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TEMPERAMENT AND CHILDREN'S SOCIALIZATION OF
SIBLINGS' SELF-REGULATION

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Reviewed and approved* by the following:

Alysia Blandon
Assistant Professor of Psychology
Thesis Supervisor

Charles Geier
Assistant Professor of Human Development and Family Studies
Honors Adviser

* Signatures are on file in the Schreyer Honors College.

ABSTRACT

Past research has demonstrated the importance of the sibling relationship in regard to children's social and emotional development, and specifically in the development of self-regulation skills (Bedford & Volling, 2004; Tucker & Updegraff, 2009). This study examined how children regulate their own behaviors and emotions, as well as how they socialize their siblings to be able to use regulation skills. The role of temperament, and specifically a child's level of negative affectivity and activity level, in the utilization of the regulation and socialization behaviors was also examined, as temperament has been linked to self-regulation abilities in addition to the overall functioning of the sibling relationship (Brody, 1998; Cole, Dennis, Smith-Simon, & Cohen, 2008). It was hypothesized that older siblings would be more likely to use regulation and socialization behaviors overall, and that the sibling of a child with a difficult temperament would use more negative behaviors to socialize their sibling. Participants were sibling dyads ($n = 70$) between the ages of two and five. Children participated in a gift wrap and delay task to measure their regulation and socialization behaviors. Parents filled out questionnaires regarding children's temperament. Results indicated that older siblings used more regulation and socialization behaviors, but not in all measures. Siblings of children with more difficult temperaments did tend to use more control behaviors, but these findings were not significant. The results of this study emphasize the importance of studying children's regulation capabilities and learning processes in the context of the sibling relationship.

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Introduction

The development of self-regulation, or the capacity to adapt one's emotions and behaviors to different situations, is vital for both social and emotional development (von Suchodoletz, Trommsdorff, & Heikamp, 2011). In the past, research has typically analyzed children's regulation skills on an individual level (Kim & Kochanska, 2012; Kochanska, Murray, & Harlan, 2000; Kochanska, Murray, Jacques, & Koenig, 1996; Li-Grining, 2007; Sulik et al., 2010), neglecting the fact that others are often present in daily life. Only examining children during independent tasks prevents us from observing how others influence the way individuals regulate. Key people who have the ability to influence a child's regulation behaviors are siblings (Bedford & Volling, 2004). Young children spend approximately 90% of their playtime with their siblings, meaning that siblings have many opportunities to teach each other how to regulate their behaviors and emotions (Abramovitch, Corter, & Lander, 1979). It is through their shared interactions that siblings help each other regulate and socialize each other to regulate well, although often times, siblings can socialize each other to poorly regulate (Stormshak, Bullock, & Falkenstein, 2009).

The importance of understanding how to effectively regulate one's own emotions and behaviors cannot be understated, especially during the preschool years, when there is an increase in the amount of time spent with peers and people outside of one's family (Yagmurlu & Altan, 2010). Difficulties regulating one's emotions are associated with behavior problems, lower academic achievement, and problems interacting in social relationships in childhood and beyond

(Yagmurlu & Altan, 2010). In contrast, children who are able to effectively regulate their emotions and behavior are better able to cope with stress and sadness. These well-regulated children are also more socially competent with in their peer relationships, and a have a better understanding of emotions in general (Eisenberg, Cumberland, & Spinrad, 1998).

As most previous research has been conducted on the role of parents as socializers (e.g., Eisenberg et al., 1998; Hughes & Gullone, 2010; Mirabile, Scaramella, Sohr-Preston, & Robison, 2009), and more specifically maternal socialization, research is needed regarding siblings' roles as socialization agents. Due to the amount of time siblings spend with each other, they have the potential to be influential in each other's lives, and thus, the sibling relationship's impact on emotion regulation must be analyzed further (Whiteman, Becerra, & Killoren, 2009).

Self-Regulation

Self-regulation is defined as the processes by which one controls his or her reactivity to a stimulus, through controlling both emotions and behaviors in order to respond appropriately to the situation (Rothbart, Sheese, Rueda, & Posner, 2011; Shaffer, Suveg, Thomassin, & Bradbury, 2012). This ability is pertinent to development, as the inability to regulate one's emotions and behaviors can lead to many difficulties later in life, most notably in terms of developing and maintaining social relationships (Eisenberg, Champion, & Ma, 2004). The main goal of emotion regulation is to decrease the intensity of emotions that are inappropriate to a certain situation (Cole, Martin, & Dennis, 2004), while the main goal of behavior regulation is conforming to appropriate social standards (von Suchodoletz et al., 2011). Being able to regulate one's emotions, in particular, is one aspect of better emotional competence, resulting in improved social relationships (Yagmurlu & Altan, 2010).

Self-regulation strategies develop with age as a result of socialization by family members and peers and the development of physical skills that aid in regulation (Kopp, 1989). Infants can turn their heads away from distress and, once they develop more advanced motor skills, can reach for objects to distract themselves. By the time children enter preschool, they are capable of employing more advanced regulation strategies. These include self-soothing behaviors, behaviors aimed at eliminating the source of frustration, more advanced distraction behaviors, and alterations of cognitions (Stansbury & Sigman, 2000). Respective examples include talking to oneself, attempting to physically escape the situation, shifting focus to another object in the room, and thinking about the distressing situation in a more positive manner (Stansbury & Sigman, 2000).

Current Literature on Socialization of Self-Regulation

The process through which individuals directly and indirectly teach each other how to behave and respond to different stimuli is called socialization (Hughes & Gullone, 2010). It is through this socialization process that children are taught the societal and cultural norms of how to act in various situations, such as at school and home.

The mother-child relationship has been the predominant focus of research regarding the socialization of children (Morris, Silk, Steinberg, Myers, & Robinson, 2007). Mothers, and parents in general, have the opportunity to socialize their children in terms of their understanding of emotions and subsequent regulation skills during their daily interactions (Tucker & Updegraff, 2009). In this complementary role, the parent acts as a teacher to the child, using their greater experience and knowledge to intentionally guide the child in their development of emotion regulation and expression. For example, a parent might teach their child ways to calm down if they get frustrated with peers at school. Parents might also intentionally teach specific regulation

skills that are meant to actively distract them, including deep breathing or changing thoughts to something more positive, or talking about things other than the distressing stimulus (Morris et al., 2007). Another more direct form of teaching is through reinforcement of positive regulation strategies (Stansbury & Sigman, 2000). Poor employment of regulation strategies might also be met with instructions on how to better cope with the situation, thus providing the child with clear steps regarding how to effectively regulate (Stansbury & Sigman, 2000).

