

**The Path to Normalization:
Finding and Measuring the Essentials of the Montessori Method**

By
Elizabeth Harder

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Abstract

The Montessori method is growing in public education. But it is a complex method with many aspects, and there is much potential for misunderstanding and mis-emphasis. In the midst of the many external pressures of a public school setting, the risk of emphasis on aspects of the philosophy that miss its essence are even greater. How can Montessori as a discipline keep the essentials of its aims and methods from being severely diluted? This researcher believes that the first vital step is to identify, measure and communicate with clear contemporary language the unique aims of Montessori, both to ourselves and also to the greater educational community.

To that end, this action research project first gathered data from authoritative Montessori sources on what the essential elements are. There was a surprising disparity of opinion. But this data, along with a review of literature, including Montessori's own writings, led this researcher to the conclusion that the essence of the Montessori method is “normalization,” which Montessori (1967) herself describes as “the single most important result of our whole work.”

Using the behavioral qualities which Montessori described as the natural result of normalization, the researcher developed simple and objective data collection methods to measure for evidence of normalization, and for its absence, in students at a primary-level classroom. Analysis of the data collection process concluded that these measurement techniques may represent a promising starting point to develop a Montessori assessment system which is both quantitative and objective – attributes that are particularly valued in public school settings. These measurement techniques can be used to 1) help the teacher more quickly identify students that are not getting the work they need to progress towards normalization, 2) to communicate our aims to families in the form of longitudinal data that quantifies a child's progress on that path, and 3) to start to consider success at school as something other than academic scores reflect, with measurements that also consider the whole child.

Introduction

Why Ask the Question, “What is Essential?”

The Montessori method of education in the United States public school system is growing. The first public Montessori school was introduced in the 1970's and this number has been on the increase since then. In 2014 The American Montessori Society (AMS) completed a census of Montessori in the public sector and recorded 447 public Montessori schools (National Center for Montessori in the Public Sector). In Wisconsin, as of April 2015, there are 14 Montessori charter schools, with 4 new charters approved for Montessori in the coming year and another 4-5 proposed. (C. Kjaer. Personal communication, April, 2015).

With this growth in the public sector, it is absolutely essential that Montessori schools can define what is unique and valuable in a language that can be understood to those outside the Montessori community. Without being able to communicate these aspects clearly to all stakeholders involved – parents, staff, school board and community – we run the grave risk of losing those essential elements due to external pressures such as meeting state test requirements, adhering to Common Core, and pressures due to parental and current society expectations of how a child's education should proceed (Abraham, 2012).

Even in the face of this emerging need to communicate more crisply and unambiguously than ever about Montessori essentials, evidence of disagreement about what constitutes “essential” can be readily found within the Montessori discipline, in both articles and in professional interviews. A database search of “essential Montessori” pulls articles that list many different aspects as “essential” to Montessori – with no clear outline of a hierarchy of importance, or often without clear description or language. My own initial research into the question of what is “essential Montessori” from long-term Montessori teachers produced many different opinions. Evidence of varying understandings can also be seen by simply visiting a few different Montessori classrooms, and observing how much the atmosphere and approach can differ from one to another.

My own experiences have also led me to question what is essential to Montessori. I am a new teacher, but not new to Montessori education: I have been a parent of children at both a private Montessori and public

charter school; I am a current governance board member at a public Montessori school; I have had online Montessori training, and am completing my AMS training; and this year I have started my own Montessori school. Yet after all this exposure I have still found it hard to succinctly define what the *essential* elements of the Montessori method are. It is easy to rattle off a list of various elements such as multi-age classrooms, independence, hands-on materials – but do we deeply understand the reasons why we are using these methods? Without having a crystal clear understanding of why we are taking these approaches, I am concerned that application of these techniques could easily become ritualistic and thereby lose much of the value that Montessori discovered.

It is extremely important that as director of a Montessori school, and as a board member of a charter school that I can succinctly, and with current language, express the essential objectives and benefits of Montessori to parents and to the wider community. And then, once we have defined what these essential elements are, how can we quantify and measure the desired outcomes that are particular to Montessori, to help demonstrate for all parties involved that we are fulfilling our essential mission as a Montessori school?

Literature Review

Why Knowing the Essence of Montessori is Important

Montessori is not a trademarked term and has no overall governing body. According to Lillard (2005/7), the quality of Montessori programs can vary widely, sometimes even across classrooms within a single school (p. 338). Tim Seldin (2006), founder of the Montessori Foundation and director of a Montessori school for 22 years, states that while Montessori schools may share common values, they can differ significantly. Seldin goes on to say that in finding an authentic Montessori school for their child, a parent should “trust their gut” (2006).

External pressures. In the article “How Much Water Can You Add and Still Call it Lemonade?” Abraham (2012), admits to his naivety as a new Montessori guide, believing that every school was to pattern itself from the blueprint of Maria Montessori's writings. Abraham reminds us that many factors influence the make-up of each school such as parents, government agencies, changing times, and what we as a society deem important. He asks the question, “How far can a guide or school deviate from proven methods practiced by Maria Montessori and still be called a Montessori school (Abraham, 2012)?” Abraham states that Montessori classrooms should have “key ingredients” that are not optional. He goes on to say that there must be consistency between all Montessori schools and asks the question that if we do not have this, how can we distinguish ourselves from other schools (Abraham, 2012)?

Risk of ritualization. According to Lillard (2005) Montessori schools might have the traditional materials, yet still lack emphasis on free choice, or some other important Montessori principle (p.330). In the article “Authentic Montessori” Huxel (2013) tells a story of a Montessori classroom “out of control” even though it had two AMS trained Montessori teachers, an assistant, and a full complement of materials. The story concludes by fast-forwarding us to today, and describes a calm, peaceful “authentic” Montessori classroom – the only difference being a change of one of the two teachers and the assistant. This story serves as a warning that a classroom might have all the Montessori materials in a prepared environment, but if the teacher does not understand *why* – does not understand the *essential elements* of the philosophy – it cannot be a

successful Montessori classroom.

Risks of supplementation. If we are unclear on the essential objectives of Montessori, it is easy – and in fact understandably tempting – to start changing the program in ways that can have unintended negative results. The Montessori method was developed over 100 years ago, so the question of making changes to it is very valid. But Lillard (2012) discusses the risk of supplementing the Montessori primary program with extra activities. Her 2012 study compared children's development in classic Montessori, supplemented Montessori, and conventional programs. Test results from Montessori schools vary quite widely, and Lillard's theory is that a primary reason for this variance is implementation fidelity. Lillard tested her theory by examining children enrolled at “high fidelity” classical Montessori school, a supplemented Montessori school (the supplements included more traditional school activities such as puzzles and extracurricular activities) and a traditional school program. The results of this year long study showed that the classical Montessori school's students made greater end-of-school-year gains on executive function skills, reading, math, vocabulary, and social problem solving. (Lillard, 2012). Executive function skills are described by Harvard University's Center on the Developing Child as the mental processes that enable us to plan, focus attention, remember instructions, and juggle multiple tasks successfully (retrieved from http://developingchild.harvard.edu/key_concepts/executive_function/). It is important to keep in mind that this study was based on the primary level Montessori program. Each level of development has different developmental needs to be met, and classroom and work types differ from level to level.

This leads to the question, why would supplementation of the materials change the outcome so noticeably? An interesting point is made about this by Lillard in her book, *The Science Behind the Genius* (2005/7):

“Though the practice of innovation and change sounds positive, especially to American ears, these innovations can, in practice, result in sub-optimal Montessori classrooms. Dr. Montessori worked full time in Montessori schools around the world for 50 years to develop the Montessori system and its materials.” (Lillard 2005/7. pp 330-31)

Montessori herself clearly endorsed innovation, but only when implemented from those in a position of

mastery of the method (Lillard 2005/7. pp 330-31). Given the depth of study and effort Montessori put into developing the classical materials, and the results of Lillard's study on the success of supplementation, it might be wise for teachers to not rush into adding new ideas or materials to the shelves, especially in the primary classroom.

Confusing and unclear language. The time I spent researching the topic of essential elements of Montessori brought to light a dearth of clear and concise language when it comes to describing what the Montessori method is and what are its aims. I found much confusing language used to describe aspects of the method that were considered essential by the article authors. For example, an article by ex-president of the American Montessori Society, Kathy Roemer, states that environments are an essential and unique element of the Montessori method. She describes the uniqueness of the Montessori environment as the inclusion of the “animate and inanimate,” but goes no further in describing what this actually means (Roemer, 2013) . Don't all classrooms contain both animate and inanimate elements? In the article “Authentic Montessori” Huxel (2013) states that “the pivotal piece of preparedness is the spiritual and reflective nature of the teacher,” but does not really describe how to achieve this mystical sounding state. Without more concise language, it can be hard to define what exactly the authors mean, and how we should put their advocated techniques into practice.

The reasons for the lack of clarity might be exacerbated by the fact that the language of Montessori was not only from a century ago, but her main texts were also in Italian. Between the time period and the interpretations, the language used to described Montessori's objectives are often confusing. There are many terms that Montessori used that, without a thorough understanding, could create misunderstanding or confusion. Examples include: Absorbent Mind, sensitive periods, spiral curriculum, and normalization. We need clear contemporary language to be able to explain the objectives and benefits of the Montessori method to those not steeped in Montessori training, because lacking it puts our public Montessori schools at risk of being diluted to the point of being unrecognizable.

Loeffler's blueprint. In 2000, Margaret Howard Loeffler, an AMS board member and “Living Legacy,” came up with a blueprint for keeping Montessori a dynamic form of education in this century. Her first point was to define the core principles of Montessori for each plane of development, i.e. age group. These core principles were not to be an agreed upon curriculum (which would lead away from the goal), “but rather

an agreement and recognition of those underlying principles that form the foundation of Montessori's philosophy and point us in the direction of Montessori-appropriate practices" (Loeffler, 2000, p.26).

Loeffler's second point was to use clear, concise language. This was not to give up on the important principles and concepts, but use contemporary vocabulary. This is important for the greater community, but should be especially clear to those in the same discipline – child development and education (Loeffler, 2000).

Forest for the trees. Results from my initial research study from experienced Montessori experts listed variety of answers to the question "*What are the Top Three Essential Aspects of Montessori?*" which included materials, uninterrupted work time, trained teacher, multi age classroom, independence, freedom to make mistakes and prepared environment. All these aspects are indeed important aspects of Montessori, but without being able to say how and why causes a problem. Huxel (2013) queries if we are authentic Montessori because of the materials and environments, or because of a training certificate? "Is Montessori something concrete or abstract? Are there intangibles that make Montessori what it is" (Huxel, 2013)?

