Further Fostering Intrinsic Motivation in the Montessori Elementary Classroom

Victoria A. Fitch

February 28, 2013

Abstract

The Montessori classroom appears to be the ideal learning environment for children throughout elementary and middle school. It is based on the philosophy of Dr. Maria Montessori which describes an environment tailored to the Sensitive Periods of children, prepared with materials appropriate for the age and abilities of the children in a particular classroom (McCormick Rambusch, 2010). Children are observed as they choose their work and are assessed according to mastery (2010). This form of education supports the popular notion that intrinsic motivation is best developed in classrooms which incorporate autonomy, mastery and purpose. It also supports the view that extrinsic motivation is a thing of the past and does not belong in the elementary classroom. However, might Montessori teachers further foster intrinsic motivation within students? In some Montessori classrooms, there still exists a gap between measured levels of intelligence and actual academic achievement in students who have not benefited from the Montessori way from the beginning of their educational careers. When extrinsic motivation, such as grades, does not exist, what is the most effective method for cultivating intrinsic motivation in elementary children in the Montessori classroom? In an attempt to identify a method for further fostering intrinsic motivation among elementary age Montessori children, this study will follow a quasiexperimental design in which the intervention entails a goal-setting exercise intended to strengthen the sense of purpose and thus improve mastery within the children studied.

A Review of the Literature on Student Motivation

Introduction

Educators have been perplexed by the gap that has existed between student ability and student performance. It has been frustrating for teachers to struggle with students in their attempts to inspire children to apply themselves to their full capacity with schoolwork. Often times, educators have chalked this underachievement up to apparent laziness or boredom. However, is this really the answer to this phenomenon? What motivates students? Is it candy and stickers or an innate desire to learn? Teachers, no matter the country in which they teach, the socio-economic level or gender of the students, ponder this question. With a better understanding of motivation, educators may improve the methodology utilized in the classroom in order to increase student motivation. In an effort to shed light on the topic of motivation, many educators have conducted research on the topic. Such research has focused on defining what motivation is, discovering the most effective method of improving student motivation, and how motivation may be improved in a Montessori setting.

The Source of Motivation

For educators to improve student motivation, an understanding of the source is imperative. Many theories have been proposed in regard to how motivation is defined and the major contributors to further inspiring motivation. In an effort to answer these questions, Brittany Coleman and Mary Nell McNeese investigated the possible correlation between parental involvement, student motivation and academic achievement (Coleman & McNeese, 2009). In a study of 9,080 fifth grade students from throughout the United States, the researchers administered questionnaires exploring the possibility

that increased parental involvement may increase student motivation (Coleman & McNeese, 2009). Prior to disclosing the results from this study, the researchers shared relevant information from other experts in the field.

Coleman and McNeese (2009) shared that in previous studies, data showed a direct positive correlation between parent involvement and increases in student motivation, resulting in improved academic achievement. It was revealed that parental views of education also directly affected the academic achievement of children; however, the researchers questioned the possibility that children who are highly motivated may request their parents to become more involved as a natural tendency of their personalities (Coleman & McNeese, 2009). In addition, the authors noted the research of Bokhorst-Heng in which questionnaires asked the parents what they valued more in terms of involvement, which uncovered that parents generally are more focused on communicating and connecting with their children (Coleman & McNeese, 2009). This research also concluded that an increase in parental involvement is directly connected to increases in student motivation (Coleman & McNeese, 2009).

Furthermore, Coleman and McNeese (2009) referred to the research of Manzo in which motivation of middle school students was explored. In this study, puberty was addressed as a possible variable in terms of motivational levels of students (Coleman & McNeese, 2009). As a result, the Coleman and McNeese (2009) recommended mentor programs, teacher support in the form of praise, welcoming students to school, and assistance with assignments because these were the components of programs which seemed to further motivate the students. Motivation was also classified into three categories including intrinsic and extrinsic, competence and self-efficacy, and social

motivation (Coleman & McNeese, 2009). The researchers explained that motivation is not the product of one component, but many, which can have varying effects on students even if they are in the same classroom (Coleman & McNeese, 2009). As the authors conducted their own research on the subject with questionnaires completed by over nine thousand fifth graders, they were quite surprised. The results did not support the previous research as described by the authors, but contradicted it. Coleman and McNeese (2009) actually found that with an increase in parental involvement, student motivation and academic achievement actually decreased. They concluded that the ages and maturity of the students may attest to these results, that because the children were entering puberty and thus most likely at an age in which testing independence is developmentally appropriate, students may have resisted parental involvement in regard to academics (Coleman & McNeese, 2009). So, if parental involvement is not the source of motivation, one might explore teachers as the source.

Montalvo, Mansfield and Miller conducted research in order to uncover the possibility that student fondness for the teacher may affect the level of student motivation (Montalvo, Mansfield and Miller, 2007). The study was conducted by guiding 125 participating students in completing two versions of a motivation survey (Montalvo, Mansfield and Miller, 2007). The surveys assessed the effort and persistence, goals and perceived ability of the children and concluded that having a keenness towards the teacher leads to increased motivation and academic achievement (Montalvo, Mansfield and Miller, 2007). The authors found that this is because of the environment which is created by the educator. When teachers create a learning environment in which they have provided positive feedback, respected the students, sacrificed themselves to assist

students, performed random acts of kindness for the students and spaced-out assignments to avoid overwhelming the children, not only are the teachers well-liked by the children, but motivation and academic achievement increased (Montalvo, Mansfield and Miller, 2007). They also found that this type of educator assigns work which is meaningful and motivating and utilizes assessments which are master-oriented (Montalvo, Mansfield and Miller, 2007). Therefore, the authors concluded that there is a direct correlation between a teacher that is liked and the level of student motivation as a result of the learning environment created by this type of educator (Montalvo, Mansfield and Miller, 2007). Teachers who create positive learning environments are not the only component of student motivation, evidently, epistemology is as well.

In addition to self-efficacy, goal orientation, attitude, prior knowledge, reasoning ability, and learning approaches, Kizilgunes, Tekkaya and Sungur (2009) argued that epistemology was also a contributing factor to student motivation. The authors described epistemology as the beliefs which involve individual theories pertaining to knowledge, the nature of knowledge and the manner in which knowledge is attained (Kizilgunes, Tekkaya and Sungur, 2009). In their study, 1,041 sixth grade students completed a sixty-three item questionnaire created by Schommer which analyzed their epistemological beliefs (Kizilgunes, Tekkaya and Sungur, 2009). The authors described that motivation is comprised of goal orientation and self-efficacy and that goal orientation encompasses two variations: 1) performance-goal orientation and 2) mastery-goal orientation (Kizilgunes, Tekkaya and Sungur, 2009).

