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CHILDREN'S EFFORTFUL CONTROL IN A MONTESSORI CLASSROOM: EFFECTS OF  
PARENTING AND PURPOSEFUL WORK

CHILDREN'S EFFORTFUL CONTROL IN A MONTESSORI CLASSROOM: EFFECTS OF  
PARENTING AND PURPOSEFUL WORK

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Masters of Science in Human Environmental Sciences

By

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May 2012  
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## **ABSTRACT**

Research in effortful control is necessary to understand and support children's behaviors in social and classroom settings (Rimm-Kaufman, Curby, Grimm, Brock, & Nathanson, 2009). This study reviewed literature discussing the relationship between parenting style and effortful control and Montessori philosophy as it relates to the work in practical life. The literature reviewed in this study suggested that parenting style may also be related to a child's effortful control. In addition, it was expected that the work of practical life in a Montessori classroom would positively influence effortful control in children. Using an experimental design, this study examined the efficacy of a Montessori Table Washing Task to prime effortful control in children ages 3-6. The Mischel Marshmallow Test (Mischel & Baker 1975) was used to test effortful control in the children. Children in the control group received only the Marshmallow Test. Children in the experiment group received a Montessori Table Washing Lesson prior to receiving the Marshmallow Test. Although not statistically significant, there was a difference in the groups. However, in this study, there was no correlation found between parenting style and the effortful control of the children. Implications of this study are that practical life work, like a Montessori Table Washing Task, may positively affect effortful control in pre-school age children.

This thesis is approved for recommendation  
to the graduate council

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I acknowledge my family for their eternal support, especially my mother, father, and husband Greg who believe that I can do anything.

## **DEDICATION**

The work of this thesis is dedicated to the children and families of Walnut Farm Montessori School; those who have been, those who are here, and those yet to come.



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## **I. INTRODUCTION**

Research in effortful control is necessary to understand and support children's behaviors in social and classroom settings (Rimm-Kaufman, Curby, Grimm, Brock, & Nathanson, 2009). High levels of cognitive effort and engagement, showing concentration and working at a skill or subject until achieving mastery, are characteristics of positive behavioral regulation (Post, Boyer, & Brett, 2006). Behavioral regulation was found to be an aspect of temperament necessary for success in classroom and social settings. One construct of behavioral regulation is effortful control (Eisenberg, 2005).

Effortful control is the ability to override a dominating, impulsive response with a more appropriate response in the context of a particular situation (Eisenberg, 2005). Children lower in effortful control may be more likely to exhibit impulsive behavior (Eisenberg, 2004). Children with more impulsive behaviors may be more likely than less impulsive children to cause disruptions in classrooms, and may also act more aggressively toward peers (Rimm-Kaufman, et al., 2009). Young children that have difficulty with effortful control are likely to be both behaviorally and cognitively impulsive (Maccoby, 2000).

Differences in effortful control, although partially due to heredity, may also be due to the quality of parent-child interactions (Eisenberg et al., 2005). Kopp (1982) suggested that effortful control in young children is an aspect of development that emerges early in the latter part of the first year of life and that it may be related to the child's relationship with the caregiver (Kopp, 1982), making parenting style an independent variable in this study. She defined effortful control as the ability to comply with a request as well as the ability to control behavior according to the situation and demand (Kopp, 1982). Children who demonstrated effortful control were also able to postpone immediate gratification (Kopp, 1982). Gottfredson and Hirschi (1990)

added that the construct of effortful control is likely to develop early in life. They suggested that social experiences and pressures that facilitate the development of effortful control may largely come from the family, although they do not exclude other means of control, restraint or socialization experiences, including influence or restraints by teachers (Gottfredson & Hirschi, 1990). They also suggested that children low in effortful control may be impulsive, risk takers, and generally exhibit fewer pro-social behaviors (Gottfredson & Hirschi, 1990).

It is likely that higher levels of effortful control may yield a more positive classroom experience for children (Rimm-Kaufman, Curby, Grimm, Brock, & Nathanson, 2009). The present study reviewed the construct of temperament known as effortful control (Eisenberg et al. 2009) and examined the relations between Montessori classroom Practical Life activities and effortful control. Montessori's theory of Practical Life established reasoning to implement a Table Washing Lesson as an instrument for an experiment to test effortful control.

Montessori classrooms have specific lessons that are designed to inspire movement and concentration (Schmidt, 2009). The lessons are designed for a constructive purpose to benefit the child and the environment (Schmidt, 2009). These lessons are called "lessons of Practical Life" (Lillard, 2005). The lessons of Practical Life teach the child skills to care for himself and the environment both indoors and outdoors (Montessori, 1966). Some reasons for including these lessons in the Montessori classroom have been (1) to give the children a purpose to their work, (2) to help the children develop long periods of concentration, (3) to help children learn to carry out series of steps in a sequence, (4) to help children learn to care for the environment, both indoors and outdoors (Lillard, 2005). These lessons have been considered the foundation of Montessori education (Lillard, 2005). Additionally, Montessori theory considers these lessons important to the relationship between movement and cognition because they use the movement

of the body and the service of the mind to fulfill a meaningful goal (Lillard, 2005). The meaningful activity brings about concentration and it is through concentration that normalization will occur (Montessori, 1949). Normalization is a Montessori term that refers to a child's state of regulation (Montessori, 1949). Normalized children are expected to be more peaceful in a classroom environment (Lillard, 2005). Research, however, was lacking in measuring the effect of Practical Life work as it relates to effortful control. Montessori observed that after children completed a Practical Life lesson they were noticeably calmer and more focused (Montessori, 1966), thus more likely to override impulsive responses.

This study predicted that a Montessori Table Washing Task (Schmidt, 2009 p,121), presented to children in an experiment group, may prime effortful control in young children. The experiment tested the efficacy of the Table Washing Task to prime effortful control in preschool children. Purposeful work, such as household chores (table washing) may positively affect effortful control in children (Lillard, 2005). Understanding the efficacy of the Table Washing Task and its relation to effortful control required investigation because preparing classroom activities with similar characteristics may help preschool children to regulate their behavior and cognition. In other words, it may provide preschool teachers with specific activities to improve classroom environments, supporting individual children to develop effortful control, leading to a more successful classroom experience.

Both contemporary and classic research has stated that parents in all cultures are the primary teachers of socialization in a child's life (Grolnick & Ryan, 1989; Lengua, Honorado, & Bush, 2007). It has been said that parents, or primary guardians, are the key to teaching children information about cultural values and social norms required for positive socialization (Sorkhabi, 2005). Because parents are a child's first teacher and provide initial and continual social

experiences (Paulussen-Hoogeboom et al., 2008), early parenting may influence the development of effortful control in children (Vazsonyi & Huang, 2010). Parents provide a framework of expectations for how their child should or should not behave in a social situation (Vazsonyi & Huang, 2010). It is likely that parenting style will affect a child's behavior in social environments (Sorkhabi, 2005). Thus, some dimensions of parenting style may be predictors of effortful control (Lengua, Honorado, & Bush, 2007), making parenting style an additional variable considered in this study. The research was expected to contribute to the creation of educational resources for teachers to support children's development of effortful control. The study of effortful control may contribute to children's success in a classroom and other social environments (Eisenberg et al., 2009). Helping children develop positive effortful control early in life may help them with control associated with reactive tendencies later in life (Eisenberg et al., 2004), suggesting that effortful control is essential to success.