In 2000, The American Montessori Society (AMS) arranged a symposium to complete the first stage of Loeffler's blueprint, which was to define the core principles of Montessori. Loeffler (2002) describes how this might seem an easy task, and yet it wasn't:

"The difficulty is that it's easy to get caught up with the unique aspects of Montessori's methods (the didactic apparatus, the prepared environment, writing before reading, mixed age level classes) that one can miss the forest for the trees..." (Loeffler, 2002)

She goes on to say that although these elements have an important role in a Montessori education, they are not the essential elements; they are a means to an end. (Loeffler 2002).

Finding the trees. As a new teacher, working in a classroom of children is hard work. Setting up a brand new Montessori program (of which there are many more of starting, or being proposed) can create even more challenges, and there are many distractions. It isn't hard to argue that a Montessori teacher working in a public school setting has an even larger set of challenges and obligations. And so a short and concise the list of Montessori essentials is important to help ensure that those essentials will get proper attention. Joyce Pickering, current president of AMS and director of Shelton School, confirms this importance of re-inforcing these core

principles before teaching. She describes her process of being a successful Montessori teacher, which is to find a quiet place before entering the classroom and remembering her core principles: “When I took time to focus on the real goal.....I relegated all the petty concerns to a lower level of consciousness and relaxed. I went to our classroom knowing my real job.” (Pickering, n.d.).

Normalization is the Essence of Montessori

After initially researching Montessori journals and interviewing Montessori experts did not provide the clear consensus answer I was seeking, I came across another article by Loeffler titled, “The Essence of Montessori.” Loeffler draws attention to the unexpected discovery that Montessori made through her observations of children aged 3-6 years, an effect that Montessori termed “normalization.” Montessori discovered through her observations a change that appeared in children's behavior after concentrating on a piece of work that fully engaged the child's interest. “In any given child, it follows invariably upon a deep spell of concentration on some activity.” (p.202) After this event, “A unique type of child appears, a 'new child,' but really it is the child's true 'personality' allowed to construct itself normally.” (p.203) Montessori developed the chart (Figure 1, below) to describe the changes in behavior that occurred spontaneously after this normalization event, brought on by deep concentration.

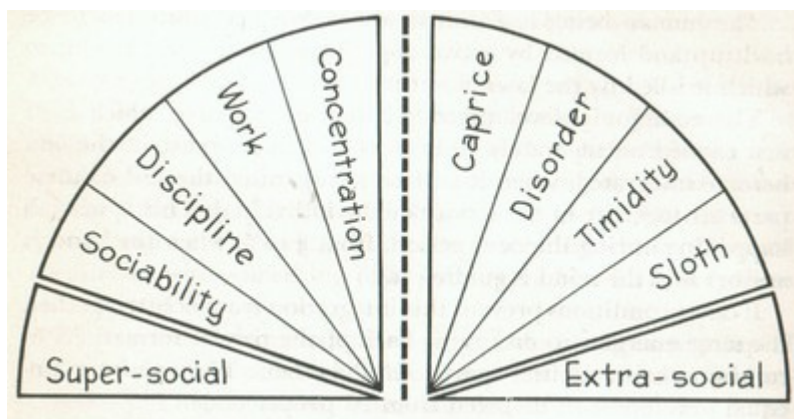


Figure 1. Chart developed by Montessori to describe the characteristics of normalization and deviations (Montessori, 1967. p.204.)

Montessori describes that beforehand a child might have behaviors that are “deviant.” She states that these are not from the child's natural “personality,” but rather emerge from the failure to properly organize personality

traits (p.203). In the chart, the lines to the right represent deviant characteristics, i.e. characteristics that are not truly normal to the child. Once the child begins towards concentration, the lines on the right disappear “and there remains only the lines on the left” (p. 204).

I think as teachers, it is very important to note that “the loss of these superficial defects is not brought about by an adult, but by the child himself...” Paula Polk Lillard (1972) describes this as the child being able to fully integrate the self through his or her work. Montessori concluded that a great need of the child had been met through the process of concentration, and that this new state of psychic integration was actually the normal state of a child. (Polk Lillard, 1972. pp37-38). Montessori goes on say,

We find this phenomenon repeated unfailingly in all our schools, with children belonging to different social classes, races and civilizations ... It is the single most important result of our whole work. (Montessori, 1967 p.204)

Futrell writes in the *The Normalized Child* (1998):

This normalized child is the image which Montessori teachers keep uppermost in their minds.

This is what we are striving for, what we hope to achieve. However, this child will appear only if we conscientiously prepare ourselves and our classrooms... (p.3)

Crystal Dahlmeier – long time Montessori teacher, lecturer, teacher trainer, and program director of Cincinnati Center for Montessori Education – believes that normalization is both a central outcome and also a process. She describes it as a continuum that the child can move along backwards or forward, depending upon the child's experiences. “It is not something that the child 'has' but rather the process can grow in a nurturing environment that supports the specific needs of that individual, both at home and at school” (C. Dahlmeier, personal communication, April 2015).

Four Planes of Development

Montessori believed that the development of the child from birth to adult-hood could be divided into four planes of development. Each plane lasts about 6 years and has its own characteristics. The first period starts

at birth and continues to six years; second from six to 12 years; third from 12 to 18 years and fourth from 18 to 24 years. These four development planes have distinct periods and the child continues to develop characteristics of normalization but at new developmental levels.

Although this study is concerned with normalization in the first plane of development, during the years from 3-6 years, as each plane is built upon the success of the last, below is a very brief overview of the second and third plane.

The second plane (6-12) is a time during which the child begins to foster intellectual independence, a sense of morality, and social organization. The child at this age begins to appreciate his own uniqueness while at the same time seeks to find his own role in the interrelationship of all living things (Loeffler, 2002). Montessori stated that it was “During this period the abstract plane of the human mind is organized” (as cited in Grazzini, 2004). For this plane Montessori emphasized wider contacts, an expansive education, a vastness of culture, the open environment.

The third plane of development is the adolescent period. In this period, valorization of the personality, is the essential aspect of this period. Marta Donahue describes 'Valorization' as Montessori's term for the adolescent becoming a strong and worthy person.

Just as the younger child is in a time of life to develop the characteristics of *normalization*, the adolescent is in a sensitive period for developing qualities for of valorization. These qualities include joy, selflessness, optimism, confidence, dignity, self discipline, initiative, independence, helpfulness, good judgement, and the ability to work with others.

(Donahoe et al., 2013. p. 18)

Loeffler (2002) makes the case that normalization is “the true essence of Montessori, the goal she sought: the nourishing and retention of the four essential characteristics through each plane of development into a new level of thought and actions...”

Contemporary View of Normalization

If we accept normalization as an acceptable candidate for the essential result of Montessori's approach, the next problem becomes communicating that fact clearly to all concerned. As mentioned previously, there is a notable need for concise and contemporary language that makes Montessori concepts more clear and relevant to readers both inside and outside the Montessori profession (Loeffler, 2000). The term “normalization” itself is a prime example of a potentially problematic term in common use within Montessori. The term is often, and understandably, misconstrued by those not deeply familiar with Montessori philosophy. Montessori teachers will often avoid using the term and instead discuss the observable behaviors (Lloyd 2008. p.60-61).

But although the term can be problematic, the observable character traits that appear through the process of normalization are much more familiar to most: concentration, self discipline, love of work and sociability. And these qualities, in turn, align closely with the qualities that many child development philosophies are aiming towards, for example the “Whole Child Initiative.” Cain (2005) surmises, “As character education programs become part of state and local curriculum mandates, Montessori communities will do well to be prepared to explain how character education is integrated in the Montessori philosophy and methodology” (Cain, 2005).

In fact, there are a number of contemporary educational theories whose concepts notably overlap with the observable behaviors of normalization, for example theories of “flow” and “self regulation.” Trending concepts like these can provide a helpful on-ramp to better understand and communicate the value of Montessori normalization objectives. These corollaries are valuable not only for explaining to parents and school boards who may not be very familiar with the method, but also for Montessori professionals who want to strengthen their resolve in defending its value. This remainder of this section examines in greater detail how Montessori overlaps with a few of these newer theories.

Flow. Flow is a term coined by psychologist Mihalyi Csikszentmihalyi. He describes flow as “the quality of experience as a function of the relationship between challenges and skills. Optimal experience, or flow, occurs when both variables are high” (Csikszentmihalyi 1997, as cited by Kahn, 2003). Csikszentmihalyi

says that the state of concentration that Montessori aims for acts as a healing and growth mechanism in young children, and closely aligns with his concept of flow (Csikszentmihalyi 1997, as cited in Chisnall, 2005).

Montessori (1967) observes that the concentration that is required for normalization is more than just pre-occupation, and that even if the works are used properly, that alone is not enough to remove a child's "defects." She seems to suggest that for the state of concentration to reach normalization, the child needs to have the right degree of challenge. "The essential thing is for the task to arouse such an interest that it engages the child's whole personality" (Absorbent Mind, p.206). Perhaps this requirement to challenge the child explains why random supplementing of the traditional classroom materials typically does not achieve effects that the classical materials do; children working on supplementary materials like puzzles might be concentrating on a freely chosen work, but such work won't be able to transport them to the flow/normalization state if the balance between challenge and skill is not there.

David Kahn, executive director of NAMTA (North American Montessori Teacher's Association) describes how the comparison of the ideas of flow and normalization has been an exciting development:

The introduction of flow into the Montessori culture has had an invigorating effect.

Csikszentmihalyi maintained that the Montessori concept of normalization was solid, but the semantics were limiting. Flow is a different word than normalization and seems to speak to more people. Tested in parent education sessions where the word flow has been introduced, adults relate easily to what gives them flow.

Although the concept of normalization is given much attention in Montessori teacher training, the actual importance of the idea at the classroom level may not yet be fully explored or understood as the powerful indicator of optimal experience that it is. Flow captures the imagination of the Montessori professional and reinforces the understanding of normalization. (Kahn, 2003. p. 4)

Educational psychologist, David Shernoff, says that real learning requires student engagement – of which flow is the deepest form possible – and that involves a combination of motivation, concentration, interest and enjoyment derived from the process of learning itself. These qualities are essential to Csikszentmihalyi's definition of flow (Suttie, 2012). This definition sounds very similar to normalization, as

normalization comes about through “concentration on a piece of work. For this we must provide 'motives for activity' so well adapted to a child's interests that they provoke his deep attention” (Montessori, 1967. p. 206).