In addition to intentional socialization processes, parents also employ indirect methods of teaching regulation skills. Modeling is an indirect avenue through which children can learn from their parents. Children have the opportunity to observe how their parents react in certain situations, and they will likely model this behavior when encountering similar situations (Morris et al., 2007). Past research has noted that the way a mother expresses her own emotions as well as how she reacts to her child's emotions can teach the child about emotion expression and regulation (Warren & Stifter, 2008). For example, when a mother frequently displayed expressions of anger, her child also showed increased displays of anger in the preschool setting (Denham, 1989). Through these processes, parents are helping their children to understand emotions, which is an important step in the development of emotion regulation. The ability to effectively manage one's own emotions would be hindered by a lack of emotional understanding, as regulation relies on the ability to discern which emotions must be controlled (Cole et al., 2008). It has also been found that supportive emotion socialization on the part of the parents is associated with more positive child outcomes (Warren & Stifter, 2008). For instance, a child is more likely to learn how to regulate negative emotions when his parent reacts sympathetically and supports the child's chosen coping strategy (Cole et al., 2008). Interfering with the child's coping mechanisms, such as by punishing the child for reacting negatively to a situation is

associated with poorer emotional understanding and worse regulatory abilities (Warren & Stifter, 2008).

Through all of these techniques, both direct and indirect, parents provide their children with a broad understanding of both how to correctly express and regulate their emotions. Children then have the ability to utilize the techniques learned and share them with others in their life, such as peers or siblings.

Family Systems Perspective and the Sibling Relationship

Family systems perspective suggests that, as most socialization takes place within the family, it is important to fully understand the context in which children grow up and develop, including the people who surround and influence them (Cox & Paley, 2003). Family systems perspective stresses that family members are interdependent, and therefore each member can only be truly understood within the context of the relationships formed between the different family members (Cox, 2010). A family is made up of subsystems, consisting of a single individual or a number of individuals, such as the marital subsystem or the mother-child subsystem. Each of these subsystems influence a child's development and can contribute to the socialization of their emotion regulation, with certain subsystems having more influence (Cox & Paley, 2003). An important subsystem in which learning about self-regulation occurs is the sibling subsystem. Siblings share in experiences that are unique to their particular subsystem, and many of these experiences provide opportunities for emotional growth and learning (Kramer & Conger, 2009).

In 2010, approximately 82% of American children under the age of 18 were living with at least one sibling, making the study of the sibling relationship universally applicable (King et al., 2010; as cited in McHale et al., 2012). Siblings spend a lot of play time alone together, apart

from parents, and it is during these times that socioemotional learning takes place (Tucker & Updegraff, 2009). Siblings also share many unique experiences together, observing how the other reacts and learning from their behaviors and emotions (McHale et al., 2012). Sibling relationships are also unique due to their inclusion of both complementary and reciprocal aspects. Complementary aspects, characteristic of the parent-child relationship, include the roles of teacher and student, while reciprocal aspects, typically seen in peer relationships, include roles that are mutual and balanced (McHale, Updegraff, & Whiteman, 2012). In regard to the development of children's self-regulation, this implies that while the sibling with more knowledge might intentionally teach the other how to act, the children can also learn from their mutual, everyday interactions where no one is in a more authoritative position.

Another important aspect of the sibling relationship is that it is characterized by periods of both conflict and companionship which provides children with a multitude of environments in which to learn and practice emotion regulation skills (McHale et al., 2012). Although the common assumption is that conflict is always detrimental to the sibling relationship, it can in fact provide the siblings with valuable learning opportunities and chances for socioemotional development (Cox, 2010). In order to effectively resolve a conflict, siblings must learn how to problem-solve (Brody, 1998). Effective problem solving involves skills such as emotion regulation, perspective taking, and negotiation, all of which can be developed particularly during periods of conflict (McHale et al., 2012). As the sibling relationship provides many opportunities to practice developing emotion regulation skills, it is important to study this relationship as a source of socialization.

Socialization and Siblings

Previous research has exemplified the many influences that siblings can have on each other, both positive and negative (Brody, 1998; McHale et al., 2012). Through their high levels of both companionship and conflict, they can teach each other valuable and positive socioemotional skills. On the contrary, siblings also have the opportunity to negatively socialize each other, promoting deviancy and coercive strategies, such as intimidation or physical threats, which can lead to the development of aggressive behaviors (McHale et al., 2012). Siblings learn through the observation of one another, regardless of whether what they observe is positive or not (Kramer & Conger, 2009). Although positive sibling relationships are a context in which children learn valuable self-regulation skills, these skills can also be learned during negative situations experienced with one another (Stormshak et al., 2009). The skills learned through the sibling relationship can be generalized to other relationships, including peer relationships and the parent-child relationship (Parke, 2004). Therefore, it is important to understand how siblings socialize one another to behave in certain contexts, including how they teach each other emotion regulation skills.

Once a child masters the various self-regulation skills, the environmental context and the presence of others must be taken into consideration when determining which skills a child might choose to employ. For instance, McCabe and Brooks-Gunn (2007) found that children acted differently in a Gift Wrap and Delay task by themselves versus in a group of their peers. The preschool-aged children had more difficulty self-regulating in the group environment, and often copied their peers' coping mechanisms (McCabe & Brooks-Gunn, 2007). This could imply that when in the presence of another individual, such as a peer or sibling, children tend to look to each other for cues on how to regulate their emotions.

This additional aspect of emotion regulation is known as emotion other-regulation, or the emotion regulation of another person (Bedford & Volling, 2004). This can be deliberate or unintentional, depending on the circumstances. For example, a child might make a joke when he senses his friend is upset, thus regulating the friend's emotions in the situation (Bedford & Volling, 2004). Since siblings spend a large amount of time together and thus tend to have a good understanding of each other's emotions, it is quite possible that emotion-other regulation occurs between siblings during a stressful situation. The way that one sibling behaves and the emotions they portray could influence the other child's own behaviors and emotions in the situation (Bedford & Volling, 2004).

Although past research on both the sibling relationship and emotion regulation is extensive, we do not have a wide breadth of information regarding how siblings co-regulate in stressful situations. Tasks aimed at testing regulation have only been conducted on the individual level or in groups of peers, but not on sibling dyads (McCabe & Brooks-Gunn, 2007). Therefore, it is unknown how individual characteristics, such as temperament, affect the socialization strategies used by siblings in these situations.

Temperament

It has been widely agreed upon that temperament reflects underlying biological predispositions for individual differences in reactivity to environmental situations (Rothbart & Bates, 2006). Although one's temperament can change over time based on experience and the situation, the underlying characteristics are fairly stable (Blair, Denham, Kochanoff, & Whipple, 2004). There has been much disagreement regarding the boundaries of temperament as well as the specific dimensions that comprise the construct (Goldsmith et al., 1987). For the purposes of analyzing temperament with regard to sibling socialization strategies, we will conceptualize

temperament as the behavioral style with which one responds to and interacts with other people and the environment (Brody, 1998). Types of temperament can be differentiated and recognized by a child's levels of each dimension, and a difficult temperament designates a child who might be hard for caregivers to manage due to the possession of traits such as high emotional intensity, low adaptability, and high activity level (Goldsmith et al., 1987).

Two main dimensions that are included in all major theories of temperament are negative affectivity and activity level (Goldsmith et al., 1987). Negative affectivity is characterized by emotions including distress, fear, frustration, and sadness (Blair et al., 2004; Rothbart, Ahadi, Hersey, & Fisher, 2001). Higher negative affectivity has been associated with behavior problems and difficulties in interpersonal relationships, as a child with this characteristic might aggressively overreact to a situation (Yagmurlu & Altan, 2010). For example, a child might scare off his preschool peers if he displays an intense negative reaction to a seemingly innocent stimulus, such as a broken toy. These children also require more outside assistance in regulating their negative emotions, and could have a difficult time attempting to self-regulate (Yagmurlu & Altan, 2010). Activity level is a measure of how energetic a child's behavior is (Goldsmith et al., 1987). This includes a child's level of behavioral arousal and how they respond to a stimulus, such as a new situation or the introduction of a new person (Goldsmith et al., 1987).