Performance-goal orientation is described as a student focused on avoiding looking “dumb” or performing poorly whereas mastery-goal orientation is described as a

student who has focused on learning and personal improvement (Kizilgunes, Tekkaya and Sungur, 2009). The students, who have performed according to the later, mastery-goal orientation, put forth more effort and used a variety of learning strategies which are categorized as higher-order in terms of Bloom's Taxonomy (Kizilgunes, Tekkaya and Sungur, 2009). Based upon the data collected from these surveys, the authors concluded that those who utilized meaningful learning approaches are more successful as compared with students who do not (Kizilgunes, Tekkaya and Sungur, 2009). However, this study was conducted with public school students in Turkey; therefore, cultural elements and school environment may play a role in results. However, a great deal of the information shared in the article is supported by subsequent research. In fact, one study chose to focus further on the effects of the educational environment and student motivation.

In their study, Bartosh, Ferguson, Taylor and Tudor (2008) investigated motivation in relation to two student groups: one in the traditional education setting and the other in school-based environmental programs. These specialized programs, environmental education (EE), were based on curriculum which connected academic studies with real world environmental scenarios (Bartosh, Ferguson, Taylor and Tudor, 2008). These experiences outside of the traditional classroom provided students with opportunities to explore, observe, utilize their imaginations and engage, thus developing critical and creative thinking skills (Bartosh, Ferguson, Taylor and Tudor, 2008). The researchers gathered data through the use of both an EE-based assessment which was designed by the Pacific Education Institute and the Washington State standardized test scores in regard to math, reading, writing and listening (Bartosh, Ferguson, Taylor and Tudor, 2008). The data reflected a direct correlation between EE programs and student

motivation (Bartosh, Ferguson, Taylor and Tudor, 2008). It was also discovered that when schools utilized the EE design, discipline problems diminished (Bartosh, Ferguson, Taylor and Tudor, 2008). Although, the researchers did admit that the results in regard to student motivation and academic achievement could also have been attributed to factors such as internal and external motivations in combination with the educational environment described in the study (Bartosh, Ferguson, Taylor and Tudor, 2008). External motivations may be considered easier to observe, study and measure; however, is this most effective form of motivation? Once teachers have attempted to inspire students to apply themselves with external incentives in vain, these educators may conclude that the children are simply "lazy." Often times when educators find it difficult to inspire a child via various methods, the deduction is that the root of the problem is a character flaw- but is it?

In an effort to explore the validity of labeling unmotivated students as indolent, Gilmore and Boulton-Lewis (2009) conducted research for Queensland University of Technology, Australia. The authors described the fact that when popular motivation theories such as meaningful and interesting learning, challenging assignments, autonomy, and positive reinforcement fail to motivate children, adults tend to conclude that the reason is simply "laziness," (Gilmore & Boulton-Lewis, 2009). The goal of the research was to dispel this habit of educators and guide them in looking beyond this label to possible medical explanations (Gilmore & Boulton-Lewis, 2009). The researchers presented a survey to twenty children aged seven to ten years old who had been labeled as being lazy by either an educator or legal guardian and a questionnaire to the children's teachers (Gilmore & Boulton-Lewis, 2009). The child assessment utilized was the

Dimensions of Mastery Questionnaire (DMQ) and the *Classroom Involvement and Motivation for Learning* (CIML) scale was completed by the educators (Gilmore & Boulton-Lewis, 2009). The DMQ assessment provided scoring which pertained to parent and teacher observations of children's motivation as well as student self-perception. The CIML questionnaire provided a scale of ratings by teachers of the children's engagement and emotional responses to the educational environment and learning activities (Gilmore & Boulton-Lewis, 2009). The researchers compared the data collected to the individual children's IQ scores (Gilmore & Boulton-Lewis, 2009). The results supported that the students were poorly motivated as a gap existed between their IQ scores and academic achievement and engagement (Gilmore & Boulton-Lewis, 2009). This prompted the authors of this study to delve deeper in order to discover why this phenomenon had occurred. Further psychometric assessments uncovered undiagnosed cases of phonologically based learning disabilities in eight of the twenty children, half of the twenty showed clinical signs of hyperactivity and/or inattention and some revealed anxiety issues and fine motor skill difficulties (Gilmore & Boulton-Lewis, 2009). Although this study was conducted with a substantially small sample size, the hypothesis proposed by the researchers was unequivocally supported by the data collected. Perhaps unmotivated, "lazy" children are actually suffering from undiagnosed exceptionalities. Thus, educators must resist the easily labeling students as indolent and delve deeper to the cause. As the researchers noted, this is imperative to reaching these children because as they struggle academically and see little improvement without adult intervention, they may view themselves as inept and therefore disengage from learning activities and take-on a passive attitude- characteristics often viewed as laziness by teachers (Gilmore &

Boulton-Lewis, 2009). However, what is the cause of the gap between intelligence and actual academic achievement in students who lack learning disabilities? Could it be the form of motivation fostered by the teacher? Many in the education field have argued whether intrinsic or extrinsic motivation is the most effective method of inspiring students to fulfill their potential.

One study conducted by Marinak and Gambrell (2010) focused on the cause of loss of motivation among elementary-aged readers. The researchers were particularly interested in the gap between male and female students in regard to this topic (Marinak & Gambrell, 2010). The authors utilized the *Motivation to Read Profile* which collected data pertaining to the children's self-perception as readers and their ability to do so as well as the value which the children place on reading (Marinak & Gambrell, 2010). The children surveyed included 288 third-grade average readers (Marinak & Gambrell, 2010). The results of the surveys showed that despite gender, the students generally shared an equal amount of confidence in regard to their reading ability (Marinak & Gambrell, 2010). However, the data revealed interesting information in reference to the value placed on reading by the third grade students. Evidently, the boys place less significance on reading than do the girls (Marinak & Gambrell, 2010). The researchers deduced that this lack of value for reading resulted in the lower levels of motivation to read in the boys surveyed (Marinak & Gambrell, 2010). They hypothesized that social and/or physical developmental domains may attribute to this as the students approached puberty (Marinak & Gambrell, 2010). In conclusion, the authors stressed that future research should center on how educational environments foster intrinsic motivation for *all* students, boys and girls (Marinak & Gambrell, 2010). It is possible that the results of this

study support the argument that intrinsic motivation is essential in arousing interest and value for academics in children, thus guiding them in improving academically.