Kahn (2003) is clear to point out however, that flow is not the *same* as normalization, as it is not a theory of child development. (Kahn, 2003). Dahlmeier points out that although the term flow is similar to normalization, it is more fleeting, and doesn't really encompass the entire concept (C. Dahlmeier, personal communication, April 2015).

Self regulation. Children who self-regulate show more positive behavior. Emotion regulation is positively related to psychological adjustment, competent social functioning, empathy, sympathy and pro-social behavior in elementary school (Eisenberg et al 1995 cited by Lillard, 2005/7 p.103). Montessori did not use the term “self-regulation” but her description of normalization is closely related to this concept (Ervin et al 2010). Child development theorists have noted the close connection between attention and self regulation (Ruff and Rothbart, 1996 cited by Lillard, 2005/7 p. 103). Traits of self-regulation include persistence, self motivation, goal setting, and metacognition, as well as the ability to control impulses and delay gratification (Ervin et al. 2010). Bandura defined the self-regulation as the child's ability to self-educate, self-direct, regulate motivation, and learn to think about what she is thinking (Bandura 1994 – cited by Ervin et al, 2010).

In 2010, Ervin et. al. published a three-year study of self-regulation in Montessori and non-Montessori classrooms. Using both qualitative and quantitative methods of research, Ervin et. al. compared 256 kindergarten, 1st and 2nd grade students from three public districts in South Carolina. The study included 127 students in Montessori classrooms and 129 students in non-Montessori classrooms. The results found that the children in the Montessori program had higher levels both of self-regulation and of academic achievement. The conclusion for their survey was that there is an association between how well the children manifest levels of self-regulation and their academic success (Ervin et al, 2010).

Another study comparing the theory of normalization with self regulation concludes that normalization can be viewed as an *applied* theory of self-regulation (Lloyd 2008).

Self discipline. Self discipline is a core attribute of normalization – as classically defined, it is not an

enforced discipline, but a discipline that occurs *spontaneously* through concentration.

Then another thing happened never before seen in a group of children. It was the arrival of 'discipline,' which sprang up spontaneously. This, more than anything, struck the public imagination. Discipline in freedom seemed to solve a problem which had hitherto seemed insoluble. The answer lay in obtaining discipline by giving freedom. These children, who sought their work in freedom, each absorbed in a different task, yet all belonging to the same group, gave an impression of perfect discipline. (Montessori, 1967. p.202)

Self-discipline is what Montessori is describing when she says “the greatest sign of success for a teacher is to be able to say, 'The children are now working as if I did not exist'” (Montessori, 1967, p.283).

Self-discipline has also been shown to be a strong predictor for academic success. A study completed 10 years ago (Duckworth, 2004) found that self discipline out-performed IQ in prediction of academic success. This study was based on adolescents, but she believes the result to also be relevant for younger children. Duckworth concludes by stating “programs that build self discipline may be the royal road to building academic achievement”(Duckworth, 2004).

A landmark study of 1,000 children from birth to age 32, showed that childhood self- control predicts physical health, substance dependence, personal finance, and criminal offense outcomes (Moffit et al, 2011). Self discipline may therefore be best seen broadly as an aid to life.

Conclusion of Literature Review

With the growth of Montessori in public education, the key ingredients, or core principles, are at risk of getting lost due to pressures coming from outside the school, inside the school and also from a general misunderstanding and/or mis-interpretation of the language of Montessori's writings. To ensure the success of both public and private Montessori schools, and to avoid dilution of Montessori principles within them, I believe that is essential to have core principles clearly and succinctly defined.

However, the essentials of Montessori can be hard to define. The article by Loeffler (2002) as well as Montessori's own texts helped me conclude that the essential aspect of the philosophy is normalization.

Montessori stated herself that normalization was the most important result of her work. The child's inner developmental “drives” and needs are being met, and the child's deviant or disruptive behaviors vanish. Montessori described this as a moment of healing and as the point of departure. After this the child, within a supportive environment, consolidates and develops his or her character (Montessori, 1967. p.206).

In education and child development today there is much talk of the whole child, self regulation, executive function, flow and self discipline. All these theories have fascinating and undeniable alignments with aspects of the character traits that occur during and after the process of normalization. Allowing for all these conclusions, the next question becomes: How do we create the right environment for these qualities to occur, and how do we measure these qualities?

Aims of this Study

To be a successful Montessori school in both the public and private sector, I believe that it is critical to ensure that there is a clear and thorough understanding by all parties involved of the essential techniques and objectives of a Montessori education. Once these essential elements are defined, I believe that it is just as important to be able to measure for these elements in the classroom. Therefore, this action research project is broken into two parts:

Part 1 asks the following question:

- Is there a consensus between Montessori experts on the question of what are the essential aspects of Montessori?

Part 2 asks the following question:

- How can we quantify and measure the essential Montessori techniques and objectives in the classroom, to help us talk with more clarity about Montessori's outcomes to the those less familiar with Montessori?

Methodology of Part 1

Part 1 Participants and Setting

Participants of Part 1 of this study were 18 Montessori-trained teachers. Participants were selected based on their years of experience in the Montessori field, and on the type of training they had received. I selected teachers that had attended either an American Montessori Society (from now on referred to as AMS) or Association Montessori Internationale (from now on referred to as AMI). These two organizations are the largest Montessori associations in the U.S. and internationally, and their teacher training programs are MACTDE certified. The last significant factor that affected the choice of participants was my ability to get access to them.

Part 1 Procedure

Part 1 of the study was completed with the use of two online surveys. Participants were contacted either face to face or via email and were requested to respond to the online survey. The first survey was created via the “Survey Monkey” web service, and was titled Top Three Essential Montessori Elements. This survey consisted of 10 questions. Of the 10 questions, 9 were related to confirming their background with the Montessori method, and only 1 was the actual opinion question. The opinion question was:

- What do you believe are the top three essential elements of a Montessori education?

Fourteen online survey invitations were sent out via email. There were 7 online responses via the web survey itself, and 1 via email. One participant was also interviewed face-to-face, for a total of 9 respondents.

The results from survey 1, along with research completed in the literature review, led me to revise the survey with the aim to try to encourage more consistency in the answers, and to collect more information about essential child outcomes. This time, using the data from survey 1, I pre-defined three aspects of Montessori on which to comment: the environment, the teacher, and child outcomes. For survey 2, participants were asked to list three essential elements of these three different aspects. Survey 2 again consisted of 10 questions, however the personal data questions were condensed and the opinion questions expanded. Survey 2 was titled Essentials

of Montessori and the three opinion questions were as follows.

What do you believe are the top three essential elements of the following aspects:

- the Montessori “whole-child” - the child graduating from a Montessori classroom
- the Montessori teacher
- the Montessori teaching environment

In total 11 email requests were sent out to a set of 9 different Montessori experts. Two participants from survey 1 were invited to take the new survey. (To ensure validity, only one set of data was used for any participant).

There were 7 new respondents and 2 previous respondents, totaling 9 respondents to survey 2.

Part 1 Findings

Demographics

Experience of teachers ranged from 8 years to 40 years of Montessori teaching experience, with the mean average being 22 years. Of these 18 respondents, 1 had infant/toddler training, 9 had primary experience only, 2 had primary and lower elementary experience, 2 had lower and upper elementary experience, and 2 had primary, lower and upper elementary experience. At least 8 of the respondents had attended the same training school. This was probably due to the fact that many of the Montessori experts that I, the researcher, know are from the west central Wisconsin, and therefore many had attended the same training school. 12 of the 18 respondents had AMS training and 5 had AMI training.

No. years teaching	Level/s taught	Other Montessori Experiences	Montessori training
15 years	P	consultant to public schools, teacher trainer (1 yr)	AMS
33 years	UE, LE	administrator, consultant, conference speaker	AMI
38 years	P, LE, UE	administrator, conference speaker	AMS
25 years	Infant and toddler	teacher trainer, conference speaker	AMS
17 years	P	consultant	AMI (St Paul)
25 years	P		AMI (Mid west)
Not stated	P, LE and UE	consultant, conference speaker	AMI
8 years	LE and UE		AMS (St Catherine's, MN)
30 years	P	AMS teacher trainer	AMS (St Catherine's, MN)
24 years	P	administrator	AMI, MN
20 years	P		Not known
40 years	P	teacher trainer, program director, lecturer, conference speaker	AMS (Xavier, CN)
23	LE		AMS (St Catherine's, MN)
26 years	LE, P		AMS (St Catherine's, MN)

20 years	P, LE		AMS (St Catherine's, MN)
12 years	P		AMS (St Catherine's, MN)
8 years	LE		AMS (St Catherine's, MN)
12 years	P		AMS (St Catherine's, MN)
Legend: P = Primary (3-6yrs), LE = Lower Elementary (6-9yrs) UE = Upper Elementary (9-12 yrs) AMS = American Montessori Society, AMI = Association Montessori Internationale			

Table 1: The table shows the demographics of all respondents to both surveys.

Results of Survey 1

Results from survey 1 (see Figure 2 below), were mixed. Many respondents had difficulty in limiting the response to just three essential elements. For example, a sentence that started by listing the environment as a top three essential, also mentioned the materials on the same line as environment. Another respondent reported that an essential was the classroom environment but also mentioned Montessori materials, abstract concepts, an environment supporting independence, beauty and order, all in the same answer. For these types of answers I either took the first item mentioned or what I believed the main idea the respondent was trying to communicate. Answers were consolidated if possible, into fewer categories. If there was a chance that the meaning would be changed, a separate category was kept. For example, “*independence*” was kept as a separate category as “*environment supporting independence*” because I felt respondents might have different meanings.

“*Montessori materials*” and a “*trained teacher*” formed the largest consensus. If the two different “*environment*” categories are added together, this answer forms the third largest consensus.

