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SCHREYER HONORS COLLEGE

Department of PSYCHOLOGY

GENDER DIFFERENCES IN YOUNG CHILDREN'S EXPRESSIONS OF  
ANGER AND HAPPINESS IN CHALLENGING SITUATIONS

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Spring 2010

A thesis submitted  
in partial fulfillment  
of the requirements  
for a baccalaureate degree  
in Psychology  
with honors in Psychology

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## Abstract

There are many psychological disorders linked to poor control of emotions. For example, oppositional defiant disorder includes poor down-regulation of anger, and depression includes poor up-regulation of happiness. Moreover, evidence indicates that boys are more prone to oppositional disorder and girls to depressive disorders (Zahn-Waxler, 1993). This may indicate that boys and girls differ in the expression of emotions like anger and happiness, particularly in challenging situations. Indeed boys exhibit more anger than girls (Barrett, Robin, Pietromonaco, & Eysell, 1998), and that girls exhibit more happiness than boys (Cole, 1986), in challenging situations. However, the age at which this gender difference first emerges and the contexts in which it appears remain unknown. This study examined gender differences in early childhood (24, 36, and 48 months) during anger-eliciting tasks with three different interpersonal contexts (with mother, with an examiner, and being alone). In the Waiting Task children had to wait to open a gift until their mother finished working. In the Perfect Circle Task, an examiner criticized the child's drawing. Finally, in the Transparent Box Task, the child had to open a locked box to gain a prize but unknowingly had the wrong keys. Expressions of anger and happiness were coded for each task at each age on the basis of nonverbal behavior. To examine when gender differences emerge, and in which contexts, boys' and girls' anger and happiness was compared at each age for each task. The findings are discussed in terms of ranked aggregate scores for emotion expression within 15 second epochs.

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### Acknowledgements

I would like to thank Dr. Cole for her insight, wisdom and guidance throughout all stages of this project. I would also like to thank the families that participated in the Development of Toddler Study (D.O.T.S.) research study. I would like to thank the National Institute of Mental Health for funding this study. Finally, I would like to thank the many staff who conducted the lab visits and especially the emotion coding teams that worked tirelessly for years to generate and prepare these data for analysis. D.O.T.S. was funded by the National Institute of Mental Health, RO1 MH61388 and was approved by the Office of Research Compliance, Penn State University, IRB# 990642.

## Chapter 1 Introduction

Emotion regulation is a vital aspect of human development (Rivers, Brackett, Katulak, & Salovey, 2006). Children who have difficulty regulating their emotions continue to have tribulations throughout their lives, including mental health disorders (Wester, Vogel, Pressly, & Heesacker, 2002). Therefore, a goal of research on childhood emotion regulation is to identify the precise aspects of this developmental process that can inform intervention, both preventing the development of mental health problems and better treating those problems that do develop. For instance, emotion regulation is such an important developmental task that it is at the center of interventions with young children, designed to promote emotional competence and prevent psychopathology (e.g., Greenberg, Kusché, & Speltz, 1991; Izard, Trentacosta, King, & Mostow, 2004).

There are a number of psychological difficulties associated with poorer skill at emotion regulation, including peer relationship problems, conduct disorder, anxiety disorder, depressive disorder, poor academic performance, and impulse control problems including substance use and abuse (Kostiuk & Fouts, 2002). The detrimental effects of poor skill at regulating emotions can be seen well past childhood and throughout the lifespan (Gross & Munoz, 1995). In sum, given the weight of emotion regulation in supporting mental health and other social and academic outcomes, the more we understand about emotion regulation and the earlier we can intervene when it is compromised, the better the long term outcome could be (Kovacs, Sherrill, George, Pollock, Tumuluru, & Ho, 2006).

One aspect of emotion regulation is the appropriate expression of emotion however what is judged to constitute appropriate emotion expression depends to a large degree on the cultural values of a society or community. This is commonly thought to explain the assumption that

there are gender differences in emotion expression. Generally, females are perceived to be more emotionally expressive than males, and this is attributed to both adults and children (Barrett, Robin, Pietromonaco, & Eyssell, 1998). In addition, there is some evidence to suggest that males and females express different emotions at different rates.

It is, however, not clear from studies in which emotions are observed, rather than reported, that gender differences are common in actual behavior, an open topic requiring additional study. Both biological and socialization factors may contribute to males and females acquiring different patterns of emotion expression; these in turn may contribute to gender differences in emotion regulation. Say for example males express anger more readily than females; this may involve different regulation patterns, with males generally modulating the intensity more than the expression and females modulating whether or not they express anger (Wester, Vogel, Presslyl & Heesacker, 2002). These patterns of expression and regulation could then contribute to the development of different expressions of disorders among males and females. Indeed, boys have higher rates of externalizing disorder such as conduct disorder and attention deficit hyperactive disorder, which are characterized by anger, and girls have higher rates of internalizing disorders, such as depression, which are characterized by suppressed anger, false happiness, and greater sadness (Zahn-Waxler, 1993). Adolescent females are two times more likely than adolescent males to be diagnosed with a depressive disorder (Hertzberg & Farber, 2000), and males are more likely than females to be diagnosed with oppositional defiant and conduct disorders (Loeber, Burke, Lahey, Winters, & Zera, 2000). There is evidence to suggest that emotion dysregulation is correlated with conduct disorder and depressive disorder. Emotion dysregulation is found in infants nine months old who are later diagnosed with Conduct Disorder (Morrell & Murray, 2003). Also, the diagnosis of depression is correlated with emotion



dysregulation and the expression of more negative emotions and less positive emotions (Gross & Munoz, 1995). What remains to be understood is the degree to which gender plays a role in the development of patterns of emotion expression and regulation that are implicated in psychopathology. If research reveals the presence of gender differences in emotional functioning, and identifies the age at which those differences emerge, there is promise that this can contribute to the ability to detect risk in emotion regulation and intervene at a young age. It would then be possible to reduce the incidence of male conduct disorder and female depression. Such promise is suggested by a study (Kovacs, Sherrill, George, Pollock, Tumuluru, & Ho, 2006) that demonstrated the effectiveness of intervening in how children with juvenile onset depression regulated their negative emotions; at the end of treatment half of the children were in remission from dysthymia and 13% were in partial remission. An important direction for intervention research on emotion regulation is to understand whether the targets of intervention differ for boys and girls.