Intrinsic Motivation

Educators have passionately debated the merits of intrinsic versus extrinsic motivation for decades. Both may be effective forms of motivation; however, which is the most appropriate and successful form of motivation for elementary students? Daniel Pink (2010) recently published a book entitled *Drive: The Surprising Truth About What Motivates Us* and was interviewed by Phi Delta Kappa International in their magazine *Edge* about effectively improving motivation. In this article, Pink described the concept that motivation has evolved with society (Pink, 2010). He explained that previously, people were motivated by survival, which he dubbed Motivation 2.0, in which humans acted according to rewards and punishment in the environment- extrinsic motivation (Pink, 2010). However, this form of motivation no longer works with our current society. Today, people are required to perform tasks which are not routine and require creative and critical thinking processes which are highly complex (Pink, 2010). Given this environment, Pink (2010) said that rewards often do not work, in the 21st-century, people are operating on Motivation 3.0. As he described, Motivation 3.0 is a motivational system based upon mastery, autonomy and purpose (Pink, 2010). Autonomy is our desire to be self-directed, mastery is our aspiration for improving our own performance and purpose is our drive for doing something which services something larger than oneself (Pink, 2010). Pink (2010) argued that to better prepare students for the workforce, educational programs must be based upon these three components in order to foster the intrinsic motivation necessary for success in the modern era. He explained that teachers

can accomplish this by explaining the purpose of assignments to students, allowing for individual projects and improving student accountability in order to monitor student progress (Pink, 2010). According to Pink (2010), this should also carry through to homework- in fact, he proposed that educators refer to these assignments as "home-learning," instead as this has proven to alter the attitudes of students pertaining to the purpose and value of homework. Thus, to facilitate intrinsic motivation in the elementary classroom, teachers must integrate autonomy, mastery and purpose into the curriculum design. However, are these three components effective when applied individually, or must they be applied harmoniously?

Katz and Assor (2006) explored the effectiveness of autonomy in the classroom in their study entitled *When Choice Motivates and When it Does Not*. In their research, Katz and Assor (2006) explored the effects of the number and complexity of choices provided to children on the level of motivation they exhibited. The authors concluded that autonomy in itself is *not* motivating (Katz & Assor, 2006). They explained that teachers must be cautious when designing curriculum in terms of autonomy as three psychological needs must be met (Katz & Assor, 2006). These three needs include: 1) *Autonomy support*, addressing the interests and goals of students, 2) *Competence support*, ensuring that choices are not too numerous or complex and 3) *Relatedness support*, designing choices which support the family and cultural values and, or beliefs of the children (Katz & Assor, 2006). Essentially, a nurturing, positive learning environment is essential to truly fostering the innate motivation of children. The authors explained that teachers may support the Self-Determination Theory (SDT) which is the theory that human motivation is concerned with the development and functioning of personality

within social contexts by supporting autonomy, mastery and purpose as previously described by Pink (Katz & Assor, 2006). Katz and Assor (2006) explained that when the three of these components have successfully been implemented in an educational environment, the students are presented with a number of choices which are appropriate to the age and ability of the students, the choices are based on the interests and culture of the children and the purpose of the task is clear. When the choices are too numerous, it has been found that students will choose not to choose, essentially disengaging from the learning experience all together (Katz & Assor, 2006). Therefore, the appropriateness of autonomy is the key in effectively implementing the three essential components in fostering intrinsic motivation in the classroom. One such educational design already exists, and has for over a century. This educational philosophy incorporates autonomy, mastery and purpose as essential elements and bases motivation solely on the innate desire to learn in children. This educational design was developed by Dr. Maria Montessori.

Montessori Motivation

Dr. Maria Montessori opened her first Casa dei Bambini in Italy in 1907 and opened the first Montessori school in the United States in 1911 (Greene, 2005). With a doctorate in medicine, Montessori approached education from a scientific approach (Greene, 2005). She developed an educational design based on observation, a prepared environment and pedagogy based upon the developmental planes of children (Greene, 2005). The Montessori philosophy stressed the importance of meaningful and interesting work for children and the availability of choices (Greene, 2005). Montessori described the effective teacher as a guide who observed children and identified what motivated

them individually (Greene, 2005). The environment was to be prepared with appropriate materials for the children to explore at their own will, thus fostered the innate desire to learn through exploration (Greene, 2005). Success of Montessori students was measured in terms of mastery- a child does not progress to a more complex concept until they have mastered the previous one and they are developmentally ready as apposed to the traditional classroom in which all students study the same material and work through the curriculum as a whole (Greene, 2005). Therefore, Montessori classrooms incorporated autonomy, mastery and purpose within the learning environment, and consequently nurtured intrinsic motivation (Greene, 2005).

It is interesting to compare the levels of motivation of Montessori children as compared to those in traditional schools. It has been common for teachers in traditional schools to utilize extrinsic motivators with students whereas this practice is absent from Montessori environments. Ryniker and Shoho (2001) sought to understand the attitudes of students in traditional classrooms as compared with their Montessori counterparts and the implications that this has had on student motivation. The authors noted the surprising lack of research on this topic in the Montessori environment, supporting the need for such an investigation (Ryniker & Shoho, 2001). Utilizing an untimed survey, thirty-four public school fourth and fifth graders and forty-two Montessori fourth through sixth graders, completed the *Classroom Environment Scale* (Ryniker & Shoho, 2001). The results concluded that traditional classroom students viewed their educational environments as being more competitive and having clearer rules and higher teacher control as compared with their counterparts (Ryniker & Shoho, 2001). The Montessori children were found to have viewed their classrooms as more innovative than the

traditional school children (Ryniker & Shoho, 2001). However, the researchers concluded that there was not a significant difference in regard to involvement, affiliation, teacher support, task orientation or classroom order and organization (Ryniker & Shoho, 2001). Thus, the authors summarized that Montessori children seemed to feel more involved in their learning environments and less controlled (Ryniker & Shoho, 2001). These results support that when applied, autonomy, mastery and purpose in the classroom create a positive learning environment in which intrinsic motivation is fostered. This learning environment is found in schools with a base in the Montessori philosophy.