## **II. LITERATURE REVIEW**

The purpose of this study was to further research about effortful control by seeking to establish a relationship between Practical Life lessons in a Montessori classroom and its affect on effortful control. This study predicted that a Montessori Table Washing Task (Schmidt, 2009 p,121), presented to children in an experiment group, may prime effortful control in young children. It is important to study variables that effect effortful control because it is an important aspect of development that may affect children much later in life (Kochanska, Murry, & Harlan, 2000). Because parents are an integral part of a child's early development (Vazsonyi & Huang, 2010), this study hypothesized that some dimensions of parenting style may be related to effortful control in children. This research may contribute to solutions of helping children develop higher levels of effortful control, offering a more positive experience in classroom and social environments.

### **A. EFFORTFUL CONTROL**

Effortful control is one demension of temperament (Eisenberg, 2005) that may be related to a child's success in social situations. Eisenberg (2005) defined effortful control as the ability to override a dominating, impulsive response with a more cognitively appropriate response. Additionally, temperamental effortful control defined by Rothbart and Rueda (2005), refers to behaviors that are centered around reactivity and self-regulation as it relates to the biological make-up of the child, influenced over time by genetic and external experiences (Rothbart & Rueda, 2005). Effortful control is the aspect of temperament associated with voluntary self-regulation (Rothbart, 2006). It accounts for both inhibiting a response as well as suppressing a typical response and then maintaining the new response (Kochanska, Murry, & Harlan, 2000).

Having effortful control and the ability to override behavior responses that are aggressive or destructive may help children have more success in the classroom (Lillard, 2005). Previous studies suggested that effortful control may develop early in life, making it a possibility for heredity to be a predictor of effortful control (Vazsonyi & Huang, 2010). Because effortful control is an aspect of temperament (Eisenberg et al., 2009), and children are born with a predisposed temperament, it is likely that children are born with a predisposed level of effortful control (Vazsonyi & Huang, 2010). Differences in effortful control that develop during a child's first five years of life have been linked to higher levels of social adjustment, compliance and educational success (Lillard, 2005). Eisenberg (2005) found positive effortful control may help children in their current statuses as well as in the future. Murry and Kochanska (2002) also supported that effortful control was an important aspect of child development because it may predict how successful a child will be in a social group, such as a classroom (Murry & Kochanska, 2002). Lillard (2005) explained that higher levels of effortful control were related to a child's positive self-construct, as well as to their academic and social success.

Effortful control plays a critical role in the development of emotion (Eisenberg 2005). Negative emotional states, such as tantrums, as well as aggression and other forms of defiant behaviors, may be a sign of low effortful control (Delaney, 2009). According to Vazsonyi and Huang (2010), a lack of effortful control may be a key risk factor in development and education. Morris, Silk, Stienberg, Avenvoli, & Essex (2002) suggested that a predisposition toward low effortful control may place a child at risk for developing other social problems. In addition, children who are low in effortful control may also find it difficult to relate in a pro-social way when another child or adult provokes them (Morris, et al. 2002). Research has established that effortful control is linked to positive development in the first five years of life (Eisenberg, 2005).

Eisenberg (2005) suggested that as children get older, they are likely to have more control of their behavior. Children who have less effortful control may be more likely to have negative interactions with both peers and adults (Eisenberg, 2005). Eisenberg et al., (2009) found increasing evidence that there may be a link between effortful control and temperament as it relates to externalizing and internalizing behaviors in children.

Internalizing behavior problems include social withdrawal, anxiety, depression, and psychosomatic reactions, while externalizing problems may relate to delinquency and aggressive behaviors (Eisenberg, Cumberland, Spinard, Fabes, Shepard, & Reiser, 2001). In addition, Eisenberg et al., (2001) found that children who showed more externalizing behaviors, alone or with internalizing behaviors, scored higher on anger than children with no problem behaviors. They also scored higher on anger than children who solely had internalizing behaviors (Eisenberg et al., 2001). More support from a study by Murray and Kochanska (2002) affirmed these results, and added that the lower levels of effortful control may also be associated with externalizing behaviors such as attention problems, which could affect social and cognitive abilities in school (Murry & Kochanska, 2002). Eisenberg et al., (2004) agreed that effortful control and impulsivity at age two predicted resiliency and problem behaviors, both early in the preschool years and continuing into the elementary school years. Their findings suggest that effortful control and impulsivity are not the result of the same construct (Eisenberg et al., 2004). They suggested the possibility that children who were low in impulsivity lack the flexibility needed to adapt to new ways of dealing in stressful situations (Eisenberg et al., 2004). Children who were low in effortful control were likely to have difficulty managing their negative emotional states (e.g. overriding an initial response and focusing on a new response) and, as a consequence, had a difficult time rebounding from a negative experience (Eisenberg et al.,



2004). In contrast, Morris et al., (2002) found that effortful control might not relate to internalizing problems.

Effortful control is a construct of temperament that affects a child's social experiences (Mathieson & Banerjee, 2010). Therefore, understanding how it develops and what relates to its development is important. Effortful control may be a predictor of how children will react to and manage a social environment (Rothbart, 2006). Eisenberg et al., (2004) ask a question for future study: "do relations of impulsivity to adjustment become weaker in adolescence as effortful control is increasingly used to control the overt behavioral tendencies associated with reactive tendencies" (Eisenberg, et al., 2004, p. 17), suggesting the importance for developing effortful control early in life.

Children characterized as highly active may be at risk for exhibiting behavior problems in a preschool classroom (Berdan, Keane, & Calkins, 2008). Research has suggested that supporting the development of effortful control in children will not only help a child have more focused learning and more positive social outcomes, but will also give teachers specific activities to help children that are challenged with effortful control (Eisenberg, 2009). Offering children activities to increase levels of effortful control may benefit teachers and children in classrooms. Studying temperamental effortful control from both a social and classroom perspective may support the idea that effortful control is an important life skill that will help a child have positive social outcomes (Lillard, 2005). In addition to defining and exploring the construct of effortful control, this study sought to determine if a relationship exists between parenting style and levels of effortful control in preschool age children.

## **B. PARENTING STYLE**

Differences in effortful control, although partially due to heredity, may also be due to the quality of parent-child interactions (Eisenberg et al., 2005). The results of a study by Leguna, Honorado, and Bush (2007) indicated that parenting does predict children's effortful control more than other contextual risks. They found that parents who set clear, consistent limits for non-compliant children were responsive, offered the child autonomy, and were more likely to have children with higher effortful control (Lengua et al., 2007).