As a first step toward this complicated question of gender differences in emotion regulation and psychopathology, it is useful to understand whether or not there are gender differences in the emotions boys and girls express when they are challenged by frustrating circumstances. The present study addresses this question in early childhood, a period that is important because it is during this period that self-regulation of emotion first appears (Kopp, 1989) and is an appropriate time for preventive interventions (e.g., Izard et al., 2004). The present study pays particular attention to anger and happiness and whether there are gender differences in these emotions under different social conditions. Even when both adolescent males and females have diagnoses of depression, females report or show more sadness (Bennett, Ambrosini, Kudes, Metz, & Rabinovich, 2005). There are also noted gender differences in the

expression of happiness. Adolescent girls smile more than adolescent boys smile, and this difference grows when they are put in negative contexts (LaFrance, Hecht, & Paluck, 2003). LaFrance et al. (2003) found that the gender difference effect size grew when the subjects thought they were being observed in a task. However, gender differences in emotion are much smaller in some contexts despite larger differences in beliefs and biases about emotion differences (Wester, Vogel, Pressly, & Heesacker, 2002).

Emotions are defined by adult social psychology as how one appraises the impact of the environment on oneself (Barrett, 1998). A somewhat similar view is articulated in the literature on early childhood development as the (a) how one appraises the significance of environmental circumstances for one's well-being and (b) readiness to act to achieve goals for well-being (Barrett & Campos, 1987). Emotion regulation has been defined as the processes involved in the monitoring and modulating of emotions (Thompson, 1994). Emotion expression and regulation are greatly influenced by social environments early in life (Thompson and Calkins, 1996). Therefore, it is interesting to determine whether gender differences emerge during early childhood. For instance, very young children such as toddlers, who are known to engage in high rates of negative emotion expression, may not yet reveal gender differences, particularly if the socialization of the "terrible twos" is only just underway. If so, it would be expected that gender differences in emotion expression occur after this period of socialization, such as in the preschool age years. The present study examines gender differences in young children's happiness and anger during three different social conditions at multiple ages. Happiness is defined as behavior that reflects the appraisal that a goal is being achieved and readiness to maintain the situation, and anger is defined as appraisal that a goal is being blocked and readiness to exert force to overcome the obstacle and regain the goal (Barrett & Campos, 1987).

Happiness and anger are inferred from nonverbal indices of these emotions, specifically facial action, vocal tone, and to a lesser degree, gestural and postural cues.

Support for this approach has been provided by recent studies. Anger expression has been linked to specific actions in children's behavior during emotionally challenging tasks. Dennis, Cole, Wiggins, Cohen, and Zalewski (2009) showed that anger compared with sadness was associated with action, in that it was associated with a greater range of behaviors than sadness. Lewis, Ramsay, and Sullivan (2006) found that in four month old infants, when a goal is blocked, anger is associated with increase in heart rate and sadness is associated with increase in cortisol levels. Finally, Perri (2010) showed that 3-year-olds' mild expressions of anger are more likely to be followed by effort to solve a challenging problem.

Currently, there is considerable research on gender differences in emotion expression in adolescents and adults, but little research on toddlers although this is an age when children are normatively more negative than at other ages and when self-regulation of emotion is being socialized (Kopp, 1989). Gender differences in emotion regulation in adults have shown to be most notable when experiencing anger and sadness. Women are better skilled at regulating their angry emotions, and men are more skilled at regulating their sad emotions (Rivers, Brackett, Katulak, & Salovey, 2006). Rivers et al. (2006) found that women are better at regulating both sad and angry emotions. Gender differences have also been reported in the expression of happiness. Adolescent girls and women smile more often than men, although there is debate about why this is the case (LaFrance, Hecht & Paluck, 2003). However, research on toddlers shows how important early emotion expression is in relationships and social development (Calkins, Gill, Johnson, & Smith, 1999). Therefore the current study fills a gap in addressing

whether a gender differences emerges in early childhood by examining children's expressions of anger and happiness in anger-eliciting conditions at both toddler and preschool ages.

Learning to regulate emotions is a big milestone in the development of children (Feng, Shaw, Kovacs, Lane, O'Rourke, & Alarcon, 2008). Studying how children can regulate their emotions allows us to examine an array of developmental milestones they should reach. Children who do not appropriately regulate their emotions are more aggressive towards others (Rivers et al. 2006). This also allows us to see what sort of social learning has influenced the development of their emotion regulation. Comparing boys and girls allows researchers to examine where social learning begins to effect children's emotion regulation. Wester et al. (2002) explained that parents of boys discourage them from expressing emotions except anger and pride, whereas the parents of girls encourage them to express all emotions except for anger and contempt. Studying specifically toddlers will assist in determining what age exactly the divergence of emotion expression between genders begins to take place.

Emotions vary greatly depending on the environment and social setting that a child is presented (Thompson & Calkins, 1996). The current research on gender differences in emotion regulation leaves a gap where the differences in gender research should emerge. When preschool age children (ranging from ages 3 to 5 years) are frustrated by a person who has been nice to them but whom they do not know well, such as a research assistant, they express happiness despite being disappointed (Cole, 1986; Cole, Zahn-Waxler, & Smith, 1994). Moreover, Cole (1986) found gender differences in 3- and 4-year-olds in this context; the preschool age girls smile more than boys when disappointed. Therefore, social conditions matter. Garner (1995) compared children's emotion expressions when they were with either sibling or a stranger; they showed less emotion with a stranger and made more effort to soothe with a sibling.