These conclusions are supported by the research of Rathunde and Csikszentmihalyi (2005) in their study of traditional versus Montessori middle school students. This research focused on motivation in terms of social contexts in the differing learning environments (Rathunde & Csikszentmihalyi, 2005). Utilizing the *Experience Sampling Method* (ESM), approximately 290 middle school students from traditional and Montessori schools were surveyed (Rathunde & Csikszentmihalyi, 2005). According to the questionnaire results, the Montessori children had more positive perceptions in regard to their teachers and learning environment and more often viewed their classmates as friends (Rathunde & Csikszentmihalyi, 2005). The researchers also observed that these children were more engaged with school-related tasks, chores and individual and group work (Rathunde & Csikszentmihalyi, 2005). The authors discussed that this higher level of engagement supports the thought that children enjoy higher levels of motivation in the Montessori environment as compared with traditional schools. This form of education supports autonomy, mastery and purpose in a way that innate motivation in children is

naturally fostered and developed in a positive learning environment (Rathunde & Csikszentmihalyi, 2005).

The Montessori classroom appears to be the ideal learning environment for children throughout elementary and middle school. It is based on the philosophy of Dr. Maria Montessori which describes an environment tailored to the Sensitive Periods of children, prepared with materials appropriate for the age and abilities of the children in a particular classroom (McCormick Rambusch, 2010). Children are observed as they choose their work and are assessed according to mastery (McCormick Rambusch, 2010). This form of education supports the popular notion that intrinsic motivation is best developed in classrooms which incorporate autonomy, mastery and purpose. It also supports the view that extrinsic motivation is a thing of the past and does not belong in the elementary classroom. However, might Montessori teachers further foster intrinsic motivation within students? In some Montessori classrooms, there still exists a gap between measured levels of intelligence and actual academic achievement in students who have not benefited from the Montessori way from the beginning of their educational careers. When extrinsic motivation, such as grades, does not exist, what is the most effective method for cultivating intrinsic motivation in elementary children in the Montessori classroom?

Research Question

Does goal-setting further foster intrinsic motivation in the Montessori elementary classroom?

Sample

The Hockessin Montessori School is located in an affluent northern Delaware town which may be described as suburban. The school is private and follows the teaching philosophy of Dr. Maria Montessori. The student population served ranges in age from twelve months through fourteen years of age and tuition ranges from $7,000 to $14,000 respectively. Programs are organized into groups of three grades as is mandated by the educational philosophy. The sample population studied in the action research project is the Upper Elementary class. There is one sole Upper Elementary classroom within The Hockessin Montessori School and encompasses the school's nine through twelve year old children. The students are instructed by two head teachers and are provided with a curriculum which is completely individualized for personal strengths and needs. Currently, fourteen children are enrolled in the Upper Elementary program and will be included in the study.

As a quasiexperimental design was utilized for this study, seven of the children acted as a control population while the other seven received the intervention treatment. Clearly, the most prevalent limitation of this sample is the restricted number of children. The individuals selected for treatment was based upon the results of the questionnaire in an effort to ensure that the control group and sample group are as balanced as possible.

Instrumentation

The design selected for this action research project was the quasiexperimental design. Therefore, the instrumentation entailed both a pretest and posttest prior to and following the intervention. A questionnaire was selected for use as the pre/posttest as this proved to be the most effective and popular form of instrumentation among experts

in terms of measuring motivation of students. It was discovered through extensive research that the instruments utilized in the field include the *Dimensions of Mastery Questionnaire, Classroom Involvement and Motivation for Learning Scale* and the *Classroom Environment Scale* among numerous others (Gilmore & Boulton-Lewis, 2009) and (Ryniker & Shoho, 2001). Although many of these studies utilized sample sizes which exceeded hundreds of students, it was encouraging that this form of instrumentation was also documented in research conducted with sample sizes encompassing approximately twenty children in the instruments noted above.

For this action research project, the *Students' Achievement Goal Orientation* questionnaire was chosen. This instrument was adapted from the Patterns of Adaptive Learning Scales by Courtney C. Galliger (2009) in her study of the motivation of Montessori students as compared with children in traditional classrooms (Galliger, 2009) (see Appendix A). Of the countless questionnaires utilized by researchers in studies of student motivation, this particular tool was selected as it is most appropriate for the sample population involved in the study. The questions were pertinent to the Montessori environment; the number of items as well as the vocabulary utilized are suitable for the age of the population that will be examined. The questionnaire included a twelve item measure including four items intended for measuring mastery orientation, four for measuring performance-approach orientation, and four for measuring performance-avoidant orientation (Galliger, 2009). The questionnaire also included a nine item portion for measuring *learning strategies,* a six item portion for *prosocial goals,* a four item section for *task persistence,* a three item section for *task challenge* and a ten item scale for measuring *classroom attitudes* (Galliger, 2009). Within each of these segments

were questions pertaining to motivational factors. For example, one such question asked the student if the teacher practiced drawing the attention of the class to a particular student for exceptional work. The answer to this question addressed the use of external rewards and the driving force behind the individual's performance. The questions were measured based on a four-point Likert scale with possible answers ranging from Strongly Agree (4) to Strongly Disagree (1) (Galliger, 2009).

Possible limitations presented by utilizing this instrument included those typical in using questionnaires in research. It is possible that the students may not have regarded the survey seriously and thus not chosen answers which accurately reflected individual attitudes in terms of the environment and personal motivation. There also existed the potential for misunderstanding of the items included in the questionnaire and thus, inaccurate results in the data collected. In an effort to curtail these limitations, the educator first explained to the children the purpose of the activity and reviewed the questions with the class prior to dispersing the instruments to the children. It was intended that this would drive the children to take the tool seriously as well as avoid any confusion in regard to the questions within the survey.