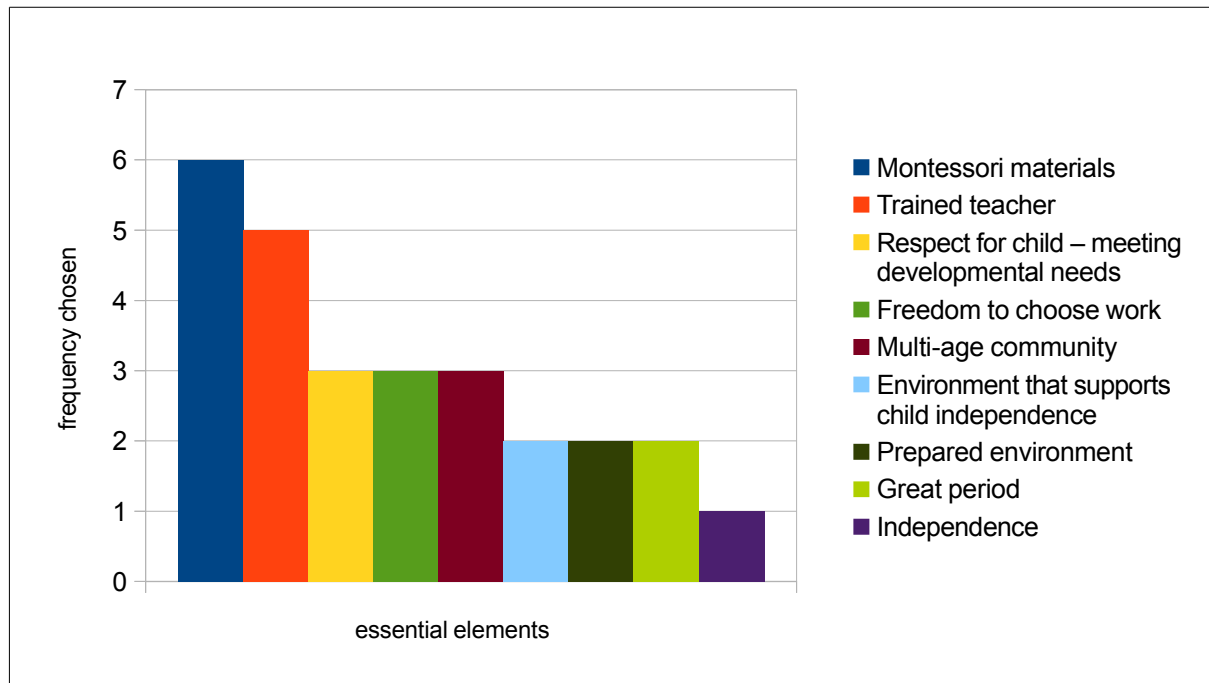


Figure 2: Bar graph showing the results to survey 1 which asked the participants to list the top three essentials of Montessori. Participants were 9 experienced Montessori teachers.

Results of Survey 2

Survey 2 asked opinions on three pre-defined essential elements, so results are displayed by category below in Figure 3, 4 and 5. Results again were fairly spread out, one participant did not respond to question 1, stating disagreement with the idea of using a hierarchical system to rate the attributes of the child. However, this respondent was the only infant/toddler teacher, and I believe that this might have affected the response. Consensus on the essentials of the environment were strongly in favor of “materials that support purposeful engagement.” Consensus around the essentials of the teacher had an equal split between “committed to personal growth” and “an observer who follows with appropriate lessons.” In general, responses to survey 2 were much more clear and concise than responses to survey 1. There were few instances of one answer incorporating many different elements or concepts.

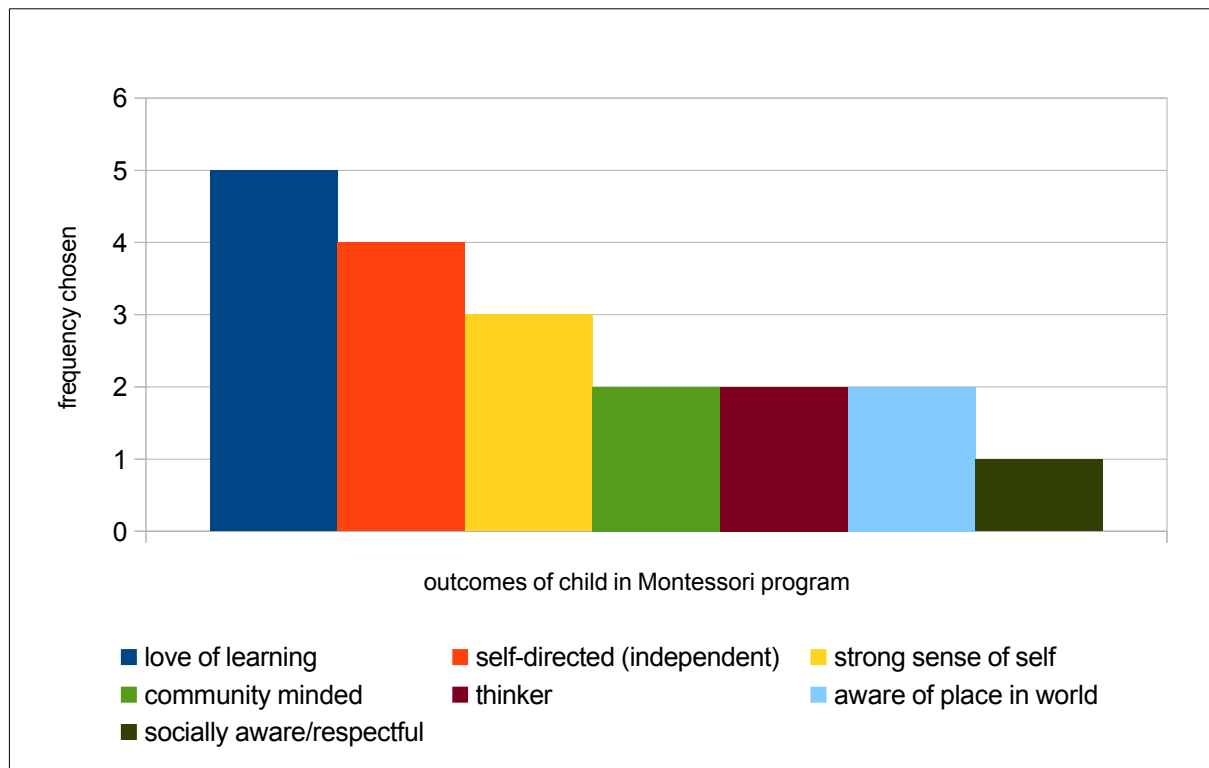


Figure 3: Bar graph shows the results of survey 2, question 1, which asked participants to list the top three essential aspects of the Montessori “whole child”. The participants were nine experienced Montessori teachers.

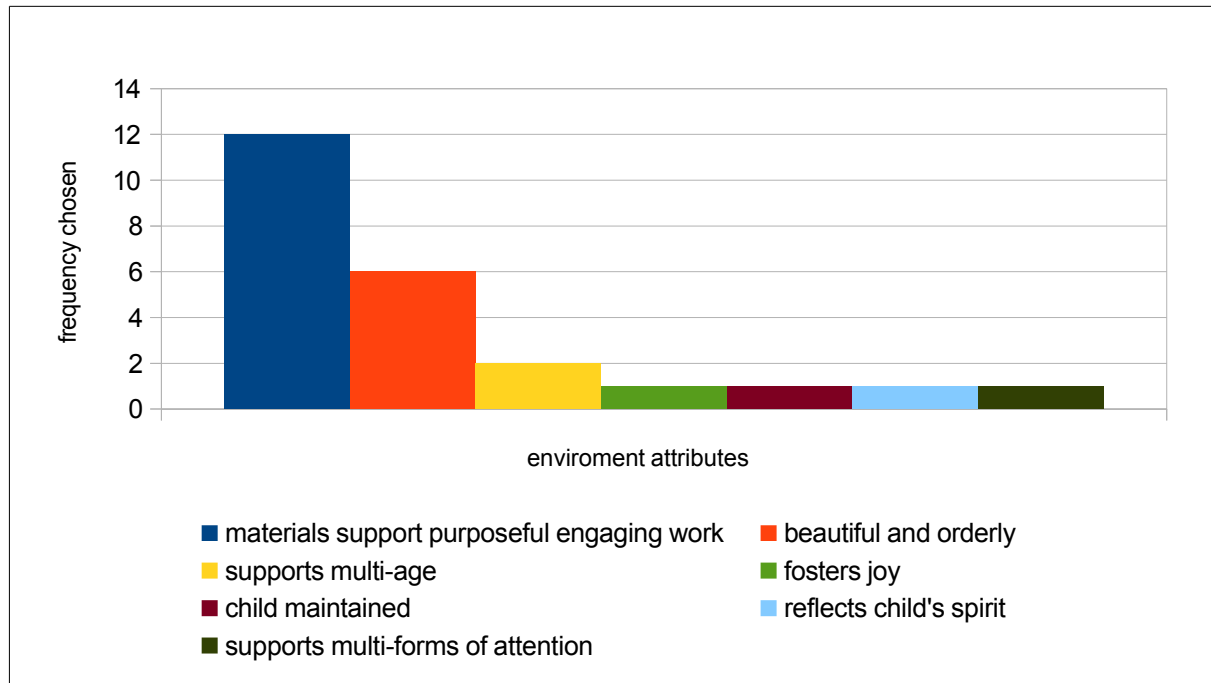


Figure 4: Bar graph shows the results of survey 2, question 2 which asked participants to list the top three essential aspects of the Montessori teaching environment. Participants were nine experienced Montessori teachers.

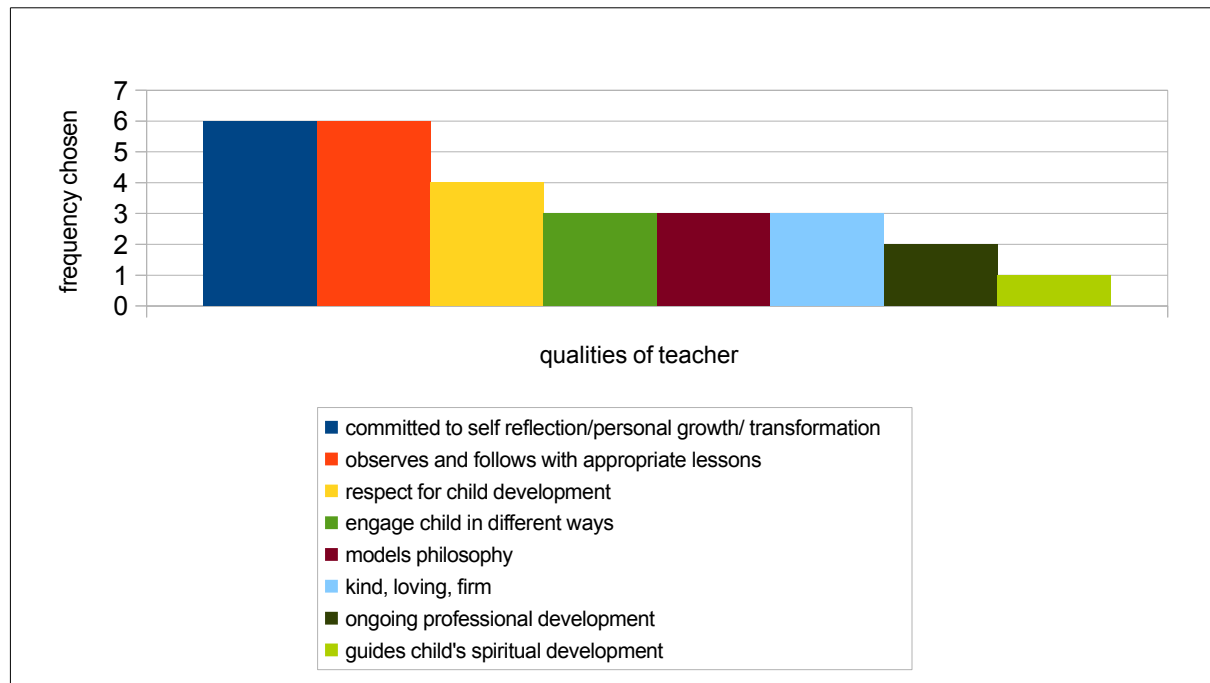


Figure 5: Bar graph shows results of survey 2, question 3, which asked participants list the top three essential aspects of the Montessori teacher. Participants were nine experienced Montessori teachers.