Self-regulation, as previously stated, might be impacted by temperament (Cole et al., 2008). When a child is high in negative affectivity or activity level, he might encounter greater difficulties when learning how to regulate his emotions and behaviors, regardless of how many opportunities for learning he might have (Morris et al., 2007). The way that each sibling's temperament interacts with the other's temperament could have implications for socialization strategies employed and emotions conveyed.

Temperament and Siblings

The association between temperament and the sibling relationship has been the topic of many studies, and two main hypotheses have emerged as a result (Brody, 1998). The first hypothesis is that when siblings differ in temperament, the positive traits of one sibling will serve as a buffer from the other sibling's difficult temperament, leading to reduced levels of conflict and negativity (Brody, Stoneman, & Burke, 1987). The second hypothesis is that siblings who are similar in temperament will have higher quality sibling relationships (Munn & Dunn, 1989). This hypothesis is based off of the idea that children who are similar form friendships with each other that are high in quality (Stoneman & Brody, 1993). Therefore, siblings with different temperaments might not only have lower quality relationships, but they might also have fewer opportunities to practice and develop effective regulation strategies.

It has been widely agreed upon that when one child has a difficult temperament, the siblings will likely experience more conflict, leading to different outcomes depending on if the difficult sibling is the younger or older of the dyad (Bedford & Volling, 2004). For example, if the older sibling has a more difficult temperament, he could be less likely to teach his younger sibling positive ways of regulating and expressing emotion (Bedford & Volling, 2004). A difficult temperament would not just affect the way the siblings interact, but also the overall quality of the relationship (Stoneman & Brody, 1993). The sibling relationship might not be a positive socioemotional learning environment if one child's temperament negatively affects the interactions between the siblings. This could harm the development of emotion regulation skills within the sibling relationship, thus damaging the individual child's development of such skills (Bedford & Volling, 2004).

Constellation variables, such as birth order, can also impact how a child experiences the sibling relationship. Stoneman and Brody (1993) published findings that do not support the buffering hypothesis put forth by Brody et al. (1987), as they showed that sibling pairs in which the older child was high in activity level and the younger child was not displayed high levels of conflict and negativity. The buffering hypothesis was supported, however, in cases where the younger sibling was high in activity level and the older sibling was not (Stoneman & Brody, 1993). The fact that the buffering hypothesis only applied to this situation seems to be due to the dominance shown by the older sibling in a typical sibling relationship. In cases where the older sibling is the more active child, his dominance causes his higher activity level to override the calmness demonstrated by the younger sibling (Brody, 1998).

Current Study

This study aims to explore whether child temperament is related to the use of sibling socialization strategies in a stressful situation. It has been hypothesized that older children will be more likely to utilize regulation and socialization strategies, regardless of their sibling's or their own temperament. A second aim is to analyze how the temperament of each sibling interacts to influence his or her use of socialization strategies. Based on previous research, it can be predicted that when one child is characterized by high negative affectivity and high activity level, his or her sibling will be less likely to use positive regulation and socialization behaviors, and will instead utilize more control behaviors.

Methods

Participants

The current investigation utilized data from a study examining the influence of family processes on children's social and emotion development. Families ($N = 70$) were recruited through newspaper birth announcements, flyers posted at local businesses, a university newsletter, and a database of local families interested in research participation. To participate, parents needed to be married or cohabitating ($n = 3$) and have two biological children between the ages of 2 and 5. Mothers were, on average, 32 years old ($SD = 4.15$ years) and 55.7% were employed. Fathers were, on average, 34 years old ($SD = 4.75$ years) and 94.3% were employed. The median family income was \$70,000 ($Range = \$10,000 - \$250,000$). The average household size was 5 family members ($SD = 1.10$, $Range = 4$ to 8). The majority of the sample was White (fathers: 92.9% White; 4.3% Hispanic/Latino, and 2.9% Other; mothers: 90% White; 7.1% Hispanic/Latino, 1.4% Asian American, and 1.4% Other). Parents were married for an average of 8.4 years ($SD = 2.5$ years). Older siblings were, on average, 57 months old ($SD = 7.58$ months, $Range = 37.50 - 74.10$), and younger siblings were, on average, 32 months old ($SD = 6.99$ months, $Range = 23.90 - 58.70$). Sibling dyad gender composition included 17 girl/girl, 21 boy/boy, 15 boy/girl, and 17 girl/boy dyads.

Procedure

Families participated in a 2.5-hour laboratory visit including procedures not discussed here. Parents worked on questionnaires during the visit and unfinished questionnaires were sent home to complete and return. The University's Institutional Review Board approved this project.

Gift wrap and delay task. Sibling dyads participated in a gift wrap and delay task to measure self-regulation. Children were instructed to sit in chairs while researchers wrapped gifts behind their backs. After wrapping the gifts, the researchers stated that the gifts needed bows and left the room for approximately 3 minutes before returning with the bows. Children were told to not touch the gift during this waiting period. Three cameras monitored the children's behavior during the task. Data from the delay portion of the task are used in the present study.

Measures

Temperament. Mothers and fathers completed the short form of the Child Behavior Questionnaire to assess their children's temperament at the time of the original study (Putnam & Rothbart, 2006). The 94 items were rated on a 7-point Likert scale, ranging from extremely untrue of the child to extremely true of the child. The measure yields 14 subscales. Parents answered questions regarding their children's activity level and negative affectivity. Mothers' and fathers' scores for temperament dimensions were averaged to create a single score for each measure for each child. The method of creating the measure of negative affectivity was as follows. For the current investigation, Child Behavior Questionnaire subscale scores were composited to reflect the broad temperament dimension of negative affectivity (Rothbart et al., 2001). To create this dimension, the scores for discomfort, sadness, fear, anger-frustration, and soothability reverse scored were composited.

Regulation and socialization behaviors. The children's behaviors were coded through observation of their participation in the delay part of the gift wrap and delay task. Two coders independently rated the two children in each family, with one coder rating the older sibling and one coder rating the younger sibling. Behaviors were coded as present or absent in 10-s intervals using the INTERACT coding software. To account for the different lengths of the delay portion

of the task, proportions scores were created by dividing the scores by the number of intervals for the task. Children were coded as *talking about the gift* if they were explicitly talking about the gift with their sibling. The sibling did not have to respond; it just had to be clear that the child was talking to their sibling and not simply to themselves. *Talking not about the gift* was coded when the child spoke to their sibling about anything other than the gift. *Playing* was coded when the child was actively engaged and playing with the sibling in a manner completely unrelated to the gift. Playing had to be positive, although rough-and-tumble play was also counted. *Verbal commands* were coded as direct commands or directives toward a child's sibling. Examples include "do not touch the door" or "come here". *Physical control related to the gift* was coded when a child restricted the sibling's movement in relation to the gift. This included behaviors such as turning the sibling's head away from the gift, pushing the sibling away from the gift, and pulling the gift out of the sibling's hand. *Physical control not related to the gift* included behaviors restricting the sibling's movement not in relation the gift, such as grabbing a toy from the sibling's hands or holding an arm out to keep the sibling from moving forward.

