions. Some responses showed both themes. While about half of the teachers sometimes attributed the child's development and growth to the children's own efforts, more than half of them attributed the child's development and growth to the teacher's efforts. By comparison, 91% of Montessori teachers attributed the child's development and growth to the children's own efforts and only 9% attributed the child's development and growth to the teacher's efforts.

Thus, overall, Montessori teachers were much more likely to attribute children's success primarily to the children's own efforts. This shows that the instrument was indeed able to measure the Montessori core belief of the value of young children as the engineers of their own growth and development, and the idea that the teacher is guiding the development of the child, but not creating it.

Teachers' beliefs about the contribution of young children. There were again two binary themes which emerged from analyzing the survey's open-ended responses. Some teachers expressed a belief that young children contribute to society while they are still children, and some teachers expressed a belief that young children will contribute to society later. Table 8 demonstrates the number of teachers from each group (Montessori teachers and teachers from other philosophies) whose responses expressed each theme.

Table 8

Beliefs about the Contribution of Young Children: Comparing Montessori Teachers and Teachers from Other Philosophies

Type of teacher	Number of teachers from each group whose responses related to one of these two binary themes	Children contribute to society now	Children will contribute to society in the future
Montessori	34 (97% of the Montessori group)	31 (91%)	3 (9%)
Teachers from other philosophies	36 (84% of the teachers from other philosophies group)	25 (69%)	11 (31%)

Montessori teachers were much more likely to convey the theme that children contribute to society while they are still children, which correlates with Montessori core beliefs. Some Montessori teachers wrote that children contribute by helping adults rise up and become better people. One Montessori teacher wrote that children inspire “a desire to do and be and provide more than one would experience without children.” Another wrote that children provide “opportunities for the adults and older kids to practice self-control and empathy.” A third Montessori teacher wrote that children “bring out the nurturing side of others, they give joy and light and force adults to look into themselves and their own issues in order to be better caregivers and better people.” These three responses show a belief that young children contribute to the continued, positive development of adults and older children. Some Montessori teachers expressed that children contribute to society by sharing a perspective of the world that is very different than the adult perspective. One participant wrote that children “bring us happiness and bring back our own innocence.” Another wrote that they “offer fresh perspective, unaided by

years of bias. If we take the time to listen, we can learn a lot from small children.” One participant wrote that “Children keep us young, fresh, and appreciative of the miracles of life.”

The Montessori teachers in this sample seemed to believe that young children have a perspective on and attitude towards life which adults can use as a model. This correlates with Montessori core beliefs, as Montessori said that the adaptability of young children is a gift to humanity that is unique to young children. The second response above, which says that children are “unaided by years of bias” mirrors Montessori’s core beliefs, showing a belief that children are not vessels for our knowledge and experience, but instead have their own precious resource that adults can learn a lot from, and that should be nurtured but that ultimately comes from within the child and cannot be taught by adults. Thus, this theme, that children contribute to society while they are still children, reflects Montessori’s core beliefs. Since Montessori teachers were more likely to express this idea, it is likely that this survey instrument successfully measured the degree to which teachers hold this Montessori core belief.

Attribution of teacher beliefs to training and philosophy. For this theme, I analyzed the extent to which Montessori teachers and teachers from other philosophies attributed specific educational philosophies to the development of their core beliefs as teachers. In the survey, an open-ended question asked participants to list as many factors as they believed were important in the formation of their own beliefs. Most participants listed multiple factors such as experience, networking, formal education, and self-reflection. In this section, I looked at the number of participants, both Montessori teachers and teachers from other philosophies, who listed a specific educational philosophy (either via training programs or independent study) as one of any number of factors that was most important in developing their core beliefs about children. Many

participants listed more than one educational philosophy influence, and these responses were recorded as well. See Table 9 for more details.

Table 9

Crediting Specific Philosophy for Development of Beliefs: Comparing Montessori Teachers and Teachers from Other Philosophies

Type of Teacher	Teacher mentioned a specific educational philosophy	Teacher mentioned Montessori philosophy	Teacher mentioned another specific philosophy
Montessori	21 (68% of the Montessori group)	21(100% of the 21)	6 (29% of the 21)
Teacher from other philosophy	11 (28% of the teachers from other philosophies group)	3 (27% of the 11)	9 (81% of the 11)

This data suggests that Montessori teachers in this sample attributed their core beliefs to a specific educational philosophy much more frequently than teachers from other philosophies. Also, when the Montessori teachers did attribute their core beliefs to a specific training or philosophy, 100% of them mentioned Montessori philosophy, even if they did so in addition to other philosophies. This shows that the Montessori teachers in this sample have been deeply affected by Montessori philosophy, more than teachers from other philosophies have been affected by any specific educational philosophy. This suggests that Montessori teacher training programs have a significant effect on the beliefs that Montessori teachers actually hold when they become teachers. Thus, it is extremely important to continue the study of what Montessori teachers believe, and examine the implications for teacher training programs.