Understanding the effects of parenting as it relates to effortful control may help educate parents to modify their behavior in ways that may increase effortful control in their preschool age children. Parents have been considered a child's first teacher (Kopp, 1982). Infants come into the world with a pre-set disposition that may cause them to react to events in many different ways (Rothbart & Rueda, 2005). A parent and their biological child share 50% of their genes (Valiente, Lemery-Chalfant, & Reiser, 2007). It is likely that different genes influence certain traits in the adult and certain traits in the child, indicating that genetics only plays a part in the development of effortful control (Valiente et al., 2007).

Vazsonyi and Huang (2010) have also suggested that effortful control develops very early in life, therefore it is likely that parenting style may also be related to effortful control (Eisenberg et al., 2005). According to Valiente, Lemery-Chalfant and Reiser (2007), effortful control was found to be a significant mediator between parenting style and problem behaviors in children. They believed their study to be one of the first to find parenting practices mediate the associations between effortful control in parents and effortful control in children (Valiente et al., 2007). In other words, a bidirectional relationship may exist in which parenting is associated with child behavior problems and children's behavior may elicit more negative parenting

(Valiente et al., 2007). A study by Morris et al, (2002) also supported the concept that child temperament interacts with family socialization in the development of problem behavior (Morris et al., 2002).

Parents are a child's first social experience (Boyum & Parke, 1995), and as such, the quality of the parent-child relationship will have an effect on a child's effortful control and social behavior outside the parent-child relationship (Boyum & Parke, 1995). This study sought to establish a relation between dimensions of parenting styles and effortful control.

### **Baumrind's Parenting Typologies**

During the past 25-30 years, there has been much research on Baumrind's concepts of parenting styles (Darling & Steinberg, 1993). Baumrind's parenting typologies have produced a remarkably consistent picture of parenting styles that are conducive to a child's success in social and classroom environments (Darling & Steinberg, 1993). Research has addressed the influence that parents may have that affects behavioral, emotional, personality, and cognitive development in children (Reitman, Rhode, Hupp, & Altobello, 2002). Baumrind (2003) described three models of parenting style as permissive, authoritarian, and authoritative. She described these as models of varying amounts of parental control (Baumrind, 2003). Baumrind (2003) explained that these three prototypes of adult control have greatly influenced the child-rearing practices of parents, educators, and child-rearing experts. Permissive and authoritarian parenting styles, defined by a profile of scores by Baumrind (2005), may negatively affect the development of effortful control in young children.

According to Baumrind (1966), permissive parenting is characterized by non-punitive and accepting behavior toward the child's impulses and actions whether they are appropriate or inappropriate (Baumrind, 1966). Usually the permissive parent will consult with the child and

give many explanations for the rules (Aunola & Nurmi, 2005). Permissive parents were likely to have few and inconsistent demands, if any, of the child (Baumrind, 2005) and did not hold the child responsible for their actions (Baumrind, 1966). Often the parent had few expectations for appropriate behavior and made little demand for household responsibility (Baumrind, 1966). The permissive parent was characterized as overly responsive to the child's demands, never offering the child an opportunity to make behavioral adjustments on his own (Aunola & Nurmi, 2005). Permissive parents were responsive in a way that may have been characterized as overly lenient, and may not have required or expected age-appropriate behavior (Baumrind, 1966). They avoided confrontation and did not require self-regulation (Darling, 1999). The permissive parent was characterized as offering the child too much freedom without any restraint (Baumrind, 2003). The parent may have also show little concern about the type of impulsive behavior, or the effect of the impulsive behavior on others or the environment (Baumrind, 2003).

In contrast to the permissive parent, the authoritarian parenting style attempts to control and shape the behavior of the child to the need of the parent (Baumrind, 2005). Authoritarian parenting offered children little or no control or autonomy in social situations (Ladd & Ladd, 1998). This parenting style set absolute standards of conduct, as well as imposed the parent's will and desires on the child (Baumrind, 1966). Authoritarian parents were not responsive because they did not have empathy for the child's feelings or needs (Maccoby, 2000). The authoritarian parent wanted his own needs met (Darling, 1999). The use of punitive forceful measures in order to achieve compliance from the child was also a characteristic of the authoritarian parenting style (Baumrind, 2005). The parent delivered strict orders to the child and set many limits and expectations for the child that may be difficult for the child to attain (Maccoby, 2000). Authoritarian parents often used punishment and reward (Baumrind, 2003).

The parent did not encourage conversation with the child and expected the child to obey her every demand (Baumrind, 1966).

The authoritative parent attempted to direct the child in a rational manner that involved give and take (Baumrind, 2003). An authoritative parent will share with the child her reasoning behind a policy or request, and solicits her objections when she refuses to comply (Baumrind, 2003). She believes in both autonomous self-will and disciplined conformity (Baumrind, 2003). “The authoritative parent affirms the child’s present qualities but she also sets standards for future conduct” (Baumrind, 2003, p. 891). Authoritative parents expected children to have responsibility to the family and expected a child to help with the family chores (Baumrind, 2003). Baumrind illustrates the authoritative parenting style by describing the Montessori Method as “illustrating the way in which authoritative control is used to resolve the antithesis between pleasure and duty and between freedom and responsibility” (Baumrind, 2003 p. 891).

### **Demandingness and Responsiveness**

Baumrind (2003) described parental control as a dimension of parenting that may relate to children’s behavior. This study found dimensions of authoritarian and permissive parenting styles to be negatively related to effortful control; specifically dimensions of demandingness and responsiveness.

Baumrind (2003) reviewed seven dimensions of parental control that relate to demandingness and responsiveness. 1. Punishment has harmful side effects and is an ineffective way of controlling child behavior. 2. High demands and other types of parental control or authority may provoke rebelliousness in children. 3. Firm parental control generates passive behavior and dependence. 4. Parental restrictiveness decreases normal self-assertiveness and buoyancy. 5. Permissiveness gives too much freedom of authority to the child. 6. Controlling

parents are motivated by fear and fear the loss of control, restricting the child's autonomy. 7. Overly firm control inhibits a child's creativity (Baumrind, 2003). Other dimensions referred to by Baumrind (2003) are: punitive vs. non-punitive practices, use vs. non-use of withdrawal of love, and explanations offered with give and take encouraged vs. rigid maintenance of status distinctions. Some additional characteristics include: high vs. low demands for household responsibilities; orderly behavior restricts vs. permits autonomy; firm vs. lax control (Baumrind, 2003).

This study predicted that the extremely high and extremely low levels of parental demandingness may result in lower levels of effortful control in children (Aunola & Nurmi, 2005; Baumrind, 2005). In addition, paternal power assertion may also contribute to lower effortful control in children (Morris et al., 2002). Literature suggested that parental warmth and responsiveness may correlate with levels of effortful control (Paulussen-Hoogeboom et al., 2008). According to Eisenberg (2005), parenting that was warm and supportive rather than cold and directive was more likely to predict higher levels of effortful control. Parental responsiveness fosters individuality and self-regulation by being empathetic to the child's feelings and needs (Darling, 1999).

Paulussen-Hoogeboom et al.,(2008) suggested that the way parents redirected children during times of problematic behavior may result in the child's lack of effortful control. The study also suggested that when children displayed negative emotional behavior it affected parenting, and that a negative parenting style may then affect the child's behavior (Paulussen-Hoogeboom et al., 2008).