The three categories of behaviors that were analyzed in this study are talking about the gift (focused on the gift), active distraction, and control behaviors. Talking about the gift was comprised only of that code. The active distraction measure was created by averaging the child's scores for talking not about the gift and playing. The control measure was created by averaging the child's scores for verbal commands, physical control related to the gift, and physical control not related to the gift.

Results

Preliminary analyses are presented first. Next, the interdependence in siblings' regulation socialization behaviors is reported. Finally, results from the actor-partner interdependence (API) models that address the main research questions are presented.

Preliminary Analyses

Missing data. The percentage of missing data ranged from 20% to 44.3% (temperament 20%; regulation and socialization behaviors: older sibling 42.9%, younger sibling 44.3%). Thus, missing data were imputed in SPSS 22 using the expectation/maximization (EM) algorithm (Howell, 2007; Jeličić, Phelps, & Lerner, 2009). All reported analyses are based on the imputed data.

Descriptive statistics. Descriptive statistics and correlations are presented in Table 1. Older siblings' talking about the gift was positively associated with their control behaviors. Older sibling's activity level was negatively associated with their talking about the gift. Older siblings' active distraction behaviors were positively associated with their control behaviors and negatively associated with their negative affectivity. However, older siblings' active distraction behaviors were positively associated with their activity level. Older siblings' control behaviors were negatively associated with their activity level. Younger siblings' active distraction behaviors were positively associated with both their talking about the gift and their control behaviors. Younger siblings' active distraction behaviors were also positively associated with their activity level. Younger siblings' activity level was positively associated with talking about the gift and active distraction behaviors.

Interdependence between older and younger siblings' behaviors. The cross-sibling correlations reflect the interdependence between older sibling and younger sibling engagement in regulation and socialization behaviors and are presented in Table 1. Older and younger siblings' talking about the gift, active distraction behaviors, control behaviors, and negative affectivity were all significantly positively correlated. These correlations indicate a moderate to strong level of interdependence based on Cohen's (1988) recommendation that correlations of .10, .30, and .50 reflect small, medium, and large effects, respectively. No interdependence was found for the older and younger siblings' activity level.

Gender differences. Results from independent samples *t* tests indicated that older siblings' talking about the gift ($M_{\text{female}} = .10$, $M_{\text{male}} = .08$, $t(68) = -.49$, $p = .63$) and active distraction behaviors ($M_{\text{female}} = .16$, $M_{\text{male}} = .15$, $t(68) = -.44$, $p = .66$) did not differ by gender. Results indicated that older siblings' control behaviors ($M_{\text{female}} = .08$, $M_{\text{male}} = .04$, $t(68) = -2.70$, $p = .009$) did differ by gender, as girls were more controlling than boys. Younger siblings' talking about the gift ($M_{\text{female}} = .09$, $M_{\text{male}} = .14$, $t(68) = 1.13$, $p = .26$) and control behaviors ($M_{\text{female}} = .02$, $M_{\text{male}} = .02$, $t(68) = .44$, $p = .67$) did not differ by gender. Finally, the results indicated that younger siblings' active distraction behaviors ($M_{\text{female}} = .10$, $M_{\text{male}} = .18$, $t(68) = 2.80$, $p = .007$) did differ by gender. Younger boys used more active distraction behaviors than younger girls.

Covariates. Several analyses were conducted to determine potential covariates. Birth order was negatively correlated with the use of control behaviors ($r = -.29$, $p = .001$), but it was not significantly correlated with either talking about the gift ($r = .12$, $p = .18$) or active distraction behaviors ($r = .05$, $p = .53$). Child sex was only significantly correlated with control behaviors ($r = .18$, $p = .03$). Child sex was not significantly associated with talking about the gift

($r = -.06, p = .48$) or active distraction behaviors ($r = -.13, p = .13$). Dyad sex differences are reported later in the text. The age space between siblings was negatively correlated with talking about the gift ($r = -.23, p = .007$), but it was not significantly correlated with active distraction ($r = .06, p = .45$) or control behaviors ($r = -.06, p = .52$).

Correlates of Sibling Regulation and Socialization Behaviors

To explore whether one's own or their sibling's temperament was a correlate of their regulation and socialization behaviors, actor-partner interdependence (API) models for distinguishable dyads were tested using the MIXED procedure in SPSS 22 (Kenny, Kashy, & Cook, 2006). API models account for the interdependence in siblings' temperament and regulation and socialization behaviors. Models were estimated with restricted maximum likelihood (REML) because it produces less biased estimates and standard errors with small sample sizes (Snijders & Bosker, 2012). Data were treated as repeated within the dyad and heterogeneous compound symmetry was used to allow the error to vary between older and younger siblings (Kenny et al., 2006). Sibling, the distinguishing variable, was effect coded (OS = 1; YS = -1). Continuous variables were grand mean centered. Dyad sex was a between-family variable and within the API model interactions between the distinguishing variable (i.e. sibling) and between-family variables cannot be tested. To determine whether the association between actors' and partners' temperament and actors' regulation and socialization behaviors were significantly different for older and younger siblings, interaction terms were created by multiplying the actors' and partners' temperament by sibling (Aiken & West, 1991). To follow-up on significant interactions, models using a two-intercept approach were conducted to test whether the simple slopes for older sibling and younger sibling were significantly different from zero (Cook & Kenny, 2005). The power to detect interactions in non-experimental studies is low

(McClelland & Judd, 1993) and therefore it is recommended that interactions with p values of .10 and lower should be probed (Kenny, 2014). Thus, interactions that were significant or approached significance were plotted and simple slopes were calculated at ± 1 SD from the mean (Aiken & West, 1991).

Separate models were conducted predicting each regulatory or socialization behavior used by siblings. Models were fit using a backward elimination method (Snijders & Bosker, 2012), in which a full model including all predictors was fit, then non-significant interactions were removed individually starting with the least significant. The final models that only include the significant interactions are presented in Tables 2 (Negative Affectivity) and 3 (Activity Level).

Between-Family Correlates of Regulation and Socialization Behaviors

Age differences. The difference in older sibling and younger sibling age was included as a significant correlate only for talking about the gift. For both negative affectivity and activity level, as the age difference between the siblings increased, the amount of talking about the gift decreased. No significant interactions were found between the age difference between siblings and active distraction or control behaviors.

Dyad gender composition differences. The effects for talking about the gift were marginally significant. In the model that included negative affectivity predicting talking about the gift, children in girl-boy dyads ($b = .13, SE = .08, p = .092$) talked more about the gift than children in girl-girl dyads. In relation to children in girl-boy dyads, children in boy-girl dyads ($b = -.15, SE = .08, p = .072$) talked less about the gift. In the model that included activity level predicting talking about the gift, children in girl-boy dyads ($b = .14, SE = .08, p = .069$) talked

more about the gift than children in girl-girl dyads. In this model, children in boy-girl dyads ($b = -.15, SE = .08, p = .056$) talked less about the gift than children in girl-boy dyads.