Analysis/Discussion of Results Part 1

Clear concise language

Results from survey 1 showed that respondents had difficulty narrowing down the essentials of Montessori into three points. I heard during this experience a Montessori teacher expressing frustration at trying to keep to three essential elements. As it happens, my own struggle to summarize the essential elements, as well as having a lack of clarity, is precisely what drove my interest to research this topic. I found the answers to survey 1 were much more focused on the means, rather than the end. This was perhaps due to the lack of clarity in the first survey's wording. When the question was more focused, as in survey 2, the answers that followed were also more clear and concise.

Normalization

It is interesting to note that although Maria Montessori (Montessori, 1967. p.204) described normalization as the single most important aspect of her work, yet despite the varying range of teacher expertise, training schools and places of work, not one participant mentioned the term “normalization” in the survey responses. I believe that there are a number of possible reasons for this:

- normalization is not mentioned due to the awkwardness of the term
- normalization is simply not considered to be an essential by the teachers surveyed
- normalization has dropped in importance due to external pressures e.g, parents expectations, meeting state standards, common core etc.
- normalization is not mentioned because it is hard to achieve
- normalization has lost prominence because it is not an easily “testable” quality

As mentioned by Lloyd (2008), the AMI teacher trainers that she interviewed were consistently reluctant to use the word normalization due to commonly presumed mis-understanding of the term. When I asked Crystal Dahlmeier – survey participant and long term Montessorian – why the term “normalization” was not used, Dahlmeier again mentioned the fact that the term fell out of favor due to misinterpretation, and that also:

It takes considerable reading of Montessori's work to get a good handle on what it means, how it develops, what supports and what undermines its development. Also, it is possible, that as an outcome and not a specific material, it is somewhat easy to overlook. Many schools have to be so focused on state and federal outcomes, that they fail to relate those to the basic Montessori tenets. (Personal interview with Crystal Dahlmeier, April 21st, 2015)

Although the term normalization itself is not mentioned in the survey responses, normalization had already emerged in my research as a strong candidate for the primary essential of the Montessori method. Given that fact, I next proceeded to analyze how the responses aligned against a description of the *observable outcomes* of normalization.

Child Outcomes. Using the behaviors listed in Montessori's chart of normalized behavior (see Figure 1), I compared the results from survey 2 responses to child outcomes.

Montessori's definition of the four normalized	Results from survey 2, of essential child outcomes
--	--

character traits	
Love of work	Love of learning
Concentration	
Discipline	Self directed
Sociability	Community minded, socially aware, respectful, aware of place in the world
	“thinker” and “strong sense of self” were two characteristics from the survey that didn't quite fit into the four categories.

Table 2: *A comparison of Montessori's definitions of normalization and survey results*

From this comparison we can see that the responses actually correlate well with normalization outcomes, which tends to reinforce conclusions I reached in my literature research on the question of what is essential to Montessori.

The Environment. But there are other perspectives by which to look for a consensus in the results of the survey 1, which also clearly shows that environment is seen as important. However there are slight differences in what was seen as the *most important* elements of the environment. If, when looking at survey 1, we assume that the materials are part of the environment, then we can see that the environment becomes the aspect of Montessori with most consensus as being essential. In particular, the concept of “materials that support purposeful engaging work” came up the most.

The Teacher. The teacher is the keeper and custodian of the environment (Montessori, 1967, p.276). The teacher supports and guides the child on their way to normalization. The results from survey 1 show that the trained teacher had the second highest consensus opinion as an essential element. However, without further explaining what the teacher's role is, or what the essential qualities of the teacher are, it can be difficult to understand why the respondent feels the teacher is so important. I feel survey 2 had a better format that explicitly asked participants to list three essential qualities of the teacher. The response to the question in Survey 2 about the top three qualities of the teacher also had the most even distribution of opinions. In both survey 1 and 2 it is possible that some of the categories could have been combined to make a more consistent answer. In survey 1, the categories “trained teacher” and “respect for child development” could have been combined. In survey 2 the categories “observes and follows with appropriate lessons,” “respect for child development” and even “models philosophy” could be seen as the same. However, without having a further

explanation from the participants, I did not want to assume the participant's meaning and put these in the same categories.

Is there a Consensus?

After analyzing the results from these two surveys, I am unable to say that there is a really definitive consensus. However, the results do help to build up a good picture. The biggest consensus was on the need for a trained teacher, the environment and the materials. However, these aspects only represent the means to the end (Loeffler, 2002). And I do think that the survey had too few participants to get really clear consensus. I believe that if the questions were more tightly structured and the survey had a wider distribution, it is possible that a consensus on outcomes would be more pronounced. However, even the very loosely worded survey 1 is telling: in the absence of strong structure to drive respondents down a certain path, the range of answers regarding what techniques and outcomes require most attention in a Montessori classroom varies significantly. This lack of consensus may tend to support the portion of my thesis that says clarity of purpose is not as strong as it could be in the Montessori discipline.

Limitations and validity, Part 1

The survey results are limited in a number of ways. There were a small number of participants due to I, the researcher, not having many contacts to send to. Also teachers are very busy, and might not have time to complete the survey. Another possible limitation was the fact a great number of participants attended the same teacher training college. This could have quite an impact on the results. There were far more teachers from an AMS training background than an AMI background. It would be very interesting for future research to see if there is a difference in the results from the two different training associations. Another limitation was the formation of the survey questions. If questions had been formatted and/or worded differently, the survey might have pulled in more consistent data. A follow-up interview also might have helped to clarify answers, and made the information compiled more concise.

Conclusion Part 1

The results to the two surveys suggest that it can be difficult to clearly and concisely define the essentials of the Montessori method. However, if one uses the focus of “normalization” to assess each aspect, then we begin to build a stronger picture. I think there is a place for further research in this area, and I can see how a survey of this type could be used in helping schools come to define shared beliefs and principles.

Methodology Part 2

Introduction

The literature review completed for this study and the proceeding research helped me to define normalization as the essential aspect of Montessori. Therefore the next part of the study asks the following question:

- How can we measure for normalization in the classroom, to help communicate Montessori outcomes with more clarity to those less familiar with Montessori?

Part 2 Participants and setting

Participants for part 2 of this study were 19 children, aged between 3 and 5 years, at a private Children's House in a mid-sized town in Wisconsin. The age and gender breakdown of the group at the time of the study was 12 three-year-olds (9 male and 3 female), 4 four-year-olds (3 males, 1 female), and 3 five-year-olds (2 females and 1 male). The total number of males was 14 and the total number of females was 5. Seventeen of the 19 students had been with the school since September. Two of the three-year-old male students joined in January. Only one student had been in full-time Montessori school prior to this year. One three-year-old female had been in a summer toddler Montessori program and 3 students had attended a very informal practical life group with the researcher 2 mornings a week for a few months, the prior year. 5 of the students had elder siblings in the Montessori Charter School. The school week was the same for all students and consisted of 4, three-hour morning sessions running Monday – Thursday, 8:30am – 11:30am.

The total number of adults present most of the time was 3. One being an experienced Montessori teacher, one Montessori teacher in training with no formal teaching experience – which was the researcher – and one assistant with no Montessori training or prior experience as a school assistant of any kind.

The school is in its first year of operation and was started by the researcher. The school was set up to try and meet a need, seen in the community, for a school to provide the first year of Children's House. There is a Montessori charter school that serves 4K – 5th grade in the town, but unfortunately due to the fact they are part of the public school district they are unable to fund the first year of the three year cycle of the Children's

House.

The school is situated on a residential street, housed in a beautiful old stone chapel built in 1889. The school has a single large room, with a small basement and loft area which are not part of the teaching space. Although the school is in town, it has a double lot, so there is plenty of outdoor space.

Procedures Part 2

Selecting behaviors to measure

Before data could be gathered a decision had to be made about what behaviors should be measured. It is crucial to identify which are the behaviors of interest (Aspland & Gardner, 2003). I used the behaviors described by Montessori in her chart illustrating normalization (see Figure 1) as the basis for the behaviors chosen for the study. Thinking about what was needed in my classroom at the time of the study, it seemed more urgent to concentrate on the behaviors that appeared counter-productive to concentration since, as discussed earlier in this paper, deep concentration is the key to normalization (Montessori, 1967. p.204). Using previous observations and experience gained from working with this class for 7 months, I considered which behaviors I witnessed in the classroom on a regular basis that seemed to be counter-productive to concentration on work. There were 4 main behaviors that I wanted to investigate further. These were: wandering, watching others work, extra-social behavior. and mis-use of materials.

Wandering. This behavior was chosen because it felt to me the most problematic. Certain students frequently wander the room and seem unable to choose a work to connect with. The reason wandering was seen as problematic, was usually the wanderer would go to find another student to engage with, frequently distracting that student from his or her work as well. Unchecked wandering did not usually result in a positive outcome.

Watching others work. Part of the benefit of a Montessori multiage classroom is peer learning, and many children learn through watching others work. However, I had noted through observations that some students seemed to spend much more of the time watching others work than finding a work for themselves to

do. This was a behavior that I felt needed further assessment, and so was added to the list of negative behaviors.

Extra-social. Sociability is a positive outcome of normalization. Extra-sociability is different. This behavior is seen most often in the classroom as a student who is distracting others who are nearby with the “extra” social behavior. This behavior often manifests as chasing another student around the room, or playing with another student's work, and is often accompanied with a high noise level.