Baumrind (2005) explained parenting that is overly responsive as having a lack of expectations, which may cause behavioral problems. An additional study by Anuola and Nurmi

(2005) investigated the combination of mothers and fathers parenting styles (affection, behavioral control, and psychological control) that may be most influential in predicting their children's internal and external behavior problems (Aunola & Nurmi, 2005). Researchers found that mother's psychological control, when combined with high affection, was detrimental to the child's adjustment (Aunola & Nurmi, 2005). They suggested two possible explanations for these findings. First, high affection, combined with psychological control, may induce feelings of guilt in the child, suggesting that this is manipulative. Secondly, that the manipulation increases the dependency of the child on the parent, which in turn restricts the child from expressing his own thoughts and emotions (Aunola & Nurmi, 2005).

Empirical evidence has shown that low levels of effortful control are associated with both authoritarian parenting behaviors and permissive parenting behaviors (Paulussen-Hoogeboom et al., 2008). Therefore, it is likely that negative emotional regulation, specifically effortful control, is associated with authoritarian parenting dimensions, such as power assertion, low emotional support, punitiveness, and general unresponsiveness (Rothbart, 2006). Additionally, permissive parenting style which includes dimensions of overly responsiveness and lack of demandingness may also affect development of effortful control in children (Baumrind, 2003).

Eisenberg et al., (2010) explained that parents have the opportunity to coach their children, thus guiding them to self-soothe and offering strategies to refocus attention in a variety of situations (Eisenberg et al., 2010). Eisenberg, (2005) stated "Because the quality of parenting is associated with higher levels of effortful control, it is important that parents and other caregivers be encouraged to interact with children in ways that foster the development of effortful control" (Eisenberg, 2005, p. 3). Therefore, it was predicted that the power assertion which includes demandingness and responsiveness, dimensions of both authoritarian and

permissive parenting styles, were related to effortful control. Thus, parenting style is likely to relate to a child's development of effortful control (Grolnick & Ryan, 1989).

### **C. MONTESSORI**

In addition to parenting style, Montessori theory was reviewed in this study to establish a relation between the positive affect of everyday tasks (chores) on effortful control in children. One area of curriculum in a Montessori classroom is Practical Life (Montessori, 1964). It was expected that Montessori Practical Life lessons positively affect effortful control in preschool children. Montessori believed that Practical Life work (chores) helps a child to self-regulate (Lillard, 2005). She theorized that children gain self-control and independence through the work of Practical Life lessons (Montessori, 1966). Montessori believed that purposeful work would aid the development of effortful control (Lillard, 2005).

Montessori's theory involved the development and education of the whole child (Montessori, 1966). Her work began with observations of children that were considered "*defective*" or retarded children (Standing, 1957). Montessori's first observations were made watching children that had little or no self-control (Lillard, 2005). She found that despite their lack of self control, when encouraged, the children had a spontaneous interest in learning and spontaneous self-discipline (Montessori, 1966). When she applied her method to typically developing children she found the children had a self-discipline that led them to be more creative and empowered learners (Standing, 1957). Montessori observed two main groups of what she referred to as behavior deviations. The first group consisted of traits which include lying, timidity, quarrelsomeness, gluttony, fears, disorderly and destructive movements, disobedience and other aggressive behaviors (Montessori, 1949). She referred to a second group of traits that include possessiveness, the excessive development of make-believe fantastic worlds, and



extreme types of attachment, where the child cannot function without the other person (Standing, 1957). Both sets of these behaviors may be related to lower effortful control (Eisenberg, 2005). According to Montessori, the cure for all these behaviors was purposeful work (Montessori, 1966). Montessori believed that purposeful work would lead the child to a normalized or regulated state (Standing, 1957).

### **Practical Life**

Understanding Montessori's theory of Practical Life work may help parents and teachers prepare activities for preschool children to develop higher effortful control. It is likely that if future research establishes this type of activity as beneficial, it will offer a resource of activities to help parents and teachers develop effortful control in their children.

Montessori Practical Life work was expected to improve effortful control in children. Montessori observed that children, when given opportunities for purposeful work, as well as a scaffolding to support the task, that effortful control was positively affected (Montessori, 1966). The lessons of Practical Life are important to the Montessori method and classroom; offering children an opportunity to develop higher effortful control in the context of a classroom environment (Montessori, 1966; Lillard, 2005). Montessori (1966) believed that the work of Practical Life helped children to concentrate deeply. She claimed that when children concentrate deeply their personalities normalize (Montessori, 1966). Thus, negative behaviors disappear and more self-regulated behaviors appear (Lillard, 2005). Lillard (2005) stated that "to pay attention is to regulate one's behavior" (p.103). According to Montessori, when children are working on activities that engage concentration, they often show positive personality characteristics (Lillard, 2005). It is this concentration that may help to develop effortful control (Lillard, 2005).

Research has suggested that many classrooms in schools today have some children with limited effortful control skills (Rimm-Kaufman et al., 2009). Children who are low in effortful control may have a difficult time concentrating and experience negative social interaction (Montessori, 1949; Eisenberg, 2005). Lillard (2005) claimed that positive effortful control may be a quality that teachers favor. A teacher may see a child as warmer or more agreeable because they are more compliant (Lillard, 2005). However, her research showed that not only teachers but other children also saw higher levels of effortful control as a quality that encouraged friendship (Lillard, 2005). Therefore, it is likely that children higher in effortful control will have more success in school. It was predicted that lessons similar to Montessori's lessons in Practical Life may offer educators a resource of activities for improving effortful control in children.

### **Practical Life Activities**

The Table Washing Task (Schmidt, 2009) is an example of a Montessori Practical Life lesson. It was expected that when children are offered instruction in a Practical Life activity that it will result in improved effortful control.

Montessori (1949) observed that through purposeful work children showed higher levels of concentration which may relate to higher effortful control. "The children in our schools have proved to us that their real wish is to be always at work – a thing never before suspected, just as no one had ever before noticed the child's power of choosing his work spontaneously. Following an inner guide, the children busied themselves with something (different for each) which gave them serenity and joy" (Montessori, 1949, p.184).

Montessori believed that in order for a child to self-regulate they need to have uninterrupted purposeful work (Lillard, 2005). The Practical Life lessons in a Montessori

classroom have been observed as helping the children concentrate deeply and for long periods of time (Lillard, 2005). Lillard (2005) also observed that when children are working on activities that engage concentration, they often show positive effortful control. The lessons in Practical Life used methods of instruction that offered a child a system of learning cues that gave autonomy and allowed opportunity for self-correction and concentration (Standing, 1957). The presentation of the lessons offered a logical sequence of steps to ensure success while carrying out the task (Lillard, 2005). Giving children a visual and verbal sequence in order to perform a task may be a quality of the lesson that improves effortful control (Lillard, 2005). In addition, having the opportunity to sustain concentration and self correct may positively affect effortful control (Lillard, 2005). Montessori's theory supported the importance of Practical Life work as it relates to the development of self-regulation (Lillard, 2005). In particular, the theory of Practical Life may support the hypothesis that parenting, that includes expectations like chores, may positively affect effortful control in preschool children (Baumrind, 2003). Theory suggested that there is a correlation between the work and play of a child and his level of effortful control (Rimm-Kaufman et al., 2009; Lillard, 2005). Therefore, it is likely that children may benefit from specific lessons or activities that are designed to increase effortful control, leading to more success academically and socially.