In the model that included negative affectivity predicting active distraction behaviors, children in girl-boy dyads ($b = .10, SE = .04, p = .005$) displayed these behaviors more frequently than children in girl-girl dyads. Also, in relation to children in girl-girl dyads, children in boy-boy dyads ($b = .06, SE = .03, p = .069$) displayed more active distraction behaviors. Children in boy-girl dyads ($b = -.12, SE = .04, p = .003$) displayed less active distraction behaviors than children in girl-boy dyads. In relation to boy-girl dyads, children in boy-boy dyads ($b = .08, SE = .04, p = .039$) used more active distraction behaviors. In the model that included activity level predicting active distraction behaviors, children in girl-boy dyads ($b = .10, SE = .04, p = .006$) displayed more distraction behaviors than children in girl-girl dyads. Children in boy-girl dyads ($b = -.12, SE = .04, p = .002$) displayed less active distraction behaviors than children in girl-boy dyads. In relation to children in boy-girl dyads, children in boy-boy dyads ($b = .07, SE = .04, p = .05$) displayed more active distraction behaviors.

No significant dyad gender differences emerged predicting children's control behaviors.

Within-Family Correlates of Regulation and Socialization Behaviors

Differences in regulation and socialization behaviors by birth order. In the negative affectivity model predicting talking about the gift, older siblings talked more about the gift than younger siblings. Similarly, in the model of negative affectivity predicting active distraction behaviors, older siblings employed more of these behaviors than younger siblings. No significant interactions were found for birth order and negative affectivity predicting control behaviors or in the model of activity level predicting all regulation and socialization behaviors.

Negative affectivity predicting talking about gift. The actor and partner effects of negative affectivity were not significant. The interactions between actor negative affectivity and partner negative affectivity were also not significant. The interaction between birth order and actor negative affectivity was significant. The simple slope for the older siblings was not significant, although the direction of the effect was positive ($b = .07, SE = .23, p = .78$). This indicates that there was no association between older siblings' negative affectivity and their talking about the gift. The simple slope for the younger siblings was significant ($b = .63, SE = .30, p = .04$). This indicates that younger siblings with higher negative affectivity talked more about the gift. The interaction between birth order and partner negative affectivity was also significant. The simple slope for the older siblings was not significant, but the direction of the effect was positive ($b = .14, SE = .25, p = .57$). Thus, there was no association between younger siblings' negative affectivity and older siblings' talking about the gift. The simple slope for the younger siblings was significant ($b = .61, SE = .28, p = .03$), indicating that when older siblings had higher levels of negative affectivity, younger siblings were more likely to talk about the gift.

There was also a significant sibling x actor negative affectivity x partner negative affectivity interaction (Figure 1). The simple slope for older siblings when partner negative affectivity was low indicated that there was a positive, but insignificant, association between actor's negative affectivity and older siblings' talking about the gift ($b = .08, t = .37, p = .71$). The simple slope for older siblings, when partner negative affectivity was low, was not significant ($b = .05, t = .50, p = .62$). The simple slope for younger siblings, when partner negative affectivity was low, was significant ($b = .73, t = 2.64, p = .009$). This indicates that for younger siblings, when their older sibling had low levels of negative affectivity, there was a positive association between younger siblings' negative affectivity and how much they talked

about the gift. The simple slope for younger siblings when partner negative affectivity was high was also significant ($b = .54, t = 3.47, p = .001$). Thus, when older siblings were higher in negative affectivity, there was a positive association between younger siblings' negative affectivity and how much they talked about the gift.

Negative affectivity predicting control behaviors. The actor and partner effects of negative affectivity were not significant. The interaction between actor negative affectivity and partner negative affectivity was also not significant. The interaction between birth order and actor negative affectivity was significant. The simple slope for older siblings was not significant ($b = .0002, SE = .01, p = .97$), as was the same for the simple slope for younger siblings ($b = .0002, SE = .01, p = .97$). The interaction between birth order and partner negative affectivity was marginally significant. The simple slope for the older siblings was not significant ($b = .02, SE = .01, p = .14$), indicating that there was no association between younger siblings' negative affectivity and older siblings' control behaviors. The simple slope for the younger siblings was not significant, but the direction of the effect was negative ($b = -.01, SE = .01, p = .24$). This indicates that there was no association between older siblings' negative affectivity and younger siblings' control behaviors.

Activity level predicting control behaviors. There was a significant actor effect such that greater activity level was associated with lower levels of control behavior. The partner effect of activity level was not significant. The interaction between actor activity level and partner activity level was also not significant. The interaction between birth order and actor activity level was significant. The simple slope for the older siblings was significant ($b = -.03, SE = .01, p = .002$), indicating that when older siblings were higher in activity level, they used fewer control behaviors. The simple slope for the younger siblings was not significant ($b = .001,$

$SE = .004, p = .77$). This indicates that there was no association between younger siblings' activity level and their control behaviors. The interaction between birth order and partner activity level was significant. The simple slope for the older siblings was significant ($b = .02, SE = .01, p = .02$). This indicates that when younger siblings were higher in activity level, older siblings used more control behaviors. The simple slope for the younger siblings was not significant, although the direction of the effect was negative ($b = -.01, SE = .01, p = .29$), thus indicating that there was no association between older siblings' activity level and younger siblings' control behaviors.

Discussion

The study of self-regulation in the context of the sibling relationship is both important and beneficial to our understanding of the socialization that occurs between siblings. Previous research that aimed to analyze regulation strategies during early childhood only focused on the individual, thus neglecting the others who might influence a child's ability to regulate during challenging tasks (Kim & Kochanska, 2012; Kochanska et al., 2000; Kochanska et al., 1996; Li-Grining, 2007; Sulik et al., 2010). As young children spend a vast amount of their time with their siblings, the relationship provides ample opportunities for socialization of regulation skills (Abramovitch et al., 1979).

Previous research has demonstrated the negative effects of inadequate socialization of regulation skills (Yagmurlu & Altan, 2010), and thus it can be concluded that studies investigating the contexts in which one can be taught regulation skills are extremely critical. The basic tenets of the family systems perspective stress the importance of understanding the context in which an individual is raised in order to fully understand that individual's actions, emotions, and overall being (Cox, 2010). Since approximately 80% of children in the United States have at least one sibling, this relationship clearly must be considered when analyzing how children respond during challenging situations (Volling, 2012).

Through examining siblings during a delay task where children had to wait to open a gift, this study provides new knowledge regarding how siblings socialize one another's regulation, as well as one of the underlying processes that impact this socialization, specifically children's

temperamental characteristics. The implications of one's temperament are life-long, and thus it is vital to understand the role it plays in how children interact and thus how they aid in the socialization of their siblings' emotion and behavior regulation (Blair et al., 2004). By exploring whether children's negative affectivity and activity level in relation to their siblings' as well as their own socialization and regulation behaviors, we are able to see how temperament plays a role in the regulation process.