Children may be less comfortable with a relative stranger and therefore may engage in more regulation of their emotional expressions. Most research with young children involves observing them alone, with their mothers, or with research assistants but this research rarely examines gender differences in emotion expression in these different social contexts. It is common for studies of young children to examine differences between typically developing and atypically developing children, but gender differences are often ignored. Studying children considered at-risk is another popular research approach, examining the root causes of poor emotion regulation in toddlers, but even these generally fail to consider gender differences (Feng, Shaw, Kovacs, Lane, O'Rourke, & Alarcon, 2008; Garner, 1995).

Therefore the present study examines these three contexts, in anger-eliciting situations, in children at ages 24, 36, and 48 months of age. At age 24 months no significant difference between girls and boys emotion expressions are expected. However, by the time the children have reached 48 months of age, a significant gender difference in emotion expression is expected, but this may still be social context specific. That is, in task in which children are not with their mothers but with a relative stranger, older girls are predicted to show greater happiness and less anger than boys. There is no prediction for the child alone situation.

## Chapter 2 Method

### *Participants*

The participants in the present study were 120 typically developing children (65 boys, 55 girls) followed from the age of 18 months through five years. The data are part of a larger longitudinal study looking at development of emotion regulation in early childhood. The children came from families who were economically strained, that is with household incomes that were just above the poverty line defined by the United States government but less than the national median income for their family's size. The families lived in rural and semi rural areas around central Pennsylvania. Of the 120 children, 94 percent (n=113) were white and 5.8 percent (n=7) were African American, Asian, or Hispanic ethnicities. At the time of the first interview the average mothers' age was 30.45 years on average (SD=5.29). The average household income for the families were \$40,655.70 (SD=14,996.57). At the first visit at 18 months, 54 of participants were first born (45%), 45 were second born (38%), 15 were third born (12%), and 6 were fourth or later born (5%). In addition to the income restriction, requirements for participation in this study were that the children were 18 months (plus or minus two weeks) at the first visit, had lived with their primary caregiver from at least three months of age, and had no disability that would interfere with the child's ability to perform the tasks in the study.

Children and their mothers were recruited through a multistep process. Undergraduate research assistants looked at census track data to find where a large percentage of families in the income eligibility would live. Rural and semi-rural communities from central Pennsylvania were identified and thoroughly researched. Educational, political, medical, and religious leaders in the town were contacted to further understand the community. Undergraduate research assistants researched newspapers and birth records and sent the people who fit our profile letters about the

study. Flyers were put up in daycares, preschools, and community events in order to recruit more people. After families were recruited there were two phone interviews. The first phone interview was to make sure the family met all of the eligibility criteria. The second phone interview was the enrollment interview where the researcher asked about the family and demographics. Only the methods used in the present study are detailed here.

### *Procedure*

Full details of the procedures are provided in Appendix A. Three tasks were used from the lab visits when the children were 24, 36, and 48 months of age. The three tasks were:

The Transparent Box Task (Laboratory Temperament Assessment Battery; Goldsmith & Rothbart, 1996), designed to elicit anger caused by the blocked goal, was used to observe emotion expression when the child was alone. However, at age 24 months, mothers remained in the room to avoid creating separation anxiety; the mothers were occupied in a task and asked not to interact with the child. In this procedure, the experimenter offers the child a choice between two toys. The child picks a preferred toy, and the experimenter locks the toy in a transparent box. The experimenter then teaches the child how to use the key. However, as the experimenter prepares to leave, the experimenter gives the child the wrong keys. The experimenter returns after two and a half minutes, asks the child if they got the toy yet, and then apologizes and shows the child they gave them the wrong key. When the child is 24 and 36 months old, this is the end of the task. When the child is 48 months old, after two and a half minutes the experimenter returns to the room says, "Oh, you didn't open it? OK, take a few more minutes." The experimenter returns after another two minutes.

The Impossible Perfect Circle Task (Laboratory Temperament Assessment Battery; Goldsmith & Rothbart, 1996) is designed to frustrate the child by the experimenter's criticism of

the circles drawn. This task was administered at ages 36 and 48 months only because it was not age-appropriate at 24 months. The experimenter asks the child to draw the perfect green circle. After each circle is drawn, the experimenter criticizes the circle (e.g., it is too small, the line is broken, it is too flat) and asks the child to draw another circle. After three and a half minutes, the experimenter says, "That circle looks pretty good. Circles are hard to draw, aren't they?" At 48 months, before choosing a good circle, the experimenter arose and said, "I have to go do something. You try to draw the perfect green circle while I'm gone." The experimenter returned after one minute and then chose the best circle.

The Waiting Task (Cole, Teti, & Zahn-Waxler, 2003; Vaughn, Kopp, & Krakow, 1984) is an eight-minute task designed to frustrate young children. In this task, the experimenter gives the mother questionnaires to complete and gives the child a broken toy. No other toys are in the room. Then, the experimenter places a wrapped gift on the child's table. The mother, who was coached in advance, then says, "This is a surprise for you but you have to wait until I finish my work to open it." After eight minutes the experimenter returns and the mother allows the child to open the present.

### *Measures*

The Transparent Box Task, Perfect Circle Task, and Waiting Task were coded by undergraduate research assistants who were trained to code emotion expressions to the accuracy of a master coder, based on their independent coding of previously coded video records. The nonverbal behaviors used to judge the presence of anger and happiness are presented in Table 1. The coders used facial, vocal, and to a lesser degree, gestural and postural cues to infer the presence of anger, happiness, sadness, and anxiety every 15 seconds. Only anger and happiness were studied in the present project, because these were the emotions that were most frequently



observed and because sadness and anxiety tended to co-occur with anger as opposed to be observed as independent emotional reactions. An emotion was coded if at least one cue of that emotion was present. If an emotion was observed, coders then rated its intensity on a scale of one to three, with one being mild intensity (slight or brief cues) and three being high intensity (strong expression usually evidenced by multiple cues). The undergraduate research assistants were trained to 85% accuracy; once they began independent coding, 10% of their coding was double assigned to allow random checks of inter-rater reliability. Their average reliability across ages was 80%. The variables used in the present study were the total number of epochs for happiness and anger in each task at each age. In addition the analyses were repeated for an intensity aggregate in which each occurrence of an emotion was weighted by its intensity and then summed.