Preparing lessons and activities similar to the practical life lessons in a Montessori classroom may help parents and teachers support the development of effortful control in children. Understanding the efficacy of the Table Washing task to prime effortful control may add to the body of research and classroom strategies that help parents and teachers manage undesirable behaviors in preschool children and aid the development of effortful control.

## **Present Study**

The purpose of this study was to measure the efficacy of a Montessori Table Washing Task to prime effortful control in preschool children. Additionally, this study sought to determine if a relation existed between parenting style and effortful control in preschool children. It was predicted that children who received the Table Washing Task prior to the Marshmallow Test would be higher in effortful control than children that only received the Marshmallow test. It was expected that parenting style would be a variable that would affect the results of the experiment. Therefore, parenting style was correlated to see if the children who scored higher in effortful control also had parents who balanced demandingness and responsiveness in their parenting.

## **III. METHOD**

The present study used an experimental design (Campbell & Stanley, 1963) to measure the efficacy of a Montessori Table Washing Task (see Appendix A) to prime effortful control in children. The study consisted of a control group and an experiment group. The experiment group received a Table Washing Task and then received the Marshmallow Test. Children in the control group only received the Marshmallow Test. The parents of all the children participating in the study were asked to complete a parenting questionnaire.

### **A. SUBJECTS**

The subjects were 52 parents and their children ages 3-6 years who were enrolled in a Montessori school. Informed consent was received by parents of all participating children and families for participation in the study. After receiving consent, 52 children were randomly assigned to either an experimental group or control group.

## **Procedure**

Data pertaining to parenting style was collected using The Revised Parental Authority Questionnaire (PAQ-R) (Reitman, Rhode, Hupp, & Altobello, 2002). An additional questionnaire was given to parents to obtain general demographic information. Data relating to the child's effortful control was collected during the Marshmallow Test of Delayed Gratifications. (Mischel & Butler 1975) (see Appendix B.)

## **Instrumentation**

The instrument used to measure parenting style was The revised Parental Authority Questionnaire (Reitman, Rhode, Hupp, & Altobello, 2002). The instrument used to measure effortful control in the children was the Marshmallow Test (Mischel Delay of Gratification Task) (Mischel & Butler, 1975)(see Appendix B).

The Marshmallow Test (Mischel Delay of Gratification Task) received its name from an experiment at Stanford University in the 1960s (Mischel & Butler1975). It was designed to test self-control. Researchers told a group of 4-year-old nursery school children that they could have one thing they really wanted right away like a marshmallow, a candy, or a cookie. They were also told that if they could wait while the researcher left the room and came back about 15 minutes later, they could have two of the treats. The researchers, led by psychologist Walter Mischel, found that children who could exhibit self-control by waiting were more likely to exhibit more qualities of self-regulation and better learning (Mischel & Butler, 1975; Metcalfe & Mischel, 1999). For the purpose of this study, the Marshmallow Test was used to measure effortful control. Kochanska et al (2000) defined effortful control as the ability to inhibit a reactive response as well as suppressing a typical response and then maintaining the new response (Kochanska, Murry, & Harlan, 2000).

Spinrad, Eisenberg, and Gaertner (2007) support the The Mischel Delay of Gratification Task as a valid measure of effortful control. They suggested that the task is effective in testing both attentional control and impulsivity (Spinrad et al., 2007). Spinrad et al., (2007) used the snack delay test with children 18 and 30 months of age (goldfish crackers at 18 months and m&m's at 30 months). In their experiment, children were asked to put their hands on a mat that had designated places to put hands (Spinrad et al., 2007). A snack was presented to the toddler and the toddler was asked to keep his hands on the mat until the experimenter rang a bell (Spinrad et al., 2007). The delays were 10, 15, and 20 seconds and scores ranged from 1-7 with one indicating that the child ate the snack right away and seven indicating that the child waited the entire trial (Spinrad et al., 2007). At 18 months of age, toddlers average scores were 2.60 (SD = 1.74; range = 1-8) (Spinrad et al., 2007). Children at 30 months had much better delay skills. They had an average score of 6.21 (SD = 2.60; range = 1-9). Seventy-nine percent of these children waited for the experimenter to ring the bell (Spinrad et al., 2007). Toddlers' performance on this task were not stable over time  $r(202) = .03, p = ns$  (Spinrad et al., 2007).

Because the ages of the children in the present study ranged from 3-6 years, a longer waiting period (10 minutes) was used. This time was chosen as being reasonable for children in this age group.

### **Parenting Types**

The Parental Authority Questionnaire-Revised was intended for use by parents with children ages three to eight years old and was developed by Reitman, Rhode, Hupp, & Altobello, (2002). The instrument consists of 30 items, with three 10-item scales representing authoritative, authoritarian, and permissive parenting styles (Reitman et al., 2002). Items are rated on a 5-point Likert scale ranging from one (strongly disagree) to five (strongly agree). Sub-scale scores range

from 10 to 50 (Reitman et al., 2002). Co-efficient alphas for the Authoritarian and Permissive scales ranged from .72 to .76 across samples (Reitman et al., 2002), although coefficient alphas above .80 are generally considered most desirable (Reitman et al., 2002). The internal consistency PAQ-R subscales ranged from .56 to .77. Reliabilities, both test-retest and internal consistency for the Authoritarian and Permissive subscales, were moderate (Reitman et al., 2002). The original PAQ was used in a study by Abar, Kermit, and Adam (2009) to measure perceived maternal parenting style (Abar, Carter, & Winsler, 2009). They found internal consistency scales used here were .83 for authoritarianism, .86 for authoritativeness and .66 for permissiveness. They found the reliability for the six PAQ scales ranged from .75 to .85 for maternal styles and .74 to .87 for paternal styles (Abar et al., 2009). For the purpose of the present study, parents' scores on the three subscales of the PAQ-R will be converted into group membership into the parenting style with the highest score as rated by the parents.

#### **IV. ANALYSIS**

Analyses to test the research questions posed in this study proceeded in two stages. The first stage provided preliminary statistics, including means, standards deviations, and bivariate correlations among all study variables and demographic variables (e.g., sex, age, amount of time in program). While these demographic characteristics are not of primary interest to the present study, any significant correlations with primary study variables will be accounted for in the second stage of analysis. The second stage of analysis used independent sample t-test to determine if group differences were present between the experimental and control groups for parenting styles and effortful control.

## **V. RESULTS**

### **Descriptive Analysis**

It was predicted that children who participated in the Table Washing Task and who were parented in an authoritative style would demonstrate higher levels of effortful control than children who did not participate in the Table Washing Task.