The observable behaviors that were measured serve as indicators of how children choose to regulate both their own emotions and their siblings', as well as how they help socialize their siblings' regulation skills. When a child talks about the gift, we are able to infer that they were focused on the distressing stimulus, which has been shown to be an ineffective regulatory strategy (Yagmurlu & Altan, 2010). Actively distracting oneself through playing or talking about things other than the gift are typically effective strategies for regulating during a challenging situation (Kopp, 1989). These active distraction behaviors could also be employed with the hope of helping one's sibling regulate their emotions, and thus shows us how siblings help each other regulate. The behaviors included in the control category are socialization strategies, as we can assume that the goal behind attempting to physically or verbally control one's sibling is to help them learn how to behave in the difficult task. By recording how often children displayed each of the behaviors, we are able to form conclusions regarding how they both regulate their own emotions and behavior and socialize their siblings' emotions and behavior.

Temperament Actor Effects (Within-Child Associations)

The first aim of this study was to analyze how one's own temperament impacts how much children talked about the gift, actively distracted themselves, and tried to control their

siblings' behaviors. Through this, we were able to learn about the link between child temperament and the way that child chooses to act in an emotionally distressing situation.

Negative affectivity. There was no direct association between higher negative affectivity and talking more about the gift. However, the results indicated that sibling birth order moderates the effect that a child's own negative affectivity has on how much he/she talks about the gift. Younger siblings who were characterized by higher levels of negative affectivity talked more about the gift, thus agreeing with previous literature that states that children who are higher in negative affectivity tend to focus more on the stressful stimulus—in this case, the gift (Watson & Clark, 1984). Older siblings did not significantly talk more about the gift if they had higher levels of negative affectivity, but this could be because older children have more experience with self-regulation, and thus understand that focusing on the gift will not aid in regulating their negative emotions.

The findings from the study indicated that there was no association between having higher negative affectivity and using more behaviors aimed at distracting oneself or one's sibling. The lack of any association implies that differences in a child's own negative affectivity did not lead to any variations in the use of active distraction behaviors. Past research has found that children who are higher in negative affectivity tend to have a more difficult time distracting themselves from a distressing stimulus, which disagrees with the lack of association found in this study (Watson & Clark, 1984).

Similarly, there was no link found between higher child negative affectivity and using control behaviors. This implies that being characterized by higher levels of traits such as anger, sadness, or frustration does not lead to the use of more or less control behaviors.

The lack of significant results for the associations between a child's own negative affectivity and his or her active distraction and control behaviors indicate that there was no relationship between how a child's level of negative affectivity and the majority of the behaviors displayed. Although there was no association found for active distraction behaviors, this could be because children who have higher levels of negative affectivity tend to be internalize their emotions more, and thus might use more internal distraction skills as opposed to the observable active distraction behaviors that were measured (Watson & Clark, 1984). Since control behaviors were largely used for socializing one's sibling, this implies that, when examining the effect of temperament on socialization skills, a child's tendency to react more negatively to events has no bearing on how they outwardly socialize their siblings' regulation behaviors. Perhaps this is because the way a child socializes their sibling is more impacted by the sibling's temperament and personality, and not the child's own defining characteristics.

Activity level. A child's own activity level did not predict how often he or she talked about the gift, thus focusing solely on it. It could be assumed that children with more energy might be less concerned with talking about the gift and more focused on trying to actively distract themselves from the distressing stimulus, but the lack of an significant association indicates that this assumption does not hold true.

A similar patter emerged in regard to a child's amount of playing or talking about things other than the gift, as there was no link found between those behaviors and the child's activity level. This lack of an association is surprising, as it could be assumed that more active children would be more likely to use active distraction behaviors to keep themselves bust and less focused on the task at hand.

Evidence emerged from this study regarding an association between having higher activity level and using fewer control behaviors. This significant association indicates that children who were higher in activity level used less control behaviors with their siblings across all families in the study. This could be because their siblings used more control behaviors in order to attempt to control these energetic children. This finding is inconsistent with previous research, which stated that more active children are more likely to be involved in negative social interactions (Halverson & Waldrop, 1973). Although not all control behaviors observed in this study were enacted with a negative purpose, the manner with which children often go about these behaviors is negative in nature, as they use techniques such as yelling or physical restraint. A possible explanation for this inconsistency is that the aforementioned study examined children in the context of peers, and it is quite possible that their behavioral tendencies differ when in the presence of only their siblings, as sibling relationships are inherently different from peer relationships (Tucker & Updegraff, 2009). There was also a significant difference found in the effects of activity level on a child's use of control behaviors based on whether they were the older or younger sibling. Older siblings who were more active used fewer control behaviors, which is also inconsistent with the previous research (Halverson & Waldrop, 1973), while there was no association found for younger siblings.

The lack of links found between child activity level and his or her talking about the gift and use of active distraction behaviors indicate that there was no association between how energetic or active a child was and how often they talked about the gift or tried to actively distract themselves or their siblings. The association between activity level and a child's use of control behaviors provides us with knowledge regarding how this dimension of temperament plays a role in the amount of control behaviors a child chooses to employ. An alternative theory

that explains why this link occurred is that children with higher activity levels are often focused on other things, perhaps limiting the amount of time they may dedicate to controlling their siblings (Fagot & O'Brien, 1994).

Temperament Partner Effects (Cross-Sibling Effects)

The second aim of this study was to examine how a child's temperament impacts the observable behaviors displayed by his or her sibling in the gift wrap and delay task. These effects, which are discussed below, represent the degree to which one's own temperament influences the way his or her sibling regulates their own emotions as well as how the sibling chooses to socialize the target child in terms of regulation.

Negative affectivity. The findings of this study indicate that there was no direct link between higher sibling negative affectivity and a child's amount of focusing solely on the gift. However, there was a significant relationship found for sibling negative affectivity influencing talking about the gift based on sibling birth order. This means that the effect of a sibling's negativity on a child's amount of talking about the gift differed for older and younger siblings. When older siblings were higher in negative affectivity, their younger siblings were observed to talk more about the gift. This relationship was not true for older siblings with more negative younger siblings, suggesting that perhaps younger children do not understand that focusing on the distressing stimulus might make their older siblings feel more negative about the situation.

There was no association between higher sibling negative affectivity and the child's use of active distraction behaviors. The lack of a relation means that there was not a substantial difference in the amount of active distraction behaviors used based on sibling negative affectivity. This also implies that children did not feel obligated to help their more anxious or negative siblings take their focus off of the distressing stimulus.

Similar to the amount of talking about the gift a child displayed, higher partner negative affectivity was not directly predictive of the use of more control behaviors used by the sibling, but this relationship was moderated by whether the child was the older or younger sibling. Although this was only a marginally significant relation, when younger siblings were higher in negative affectivity, their older siblings used more control behaviors. There was a less significant relation for younger siblings, but the direction of the effect was negative, indicating that when older siblings were higher in negative affectivity, their younger siblings used less control behaviors.