### Chapter 3 Results

Four dependent variables for each task were created to test predictions: angry aggregate (total number of epochs in which any anger occurred), happy aggregate (total number of epochs in which any happiness occurred), angry intensity aggregate (total number of epochs in which anger occurred, weighted by its intensity rating), and happy intensity aggregate (total number of epochs in which happiness occurred, weighted by its intensity rating). Each of these scores was assigned for each of the three tasks at each age: Transparent Box Task (ages 24, 36, and 48 months), the Waiting Task (ages 24, 36, and 48 months), and the Perfect Circle Task (36 and 48 months). Gender (male, female) was the only independent variable studied.

#### *Missing Data*

Of the original 128 children seen at Time 1, eight participants were excluded from analyses either because their income level was too high ( $n = 4$ ) or because they did not complete a sufficient number of sessions over the course of the longitudinal study ( $n = 4$ ). Of the 120 children who represented the main group of participants, there were some cases of missing data due either to a single missed visit or to the child's being unable to complete the specific task during the visit.

At age 24 months, two children completed the visit but did not complete the Waiting task; one opened the gift immediately and the other persistently ran from the room. At 36 months, three families did not participate in the laboratory visit. In addition, the Transparent Box task was not administered to three children; two children would not separate from their mothers and one child refused to separate from his brother. Also, for the Perfect Circles Task at this age, five children would not separate from their mother, one child would not separate from his brother, one would not separate from his father, and one child refused to draw.

Finally, at 48 months, three families did not participate in this laboratory visit. In the Transparent Box Task, one child refused to separate from his mother. In the Perfect Circle Task, three children would not separate with their mothers. In the Waiting Task, one child opened the surprise immediately, so the task could not be completed.

#### *Data Preparation for Analysis*

The first step in the data analysis was to inspect the data for errors and outliers. The second step was to examine the distributions of the variables. As is usually the case for observed emotion data, the distributions were not normal. This is because emotion expressions do not tend to be sustained for long periods of time, so that any variable is skewed to the right with a higher number of low scores and a tail of high scores. These distributions did not lend themselves to transformation. Therefore, the original plan to conduct repeated measures analysis of variance to analyze the data was modified. The data were examined with non-parametric statistics as the advanced non-parametric statistic that handles repeated measures was beyond the scope of this honors thesis. The Mann-Whitney U test was used to compare boys and girls on each of the four variables for each of the three tasks at each age point. This test treats the continuous scores as ranked rather than scale scores.

#### *Transparent Box Task (Child Alone)*

The means and standard deviations for the angry and happy intensity aggregates for the Transparent Box task at ages 24, 36, and 48 months are presented in Table 2, and the parallel aggregates are presented in Table 3. The aggregate mean number of epochs for happiness boys and girls for all ages available are presented in Figure 1, and the means for anger are presented in Figure 2. Although there were no specific predictions for this task, given that there is very little research examining gender differences when children are alone, it was consistent with the

general predictions of the study to find no significant gender differences at 24 or 36 months in anger or happiness in the Transparent Box Task. Moreover, a gender difference that approached but did not reach significance is noteworthy because it is in the direction of predicted findings when children are with a relatively unfamiliar adult; girls displayed more happiness than boys at age 48 months ( $U = .082$ ;  $p < .10$ ), regardless of intensity.

*Waiting Task (Child with Mother)*

Happiness and anger means and standard deviations for boys and girls intensity aggregates for the Waiting Task at 24, 36, and 48 months are presented in Table 6 and the parallel aggregate data are presented in Table 7. The aggregate mean number of epochs for happiness boys and girls for all ages available are presented in Figure 5, and the means for anger are presented in Figure 6. As predicted, there are no significant gender differences at 36 or 48 months in the Waiting Task. However, there was one unexpected difference that emerged. At 24 months boys expressed more happiness than girls during the wait task ( $U = .041$ ;  $p < .05$ ).

*Impossible Perfect Circles Task (Child with Experimenter)*

The means and standard deviations for the angry and happy intensity aggregate data for the Perfect Circle Task at 36 and 48 months are presented in Table 4, and the parallel aggregate data are presented in Table 5. The aggregate mean number of epochs for happiness boys and girls for all ages available are presented in Figure 3, and the means for anger are presented in Figure 4. There were no significant gender differences in the Perfect Circle Task at 36 months. However, as predicted, by age 48 months, girls exhibited more happiness than boys ( $U = .038$ ;  $p < .05$ ). Boys expressed significantly more anger at 48 months when with an experimenter than girls ( $U = .010$ ;  $p < .05$ ). To put these findings in context, it is useful to note that both boys and girls expressed more happiness than anger in this task and that the gender differences reflect an

exaggeration of this general expressive behavior, with girls appearing less angry and happier than boys.

## Chapter 4 Discussion

This aim of this study was to investigate whether a) gender differences appear at later than earlier ages in early childhood and b) whether those emerging gender differences depend on situational context. The study focused on two emotions—anger and happiness in anger-eliciting contexts—that have revealed gender differences, although not consistently, in the early childhood development literature. Generally, it is believed that in the general culture of the United States, anger is more acceptable in males than females, such that males would be more likely to display anger whereas females are more likely to mask anger and display happiness in situations that frustrate them. In the present study, boys and girls were compared at three ages for two tasks and two ages for one task (because the task was not appropriate for younger children). The tasks varied the social context; in one task the child was left alone (Transparent Locked Box administered at ages 24, 36, and 48 months, although mother was present but busy at age 24 months), in another the child was with mother (Waiting Task at ages 24, 36, and 48 months), and in the final task the child was with a research assistant (Impossible Perfect Circles Task at ages 36 and 48 months).