Means and standard deviations of demographic variables as well as variables included in the study may be viewed in Table 1. Of the 61 packets returned, 52 children were eligible for the experiment. Of the children whose parents returned the materials, four declined to participate. Another three participants were ineligible due to improperly completed parental questionnaires. In the sample of 52, 100% of the participants were parents and 100% claimed married status. The majority of the parents were in the age groups 30-39 at 44.2% and 40-49 at 40.4%. The largest ethnic group was Caucasian at 80.8%. Children participating in the study were first separated according to gender. The male/female groups were then randomly assigned to control and experiment groups. Of the children enrolled in the half-day program, 48% were in the experiment group and 52% were in the control group. The children enrolled in the full-day program randomly divided 61.1% in the experiment group and 38.9% in the control group. The genders of the children were equally divided across groups. After random assortment, the number of males in the experiment group equaled 57.1% and females 48.5%. In the control group, male children accounted for 42.9% of the group and female children accounted for 51.5%. The mean for the amount of time that the entire sample had been in the program was 14.8 months and the mean age of the entire sample was 56 months (See table 1).

Parents' self-ratings of parenting behaviors and beliefs on the Parenting Style Questionnaire PAQ-R (Reitman et al., 2002) resulted in sub scores for Authoritative,



Authoritarian, and Permissive parenting styles for each parent. The highest mean of the group was authoritative  $x = 32.1$ , authoritarian  $x = 13.9$ , and permissive  $x = 17.63$ , suggesting that parents related most strongly to dimensions of authoritative parenting. An example question from the authoritative sub-scale: once family rules have been made, I discuss the reasons for the rules with my children (Reitman et al., 2002). Contrary to the research hypothesis, parenting style did not relate significantly to children's effortful control. The only variable that was accounted for in this study that related to effortful control was the number of marshmallows eaten before the bell or the return of the researcher.

Of the children in the experimental group, none of the children ate a marshmallow before ringing the bell or before the researcher returned after the 10-minute interval. In the control group, three children ate a marshmallow or marshmallows before ringing the bell or before the researcher returned. Based on Levene's test, which showed significantly different group variances between experimental and control groups, homogeneity of variance could not be assumed. With unequal group variances, the group differences observed in Mischel's Marshmallow Test for effortful control were not significant.

## **VI. DISCUSSION**

The purpose of this study was to further research about effortful control. This study sought to establish a relationship between Practical Life lessons in a Montessori classroom and its effect on effortful control. In addition, it was predicted that some dimensions of parenting style may be predictors of effortful control (Lengua, Honorado, & Bush, 2007) making parenting style an additional variable considered in this study.

The dependent variable in this study was effortful control. The Marshmallow Test (Mischel & Nancy, 1975) was used to measure effortful control, defined as the ability to override

a more dominant response and then maintaining the new response (Kochanska, Murry, & Harlan, 2000). Spinrad, Eisenberg, and Gaertner (2007) supported the Mischel Delay of Gratification Task as a valid measure of effortful control. They suggested that the task is effective in testing both attentional control and impulsivity (Spinrad et al., 2007). The treatment in this study was a Montessori Table Washing Task. Montessori Practical Life work was expected to improve effortful control in children. Montessori observed that children, when given opportunities for purposeful work, as well as scaffolding to support the task, demonstrated greater effortful control (Montessori, 1966). Montessori theory suggested that lessons in the area of practical life, such as a table washing lesson, would help a child have more effortful control (Lillard, 2005).

The children in the experiment group received a Montessori table washing lesson from a trained Montessori guide before they were given the Marshmallow Test. It was hypothesized that the work of table washing, which included instruction from a trained guide, would positively affect effortful control in the children.

To measure the effect of the Table Washing Task the children were given the Marshmallow Test immediately after they performed the Table Washing Task. The children in the experiment group did not eat any marshmallows prior to ringing the bell or before the return of the researcher. Not eating the marshmallows was considered to be a sign of effortful control. After analysis, the only difference in the Table Washing group (experiment group) and the control group was that three of the children in the control group ate a marshmallow or marshmallows before the researcher returned or before the child rang the bell. Although not a statistically significant difference, none of the children in the experiment group ate a marshmallow prior to ringing the bell or before the researcher returned. The data collected

suggested that the Table Washing lesson may have accounted for higher levels of effortful control in the children.

Parenting style was an additional independent variable in this study that was expected to affect effortful control. Eisenberg et al., 2005 found differences in effortful control, although partially due to heredity, may also be due to the quality of parent-child interactions. The results of a study by Leguna, Honorado, and Bush (2007) indicated that parenting did predict children's effortful control more than other contextual risks. They found that parents who set clear, consistent limits for non-compliant children were responsive, offered the child autonomy, and were more likely to have children with higher effortful control (Lengua et al., 2007).

For this study, data pertaining to parenting style was collected using the Revised Parental Authority Questionnaire (PAQ-R) (Reitman, Rhode, Hupp, & Altobello, 2002). This data from the PAQ-R allowed parents to relate to three parenting sub-types, defined by Baumrind as permissive, authoritative, and authoritarian (Baumrind, 2003). Baumrind's parenting typologies have produced a remarkably consistent picture of parenting styles that are conducive to a child's success in social and classroom environments (Darling & Steinberg, 1993). In this experiment, no correlations were found to exist between parenting style and effortful control. This may be related to the homogenous nature of the sample. In other words, parents may have chosen a Montessori education for their child because the education style was more consistent with their parenting style. Other reasons may be that the sample size was too small or that the instrument did not provide specific enough data. Researchers also did not account for the work that the children in the control group may have been doing just prior to receiving the Marshmallow Test. However, since all the children were experiencing similar Montessori classroom curriculum, these variations were assumed to be equally distributed across groups.

Further research may consider documenting the work of the children prior to participating in the control group experiment. Due to the nature of the Montessori classroom environment (Lillard, 2005), it is possible that some of the children in the control group had been doing work similar to a Table Washing Task prior to participating in the Marshmallow Test. This may have effected the results of the control group.

The data collected in this study may have shown significance if the sample had been larger. It may also be important to facilitate this experiment in a non-Montessori pre-school environment. Research outside a Montessori environment may yield a more generalizable result in the effect of the Table Washing Task for effortful control. Non-Montessori students would be more likely to experience a lesson like table washing for the first time. It would also be important to see the results of this experiment in a more ethnically, socially, and economically diverse group of children to gauge the impact of Montessori tasks.

Despite the limitations, the Table Washing experiment did have a positive effect on the effortful control in the children. The purpose of this study was to determine if practical life work like the Table Washing Task had an immediate affect on effortful control in children. Children with higher effortful control may be likely to have more positive experiences in life (Eisenberg, 2005). Finding specific activities that help regulate effortful control in children is likely to be beneficial to parents and teachers.

The research was expected to contribute to the innovation of educational resources for teachers to support children's development of effortful control. The study of effortful control may contribute to children's success in a classroom and other social environments (Eisenberg et al., 2009). The Table Washing Task and activities that are similar may be likely to benefit children in ways that will help them be more successful in life. Montessori observed that

children, when given opportunities for purposeful work, as well as a scaffolding to support the task, effortful control was positively affected (Montessori, 1966). The lessons of Practical Life are important to the Montessori method and classroom, offering children an opportunity to develop higher effortful control in the context of a classroom environment (Montessori, 1966; Lillard, 2005). If the work of practical life is beneficial in the Montessori classroom then it may be likely to benefit children's effortful control in other early childhood contexts outside the classroom.