Summary

The quantitative data which measured via teachers’ responses to hypothetical situations did not show statistically significant differences between Montessori and teachers from other philosophies. It was shown that some responses to hypothetical situations were significantly

correlated. Overall, the quantitative part of the measure needs revision to be successful in measuring Montessori teacher beliefs. However, the two types of qualitative data showed meaningful differences between Montessori teachers and teachers from other philosophies, and showed that the Montessori teachers' responses were much more likely to be correlated with Montessori's core beliefs. Montessori teachers were more likely to attribute the child's own efforts to the child's success, and teachers from other philosophies were more likely to attribute the teacher's influence to the child's success. Montessori teachers were more likely to convey a belief that children contribute to society while they are still children, and other teachers were more likely to convey that children will contribute to society when they're grown up. Additionally, Montessori teachers were more likely to cite their specific teaching philosophy influences (overwhelmingly, Montessori) when asked about the factors that have been most influential in their core beliefs regarding young children, while teachers from other philosophies were less likely to cite specific teaching philosophy influences.

Chapter V

Conclusions

The Montessori Method of education is built upon Montessori's core beliefs about the nature of young children. Her beliefs include the idea that children are the primary constructors of their own worlds, and that children have a distinct contribution to society while they are still children (Montessori, 1949/2007). These beliefs are important to the method because they form the foundation for the reasoning behind all curriculum and day-to-day practices.

While Montessori beliefs are the foundation of the Montessori Method, there is a gap in Montessori scholarship regarding teacher beliefs. Montessori scholars stress the importance of examining Montessori authenticity and best practices (Daoust, 2004; Lillard, 2011). The present study sought to expand the study of Montessori authenticity beyond tangible practices and into the realm of teacher beliefs, which has only been lightly touched by Montessori scholars. Since Montessorians also emphasize the interconnectedness of Montessori beliefs with authentic Montessori practice (Huxel, 2013; Malm, 2006; Monson, 2006), it follows that teacher beliefs may be as important to Montessori authenticity as any tangible practice is.

Furthermore, research from outside the Montessori field provides a wealth of examples of correlations between teacher beliefs and teacher practices (Harvey et al., 1966; Jones et al., 2012; Lofstrom & Poom-Valickis, 2013; McMullen et al., 2006; Roth & Weinstock, 2013; Sakellariou & Rentzou, 2011). Thus, in order to measure the degree to which teachers are aligned with the Montessori Method, it is essential to measure the degree to which they are aligned with Montessori's core beliefs. Since no instrument existed to measure Montessori core beliefs, this study was developed to create and pilot such a measure.

The present study addressed the following research questions:

1. What are Montessori's core beliefs regarding the role of young children in society?
2. What type of beliefs inventory instrument would be most effective in representing Montessori's core beliefs on this topic and comparing them with those of Montessori teachers who participate in a survey using the inventory instrument?
3. How well does a pilot Montessori beliefs inventory instrument determine the extent to which a teacher's beliefs are aligned with Montessori core beliefs?

The measure for this current study was created by analyzing Montessori's written works for themes regarding the nature of young children and their role in society. The survey was constructed based on those themes and aimed to collect information about participants' beliefs by recording their responses to challenging hypothetical classroom situations as well as recording answers to open-ended questions about their beliefs.

Participants were surveyed in this mixed-method, anonymous online survey (see Appendix A), after voluntarily clicking on a web link which took them to the online survey in Google Forms. The link was posted on forums of a career networking site's groups focused on early childhood education. Seventy-eight participants, 45% of whom were Montessori teachers and 55% of whom came from other teaching philosophies, participated in the study. All teachers had at least one year of experience working with young children (ages 2-6), and/or a degree or credential related to working with young children.

Demographic information, such as the teachers' philosophies, credentials, years of experience, and country of practice was collected. Participants were presented with three

hypothetical classroom situations which mimic possible scenarios that could occur in an early childhood education classroom. Participants were asked to select any and all of the six possible responses that they thought they may possibly have, if presented with the situation described. There was also an option for participants to write their own response to the situation. Following each hypothetical situation, participants were asked to explain their choices in an open-ended question. Then, participants were presented with several open-ended questions regarding their beliefs about young children, such as *What is the best thing about working with young children?*

Quantitative data was analyzed using SPSS, and qualitative data was analyzed by looking for themes regarding how participants' responses (to both hypothetical situations and open-ended questions about their beliefs) related to their core beliefs about young children. With both quantitative and qualitative data, the responses of Montessori teachers and other teachers were compared in order to assess the pilot measure's effectiveness in measuring Montessori core beliefs. The themes which emerged were also analyzed to determine the degree to which they were aligned with Montessori core beliefs about the nature of young children.