Misuse of materials. This behavior manifests in various ways, such as using materials on the shelf rather than at a mat or a table, using materials for which no presentation has been given, destroying materials, or using materials for anything other than their intended purpose. Montessori explains that the mis-use of materials can increase “deviations” (Montessori, 1967, p.206). The reason that I identified this as a key unwanted behavior is that we work from the beginning to set up very clear guidelines and expectations for the students in this regard, and so a material being mis-used can be representative of a child either being unable to understand the rule, or of a child being developmentally unable to follow the rule, possibly due to a lack of self control or self regulation.

The Data Collection

Teacher Survey for Initial Perceptions. The first data collected was a survey, to each of the 2 teachers at the school, on their perceptions of each student. This was based upon certain characteristics of normalization, and the behaviors that were chosen for the study. The initial perceptions were based upon a Likert-type scale of 1 to 5, with 1 being the most positive and 5 being the least positive.

Likert-type scale of 1-5 on student behavior used for teacher survey	
1	Always has a work, uses it correctly, concentrates
2	Chooses work, concentrates, but does not always manage to use correctly, occasional wandering, occasional misuse of material
3	Can concentrate on work, but often struggles to chose work, wanders frequently, some misuse of materials
4	Wanders frequently / has extra social behavior which is distracting to others / misuse of materials
5	Very difficult to choose a work / when work is chosen the work is often misused / frequent lack of self

control

Table 3: Table shows Likert-type scale used to take an initial measure of each student's behavior prior to any data collection.

Form 1 – Measuring for Negative Behaviors. As described in the section *Selecting Behaviors to Measure*, four behaviors, considered likely to be counter-productive to concentration, were chosen to measure. These formed the basis of Form 1, and were: wandering, watching others work, extra-sociability and misuse of materials. Two additional measures relating to general noise level and atmosphere of the room were then added to the form. “Noise level” was added because a noisy room can often signify that students are not concentrating on work, and certainly I had found that the days that the room was noisy seemed to be more chaotic with less concentration. Noise level was measured on a scale of 1-5, with 1 being the quietest and 5 being the loudest. The “general atmosphere” rating of the day was also based on a 1-5 scale, this time with 1 being the worst and 5 being the best.

The behaviors selected helped guide the process of identifying the most appropriate sampling methodology and unit of analysis. For example, an event sampling methodology may be most suitable for measuring the occurrence of discrete events, whilst time sampling is based on occurrence or absence of a given behavior in an identified time interval, rather than its frequency across time. (Aspland & Gardner, 2003). After consideration, I concluded a time study was the best way to collect the data. The data was collected each half hour for two hours, an interval of time that seemed realistic and practical for a teacher or assistant to be able to complete. In total, collection happened four times over the course of each two-hour session, for a period of one month. The data was usually collected by the teaching assistant. Every half hour the data-gatherer would walk around the room and note any behaviors that fell into the four categories. The behavior was noted with the initials of the student who was showing this behavior. Initials were used to try and keep the information as discreet as possible while also being easy for the data collector to record, and easy for the researcher – or any teacher – to assess. (See appendix A for form used)

Form 2 – Measuring for normalized behaviors. The data collected from Form 1 was analyzed in a

very straightforward manner and the results were used to develop the measures in Form 2. This form was to measure for positive behaviors assumed to be associated with a normalized student. From Form 1 data analysis, four students were selected for the next round of data collection. Three students were identified who displayed a higher proportion of negative behaviors (and so warranted further special attention) and one student was chosen as a comparison. This student displayed fewer negative behaviors, and had received consistently low Likert-type ratings (which means more positive behaviors were perceived) on the teacher survey.

The data on form 2 was collected as a time study again. Measurement intervals were again set at every half an hour for two hours, since this had proved to be practically achievable during our previous round of data collection. And again, the data was usually collected by the teaching assistant. (See Appendix B for Form 2)

Observations. In addition to Forms 1 and 2, qualitative data was collected by the researcher through means of written observations, taken once during a class session. These notes were freeform and the observation period usually lasted about 15 minutes.

Results Part 2

This study is concerned with both *what the data tells us* and also with the *format of the data collection*. Results of the data collection will be reported first, followed by analysis including opinions on the value of this data, and whether the collection format was optimal.

Results of Teacher Survey – Initial Perceptions

The chart below illustrates similarities and differences in initial perceptions (i.e. perceptions prior to introducing the new measurement methodologies) of students behavior. After 7 months of classroom experience with our 19 students, the two teachers independently rated their perceptions of student normalization. Ten of the 19 students were rated identically by the two teachers. Five students had just a 1 point difference between the teachers' perceptions. Four students had a 2 point difference. And a single outlier student showed a 3 point difference between the teachers' perceptions.

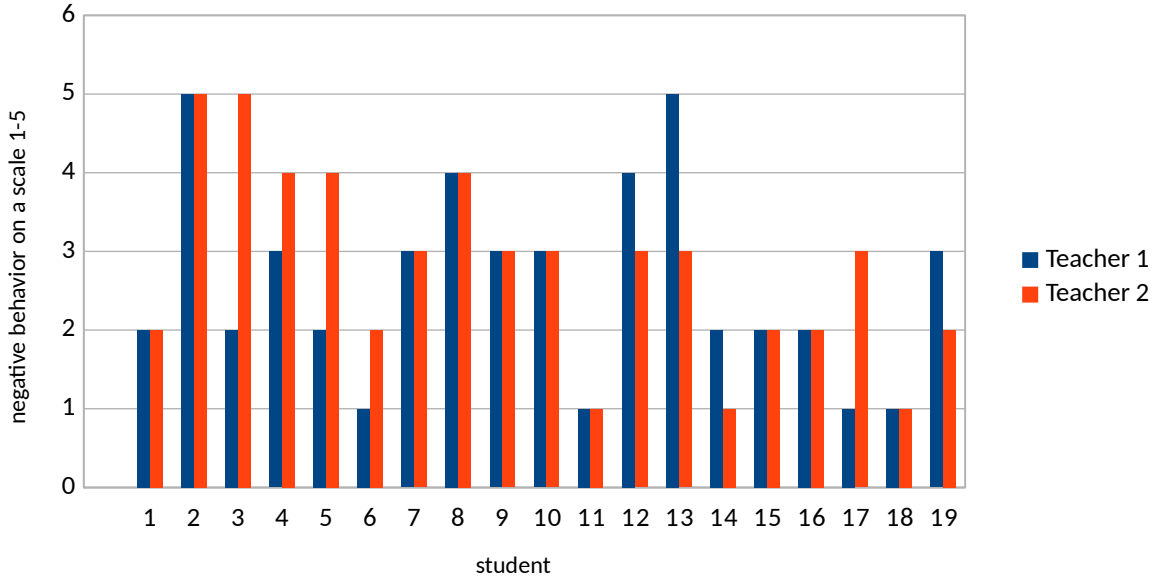


FIGURE 6: Bar graph showing the initial perceptions our two teachers had of each student, prior to new data collection methods. This was based on a Likert-type rating scale of 1-5, with 1 being most positive behaviors and 5 being least positive behaviors.

Results of Form 1 – Measuring for Negative Behaviors

To compile data for Form 1, each negative behavior observed for a student was given 1 point. Data captured like this can be compiled in different ways, such as: overall classroom negative behaviors; negative behaviors by student; or, one student's negative behaviors over time.

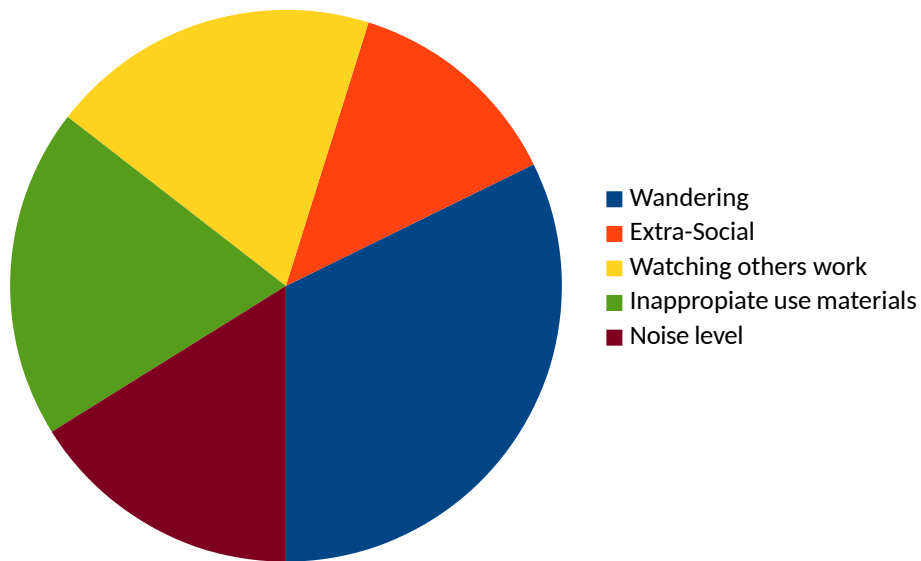


FIGURE 7: *Pie chart showing overall classroom negative behaviors over one month.*

The visual representation was more helpful to see quickly which behaviors were seen more often in the classroom. It revealed that wandering was the behavior most frequently recorded, by a slight margin. This result was interesting, but it proved more useful to be able to identify the behavior by student. To keep students anonymous for the purpose of this report, each student was assigned a random number.