## **A. CONCLUSION**

Having effortful control and the ability to override behavior responses that are aggressive or destructive may help children have more success in a classroom (Lillard, 2005). The purpose of this study was to further research about effortful control by seeking to establish a relationship between Practical Life lessons in a Montessori classroom and its affect on effortful control. This study predicted that a Montessori Table Washing Task (Schmidt, 2009), presented to children in an experimental study design, may prime effortful control in young children. The Table Washing Task experiment, although not statistically significant, suggested a difference between the two groups that illustrated a positive relationship between the Practical Life Lesson of washing a table and the effortful control behavior of waiting to eat a marshmallow. It may be concluded that children will demonstrate higher levels of effortful control when offered more work like the Table Washing Task.

In addition to predicting that the Table Washing Task would positively affect effortful control in children, this study also predicted that differences in effortful control, although partially due to heredity, may also be due to the quality of parent-child interactions (Eisenberg et

al., 2005). This study showed that no significant relationship existed between parents' self-report of parenting style and effortful control in the children.

Therefore, helping children develop positive effortful control early in life may help them with control associated with reactive tendencies later in life (Eisenberg et al., 2004). Based on the results of this study, the early childhood field, both within Montessori and beyond, may wish to consider including Practical Life lessons for the support of effortful control in young children.

## VII. REFERENCES

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## **VIII. APPENDICES**

### **A. THE TABLE WASHING TASK**

The treatment group received the Table Washing Task (Schmidt, 2009). before they were given the Marshmallow Test. The examiner administered the Table Washing Task as follows:

1. The examiner obtained assent from all children before proceeding with study assessments.
2. The examiner said to the child, "I'd like to show you how we wash a table."
3. She took the child to a shelf that had the washing lesson. The materials included in the washing lesson are: 1 large bath towel, 1 wash cloth, a bucket for water, a bowl, a pitcher, a small scrub brush, a small sponge, a soap dish with a piece of soap, and a table.
4. Without speaking the examiner removed the towel from the shelf and spread it out neatly on the floor.
5. The examiner then went back to the shelf with the child and retrieved the bucket, which contained the pitcher and brought it to the towel and placed it on the towel.
6. The examiner returned to the shelf with the child and took the bowl, which contained the scrub brush, soap and soap dish, and sponge. She brought the bowl to the towel and placed the items in order of use from left to right across the top of the towel.
7. First the pitcher, then bowl, scrubber, soap on the soap dish sponge and wash cloth. The examiner took the pitcher in two hands and walked to the sink. She filled the pitcher half full of water and pointed to the pitcher saying "half full". She returned to the towel with the pitcher of water.
8. The examiner slowly poured the water into the bowl.
9. She took the scrubber, dipped it into the bowl of water, then rubbed it on the bar of soap.

10. She began to scrub the table in circular motions. She showed the child what she expected and gave the child the scrubber to have a turn.
11. She stepped back and allowed the child to continue to scrub the table until the child was ready to clean up.
12. The examiner took the sponge from the towel and put it in the water. She slowly squeezed it out to show the child how to rid the sponge of excess water.
13. She showed the child how to wipe the suds from the table and clean the sponge when necessary.
14. She allowed the child to take a turn to remove the suds for as long as he was interested.
15. She then took the wash cloth and showed the child how to dry the table.
16. She then offered the child a turn to dry the table.
17. When the child was finished she offered to help the child return the table to its place in the classroom.
18. She returned to the towel and poured the dirty water from the bowl into the bucket.
19. She took the bucket to the sink and showed the child how to empty the bucket in the sink.
20. She took the bucket back to the towel and dried all the items with the wash cloth.
21. She placed the pitcher back in the bucket and asked the child to return it to the shelf.
22. When the child returned she placed the scrub brush, sponge, soap and soap dish back into the bowl.
23. She handed the bowl to the child and asked him to return it to the shelf.
24. When the child returned she asked him to fold the towels and put them in the laundry basket.
25. She allowed him a minute to pause and then offered the Marshmallow Test.

## **B. THE MARSHMALLOW TEST**

The Marshmallow Test consisted of the following process:

1. The child was taken to a table that a plate with 4 marshmallows. In addition to the plate of marshmallows, on the table was a bell.
2. The examiner said to the child, “ you may eat one marshmallow now but if you wait until I return, you may eat all four marshmallows”
3. The examiner showed the child the bell. She said “This is the bring me back bell”. The examiner explained to the child if at any time you want to call me back, you may ring the bell.
4. She also told the child, “If you ring the bell before I return, you will only get one marshmallow”

The examiner left the room for 10 minutes. A video camera was used to record the child during the wait period. After all the tests were given to the children a researcher watched each video and rated the children.

The examiner recorded 1) amount of time to use of bell, 2) time first marshmallow was eaten 3) number of marshmallows consumed and time each was consumed 4) which children successfully completed the task. Anxiety and distraction were also accounted for on a scale of 1(not distracted or anxious) to 5 (extremely distracted or anxious).

A trained researcher administered the treatment the same way each time to individual children.

There may have been slight differences in the administration of the treatment due to human error.

## C. CONSENT FORM

### CHILDREN'S EFFORTFUL CONTROL IN A MONTESSORI CLASSROOM: EFFECTS OF PARENTING AND PURPOSEFUL WORK

My name is Judy Blahut and in order to fulfill the requirements of a Master's Degree in Human Development I am conducting a study regarding children's experiences in a Montessori classroom, at home and subsequent child behavior. If you agree to allow your child to participate, some children will be asked to participate in a Montessori lesson and some will not. All of the participating children will be offered 1-5 marshmallows to taste. Parents will be asked to answer survey questions about typical parenting scenarios.

You are free to discontinue your participation at any time without penalty. You may also skip any survey questions the makes you feel uncomfortable.

Participation in this research study does not guarantee any benefits to you. However, possible benefits include the fact that you may help to promote research about the benefits of Montessori education. If you agree to participate in the study, the parent survey may take about 20 minutes to complete and the lessons for the children will be given over the course of two weeks.

The data from this study will be used to support and complete a Master's Degree for Judy Blahut. The researcher is not interested in individual responses, only the average responses. You and your child's identifying information will not be recorded.

The present research is designed to reduce the possibility of any negative experiences as a result of participation. Children offered the chance to participate will have the opportunity to decline.

This research study is being conduct at Walnut Farm Montessori School, by Judy Blahut, under the supervision of Dr. Jennifer Henk. If you have questions or concerns about your participation in the study you may call Judy Blahut at (479) 271-9424.

You may obtain information about the outcome of the study at the end of the academic year by contacting Judy Blahut.

If you have any questions about your rights as a research participant, you may contact Ro Windwalker, Compliance Coordinator Institutional Review Board (479) 575-2208 or by email: [irb@uark.edu](mailto:irb@uark.edu).