Major Findings

This research study investigated the degree to which a survey measure created specifically for this study was successful in measuring Montessori core beliefs, by comparing survey responses of Montessori teachers and other types of teachers and analyzing the degree to which participant responses resonated with Montessori core beliefs. The major findings from this study include findings about the effectiveness of the survey in gathering information about teacher beliefs as well as findings regarding the core beliefs of Montessori teachers. There were five major findings from this study as follows:

1) The hypothetical situations contained in the measure need to be revised in order to be more effective in identifying teachers who actually hold Montessori core beliefs.

2) The qualitative questions were effective in distinguishing between teachers who held Montessori core beliefs and those who did not.

3) Montessori teachers were more likely to demonstrate a belief that young children are primarily responsible for their own development and learning, while teachers from other philosophies were more likely to demonstrate attribution of children's development and learning to the teacher's own efforts.

4) Montessori teachers were more likely to demonstrate a belief that children contribute to society while they are still children, while teachers from other philosophies were more likely to demonstrate a belief that children will contribute to society once they are older.

5) Montessori teachers were more likely to explicitly include Montessori philosophy as a significant factor in the development of their beliefs about children, while teachers from other philosophies were less likely to explicitly include any specific educational philosophy as a factor in the development of their beliefs about children.

Each of these findings will be discussed in detail in subsequent sections.

Hypothetical situations. There were not statistically significant differences between Montessori teachers and teachers from other philosophies in terms of reporting they would respond to the various hypothetical situations. This means that the hypothetical situations were not strong in providing a way to distinguish between teachers' varying beliefs since the majority of the teachers in the sample gave the same responses. An exploration of this result, and possible ideas for improvement, is discussed in detail in the limitations section. Despite this, a Pearson correlation test showed statistically significant correlations between responses which conveyed

similar ideas, indicating that parts of the quantitative questions did show internal reliability. Thus, these specific responses, which show correlations could be used as a jumping-off point for revision of this part of the measure, since they were most successful in consistently identifying whether or not a teacher held Montessori core beliefs regarding the nature of young children.

Qualitative questions. The qualitative questions were more effective in distinguishing Montessori teachers' beliefs from other teachers' beliefs, as well as for identifying themes related to Montessori's core beliefs regarding young children. The following three themes emerged from analysis of the qualitative data.

Attribution of child's development and learning to child or adult. As discussed in Chapter IV, 91% of the Montessori teachers in this sample provided responses in which they attributed the child's development and learning primarily to the child's own effort, compared to 53% of the teachers from other philosophies. By contrast, only 9% of the Montessori teachers in this sample conveyed that they attributed the child's development and learning to the teacher's efforts, while 64% of the teachers from other philosophies conveyed this belief. While teachers from other philosophies were fairly split in their attributions of credit for the child's development and learning, Montessori teachers overwhelmingly demonstrated a belief that the child is the primary force behind his own development.

This demonstrates a difference between Montessori teachers and teachers from other philosophies, showing that the qualitative questions were able to distinguish beliefs about children between the two groups. More important, the theme which emerged amongst the Montessori teachers is deeply aligned with Montessori's own core beliefs regarding the nature of young children. According to Montessori, the young child's mind is different than that of an adult in that it can absorb parts of the world around it, such as language and culture to an extent

that is much more difficult for the adult human mind (Montessori, 1949/2007). The child's ability to absorb the world around him, to adapt to any language and any culture, are key to the adaptability of humanity as a whole. According to Montessori, who was writing during one of the least peaceful times in modern history, allowing the child's natural personality to develop is the only way that humanity can move towards a more functional, more peaceful society (Montessori, 1949/2007). Adults do not have the key to a better society; children do. Thus, Montessori teachers should not try shape the child in their own image, but rather support children's full development of their potential so that they can be the ones to shape a better society.

The Montessori teachers' responses, collected from these open-ended questions, reflected several ideas which convey the theme of attributing the child's development and growth primarily to the child. For example, some responses reflected the idea that the child's personality is an inherent part of him which cannot be changed, only guided through development. One Montessori teacher expressed that knowledge should not be "imposed upon" children. In their responses, Montessori teachers used verbs such as these to describe their work with children: foster, nurture, assist, inspire, celebrate, empower, support, observe, and watch. Each of these verbs implies that the adult is not the driving force behind the learning, but rather a supporter of the child's development.

All of these themes are aligned with Montessori's core beliefs about the nature of the child's development, and the idea that adults play a side role. It is not an unimportant role, but it is not the leading role. The child is the captain, the leader.

Contributions of the child to society. From all Montessori teachers whose responses discussed this theme, 91% conveyed the belief that children contribute to society while they are

still children, and 9% conveyed the belief that children will contribute to society at a later date. In contrast, 69% of teachers from other philosophies whose responses discussed this theme conveyed the belief that children contribute to society as children, while 31% conveyed the belief that children will contribute to society at a later date.