Data Collection Procedures

The questionnaire previously described was distributed as a pretest to each of the fourteen children in the Upper Elementary classroom of The Hockessin Montessori School on Monday, October 25th, 2010. This occurred in the afternoon, at approximately 1:15pm, following the routine literature lesson. Prior to commencing the activity, the educator/researcher explained the purpose of the survey as well as reviewed the questions included within the questionnaire. A quiet, calm environment was maintained with the

intention of fostering an environment in which the children may focus on the survey items and their responses. As is the normal practice, the students were permitted to sit in a location in the classroom of their choice and were allotted as much time as each individual required in order to complete the activity. As students completed the survey, they were directed to read quietly from their personal leveled novel until each child concluded the assessment. Students were asked to write their names on their questionnaires as the individual results were imperative to the balanced selection of children for the control group and sample group.

Once the data was analyzed and individuals were categorized for participation either in the sample or control group, the intervention commenced. In an effort to answer the research question, the researcher attempted to further foster intrinsic motivation within the elementary students via a goal-setting exercise which occurred on October 26th. Experts have described that the three vital components to nurturing intrinsic motivation are autonomy, mastery and purpose. As autonomy already existed in the sample classroom as a product of the educational philosophy followed, it was attempted to improve the sense of purpose among students by setting both short and long-term goals. A personal conference was held between the researcher and each student chosen for the intervention. With use of a goal-setting sheet, each child reflected on his or her strengths and challenges and then set goals based on the information (Lambton Kent School District Board, 2010) (see Appendix B). The success of this intervention was assessed through the analysis of mastery levels in student assignments as well as the data collected from the pre/posttests completed by the children.

On Monday, November 22nd, the posttest assessment occurred. All fourteen children completed the same tool utilized for the pretest. The results were analyzed for effectiveness of the intervention. The data was compared in regard to pre and posttest results as well as the contrast pertaining to the sample group versus the control group.

Possible limitations of the data collection procedures are reflective of the limited sample size. Given the particular classroom environment which was the subject of this study, it is quite possible that final results of the data may be tainted by communication among students. Discussion among the children pertaining to the intervention among children from both the control group and sample group may have resulted in inaccurate figures. As a result of conversation among the students, it is possible that children in the control group may have chosen to form personal goals without the knowledge of the educator/researcher and thus improved their intrinsic motivation. It is also a possibility that the personal relationship between the researcher as the educator and the students in the study removed objectivity from the study.

Findings

Questionnaire Results

The first component of the questionnaire measured the *Student Perception of Teacher's Goal Orientation*. The questions the section was comprised of were intended to assess what the students recognize as being the teacher's goal during instruction. The results were significant. In the pretest, 71% of students felt strongly that the teacher felt it was important for them to understand the material, not simply memorize facts. This increased to 86% in the post-test results for students who received the intervention and remained 71% for those in the control group (see Appendices C, D and E). When

students reflected on whether they felt the teacher paid attention to their academic improvement, 57% strongly agreed during the pretest and 86% of the seven children in the experimental group strongly agreed in the post-test, whereas only 71% did from the control group. In both the pre and post tests, all of the fourteen children agreed that their teacher wanted them to enjoy learning new things. However, the pretest results showed that only 64% felt that the teacher gave them extra time to explore and learn new topics. This increased to 86% in the post-test findings for both the experimental and the control groups, only three weeks later.

The second component, *Student's Goal Orientation* assessed the motivation that drove each student during the study. Questions were designed to analyze whether the student was driven by external motivators or intrinsic motivators. As was described in the literature review, experts have reported that intrinsic motivation is far more effective in learning as compared with extrinsic motivation (Pink, 2010). It has also been reported by numerous scholars that three elements are essential to nurturing intrinsic motivation. These three factors include 1) mastery, 2) autonomy and 3) purpose (Pink, 2010). Two questions in this category of the questionnaire measured the degree to which mastery and purpose play a role in the motivation of the individual students. According to the pretest results, 43% of the fourteen students reported that they strongly agreed that the most important thing to them was to learn as much as they could and to learn new things. This statistic remained the same in both the pre and post-tests; however, in terms of the importance of learning new things, there was a significant increase to 71% "strongly agree" within the control group. In terms of how strongly the students felt about personal mastery of concepts, the results increased exponentially when the results of the pre and

post-post tests were compared. At first, only 29% of students felt that it was of utmost importance to understand their school work; this increased to 43% in the post-test results for the experimental group and 57% within the control group. In regard to the importance of building schemata, 57% of students strongly agreed that this was a priority prior to the intervention and 71% strongly agreed following the goal setting activity, for both the experimental and control groups.

The origin of the students' motivation was further assessed in the *Learning Strategies* section of the questionnaire. One question asked the children if they agreed with the statement "When I learn something new in school, I like to take extra time to make sure I really understand it." The results from the pretest indicated that only 29% of the students strongly agreed. This increased 14% in the post-test results for both groups of students. Furthermore, when questioned about connecting new concepts with those already mastered, only 21% strongly agreed to practicing this method during the pretest, whereas following the intervention, 57% of experimental group students and a staggering 86% of control group students strongly agreed with using this technique. Students were also asked if they took their time on their work to make sure that they truly understood it. According to the pre-assessment, only 36% of the students felt strongly that they did this; whereas the results increased to 57% according to the post-test among students in the experimental group. Only 43% of the seven children in the control group agreed. This was significant as the teacher had suspected students were rushing themselves with the purpose of completing assignments quickly, rather than focusing on understanding the material. It was also interesting that one particular question in the *Academic Prosocial Goals* section asked the children if they enjoyed sharing what they learned with their

peers. The answers to the question indicate the level of engagement of the students and passion they feel for the learning experience. According to experts, this is essential to nurturing intrinsic motivation and improving academic achievement (Pink, 2010). Twenty-one percent of the students expressed that they strongly agree that they share new concepts they have learned with their fellow classmates in the pretest results. This increased to 57% within the group which received the intervention and only 29% of the control group, upon analysis of the post-test results.

The *Task Persistence* component of the assessment instrument further measured the student levels of motivation and drive. One such question, "I do not like to give up on class work even when it is hard," showed significant changes in results upon analysis of pre and post-tests. According to the pretest, only 21% of the students strongly agreed that they remain determined in such a scenario. The post-test measured that this improved to a staggering 71% following the intervention, for both student groups. The findings continued to follow this pattern in the *Classroom Attitudes* section. As a sense of purpose and a challenging curriculum have been proven to be necessary in fostering intrinsic motivation of students, the questionnaire posed questions aimed at assessing each child's emotions in regard to the classroom. The pretest results reported that 14% of the children *disagreed* that they felt bored in the classroom. This grew to 86%, either strongly disagreeing or disagreeing for both the control and experimental groups in the post-test findings. Despite this sudden increase in student engagement, the students' sense of frustration decreased. When asked if they often felt frustrated when doing classwork, 29% reported that they strongly agree with having experienced this. In the post-test, this changed to 0% for both groups. The comparison of the student answers for

each component changed dramatically upon examination of the pretest and post-test assessments.