The results indicated that gender differences do not appear at every age in every context. Rather, for the most part, they appear only at the expected older age of 48 months and then clearly in an anger-eliciting situation with an experimenter, marginally when the child is alone, and not at all when the child is with the mother. Specifically, there were significant gender differences found in the Perfect Circle task in that girls expressed more happiness than boys at 48 months, and boys expressed more anger than girls at 48 months. The tendency for girls to appear happier than boys at 48 months when alone may be evidence of the emergence of socialized

gender differences becoming internalized. However, it is only in the context of the child being with the research assistant that there are clear gender differences at age 48 months. There was one unexpected finding that emerged at age 24 months in the Waiting Task. Twenty-four month old boys expressed more happiness than girls while waiting to open a gift in the presence of their mothers.

Girls expressing happiness more often while with an experimenter may indicate a finding that has been shown elsewhere in the literature: that girls have a tendency to mask their frustration by expressing happiness more than boys do. This may be because girls are more concerned with how others, e.g. the experimenter in this type of situation, view them and how the other person feels (Chaplin, 2005). That is, girls may be more relationship-oriented than boys and thus their goals in the situation are not just to stop the criticism but to make sure the experimenter does not get angry with them and that they do not distress the experimenter (Zahn-Waxler, 1993). Zahn-Waxler, Shirtcliff, & Marceau (2008) explained that girls are more dependent on how others feel, and are more likely to read other people for signs of approval. In the present study, young girls may already have learned that when they are being criticized they should not show their frustration, anger, or sadness. This could also be a sign of girls using more advanced regulation techniques. If the smile is used as a way to make the child feel internally more secure, this could be a coping mechanism used in this frustrating situation (Ansfield, 2007). Cole (1986) found that girls mask their negative feelings in a disappointment task with positive feelings more often than boys at ages three and four. It is important to note that there are gender differences in happiness at 48 months, but not when the children are 24 or 36 months old in the same situation. This could be because this is when the children are starting pre school or being prepared to start elementary school, which is when their gender socialization peaks (Chaplin,

Cole, & Zahn-Waxler, 2005). Also, gender stereotypes are thought to be the strongest at ages four and five, and then decrease after that (Chaplin et al., 2005). This could explain the significant findings at 48 months.

In this frustrating task with an experimenter, the boys expressing more anger than girls, although they too expressed more happiness than anger, may suggest early signs of boys either feeling more free to express a little anger or having more difficulty regulating their anger than girls do. Although children in this study behaved appropriately in this task context, the evidence is consistent with a view that anger is more acceptable in boys and they also have more difficulty regulating anger, which may preview boys having more diagnoses of conduct disorder in adolescence than girls (Zahn-Waxler et al., 2008). This may also be a result of boys' expression of anger being more socially acceptable than girls' expression of anger. It also may be a result of parents socializing their boys and girls to prepare them for school (Chaplin et al., 2005).

The unexpected finding was that boys expressed more happiness than girls at 24 months when in a frustrating situation with their mother, although as boys and girls expressed the same amount of happiness and anger at 36 and 48 months. Chaplin et al. (2005) reported that mothers are more likely to respond to four-year-old boys' anger, and ignore four-year-old girls' anger. Perhaps there is an explanation in this for why at 24 months boys display more happiness. The mothers pay attention to the boys' expression of anger, which would make them happy, since their goal was to get their mothers' attention. Since mothers are shown to ignore girls' anger, this is why we are not seeing the same happiness expressions in girls (Chaplin et al., 2005).

Future research should be done to see if these results extend beyond the controlled setting. Studies should be done to see if these gender differences continue to other frustrating settings, such as with peers. It is also important to find out whether at 60 months these gender



differences persist and become more significant. In future research, the study should control for the month that the children begin school, to find out if that is the point that children begin their gender socialization, or if parents do begin preparing the children before they begin school.

## Chapter 5 References

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## Appendix A: Procedures

(From the DOTS procedures manual)

### *Transparent Box Procedure*

#### **24 and 36 Months Old**

Put the figurines [at even distance from child] on the table in front of the child and ask: “Which toy do you like best, [name the two toys]?”

MRA, put the child’s preferred toy inside the box and put the other toy out of view. Then say: “This is how we play this game. I’m going to put [the desired toy] into my special box and put this lock on. You can use these keys to unlock the lock and open the box.”

Show the child how the CORRECT key goes in the lock, saying: “See, you can try to stick this end of the key into this little slit in the lock.” Then turn the key to unlock it, take the lock off, and open the box. Add: “Do you understand?”

Once you have shown the child how to use the key, put the WRONG keys (marked with a star) in front of the child and say: “I’ll be back in a little bit. I will let you work on that for a while. When you open the box, you can play with the toy inside!” IMMEDIATELY LEAVE THE ROOM. (MAKE SURE TO TAKE THE UNSELECTED TOY WITH YOU!). MRA stays outside of the room in the hallway in case the child should attempt to leave the room.

MRA times 2.5 minutes

If the child leaves the room say: “Just sit down and wait for a minute and I’ll be right there.” DO NOT SAY “KEEP TRYING TO OPEN THE BOX.” If the child leaves another time, the procedure is finished.

After 2 ½ minutes the MRA returns to the room. The MRA notes the box is still closed and says: “Did you open the box? Why couldn’t you open it?”

After the child has had a chance to reply, say: “Uh oh! It was my fault! I gave you the wrong set of keys. I’m sorry! (with a concerned face) Why don’t you try this one.” If the child struggles, help the child open the box.