Again, this demonstrates a difference between the beliefs of Montessori teachers and teachers from other philosophies, which the measure was able to detect through the qualitative questions. In addition, the theme the Montessori teachers overwhelmingly conveyed was again in line with Montessori core beliefs. According to Montessori, young children hold two important and unique roles in society. Children's first role is to "lead the march of civilization," utilizing their adaptability to develop themselves to contribute to a better world (Montessori, 1961). Children alone can see what adults have missed, and the problems in which society has got so caught up. With the proper environment, each child's personality will develop to its full potential by the child's own work. This work is his contribution to society, and it is important to note that he is doing the work now, while still a young child.

Children's second role in society is to aid the spiritual development of adults; children's energy and work motivates adults to engage more fully with life (Montessori, 1949/2007). Adults may be fully formed physically, but Montessori believed that they are meaningfully influenced and truly changed by regular contact with young children. They become inspired and moved to live more meaningful lives. Thus, although adults provide for the fundamental needs of children (food, shelter, etc.), children also provide fundamental needs for the adult (love, belonging, purpose). The relationship is truly reciprocal, and it is clear that children have a unique and important contribution.

In the present study, Montessori teachers overwhelmingly wrote of the role of the child as reciprocal partner in learning and growth, as per the second role described. One teacher described that children evoke a desire to “do more and be more than [adults] would without children.” Another teacher explained how young children bring out opportunities for adults and older children to “practice self-control and empathy” and be nurturing.

Montessori teachers also commented on the role of the child as the leader of the march of civilization. One teacher wrote that children offer a fresh perspective, as they are “unaided by years of bias.” As Montessori wrote, they see the world freshly and, if able to develop their personality to its full potential, will carry the fresh, wise perspective into adulthood and contribute to positive change and the pursuit of peace (1947/2007).

Montessori believed that young children have distinct, important roles in society. The measure used for the current study collected responses from Montessori teachers which were aligned with this core belief, and was able to detect a significant difference between responses of Montessori and teachers from other philosophies in regards to this Montessori core belief.

Influence of specific educational philosophy on teachers’ development of beliefs regarding children. The last qualitative question on the survey asked participants to explain the factors that have been most influential in the development of their personal beliefs about young children. Most teachers mentioned more than one factor. Common factors teachers reported included: personal experience, educational experiences, professional development, networking, personal reading, and others. I examined the number of Montessori and other teachers who mentioned at least one specific educational philosophy as one of their important factors.

Sixty-eight percent of Montessori teachers mentioned a specific philosophy/teaching method, and 100% of those teachers mentioned the Montessori philosophy. Twenty-eight percent

of the teachers from other philosophies mentioned a specific philosophy/teaching method. As an interesting side note, 3 of those 11 teachers mentioned Montessori philosophy.

A majority of Montessori teachers mentioned a specific philosophy, while a majority of teachers from other philosophies did not. Furthermore, every Montessori teacher who mentioned at least one specific philosophy mentioned Montessori philosophy. This finding implies that Montessori teachers may be more likely than other teachers to place value on a specific educational philosophy. This provides an interesting contrast to findings from empirical studies from the literature review, which generally found that teacher beliefs cannot be taught and are more likely to be fairly formed before—and unchanged throughout—teacher education and first teaching experiences. The present study suggests that Montessori philosophy does play a significant part in Montessori teacher beliefs, and that their beliefs changed because of studying Montessori philosophy. The implications of this finding will be discussed later in this chapter.

Limitations

There were several limitations to the study design and implementation. First, a convenience sample was used. The survey invitation letter was posted on several LinkedIn groups for both Montessori teachers and teachers from other philosophies. The fact that 76% of participants had 8 or more years of experience implies that more experienced teachers either were more likely to belong to these groups, or more likely to respond to and participate in surveys. The introductory letter was also sent to the researcher's personal network, and it is likely that many of the respondents came from that population. The convenience sample collected 45% Montessori teachers and 55% teachers from other philosophies, which was lucky as it provided a fairly equal distribution between the two populations being studied and compared. A future study could be more intentional about collecting participants from across

various demographics such as: years of experience, location, gender, socioeconomic status, and ethnicity, in order to create a broader picture of the full population of early childhood teachers.

In addition to the limitation of using a convenience sample, it became clear with quantitative analysis of the hypothetical questions that they were not effective in distinguishing between those who held Montessori core beliefs, and those who held other beliefs. It is likely that the scenarios, and possible responses, were written in a leading fashion—for example, it may have been too obvious which answers seemed like the right thing to do, and which seemed like the wrong thing to do. Thus, since the more positive-seeming responses tended to be those which correlated with Montessori beliefs, they were chosen by a majority of participants, in both the Montessori group and the group of teachers from other philosophies.