Personal Intervention Results

The intervention in this study was designed to measure the significance of goal-setting on the levels of intrinsic motivation of students in a Montessori learning environment. Following a quasi-experimental research design, a pretest was administered to all fourteen elementary children. After collecting this data, seven of the students were chosen to receive the intervention. A goal-setting template was utilized as the teacher/researcher guided each child in choosing a goal appropriate for the individual (see Appendix B). The teacher met with each of the seven children in a one-on-one, private meeting. During each meeting, the child reflected on his or her strengths and areas which needed improvement. Each child chose one or two specific areas of study to improve and a plan of action for achieving the goal within the weeks following.

J chose to earn a score of 100% on his Reading Comprehension (see Appendix F) (Ervin, 1999). Reading Comprehension is a week-long assignment comprised of a reading passage (in a workbook which had been chosen based on the individual's instructional reading level), followed by an assortment of questions pertaining to sequence, making inferences and essay writing (Ervin, 1999). He also decided to set a second goal of earning a 100% on his vocabulary test (also tailored to his ability level) at some point during the study. J did not reach either of these goals; however, his Reading Comprehension score remained at an average of 88% and he achieved an increase of 3%, from an average of 84% to 87%, on his vocabulary exams. L also chose to simply increase her average score in Reading Comprehension; however, as J, maintained the

same average prior to and following the intervention activity, 77%. Z.S., like J, decided to set two goals. His first was to achieve a 100% on a vocabulary test at some point during the study. This was not accomplished; however, he did succeed in raising his mean test score from 88% to 92%. Z also attained his secondary goal. He decided that he would like to commence an independent project within the month. Z chose that the subject of his project would be photography and research on this subject had started as this study came to a close.

S.D. set a goal of simply maintaining his averages. This was accomplished. Not only did S.D. maintain his grades, but he improved during the intervention. S.D.'s Reading Comprehension average was 79% which he pulled up to a 91%. He also managed to pull his vocabulary exam average from a 91% to a 94%. Similarly, M chose to set his goals according to his Reading Comprehension grades. He decided that during that month, he wanted to achieve a 90% or higher on at least five units in this subject. Prior to this study, he accomplished this once. During the study, M achieved this three times.

Another student, S.S., decided that her goal was to turn-in her Sentence Analysis assignments on time, each time it was due. She accomplished this 100% of the time. Similarly, Z.P. chose to strive to earn an 85% or higher on every math homework assignment. This, too, was achieved. Therefore, it is empirical that the goal-setting intervention did have a positive affect in the intrinsic motivation of the students involved in the exercise.

Discussion

The transformation of student attitudes throughout this study was reflected in the results of the pre and post assessments. Upon analyzing the results, it became evident that both groups of students, those who experienced the intervention and those who did not, both benefited from the shift which occurred in the learning environment. Numerous scholars have researched student motivation and the benefits of a learning environment in which intrinsic motivation is nurtured, rather than extrinsic motivation. This theory is parallel to the teachings of Dr. Maria Montessori, thus the educational philosophy of the Montessori school in which this study occurred (Green, 2005). It has become popular belief that in order to further nurture intrinsic motivation among elementary-age children, three components must be supported: autonomy, purpose and mastery (Pink, 2010). These elements are also within the foundation of Montessori's teachings (Green, 2005). Thus, in an effort to further foster intrinsic motivation among students in this experimental group, it was attempted to promote purpose through a goal-setting exercise. These goals were intended to provide the children with further purpose in the work they completed which already accounted for autonomy and mastery. As students in the intervention group received lessons, the researcher/teacher reminded the individuals of their goals and how various activities and practices were intended to aid them in achieving their goals. All of the students' attitudes and ideas about what motivated them were assessed prior to the intervention and again following.

Once the results of the pre and post-tests were analyzed, intrinsic motivation appeared to improve. However, this occurred within both groups. It appeared that both categories of students experienced a shift during the three weeks in terms of their drive

and attitudes in regard to their learning environment. Before the intervention, only 21% strongly agreed that they remain determined, even when their work becomes challenging. Afterwards, this statistic rose to 81% in both groups. In terms of feeling challenged, only 14% reported that they strongly did not agree with the statement "I feel bored in my class," which increased to 86% either strongly disagreed or disagreed in both groups in the post-test. Hence, according to the data collected through the use of the pre and post questionnaires, the class as a whole experienced improvements in regard to the intervention period. The data in regard to the individuals who received the intervention are also quite telling.

Although not all of the students in the experimental group reached their goals, all of the children in this group experienced success. Four of the seven students actually attained the goals which they set out to reach within the weeks permitted. Three did not reach their goals; however experienced improvements, nonetheless. For example, although Z aimed to achieve a 100% three times on his weekly vocabulary test but only earned an average of 92%, he still increased his average by 4%. This was the same scenario for J, who also wanted to achieve a 100% on a vocabulary test. He did not reach this goal, however, did improve his average by 3%. Also, M, who chose to reach for 90%+ on five Reading Comprehension units, did not reach this goal; however he did manage to achieve this three times. Last semester, M only earned a score this high once. He managed these high grades three times within three weeks. Therefore, although three students did not attain their goals, all of the students involved in the intervention improved their academic achievement as a result.

Conclusions

The results of the study support the theories published by experts in the field of education. It is evident that not only the experimental group benefited from the experiment, but all of the children in the class. It seems that, as the scholars reported in the literature reviewed, intrinsic motivation is further developed when mastery, autonomy and purpose are supported in the classroom. Prior to the commencement of this study, it was realized that all three of these components are supported in the Montessori classroom. However, it was also realized that the element of purpose was the weakest of the three in terms of the learning environment utilized in this study. As a result of studying current theory and practice among experts, it was decided that fostering intrinsic motivation through a goal-setting exercise could further enhance the sense of purpose for the children in their lessons and activities, thus further nurturing their intrinsic motivation.