When the box is open, say: “That was the right key. Good job!” Tell the child that you are going to take the toy into another room, but will bring it back later for them to take home. If child objects, he or she is allowed to keep the toy during snack time.

## 48 Months Old

Take the toys out of the box and put them on the table in front of the child and ask: “Which toy do you like best, [name the three toys]?” [Place toys at even distance from child]

MRA, put the child’s preferred toy inside the box and put the other toy out of view. Then say: “This is how we play this game. I’m going to put [the desired toy] into my special box and put this lock on. You can use these keys to unlock the lock and open the box.”

Show the child how the CORRECT key goes in the lock, saying: “See, you can try to stick this end of the key into this little slit in the lock.” Then turn the key to unlock it. Add: “Do you understand?”

Once you have shown the child how to use the key, put the WRONG keys (marked with a star) in front of the child and say: “I’ll be back in a little bit. I will let you work on that for a while. When you open the box, you can play with the toy inside!” IMMEDIATELY LEAVE THE ROOM. (MAKE SURE TO TAKE THE UNSELECTED TOY WITH YOU!). MRA stays outside of the room in the hallway in case the child should attempt to leave the room.

MRA times 3 minutes

If the child leaves the room say: “Just sit down and wait for a minute and I’ll be right there.” DO NOT SAY “KEEP TRYING TO OPEN THE BOX.” If the child leaves another time, the procedure is finished.

After 3 minutes the MRA returns to the room. The MRA notes the box is still closed and says: matter-of-factly (with completely neutral face): “Oh, you didn’t open it? OK, take a few more minutes.”

IT IS VERY IMPORTANT THAT THE MRA NOT HELP THE CHILD REGULATE EMOTION. YOU MUST KEEP YOUR VOICE & FACE NEUTRAL,

If the child tries to talk to you, just say “I’ll come back in a few minutes.”

The MRA leaves the child with the box for another 2 minutes. The MRA returns after 2 minutes and does lock-box post interview.

### *Perfect Circle Task*

#### **36 Months Old**

The purpose of this task is to observe a child in a potentially frustrating situation. The frustration comes from being asked repeatedly to draw a circle. The assistant needs a piece of paper, a green crayon, and stopwatch. \*Start timing the 3 ½ minutes after the child has drawn the first circle.

1. Sit down with the child and say: Can you do me a favor? I need the PERFECT green circle. Could you draw it for me? I need the perfect green circle. (Repeat the phrase I need a PERFECT green circle about once a minute.)

MRA times 3 ½ minutes after the first circle is drawn

2. Put the paper in front of the child and give the child a green crayon. EACH circle that the child draws should be criticized (in a neutral, matter-of-fact tone of voice) and then ask the child to draw another circle. Be specific, for example: Hmm. That one is too:

...pointy [point out]. Draw another one.

...flat. Draw another one.

...skinny..., small..., large..., not round enough..., not quite right... etc.

\*Do not give positive feedback!

3. Do not let the child turn the paper over to draw on the back. If the child does, say: No. I need you to draw the perfect circle on this side of the paper. Could you draw another one? If the child says there is no more room, then say, You can draw it on top of the other one[s].

4. Stop after 3 & ½ minutes. Then say in a nice, pleasant voice: That one looks pretty good. Circles are hard to draw, aren't they? Thanks for drawing all those circles. Would you like to make one into a smiley face? Let's give this one to Mom, ok?

5. Show child the Perfect Circle Certificate. Tell the child: You can take this certificate home.

#### **48 Months Old**

The purpose of this task is to observe a child in a potentially frustrating situation. The frustration comes from being asked repeatedly to draw a circle. The assistant needs a piece of paper, a green crayon, and stopwatch. \*Start timing the 3 ½ minutes after the child has drawn the first circle.

1. Sit down with the child and say: Can you do me a favor? I need the PERFECT green circle. Could you draw it for me? I need the perfect green circle. (Repeat the phrase I need a PERFECT green circle about 1x a minute.)

MRA times 3 ½ minutes after the FIRST criticism is given



2. Put the paper in front of the child and give the child a green crayon. EACH circle that the child draws should be criticized (in a neutral, matter-of-fact tone of voice) and then ask the child to draw another circle. Be specific, for example: Hmm. That one is too:

...pointy [point out]. Draw another one.

...flat. Draw another one.

...skinny..., small..., large..., not round enough..., not quite right... etc.

\*Do not give positive feedback!

3. Do not let the child turn the paper over to draw on the back. If the child does, say: No. I need you to draw the perfect circle on this side of the paper. Could you draw another one? If the child says there is no more room, then say, You can draw it on top of the other one[s].

4. Stop momentarily after 3 & ½ minutes. Say: “I have to go do something. You try to draw the PERFECT green circle while I’m gone. I’ll be right back.”

5. MRA leaves. The SRA returns after 1 more minute and says to the child:

“Hi. I see you are trying to draw a perfect circle. [give a moment in case the child speaks].

*Waiting Task*

### **24, 36, and 48 Months Old**

MRA says and does the following:

To mother (pointing out the Wait Task Questionnaire on her clipboard): Here is the work that I told you about,

To child (placing the wrapped surprise on small table): Here is a surprise for you,

3. To child (handing the child boring toy): And here is something for you to play with. I’ll be back in a few minutes.

MRA times 8 minutes

## Appendix B: Tables and Figures

Table 1: *Cues for Coding Emotion Expression (from the coding manual for DOTS emotion expression)*

	Facial	Vocal	Postural
Anger	Brow may be furrowed, eyes can be narrowed, jaw clenched or set, mouth squared off if open, lips pressed or tightened if mouth closed	Voice becomes harsh, conveys protest, irritation, frustration, hostility, pitch is often louder and deeper, utterances have a plosive quality	Arms akimbo, finger wagging or jabbing
Happiness	Smiling, cheek area rounds up, eye crinkling, eye brightness, brows raised	Light, lilting, higher pitch, louder	Little tension, jump up, raise arms, clap