Furthermore, including the option for participants to describe their own response to the scenario took away some of the necessity of thinking critically about all of the responses given. The intention was for the participants to be presented with six responses, and think carefully about whether or not there could be a context in which they would have these responses. For example, in the scenario in which the child is carrying scissors unsafely, a teacher who had already experienced a safety issue that day, or who knew that child was prone to accidents, would be more likely to stop the child immediately. However, if the classroom was very calm, the teacher was in a great mood, and the child was known to be quite graceful, the teacher might feel more comfortable letting the situation play out and speaking to the child later. The scenarios were designed to take context into account by asking teachers to choose any and all responses that they might have. However, allowing the participants to write in their own response strengthened the idea that there might be one particular response to the scenario, even though the described situation could have much different meaning depending on the exact children, day, and

mood of the room and teacher. So it is possible that participants may have skipped over the six pre-written responses and decided to simply write their own. This was ineffective for the survey design because it did not allow the information to be assessed quantitatively. In a future draft of this measure, I suggest omitting the “other” option, in order to force participants to seriously consider the response options at hand. It may also be effective to impose limits: for example, to ask participants to choose a maximum of three responses that they would be most likely to have. Alternatively, participants could rank each response based on the likeliness that they would ever have that response (similarly to the hypothetical situation survey used by Daoust in 2004). I would hesitate to have participants rank the responses (for example, from 1-6 in terms of the likeliness that they would have a certain response), because a teacher may be equally as likely to have response A with child A on day A, as she would be to having response B with child B on day B. So much depends on the context of the moment and the actual people involved.

One last limitation was that in the qualitative questions, some teachers’ answers did not say anything related to the themes being studied. Thus, while the qualitative questions were effective overall at distinguishing who held Montessori core beliefs and who did not, the measure may not be reliable when assessing a single teacher or a small group. Since the questions are open-ended, it will always be possible for participants to write responses which do not correlate with the themes that the researchers are looking for. This makes it especially important to continue developing the quantitative piece of this measure.

Implications

The piloting of this inventory instrument on Montessori core beliefs has suggested that Montessori core beliefs can be measured. Although the quantitative data analysis showed that the hypothetical situations were not effective in collecting information about teacher beliefs, the

measure overall was able to distinguish Montessori teachers from teachers from other philosophies. I believe that the hypothetical situations have potential as the quantitative part of a Montessori core beliefs survey, and that this part of the survey could be successful if the problems addressed in the limitations section were addressed in a future draft of the measure.

Overall, the present study showed that it is possible to study Montessori teacher core beliefs from a self-reported, open-ended survey which asks questions about teacher beliefs with varying degrees of directness. I believe that asking teachers to define their beliefs in their own terms is an effective way to collect information about their core beliefs. Since the words come entirely from the participants, there are no leading answers, and there is no possibility of choosing whichever answer seems the most “right” or the most “Montessori.”

Furthermore, the study showed that Montessori teachers were more likely than teachers from other philosophies to attribute study of educational philosophy to the development of their beliefs about young children. This implies that Montessori teachers do integrate new beliefs into their belief systems as they progress through a Montessori training program and/or continue to self-study Montessori philosophy. Since empirical research generally noted that beliefs are very difficult to change via teacher training or teacher experiences, this finding suggests that Montessori teachers might be more likely than teachers from other philosophies to change their core beliefs based on studying Montessori philosophy. In turn, this suggests that Montessori training programs have a significant effect on their teachers-in-training. With great power comes great responsibility, and thus this developing measure of Montessori core beliefs could be used to assess the effectiveness of Montessori training programs. Perhaps teachers could take the assessment when they begin the training program, during, just after, and periodically as they gain more experience as teachers. If effective implementation of the Montessori Method is dependent

on a deep understanding and incorporation of Montessori core beliefs into one's own belief system, it follows that a successful Montessori training program should be one which successfully guides teachers-in-training to their own understanding and integration of Montessori core beliefs into their own core beliefs.

Future Research

First, future research might continue the development of this measure in order to strengthen it and make improvements to the hypothetical situations in order to increase the possibility of collecting quantitative information which is successful in measuring the degree to which a teacher's beliefs align with Montessori core beliefs.

Next, an improved version of this measure could be used to further the conversation about Montessori authenticity. Thus far, Montessori authenticity has mostly been discussed and studied in relation to practical classroom considerations (Chattin-McNichols, 1991; Daoust, 2004; Lillard, 2011). However, Montessori core beliefs are the foundation of all of Montessori's recommendations for teacher actions and curriculum as shown by the extensive discussion of philosophy in Montessori's texts regarding her educational method, and as well as research and theory by Montessorians (Huxel, 2013; Malm, 2013; Standing, 1957). Thus, an instrument which effectively measures a Montessori teacher's core beliefs would enable the study of correlations between teacher beliefs and various outcomes such as teacher practices, classroom climate, student experiences, student academic success, student self-efficacy, teacher self-efficacy, and so on.