You will be provided with a blank, unsigned copy of this consent form at the beginning of the study. By signing below, you attest that you are 18 years old and the legal guardian of your child. By signing below, you are indicating that you freely consent to participate and to allow your child to participate in this research study.

PARTICIPANTS SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

## D. DEMOGRAPHICS QUESTIONNAIRE

Parent Status:  Parent  Non-parent  Step-parent  Other

Marital Status:  Single  Married  Separated  Divorced  Other

Gender:  Male  Female

Age Group:  15-19  20-29  30-39  40-49  50-59  60+

Ethnic Status:

African American

Caucasian

Hispanic/Latino

American Indian

Asian

Multi-ethnic

Child's age: \_\_\_\_\_

Child's gender: \_\_\_\_\_

Number of years at Walnut Farm Montessori School: \_\_\_\_\_

## E. PARENTAL AUTHORITY QUESTIONNAIR-REVISED

Parental Authority Questionnaire – Revised  
 Reitman, Rhode, Hupp, and Altobello, (2002)

Parent Name: \_\_\_\_\_ Child's Name \_\_\_\_\_

Child age: \_\_\_\_\_ Child Sex: M / F

PAQ-R Instructions: For each statement below circle the number that best describes your beliefs about parenting your child. There is no right or wrong answer. We are looking for your overall impression regarding each statement.

In the right column, please CIRCLE your answer for each item: SA = Strongly Agree; A = Agree; N = Neither Agree nor Disagree; D = Disagree; SD = Strongly Disagree.

1. In a well-run home children should have their way as often as parents do.	SA A N D SD
2. It is for my children's own good to require them to do what I think is right, even if they don't agree.	SA A N D SD
3. When I ask my children to do something, I expect it to be done immediately without questions.	SA A N D SD
4. Once family rules have been made, I discuss the reasons for the rules with my children.	SA A N D SD
5. I always encourage discussion when my children feel family rules and restrictions are unfair.	SA A N D SD
6. Children need to be free to make their own decisions about activities, even if this disagrees with what a parent might want to do.	SA A N D SD
7. I do not allow my children to question the decisions that I make.	SA A N D SD
8. I direct the activities and decisions of my children by talking with them and using rewards and punishments.	SA A N D SD
9. Other parents should use more force to get their children to behave.	SA A N D SD
10. My children do not need to obey rules simply because people in authority have told them to.	SA A N D SD
11. My children know what I expect from them, but feel free to talk with me if they feel my expectations are unfair.	SA A N D SD
12. Smart parents should teach their children early exactly who is the boss in the family.	SA A N D SD
13. I usually don't set firm guidelines for my children's behavior.	SA A N D SD
14. Most of the time I do what my children want when making family decisions.	SA A N D SD
15. I tell my children what they should do, but I explain why I want them to do it.	SA A N D SD



16. I get very upset if my children try to disagree with me.	SA A N D SD
17. Most problems in society would be solved if parents would let their children choose their activities, make their own decisions, and follow their own desires when growing up.	SA A N D SD
18. I let my children know what behavior is expected and if they don't follow the rules they get punished.	SA A N D SD
19. I try to allow my children to decide most things for themselves without a lot of help from me.	SA A N D SD
20. I listen to my children when making decisions, but I do not decide something simply because my children want it.	SA A N D SD
21. I do not think of myself as responsible for telling, my children what to do.	SA A N D SD
22. I have clear standards of behavior for my children, but I am willing to change these standards to meet the needs of the child.	SA A N D SD
23. I expect my children to follow my directions, but I am always willing to listen to their concerns and discuss the rules with them.	SA A N D SD
24. I allow my children to form their own opinions about family matters and let them make their own decisions about those matters.	SA A N D SD
25. Most problems in society could be solved if parents were stricter when their children disobey.	SA A N D SD
26. I often tell my children exactly what I want them to do and how I expect them to do it.	SA A N D SD
27. I set firm guidelines for my children but I understand when they disagree with me.	SA A N D SD
28. I do not direct the behaviors, activities or desires of my children.	SA A N D SD
29. My children know what I expect of them and do what is asked simply out of respect for my authority.	SA A N D SD
30. If I make a decision that hurts my children, I am willing to admit that I made a mistake.	SA A N D SD

## F. EXAMINERS RECORD FOR MARSHMALLOW TEST

Child's name \_\_\_\_\_ Age: \_\_\_\_\_

1. Amount of time until bell \_\_\_\_\_
2. Number of minutes until first Marshmallow was eaten \_\_\_\_\_
3. Time marshmallow/s was eaten \_\_\_\_\_
4. Anxiety/Distraction:
  - 1 = not distracted or anxious at all \_\_\_\_\_
  - 2 = somewhat distracted and anxious \_\_\_\_\_
  - 3 = distracted and Anxious \_\_\_\_\_
  - 4 = very distracted and anxious \_\_\_\_\_
  - 5 = extremely distracted and anxious \_\_\_\_\_

Observations of distractions or anxiety:

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\*Some behaviors you may observe as distraction:

- Children sitting on their hands
- Singing songs
- Turning their backs
- Sticking out their tongues
- Talking to themselves
- Saying no, no, no
- Wiggling or dancing around

**Table 1. Parent and Child Characteristics by Experimental Group.**

	<b>Experimental group (<i>n</i> = 29)</b>	<b>Control group (<i>n</i> = 23)</b>	<b>Sig. group differences (*<i>p</i>&lt;.05)</b>
<hr/>			
% Classroom			
A	11.5	21.3	C>E
B	23.0	11.5	E>C
C	18.0	14.7	ns
<hr/>			
% child female	26.2	19.7	ns
% parent female	32.8	39.3	ns
<hr/>			
% age of parent			
20-29	1.6	1.6	ns
30-39	27.9	23.0	ns
40-49	23.0	19.7	ns
50-59	0.0	3.2	ns
<i>M</i> age of child	55.2 (12.3)	55.1 (12.0)	ns
<hr/>			
Ethnicity of child			
Caucasian	42.6	36.1	ns
African American	1.6	1.6	ns
Hispanic or Latino	4.9	3.3	ns
Asian	3.3	3.3	ns
Multiethnic	0.0	3.3	ns
Parent marital status	100.0	100.0	ns
<i>M</i> Months in program	14.3 (11.1)	15.2 (6.3)	ns

	<b>Experimental group (<i>n</i> = 29)</b>	<b>Control group (<i>n</i> = 23)</b>	<b>Sig. group differences (*<i>p</i> &lt; .05)</b>
PAQ-R			
<i>M</i> Authoritative score	32.5 (3.6)	31.6 (3.3)	ns
<i>M</i> Authoritarian score	13.5 (5.2)	14.8 (5.0)	ns
<i>M</i> Permissive score	16.69 (4.8)	18.5 (5.5)	ns
Total time child waits	7.6 (3.7)	8.4 (2.9)	ns
Total time until marshmallow	7.6 (3.8)	7.4 (3.8)	ns
Number of marshmallows eaten	0.0 (0.0)	0.3 (0.9)	C>E*
Anxiety or distress	2.4(1.2)	2.6 (1.1)	ns