Table 2: Mean and standard deviation number of epochs for anger and happiness during the Transparent Box Task by intensity for boys, girls, and total sample at each age

<u>Age in months</u>		<u>24</u>			<u>36</u>			<u>48</u>		
Emotion		All	Male	Female	All	Male	Female	All	Male	Female
Angry	M	3.26	3.30	3.22	1.36	1.46	1.25	2.28	2.89	1.57
	SD	4.28	4.15	4.54	2.04	2.00	2.09	4.17	5.09	2.63
Happy	M	1.49	1.34	1.67	0.54	0.43	0.68	0.84	0.44	1.19
	SD	2.07	1.66	2.47	1.20	0.83	1.52	2.37	1.51	3.06

Table 3: Mean and standard deviation number of epochs for anger and happiness during the Transparent Box Task by aggregate for boys, girls, and total sample at each age

<u>Age in months</u>		<u>24</u>			<u>36</u>			<u>48</u>		
Emotion		All	Male	Female	All	Male	Female	All	Male	Female
Angry	M	2.39	2.48	2.28	1.15	1.30	0.98	1.85	2.32	1.31
	SD	2.64	2.78	2.50	1.61	1.69	1.53	3.16	3.81	2.10
Happy	M	1.14	1.08	1.22	.46	0.39	0.53	.66	0.40	0.94
	SD	1.42	1.23	1.63	.95	0.76	1.14	1.72	1.03	2.24

Table 4: *Mean and standard deviation number of epochs for anger and happiness during the Perfect Circle Task by intensity for boys, girls, and total sample at each age*

<u>Age in months</u>		<u>36</u>			<u>48</u>		
Emotion		All	Male	Female	All	Male	Female
Angry	M	0.93	0.93	0.92	1.05	1.47	0.56
	SD	2.40	1.82	2.92	2.17	2.53	1.53
Happy	M	7.03	4.00	7.48	7.32	4.00	8.48
	SD	7.83	7.46	8.26	7.28	7.28	7.17

Table 5: *Mean and standard deviation number of epochs for anger and happiness during the Perfect Circle Task by aggregate for boys, girls, and total sample at each age*

<u>Age in months</u>		<u>36</u>			<u>48</u>		
Emotion		All	Male	Female	All	Male	Female
Angry	M	.72	0.79	0.65	.86	1.16	0.50
	SD	1.48	1.26	1.70	1.67	1.88	1.31
Happy	M	4.79	4.54	5.06	5.11	4.45	5.88
	SD	4.55	4.33	4.80	4.37	4.39	4.26

Table 6: *Mean and standard deviation number of epochs for anger and happiness during the Waiting Task by intensity for boys, girls, and total sample at each age*

<u>Age in months</u>		<u>24</u>			<u>36</u>			<u>48</u>		
Emotion		All	Male	Female	All	Male	Female	All	Male	Female
Angry	M	26.75	24.11	29.89	10.60	10.92	6.38	5.27	5.22	5.32
	SD	24.06	22.36	25.8	12.17	12.89	6.96	10.98	9.00	12.05
Happy	M	6.53	7.94	4.87	7.63	6.80	8.64	7.26	6.38	8.30
	SD	7.97	8.74	6.65	8.00	7.29	8.76	7.38	6.30	8.43

Table 7: *Mean and standard deviation number of epochs for anger and happiness during the Waiting Task by aggregate for boys, girls, and total sample at each age*

<u>Age in months</u>		<u>24</u>			<u>36</u>			<u>48</u>		
Emotion		All	Male	Female	All	Male	Female	All	Male	Female
Angry	M	13.61	12.52	14.91	6.88	7.30	6.38	3.47	3.76	3.13
	SD	9.54	9.14	9.93	7.05	7.15	6.96	5.77	5.36	6.26
Happy	M	4.65	5.48	3.66	5.10	4.61	5.70	4.77	4.35	5.26
	SD	5.12	5.37	4.67	4.67	4.31	5.04	3.37	3.87	4.89

Figure 1: *Mean number of epochs of happiness aggregates during Transparent Box Task at all ages available for boys and girls in sample*

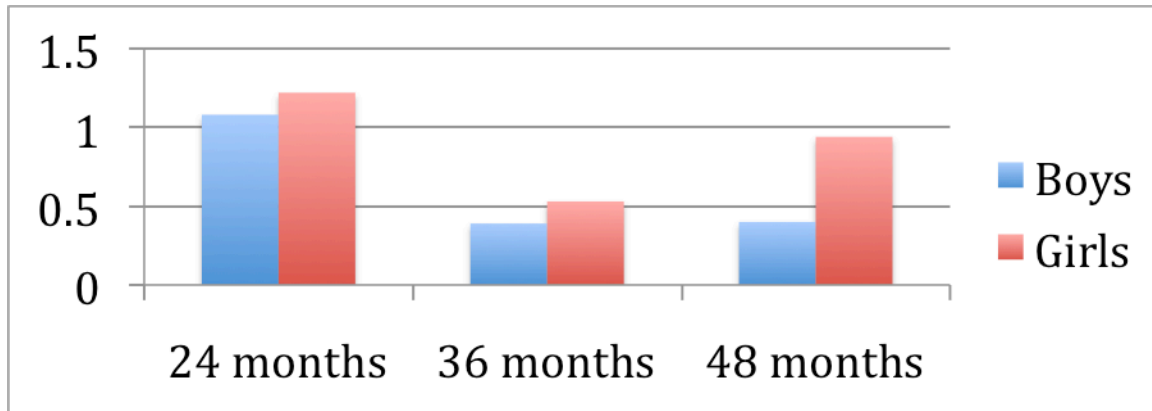


Figure 2: *Mean number of epochs of anger aggregates during Transparent Box Task at all ages available for boys and girls in sample*