These insignificant results indicate that there were no clear significant associations between a child's negative affectivity level and their sibling's use of regulation and socialization behaviors. These findings are seemingly inconsistent with current knowledge of the effects of negative affectivity, as it has been found that being characterized as higher in negative affectivity leads a child to participate in more negative interactions with others, as well as to display more externalizing negative behaviors (Eisenberg, Fabes, Guthrie, & Reiser, 2000). Past research would suggest that negative affectivity would have greater bearing on the behaviors displayed by an individual and by his/her sibling, but the lack of associations found in this study disagree.

Activity level. The results indicated that sibling activity level was not associated with how much children talked about the gift. This indicates that children did not differ in their amount of talking about the gift based on how active their sibling was.

Similarly, higher partner activity level was not associated with the child using more techniques to distract their sibling from the gift. The lack of an association indicates that siblings did not try to help distract their siblings, regardless of how energetic or active their siblings may have been. As helping to actively distract one's sibling through playing and talking about things

other than the gift could be seen as trying to soothe one's sibling, this is inconsistent with past research that suggests that children who have siblings who are more active are more likely to help comfort and soothe them in the presence of distressing stimuli (Volling, Herrera, & Poris, 2004).

Surprisingly, higher partner activity level was not directly linked to more control behaviors used by the sibling, but rather the link between partner activity level and control differed for the older and younger siblings. When younger siblings were higher in activity level, their older siblings used more control behaviors. The opposite was not found to be true, as there was no association between older siblings' activity level and younger siblings' use of control behaviors. It could be assumed that siblings of these highly active children would be more likely to use control behaviors because more active children need their behaviors to be controlled or monitored by their siblings. These findings indicate that there were no direct associations between a child's activity level and their sibling's regulation and socialization behaviors.

In regard to the previously mentioned hypotheses, this study did not yield the expected results. Older children utilized more active distraction and control behaviors, but younger siblings were more likely to talk about the gift. This was found regardless of the temperament of either child in the dyad. This finding that both children displayed a variety of behaviors is consistent with past research, as McCabe and Brooks-Gunn (2007) found that the majority of children, in the presence of their peers in the gift wrap and delay task, initiated at least one regulation strategy. The children in the study also tended to use less regulation strategies in the individual task as compared to the group task (McCabe & Brooks-Gunn, 2007). This could suggest that children feel the need to use more regulation skills and respond more appropriately to stressful situations when in the presence of others, such as their siblings.

Although only marginally significant, higher partner negative affectivity often resulted in more control behaviors being used, but also significantly more focusing on and talking solely about the gift. Both of these relationships were dependent on the birth order of the children, which highlights the differences in behaviors utilized by older and younger siblings. Higher partner activity level resulted in more control behaviors being used, but only for children with more active younger siblings. These results consistent with the argument that when a child has a more difficult temperament, his or her sibling will be more likely to use less positive regulation and socialization behaviors, but it is dependent on whether it is the younger or older child.

Limitations

Although this study yielded important findings, the limitations must be acknowledged. The small sample size of sibling dyads limited our ability to detect interaction effects. The families examined in this study were also not nationally representative, and the findings therefore cannot be applied to families that are not White or that have parents who are not married or cohabiting. Lastly, the children only participated in the gift wrap and delay task as dyads and not individually. While this provides information that has not been found before from only looking at individual children, we are not able to compare how children perform based on whether they are alone or in the company of their siblings.

Conclusion

The results of this study, provide crucial information regarding socialization strategies and the use of regulation behaviors within the context of the sibling relationship. As most of the previous studies that utilized the gift wrap and delay task examined only latency to touch, look at, or open the gift (Kochanska et al., 2000; Li-Grining, 2007; Sulik et al., 2010), the findings of the current study provide new knowledge about how children fare in a stressful situation in the

presence of their siblings. Evidence emerged regarding how child age might impact the behaviors displayed. The fact that older siblings tended to display more of the regulation and socialization behaviors is consistent with previous findings that older siblings tend to more often take on the role of the teacher in the relationship, showing the younger sibling how to effectively regulate (Kramer & Conger, 2009).

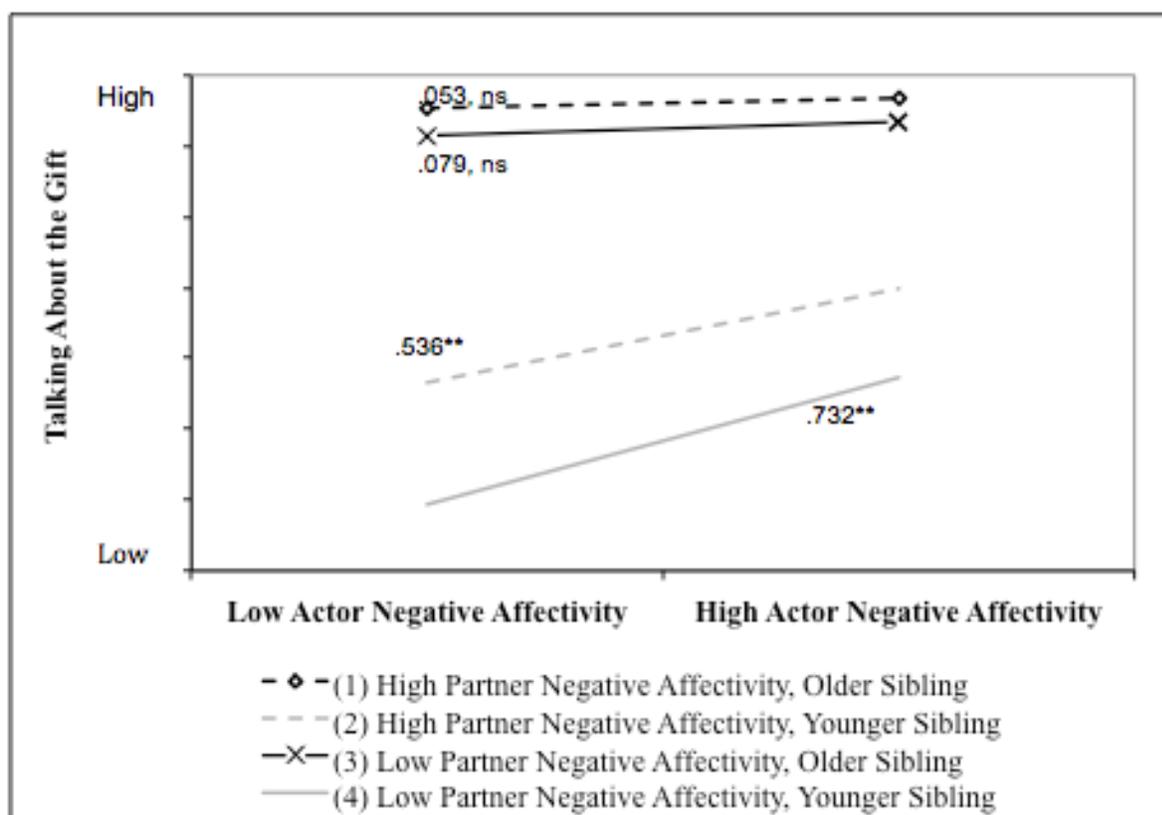
The influence that siblings have on one another is often overlooked, specifically in the context of social and emotional development, regardless of how far-reaching and significant it may be. Although this study yielded few significant findings, it should serve as a catalyst to produce more research that examines the connection between temperament and the ability to both self-regulate as well as aid in the regulation of others. The underlying foundations of temperament imply that it has the ability to impact individual development throughout the lifespan, beginning in early childhood and continuing into adulthood. Thus, it is vital that future research examine the moderating influence of temperament on the sibling relationship and the regulation processes further impacted by that important relationship. Future research must continue to analyze regulation in the context of the sibling relationship in order to expand upon our knowledge of how the skills learned within this unique relationship permeate into other areas of one's life.