Finally, future research could investigate the effectiveness of Montessori teacher training programs in conveying Montessori teacher beliefs and guiding teachers-in-training in their

understanding and integration of these beliefs. It is also interesting to consider whether or not a teacher *must* have Montessori core beliefs to be an excellent Montessori practitioner.

Conclusions

The present study found that a measure of Montessori core beliefs was effective in evaluating whether or not a teacher held Montessori's core beliefs about the nature of young children. It was concluded that the hypothetical questions used in the measure were not written effectively, and that more work is needed on this part of the measure. However, the qualitative, open-ended questions were effective in collecting information about teachers' core beliefs. It was found that Montessori teachers are more likely to attribute a child's development and learning primarily to the child's own efforts, while teachers from other philosophies were more likely to emphasize their own input in the child's development and learning. It was also found that Montessori teachers were more likely to believe that children contribute to society while they are still children, while teachers from other philosophies were more likely to believe that children's contribution to society comes later. Lastly, Montessori teachers were more likely to include a specific educational philosophy as a factor in the development of their beliefs about young children, while teachers from other philosophies were less likely to include any specific educational philosophy amongst the factors they listed. This study calls for further development of the Montessori core beliefs measure, primarily focusing on improving the hypothetical situations. This study also calls for a revised Montessori core beliefs measure to be used in order to study the correlation between Montessori teacher beliefs and other factors such as classroom outcomes, student experiences, and teacher practices, in order to continue the conversation about Montessori authenticity and investigate the effectiveness of teacher training programs.

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Appendix A

Survey of Early Childhood Educator Beliefs

PAGE 1
(Consent form)

I am asking for your permission to participate in my study on core beliefs of Early Childhood Educators. The study asks you to take an online survey on Google Forms that asks questions about your training and experience in Early Childhood Education, your reflections on your beliefs about children, and your likely responses to three hypothetical classroom situations. This survey should take approximately 10-20 minutes to complete.

Your participation is voluntary and you may choose to withdraw at any time or choose not to answer every question. I assure you that if you choose to participate, your written responses will remain anonymous.

The only directly identifying information will be your email address which you may include if you would like to be considered in the drawing for one of two \$50 Amazon gift cards. Should you feel any discomfort with the questions on the survey, a set of resources will be provided to you about where to go for further information and/or support. If you choose to participate, please click to continue on to access the online survey. By responding to the survey, you are giving your consent to participate in this study. If you have any questions about your participation in this study, please contact me at sca3@stmarys-ca.edu.

PAGE 2

Please check all that apply:

- I have at least one year of experience with young children (ages 2-6).
- I have a credential or degree related to working with young children.
- Neither of the above (Takes them to the end of the survey)

How long have you been working with young children?

- Just started this year – 2 years
- 2-4 years
- 4-8 years
- More than 8 years

In which state or country do you teach?

(Text box for their answer)

PAGE 3

Which philosophy or curriculum is your preschool or childcare facility most closely aligned with? (Choose one.)

- Waldorf

- Head Start
- Reggio Emilia
- Montessori
- Outdoor Education
- Other (text box)

PAGE 4

Please check all teaching credentials and certificates you have. (Select all that apply.)

- Child Development Associate
- Bachelor's Degree in any type of Education
- Bachelor's Degree in subject other than Education
- Master's Degree in any type of Education
- Master's Degree in subject other than Education
- Association Montessori Internationale Early Childhood Credential
- American Montessori Society Early Childhood Credential
- Waldorf Teacher Early Childhood Certificate
- State-issued Elementary Education Certificate
- Reggio Emilia Training
- None
- Other (text box)

PAGE 5

Imagine the following scenario: A four-year-old child is running across the room with scissors in his hand, pointing downwards. There are no children in his path. He used to run with scissors a lot, but hasn't done it at all for the past month.

Check ALL boxes that indicate a response you would/might have. You may check as many as you like.

- Call out to the child across the room to stop immediately.
- Wait until he stops running and then ask him if he thinks running with scissors is a good idea.
- Run up to the child and grab the scissors away or stop the child from running.
- Try to figure out why the child was so excited with the scissor by observing or asking him what he was doing with the scissors.
- Tell the child he cannot use scissors for the rest of the day, since you're afraid he will get back into the habit and you want to break it before it fully forms again.
- Forbid the child to use scissors and use the child as an example at circle time to show other children that there will be consequences for unsafe behavior.
- Other (text box)

Please explain the choice(s) you selected above.