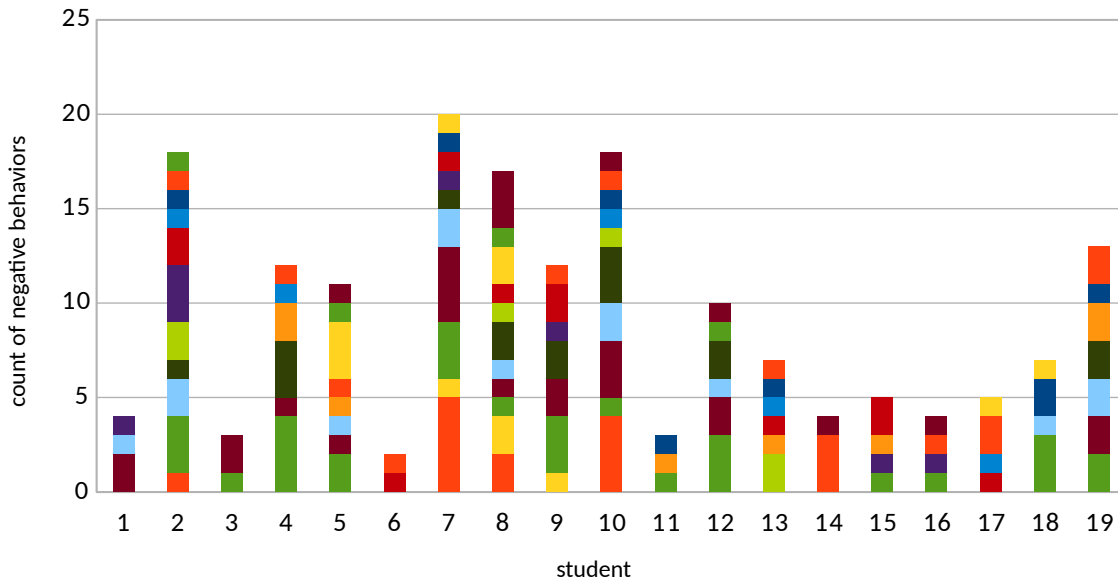


FIGURE 8: Bar graph showing negative behaviors by student over one month. The different colors represent different days.

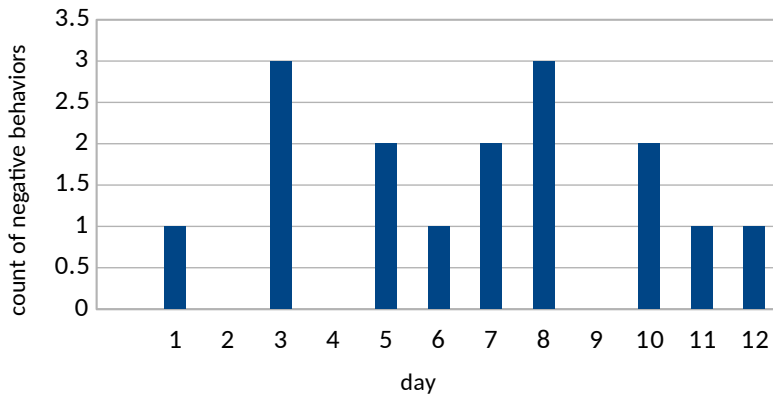


FIGURE 9: Bar graph showing a close up of frequency of negative behaviors of student 2 over one month.

To better compare negative behavior count results with the survey of initial teacher perceptions, I took the total count of negative behaviors per student (from Figure 8) and divided each by 4 to translate them to a 1-5 scale.

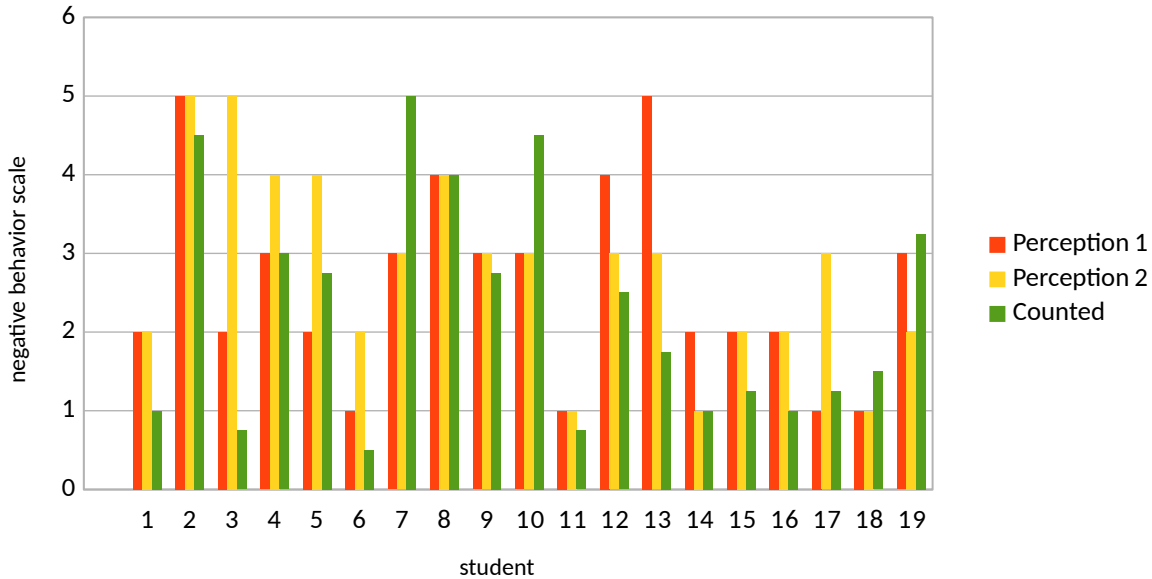


FIGURE 10: Bar chart showing the comparison of teachers' initial perception of student and actual result from data collected on Form 1.

The results of this comparison show an encouraging similarity in rating between the new quantitative method of measurement and the ratings of qualitatively perceived student behavior. There were only 4 students that had more than a 1 point difference between perceived and measured behaviors.

Results of Form 2 – Measuring for Positive Behaviors

To compile the positive behavior data needed for Form 2, I used a simple coding system. If a child was at a work, 1 point was given, and if a child was at least minimally focused on that work another point was given (allowing for a maximum of 8 points per day, per child). Conversely, if the child was not at a work 0 points were given. The total points of each child per day were totaled up, and turned into percentages. It is very important to keep in mind that this is a time sampling, and so does not give us the full picture of a student. For example, the student is measured only four times within a two hour session, and it could be that a child

happened to be just walking in the room to get another work, or walking around to look for work, yet that child could be marked down as 'not at a work'. This data, as it has been captured over a short period, is seen as a rough idea of the student's behavior for any day. With that caveat, the results showed the following: Student 2 was never 100% on task. Student 6 was 100% on task 5 out of 6 days. Student 8 was 100% on task 4 out of 6 days. And Student 10, was 100% on task 3 out of 5 days.

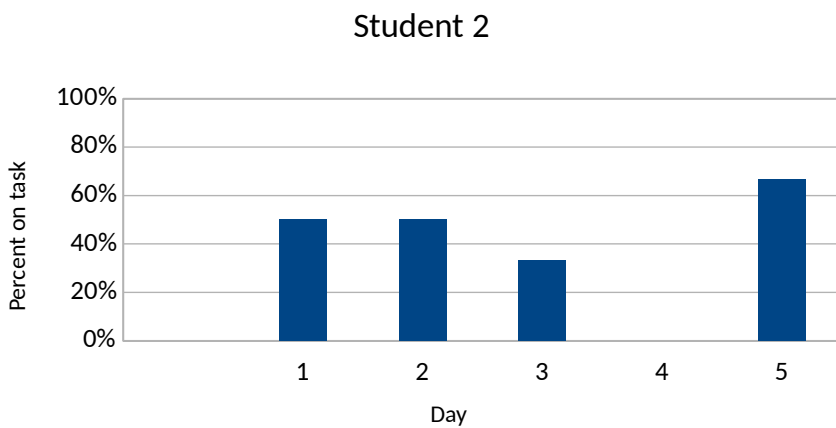


FIGURE 11: This bar graph shows the percentage that student 2 was concentrating and on task each day.

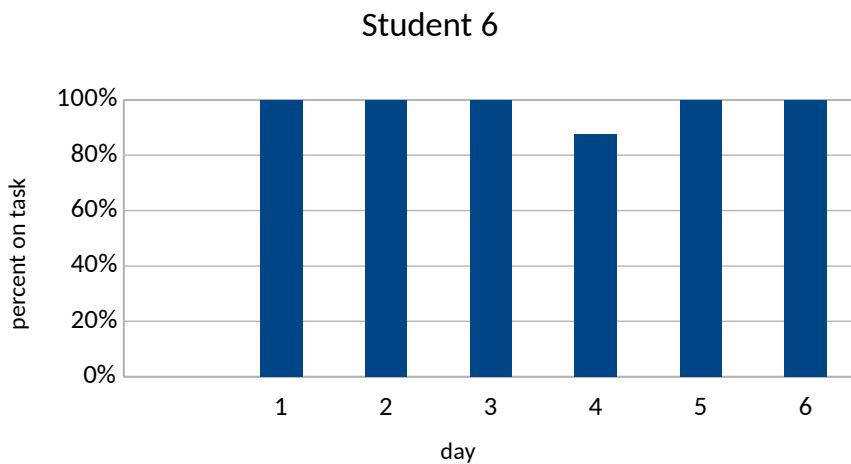


FIGURE 12: This bar graph shows the percentage that student 6 was concentrating and on task each day.

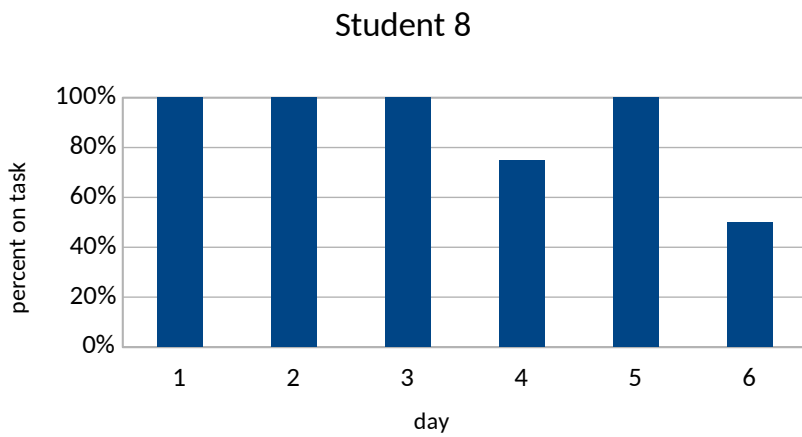


FIGURE 13: This bar graph shows the percentage that student 8 was concentrating and on task each day.