The data is indubitable. This conclusion is based on the improvement of grades among the experimental group and the transformation of student attitudes in regard to motivation within both groups of children as reflected in the questionnaires. It seems as though the intrinsic motivation of *all* of the children increased. It is possible that this is the result of the goal-setting activity. It is also feasible that the success is the consequence of outlying variables such as sharing between students in both groups that they were setting goals, the teacher's style of communicating may have improved as a result of the extensive research she completed prior to the experiment and the possibility that the children may have received goal-setting guidance outside of the classroom. All of the students involved in this study, whether in the control or experimental group,

participated in after-school activities. It is quite possible that coaches and scout leaders could have played a role in the motivation of the children at the time of this study. Nonetheless, the results of the data and the observable difference in terms of drive among these children were substantial and shall alter the teacher/researcher's strategies henceforth.

If this study were to be recreated, a few recommendations can be suggested. The data collection period in this experiment took place during a mere three weeks. This is insufficient for the accumulation of an appropriate amount of data on which to base conclusions. Perhaps a full semester or school year would be more advantageous in gathering statistics which are more reliable. It would also be auspicious to study groups of students in various Montessori classrooms of the same age. This would further eliminate any possible variables created by the objective position of the researcher acting also as teacher. Following these recommendations are likely to create a more structured experiment in which outside variables may be avoided and also more data could be garnered.

As a direct result of this study, the teaching strategy of the researcher as a teacher will be modified. It is apparent that as a result of the research published by experts on intrinsic motivation and the success of the goal-setting intervention, the act of stressing the *purpose* of lessons and activities in regard to personal goals is highly beneficial. It is possible that as a result of the extensive research in which the teacher partook, she began explaining the purpose behind lessons more extensively and in a more individualized manner than she did prior to this study. Therefore, she will continue to conduct herself in such a manner. It was also evident that personally selecting measurable goals derived

from one's personal strengths and needs further nurtures intrinsic motivation. This act seemed to provide individuals in the intervention group with increased drive which appeared to be contagious within the small class of fourteen children. As a result, the seven children who comprised the control group will be guided through the same goal-setting exercise. It clearly was beneficial for the children in the experimental group; therefore, all of the children will now partake in this activity each semester. This information will also be shared with the teacher's fellow teaching staff. Through discussion, it is apparent that teachers of other grade levels within the school utilized in the study have experienced a desire to further foster the intrinsic motivation of their students. They expressed frustration in not understanding how to improve intrinsic motivation in a Montessori environment. Hence, the findings from this study shall be shared with them in an effort to share the accomplishments of the children who were comprised in this experiment.

References

Bartosh, O., Ferguson, L., Tudor, M., & Taylor, C. (2008). Impact of environment-based teaching on student achievement: A study of Washington State middle schools. *Middle Grades Research Journal*, *4*(4), 1-16.

Coleman, B., & McNeese, M.N. (2009). From home to school: The relationship among parental involvement, student motivation, and academic achievement. *The International Journal of Learning*, *16*(7), 459-470.

Ervin, J. (1999). *More reading comprehension in varied subject matter*. Cambridge, MA: Educators Publishing Service.

Galliger, C.C. (2009). *To be or not to be..motivated: A comparison of students' goal orientation within direct instruction and constructivist schools*. Informally published manuscript, Department of Education, Bowling Green State University, Bowling Green, Ohio. Retrieved from http://etd.ohiolink.edu/send-pdf.cgi/Galliger%20Courtney%20Carroll.pdf?acc_num=bgsu1237475910

Gilmore, L., & Boulton-Lewis, G. (2009). 'Just try harder and you will shine': A study of 20 lazy children. *Australian Journal of Guidance & Counseling*, *19*(2), 95-103.

Greene, P.K. (2005). Dear Maria Montessori. *Kappa Delta Pi Record, Summer*, 164-166.

Katz, I., & Assor, A. (2006). When choice motivates and when it does not. *Education Psychology Review*, *August*, 429-442.

Kizilgunes, B., Tekkaya, C., & Sungur, S. (2009). Modeling the relations among students' epistemological beliefs, motivation, learning approach, and achievement. *The Journal of Education Research*, *102*(4), 243-255.

Lambton Kent District School Board, Initials. (Designer). (2010). *Student's goal setting sheet*. [Web]. Retrieved from http://www.lkdsb.net/program/elementary/junior/individual%20assessment%20documents/student%20goal%20setting%20sheet.pdf

Marinak, B.A., & Gambrell, L.B. (2010). Reading motivation: Exploring the elementary gender gap. *Literary Research and Instruction*, *49*, 129-141.

McCormick Rambusch, N. (2010). Freedom, order, and the child: Self-control and mastery of the world mark the dynamic Montessori method. *Montessori Life*, *1*(1), 38-43.

Montalvo, G.P., Mansfield, E.A., & Miller, R.B. (2007). Liking or disliking the teacher: Student motivation, engagement and achievement. *Evaluation and Research in Education*, *20*(3), 144-158.

Pink, D. (2010). The pathway to high performance. *EDge*, *5*(5), 3-18.

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

Ryniker, D., & Shoho, A.R. (2001). Student perceptions of their elementary classrooms: Montessori vs. traditional environments. *Montessori Life*, *Winter*(1), 45-48.

Appendix A

Student Perception of Teachers' Goal Orientation

For the next fifteen questions, please read each item carefully. Then, for each statement, select the answer that best applies to your teacher.