(Paragraph text box)

Imagine the following scenario: A parent tells you that her four-year-old child is always trying to set the table for dinner and often drops plates.

Check ALL boxes that indicate a response you would/might have. You may check as many as you like.

- Tell the parent, "That's just what kids do!" and share a laugh.
- Celebrate with the parents that their child is attempting to contribute her skills to the family effort.
- Comfort the parent, saying that the child will surely become less clumsy in time.
- Advise the parent to find another household activity the child can help with, and have the parent choose the chore.
- Advise the parent to find another household activity the child can help with, and to have the child choose the activity.
- Try to figure out if there's a reason the child drops the plates. Maybe they could be placed on a shorter shelf so that the child doesn't have to stand on tip-toes to reach?
- Other (text box)

Please explain the choice(s) you selected above.

(paragraph text box)

Imagine the following scenario: A three-year-old child who often squirms during naptime is having a particularly rough time. He is making animal noises and kicking his feet while other children are trying to fall asleep.

Check ALL boxes below which represent a response you might have. Check as many as you want.

- Check in with your coworkers to see if they know any reason the child might be particularly upset today.
- Hold the child's legs down so the child cannot kick anything.
- Tell the child that if he stops making noises and kicking, that he can be the first person to wake up.
- Ask the child if something is wrong.
- Pick up the child and move him to another room if he doesn't stop doing these things when asked.
- Ask the child to come talk with you in another room if he doesn't stop doing these things when asked.

Please explain the choice(s) you selected above.

(Paragraph text box)

PAGE 8

What is the best thing about working with young children?

(Paragraph text box)

What is the most challenging thing about working with young children?

(Paragraph text box)

PAGE 9

What do you think young children contribute to their families and societies?

(Paragraph text box)

Why and how has your outlook on young children changed since you first began working with them?

(Paragraph text box)

What have been the most dominant factors influencing your beliefs about young children? (e.g. teacher training programs, reading educational philosophy, direct experiences with children)

(Paragraph text box)

PAGE 10

If you would like to be entered into the drawing for a \$50 Amazon gift card, please provide your email address below.

(Text box)

PAGE 11 (Confirmation Page)

Thank you for participating in this study!

Here are some links to information about Early Childhood Educator teacher beliefs, if you would like to learn more:

Developmentally Appropriate Practices (<http://www.naeyc.org/positionstatements>)

The National Association for the Education of Young Children aims to integrate the latest research and best practices of Early Childhood Educators. The link above leads to the NAEYC's page of position statements on topics such as developmentally appropriate practices for early childhood, standards for the teachers' professional preparation, and inclusion in the early childhood classroom.

Montessori Philosophy (<http://amshq.org/Montessori-Education/Introduction-to-Montessori>)

The American Montessori Society is one of the world's largest established Montessori organizations along with the Association Montessori Internationale. This page gives an overview

of the defining features of the Montessori philosophy and the beliefs and values that underlie the method and curriculum. Note: the Montessori philosophy does not only apply to children between the ages of 2-6.

Waldorf Education (<http://www.waldorf.ca/index.cfm?id=19498>)

This page provides background information on how the Waldorf philosophy and curriculum were developed, and some of the underlying beliefs on which the method is founded. Note: Waldorf education is not only for children between the ages of 2-6.

Reggio Emilia Approach (<http://childdiscoverycenter.org/non-traditional-classroom/what-is-the-reggio-emilia-approach/>)

This page provides information on the values and ideas behind the Reggio Emilia Approach to Early Childhood Education, including a discussion on the role of the t

Appendix B

Introductory Letter and Consent Form for Montessori Participants

Dear Montessori Educator,

My name is Sara Adams and I am currently conducting research for my Masters of Arts in Montessori Early Childhood Education at Saint Mary's College of California. I am looking for Early Childhood Educators to participate in my study which aims to pilot a survey to measure Early Childhood Education Teachers' core beliefs. If you do not have experience or education as an Early Childhood Educator, I would greatly appreciate you passing this letter on to any colleagues who might be interested.

The purpose of the study is to examine the degree to which the survey that I have created does, in fact, measure the core beliefs of Early Childhood Teachers, both Montessori and non-Montessori. The survey is built around Montessori's own core beliefs and aims to measure the degree to which the participant's beliefs correlate with hers.

This email includes a link to a consent form and a survey to be completed using Google Forms. If you elect to participate, please read the consent form and then complete the survey in Google Forms. The survey should take you 10-20 minutes to complete.

I will be randomly selecting two participants who have completed the survey by June 20, 2015, to receive one of two \$50 Amazon gift cards. If you would like to be in the drawing for one of these gift cards, you will be asked to provide your email address at the end of the survey so I can contact you if you've won. There will be no other identifying information collected, and this contact information will be deleted for all participants after the gift card recipients are chosen.