Appendix A

Figures

Figure 1

The interactions between birth order, actor negative affectivity, and partner negative affectivity



Appendix B

Tables

Table 1

Descriptive Statistics and Correlations for Temperament and Sibling Regulation and Socialization Behaviors

Measure	1	2	3	4	5	<i>M</i>	<i>SD</i>
1. Talking About Gift	<u>.72***</u>	-.062	.360**	-.037	-.18	.09	.13
2. Active Distraction	.25*	<u>.69***</u>	.24*	-.25*	.13	.16	.13
3. Control	-.11	.17	<u>.20†</u>	.02	-.32**	.06	.07
4. Negative Affectivity	.01	-.04	-.03	<u>.53***</u>	.09	3.97	.65
5. Activity Level	.15	.15	.02	-.07	<u>.08</u>	4.94	.73
<i>M</i>	.12	.15	.02	3.72	4.88	--	--
<i>SD</i>	.20	.12	.03	.55	1.01	--	--

Note. Descriptive statistics and correlations above the diagonal are for the older sibling and below the diagonal are for the younger sibling. The cross-sibling correlations are on the diagonal (bolded and underlined) and reflect the degree of nonindependence between siblings' scores. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2*Negative Affectivity and Birth Order Predicting Siblings' Regulation and Socialization**Behaviors*

	Talking About Gift			Active Distraction			Control		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	-1.25	.90	-1.39	.43	.42	1.00	-.02	.03	-.71
Sibling Birth Order	.96*	.40	2.43	.07 [†]	.04	1.73	-.03	.03	-1.24
Age Space	-.01*	.00	-2.30	--	--	--	--	--	--
Negative Affectivity									
Actor	.35	.24	1.45	-.11	.11	-.99	-.00	.01	.03
Partner	.38	.24	1.57	-.12	.11	-1.10	.01	.01	.81
Actor Negative Affectivity x Partner Negative Affectivity	-.09	.06	-1.43	.03	.03	1.00	--	--	--
Sibling x Negative Affectivity									
Actor	-.28*	.12	-2.42	-.03	.02	-1.14	--	--	--
Partner	-.23*	.11	-2.05	.01	.02	.32	.01 [†]	.01	1.96
Sibling x Actor Neg. x Partner Neg.	.07*	.03	2.46	--	--	--	--	--	--

Note. Estimates are unstandardized regression coefficients. [†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3*Activity Level and Birth Order Predicting Siblings' Regulation and Socialization Behaviors*

	Talking About Gift			Active Distraction			Control		
	Estimate	SE	<i>t</i>	Estimate	SE	<i>t</i>	Estimate	SE	<i>t</i>
Intercept	.39	.24	1.64	-.10	.10	-.97	.04	.04	1.01
Sibling Birth Order	.00	.01	.20	.01	.01	.98	.03	.03	1.14
Age Space	-.01*	.00	-2.36	--	--	--	--	--	--
Activity Level									
Actor	-.01	.02	-3.39	.01	.01	.48	-.02**	.01	-2.83
Partner	-.03	.02	-1.44	.01	.01	.58	.01	.00	1.32
Actor Activity Level x Partner Activity Level	--	--	--	--	--	--	--	--	--
Sibling x Activity Level									
Actor	--	--	--	--	--	--	-.02**	.01	-3.00
Partner	--	--	--	--	--	--	.01*	.00	2.56
Sibling x Actor AL x Partner AL	--	--	--	--	--	--	--	--	--

Note. Estimates are unstandardized regression coefficients. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. The effects for the dyad gender composition were included in the model but are reported in the text.

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ACADEMIC VITA

Melissa Grimes
130 North Barnard Street #3, State College, PA 16801 • mrg5342@psu.edu

Education

Spring 2015 Pennsylvania State University
Bachelor of Science
Human Development and Family Studies – Lifespan Developmental
Science option
Schreyer Honors College
Minor in Psychology

Research Experience

Spring 2014 – present **Honors Thesis – Temperament and Children’s Socialization of Siblings’ Emotion Regulation**

- Thesis Advisor: Dr. Alysia Blandon
- Conducted extensive literature of current research on sibling relationships, temperament, emotion regulation, and socialization strategies
- Using SPSS to analyze data
- Coding children’s socialization behaviors toward their sibling during a Gift Delay task using INTERACT coding software

Spring 2014 – present

Research Assistant
Family and Child Development Lab
Dr. Alysia Blandon

- Assisted with developing coding manual to code sibling socialization behaviors during a Gift Delay task
- Team leader for sibling socialization coding project
 - Trained new coders on coding system
 - Responsible for checking reliability
- Trained on lab confidentiality and privacy procedures
- Checked and entered data in SPSS
- Trained in the use of INTERACT coding software

Fall 2014 – present

Research Assistant
Family Relationships Project
Dr. Susan McHale and Dr. Ann Crouter

- Responsible for coding data for a project analyzing the impact of family interactions on children’s future career paths
 - Coding prestige level of jobs based off 1989 Census data
 - Participate in meetings to examine reliability among coders

2013

**Research Assistant
Family Foundations Project**

Dr. Mark Feinberg

- Coded co-parenting patterns in video data of family interactions
 - Global coding
 - Coded triadic relationship quality, parental affect, triangulation, and cooperation
- Analyzed data at different time points to examine differences in family processes over time
- Participated in weekly meetings to check coder reliability

Awards and Honors

2014

Schreyer Honors College Summer Research Grant (\$1,000)

2011 – present

Schreyer Honors College Academic Excellence Scholarship (\$1,750)

2011 – present

Herbert and Beatrice Meyer Alumni Memorial Scholarship (\$1,750)

2011 – present

Dean's List (minimum 3.5 GPA required)

Professional Experience

2012, 2013

Camp Counselor – *Camp JCC of Greater Washington*

Senior Counselor position. Supervised a group of 4 Junior Counselors and 20 campers ages 5-7. Responsible for planning and executing a multitude of programs. Recipient of “Heart of Gold” award that is given to counselors who exemplify excellent character and leadership.

Service and Leadership

2014 – 2015

Penn State Dance Marathon (THON) Public Relations Captain

2013 – 2014

Penn State Dance Marathon (THON) Donor and Alumni Relations Captain

2012 – 2013

Penn State Dance Marathon (THON) Communications Captain

2012 – 2014

Schreyer Honors College Freshman Orientation Mentor

2012

Schreyer Honors College First-Year Testing, Consulting, and Advising Program Mentor

Additional Skills

Proficient in SPSS

Proficient in INTERACT coding software

Proficient in Microsoft Office programs (Word, Excel, PowerPoint)

Professional Memberships

Society for Research in Child Development, student member