Strongly Disagree	1
Disagree	2
Agree	3
Strongly Agree	4

1. My teacher makes sure I understand my work, not just memorize it.
1 2 3 4
2. My teacher points out students who do the best on class work or tests as an example to all of us.
1 2 3 4
3. My teacher tells us that it is important that we don't look stupid in class.
1 2 3 4
4. My teacher pays attention to whether I am improving.
1 2 3 4
5. My teacher lets us know which students do the best on school work or tests.
1 2 3 4
6. My teacher says that showing others that we are not bad at school work should be our goal.
1 2 3 4
7. My teacher gives me a chance to correct mistakes.
1 2 3 4
8. My teacher tells me how my school work compares to other students' school work.
1 2 3 4
9. My teacher tells us it's important to join in discussions so it doesn't look like we can't do our work.
1 2 3 4
10. My teacher thinks mistakes are okay as long as I am learning.
1 2 3 4
11. My teacher thinks getting a good grade is the most important thing in class.
1 2 3 4
12. My teacher tells us it's important to answer questions in class, so it doesn't look like we can't do the work.
1 2 3 4
13. My teacher wants us to enjoy learning new things.
1 2 3 4
14. My teacher gives us time to really explore and understand new topics.
1 2 3 4

15. My teacher encourages us to compete with each other.
1 2 3 4

Students' Goal Orientation

1. The most important thing to me in this class is that I learn as much as I can.
1 2 3 4
2 The most important thing to me in this class is to do better than other students.
1 2 3 4
3 The most important thing to me in this class is to not look stupid.
1 2 3 4
4 The most important thing to me in this class is that I learn new things.
1 2 3 4
5 The most important thing to me in this class is to show others I am smart.
1 2 3 4
6 The most important thing to me in this class is to not look like I have trouble doing school work.
1 2 3 4
7 The most important thing to me in this class is to really understand my school work.
1 2 3 4
8 The most important thing to me in this class is to show others how good I am at school.
1 2 3 4
9 The most important thing to me in class is to not do poorly on my school work.
1 2 3 4
10 The most important thing to me in this class is to improve what I know.
1 2 3 4
11 The most important thing to me in this class is that I get a good grade or get good comments about my school work.
1 2 3 4
12 The most important thing to me in this class is to not get a bad grade or bad comments from my teacher on my school work.
1 2 3 4

Learning Strategies

1 When I learn something new in school, I like to take extra time to make sure I really understand it.
1 2 3 4
2 I only do school work I have to do.
1 2 3 4
3 When I learn something new in school, I try to connect it to information I already know.
1 2 3 4
4 I try to finish school work as fast as I can.
1 2 3 4
5 I use what I have learned on old school work to do new school work.
1 2 3 4
6 When learning a new topic, I try to memorize the important information even if I don’t understand it very well.

1 2 3 4
7 I take my time on school work to make sure I really understand it.
1 2 3 4
8 I do school work without thinking too hard.
1 2 3 4
9 When learning something new in school, I ask myself questions to make sure I really understand it.
1 2 3 4

Academic Prosocial Goals

1 I like to share what I have learned with my classmates.
1 2 3 4
2 I like to help my classmates solve a problem once I have figured it out.
1 2 3 4
3 I like to try to help my classmates learn new things.
1 2 3 4
4 I like to ask another classmate for help when I don't understand something in class.
1 2 3 4
5 I like when my classmates try to help me learn new things.
1 2 3 4
6 I like when my classmates try to help me solve a problem once they have figured it out.
1 2 3 4

Prosocial Goals

For the next four questions, please read each item carefully, then, for each statement, select the number that best applies to you.

Never	1
Rarely	2
Sometimes	3
Almost Always	4

1 How often do you try to be nice to kids when something bad has happened to them?
1 2 3 4
2 How often do you try to help other kids when they have a problem?
1 2 3 4
3 How often do you try to cheer someone up when something has gone wrong?
1 2 3 4
4 How often do you share your toys or games with other kids? 1 2 3 4

Task Persistence

Strongly Disagree	1
Disagree	2
Agree	3
Strongly Agree	4

1. I do not like to give up on class work even when it is hard.
1 2 3 4
2 In class, I do not give up on a problem until I get the right answer.
1 2 3 4
3 In class, I like to try things over and over again until I get it right.
1 2 3 4
4 I continue working on class work even after other people give up.
1 2 3 4

Classroom Attitudes

1 I like being in my class.
1 2 3 4
2 I feel bored in my class.
1 2 3 4
3 I look forward to going to my class.
1 2 3 4
4 I often feel frustrated when I do class work.
1 2 3 4
5 My class puts me in a good mood.
1 2 3 4
6 I often don’t feel good about myself when I am in my class.
1 2 3 4
7 My class makes me feel good about myself.
1 2 3 4
8 I am often angry when I am in my class.
1 2 3 4
9 In my class, I usually like thinking about class work.
1 2 3 4
10 My class often makes me feel bad.
1 2 3 4

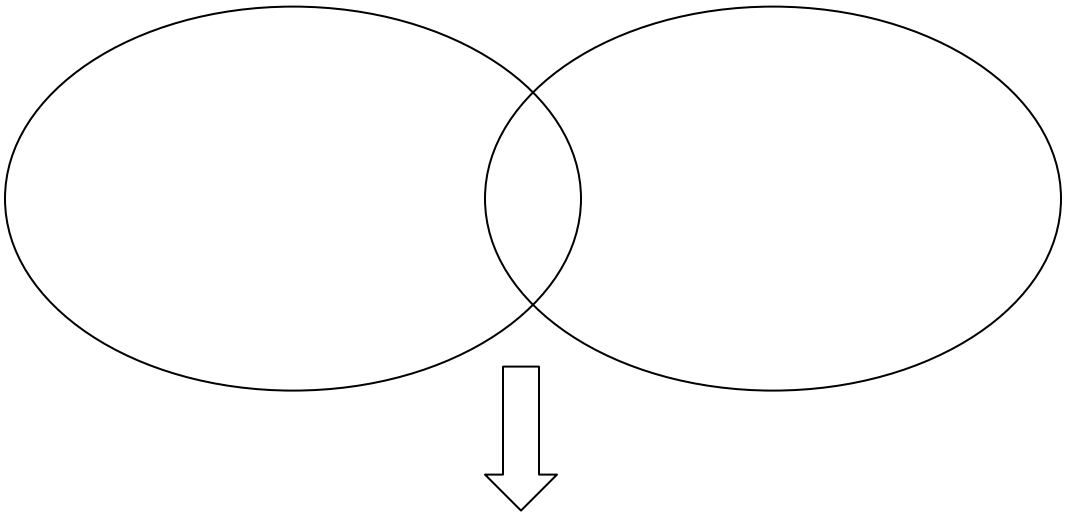
Appendix B

STUDENT'S GOAL SETTING SHEET

THIS SHEET MAY BE USED TO ASSIST YOU IN REFLECTING ON YOUR GROWTH.

NAME: _____ DATE:_____

Strengths Challenges



My Goal:

To achieve my goal I will:

Action	Projected Date	Actual Date Accomplished
☐		
☐		
☐		

CHECK THE BOX AS GOAL IS ACCOMPLISHED AND INDICATE THE DATE.