Here is the link to the survey:

https://docs.google.com/forms/d/1QUx0WeHBENBEnE9AVcG7Fg4HX4i-CE4D6jemDu6Oo3c/viewform?usp=send_form

Should you have questions or concerns at any point during the duration of my study, please feel free to contact me at sca3@stmarys-ca.edu. You can also contact my faculty chair, Dr. Ani Moughamian, at acm9@stmarys-ca.edu. Thank you in advance for your assistance with my research.

Sincerely,
Sara Adams

Consent Form

I am asking for your permission to participate in my study on core beliefs of Early Childhood Educators. The study asks you to take an online survey on Google Forms that asks questions about your training and experience in Early Childhood Education, your reflections on your beliefs about children, and your likely responses to three hypothetical classroom situations. This survey should take approximately 10-20 minutes to complete. Your participation is voluntary and you may choose to withdraw at any time or choose not to answer every question. I assure you that if you choose to participate, your written responses will remain anonymous. The only directly identifying information will be your email address which you may include if you would like to be considered in the drawing for one of two \$50 Amazon gift cards. Should you feel any discomfort with the questions on the survey, a set of resources will be provided to you about where to go for further information and/or support. If you choose to participate, please click to continue on to access the online survey. By responding to the survey, you are giving your consent to participate in this study.

If you have any questions about your participation in this study, please contact me at sca3@stmarys-ca.edu.

Appendix C

Introductory Letter and Consent Form for Non-Montessori Participants

Dear Early Childhood Educator,

My name is Sara Adams and I am currently conducting research for my Masters of Arts in Early Childhood Education at Saint Mary's College of California. I am looking for Early Childhood Educators to participate in my study which aims to pilot a survey to measure Early Childhood Education Teachers' core beliefs. If you do not have experience or education as an Early Childhood Educator, I would greatly appreciate you passing this letter on to any colleagues who might be interested.

The purpose of the study is to examine the degree to which the survey that I have created does, in fact, measure the core beliefs of Early Childhood Teachers who are aligned with different teaching philosophies.

This email includes a link to a consent form and a survey to be completed using Google Forms. If you elect to participate, please read the consent form and then complete the survey in Google Forms. The survey should take you 10-20 minutes to complete.

I will be randomly selecting two participants who have completed the survey by June 20, 2015, to receive one of two \$50 Amazon gift cards. If you would like to be in the drawing for one of these gift cards, you will be asked to provide your email address at the end of the survey so I can contact you if you've won. There will be no other identifying information collected, and this contact information will be deleted for all participants after the gift card recipients are chosen.

Here is the link to the survey:

https://docs.google.com/forms/d/1QUx0WeHBENBEnE9AVcG7Fg4HX4i-CE4D6jemDu6Oo3c/viewform?usp=send_form

Should you have questions or concerns at any point during the duration of my study, please feel free to contact me at sca3@stmarys-ca.edu. You can also contact my faculty chair, Dr. Ani Moughamian, at acm9@stmarys-ca.edu. Thank you in advance for your assistance with my research.

Sincerely,
Sara Adams

Consent Form

I am asking for your permission to participate in my study on core beliefs of Early Childhood Educators. The study asks you to take an online survey on Google Forms that asks questions about your training and experience in Early Childhood Education, your reflections on your beliefs about children, and your likely responses to three hypothetical classroom situations. This survey should take approximately 10-20 minutes to complete. Your participation is voluntary and you may choose to withdraw at any time or choose not to answer every question. I assure you that if you choose to participate, your written responses will remain anonymous. The only directly identifying information will be your email address which you may include if you would like to be considered in the drawing for one of two \$50 Amazon gift cards. Should you feel any discomfort with the questions on the survey, a set of resources will be provided to you about where to go for further information and/or support. If you choose to participate, please click to continue on to access the online survey. By responding to the survey, you are giving your consent to participate in this study.

If you have any questions about your participation in this study, please contact me at sca3@stmarys-ca.edu.

Appendix D

Detailed List of Themes Expressed by Participants in Qualitative Data

1. Montessori teachers from this study were more likely to attribute children's development and learning primarily to the child's own efforts. Teachers from other philosophies were more likely to attribute the child's growth and development primarily to the teacher's efforts.
2. Montessori teachers from this study were more likely to believe that young children contribute to society while they are still young children. Teachers from other philosophies were more likely to express a belief that children will contribute to society in the future, when they are adults.
3. Montessori teachers from this study were more likely to mention specific educational philosophies amongst the factors that had influenced their core beliefs about young children; all Montessori teachers who did mention a specific philosophy or philosophies did in fact mention Montessori. Teachers from other philosophies were less likely to mention specific educational philosophies amongst the factors which had most influenced their core beliefs about young children. As an interesting note, 3 of the 11 teachers from other philosophies who did mention a specific philosophy mentioned Montessori.