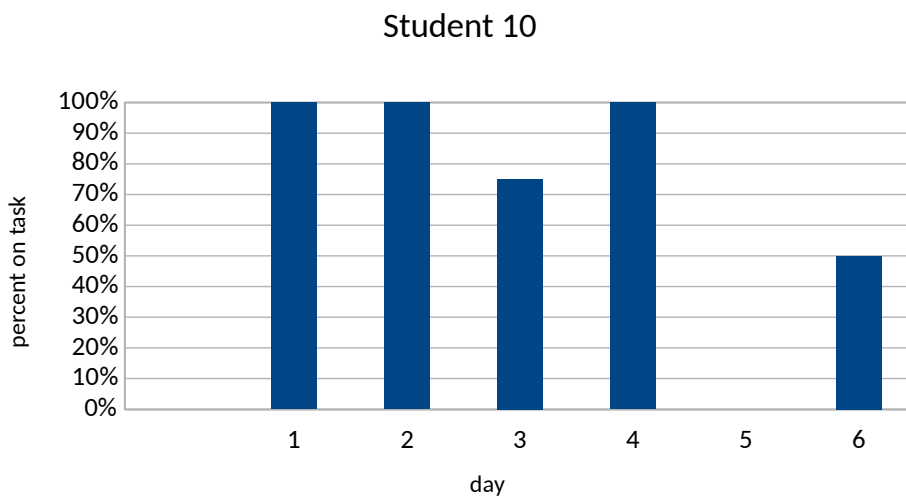


FIGURE 14: This bar graph shows the percentage that student 10 was concentrating and on task each day.

Interpretation / Discussion Part 2

Survey of Teachers Initial Perceptions

The differences noted between the two teachers of how we rated the students could be due to the fact that either the scale rating was not clear, or the understanding of the scale rating was not clear. Another difference could be with the fact that I am the researcher for the study, and therefore my thoughts about how I was rating a child was different to the teacher who was not doing the study. Also coming into play is the relationship that one teacher, or both teachers, has with a student. In a co-teaching situation, one teacher often works more closely with a student than the other teacher, and so each teacher could have different understandings and experiences with a particular student. This could certainly effect the subjective scale at which they rate the student's normalization level. And lastly, an important factor is the difference in each teacher's interpretation and understanding of expected behavior. A clear and common understanding between teachers would of course be beneficial for all aspects of teaching, but can't always be assumed.

Was it useful? I think that having the initial perceptions of teachers provided a valuable point of comparison with this study's newer, more objective assessment methods. Including them also offered an important insight as to why a more formal and objective measurement technique could be useful.

What would you change? I would try to ensure that the rating scale was made more clear to any party taking the survey. I'm concerned differences in interpretation of the survey questions may account for the disparities between the two teachers, thus skewing the results.

Format? As there was not much data to be collected, the format of this data collection seemed to work well.

Form 1 – Measuring for Negative Behaviors

Were the results useful? The data on Form 1 was useful from the first day of collection. I was surprised by how much I looked at the data at the end of each day to help me get a sense of everything that had been happening in the room. It was also really helpful to use the data to see if behavior changed after a targeted

presentation.

The information collected helped confirm hunches based on more unstructured observations. While working in the classroom and giving one-on-one or small group presentations, there is much happening in the rest of the room that can go un-noticed. I found this quantitative record of behaviors to be an extremely useful means of augmenting my more qualitative opinions about student progress toward normalization.

What would I change? The data collector reported that Form 1 was easy to use. The only problem she encountered was entering the noise level at every half hour interval. This was difficult, she reported, because the noise level proved to be quite dynamic, and could change as she was in the middle of filling out the chart. She suggested that a retrospective noise level assessment of the entire session might have been better. In the end, I found that I simply did not use the data collected for either the general noise level or the general atmosphere of the day; these did not seem to be a compelling overall indicators of class progress towards normalization.

This form would be extremely useful if it could be digital. If the data was collected electronically, for example on a tablet, it would reduce the amount of work involved in data input, and could be analyzed immediately. Before I had input the data into a spreadsheet, I just looked through the handwritten forms and I found I that I was not able to get a clear picture of trends. I did notice about eight names that seemed to come up consistently. But later, placing the data into a chart form offered a clearer illustration of the patterns, and helped me identify at least three students that I was not previously aware of, who had a disproportionately high frequency of certain negative behaviors. Student 7, who showed most negative behaviors, was a student that had been rated at a 3 on the initial perceptions survey. Another example was student 10, who again I had rated lower on the initial perceptions. Having data in this visual form allows a teacher to quickly identify students that may require additional attention. For example, a teacher may choose to spend more time on structured observations, so that assessments can be made as to what presentations and work should be given to a student to better capture the student's attention and engagement.

Comparison of initial perceptions with data from form 1. The comparison chart highlighted differences

between the perceived and recorded behavior of each student. For any student that had a difference larger than 1 point, I used the data collected through my unstructured observations to help clarify why there was a difference. For example, looking at Student 3 reveals quite a difference between perceptions of Teacher 1 and Teacher 2, and the results of the quantitative measures. From my observations this student has a real love of work and can concentrate for long periods when engaged. From my observations, this student rarely wanders and is always busy. However, the student also struggles with self control, and there have been occasions where I observed the student either damaging materials, or using materials inappropriately. This could easily effect the teacher's viewpoint of this student. For the objective measures, I am concerned that the data collector, with no formal training in Montessori, might have mis-rated some of the behaviors of the child. Misuse of materials is especially hard to recognize if unfamiliar with the works. So, this chart encourages us to try and triangulate data, and also inspires teachers to have a more consistent understandings of each student.

The quantitative approach has the advantages of being somewhat more objective, quantifiable, and potentially requiring less Montessori background to be able to accurately measure. An interesting comparison would be to ask all three classroom adults to do the objective negative behavior measures. It would be valuable to see how much variance there is between results using this approach, to try to confirm it is indeed more objective and requires less domain-specific knowledge of Montessori to produce a more accurate picture of progress towards normalization.

Form 2 – Measurements for positive behaviors

Were results useful? I felt that this method contributed well to the work of creating a good overall picture of the student. To improve the method's accuracy, the data could be collected at 15 minute samples, and over a longer time period. However, it is unlikely that any teacher or teaching assistant would typically have enough time to be able to collect data this frequently.

Changes? Again, this data for this form would be beneficial if it could be collected digitally. It would save time in collection, and give immediate results.

Validity and Limitations

One of the main concerns for validity of the positive behavior count data was the number of days the data was collected over. The collection period of the positive behavior data was very short, and so the margin of error is higher. Another factor that may negatively effect the validity of the data collected is the bias of the data collector. For example, I have repeatedly observed student 12 not being able to find work. The behaviors observed included wandering and watching a friend do work, rather than choose working alone. Student 12 is very well known to the data collector personally: the data collector is this student's babysitter, and the student is the son of the data collector's employer. These factors could very well effect the data collector's willingness or ability to collect data in an unprejudiced manner.

Once again, the lack of Montessori experience and/or training of the data collector is another factor that could effect the validity of the data collected. The collector did not always know when a behavior was a negative, or when a child might be mis-using the materials. For example, the extra-social behavior was particularly hard to gauge. Social interaction is a very important part of the Montessori environment, and sociability is one of the behavioral outcomes of normalization. However, it might be hard to tell the difference between “extra-social” and “social.”

The biggest limitation for this type of study is probably time. Time is needed in the day to make these quick observations. We did find that it is was successful with the teaching assistant doing it as part of the assistant's job. Some extra training on distinguishing what Montessori considers positive versus negative would undoubtedly improve the validity of data collected, but I still feel the training level required to collect these objective assessments in a valid and consistent way is comparatively low, relative to some more qualitative approaches that might be used.

Reflections

This study has been a real journey for me. The first part of the study, researching various opinions on

the essentials of Montessori, has helped me tremendously. As a new teacher, starting a new school, where I am also the director, I've found there are many different things pulling at my attention each day. Being able to remember to focus on a small core of essentials of Montessori has been and, I believe will continue to be, a great benefit to the school. Likewise, previously when I conducted tours of my school, I tended to focus on the curriculum, and all the areas of work, but after these tours, I always felt that I hadn't managed to sum up the goals of my school well enough. Because of my research, in these last two months the focus of my tour discussion has changed, and I have been putting more emphasis on the process that leads to normalization, and the positive behaviors that can naturally emerge from it, which feels much more relevant and meaningful to me.

The second part of the study has also been rewarding. Once I became convinced that normalization was the most essential aspect of Montessori, I determined that for the second part, I needed to find a way to measure the onset of normalization in a child. The plan was to put into place practices that would help more quickly identify the students who were not showing signs of normalization. Using this information we can then, in classic Montessori fashion, better know for whom and at what time new works need to be presented and/or the environment needs to be rearranged in order to better encourage the engagement and concentration needed to reach normalization. Although everyday I had been adjusting my teaching and efforts to realize this process, I still did not manage to be methodical enough to be able to use it as a formal part of this study as action research. I discovered that as a new teacher, and a new business owner there are many demands each day. As a result I did not leave enough time to complete the study to the level of comprehensiveness that I had at first envisioned. I also found that my own lack of organization in regards to the study really made it difficult to stay on course. These are things I'd like to change going forward.

But despite these significant setbacks, I feel the techniques attempted here helped me make progress in being able to pin-point the children that were showing behaviors counter to normalization. I also feel these techniques represent a very promising start to a more potentially objective means of being able to measure some of the aims that are unique to the Montessori method. I believe with some revisions some even more successful measurement tools of a similar type could be created. I strongly believe that Montessori as a discipline needs to do everything possible to enumerate, quantify, and report on the success its objectives –

some of which can be seen as quite arcane by those unfamiliar with the terminology and how outcomes might be assessed. This effort to clarify is important not just for those involved with Montessori's rising profile in the public school system, but for any Montessori professional who needs to describe the method and its benefits to parents and other stakeholders, who may not have much background with deeper Montessori concepts.

Future

I am very determined to be able to continue the work of this study of behavior measurement techniques, both at my own school and also at the Montessori charter school in my city. I'd like to develop variations on the positive and negative behavior count methods, and also develop more alternative measurements that can be used to try to quantify key markers on the road to normalization. This type of assessment is something that our Montessori charter school has discussed for some time, and I am convinced it is something that could be of significant benefit to private and public Montessori schools alike. Perhaps if we are able to quantify some of these behavioral outcomes we can start to consider success at school as something more than academic scores reflect, measurements that also consider the whole child.

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Appendix A

Form 1

Date _____ Initials of record taker _____

Time	Wandering	Extra-social	Watching others work	Inappropriate use of materials	Noise level 1 being silent 5 very loud
9am					
9:30am					
10am					
10:25am					

General Atmosphere of day on scale 1-5 1 is worst 5 is best

Appendix B

Form 2

Date:

Date:

Initials of record collector

Time	Where and what
9:00am	
Student 2	
Student 8	
Student 10	
Student 6	
9:30 am	
Student 2	
Student 8	
Student 10	
Student 6	

Time	Where and what	On-task?	Observations
10:00am			
Student 2			
Student 8			
Student 10			
Student 6			
10:25 am			
Student 2			
Student 8			
Student 10			
Student 6			