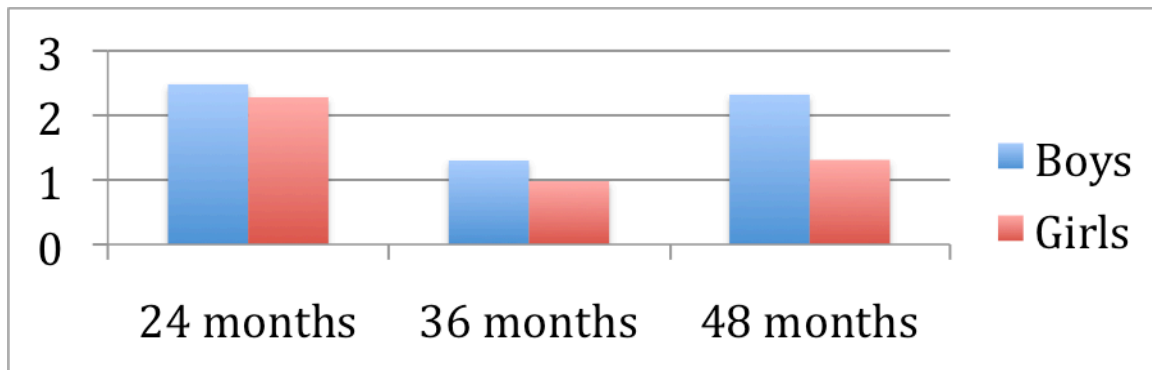


Figure 3: *Mean number of epochs of happiness aggregates during Perfect Circle Task at all ages available for boys and girls in sample*

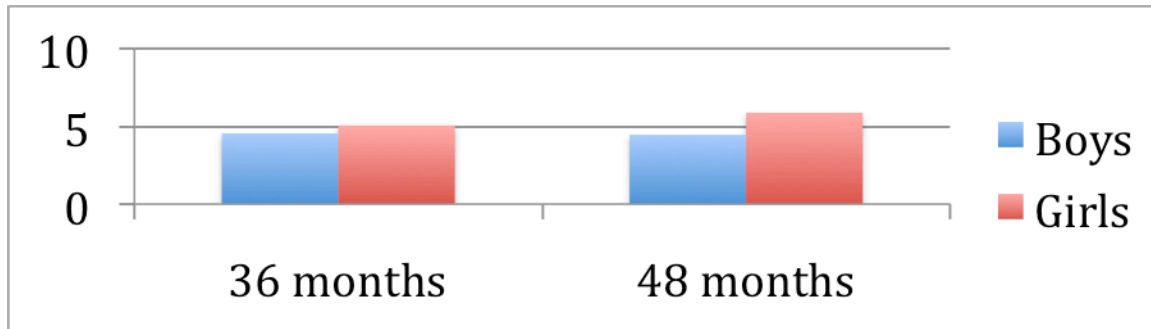


Figure 4: *Mean number of epochs of anger aggregates during Perfect Circle Task at all ages available for boys and girls in sample*

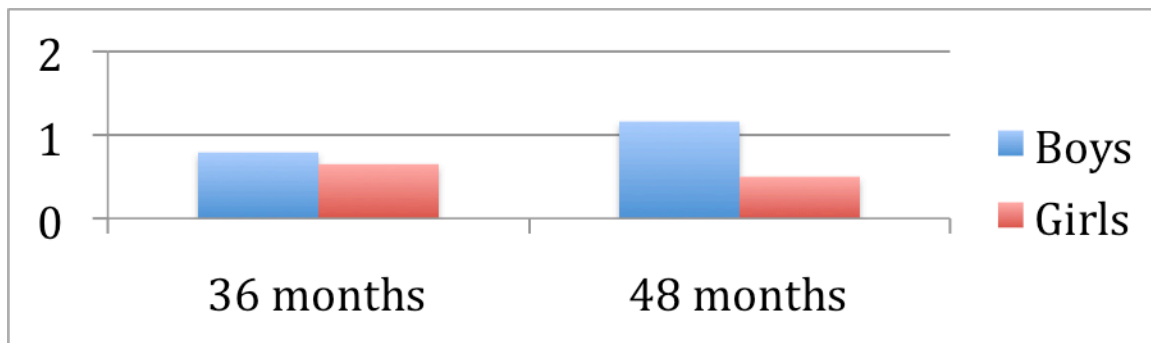


Figure 5: *Mean number of epochs of happiness aggregates during Waiting Task at all available ages for boys and girls in sample*

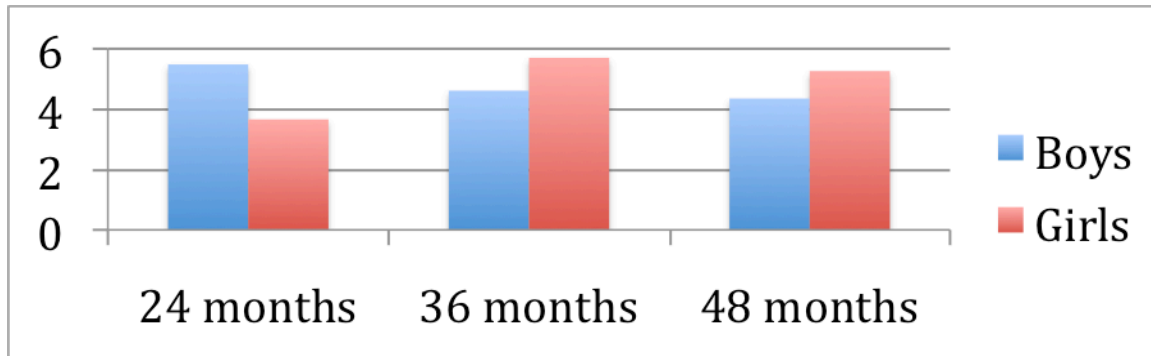
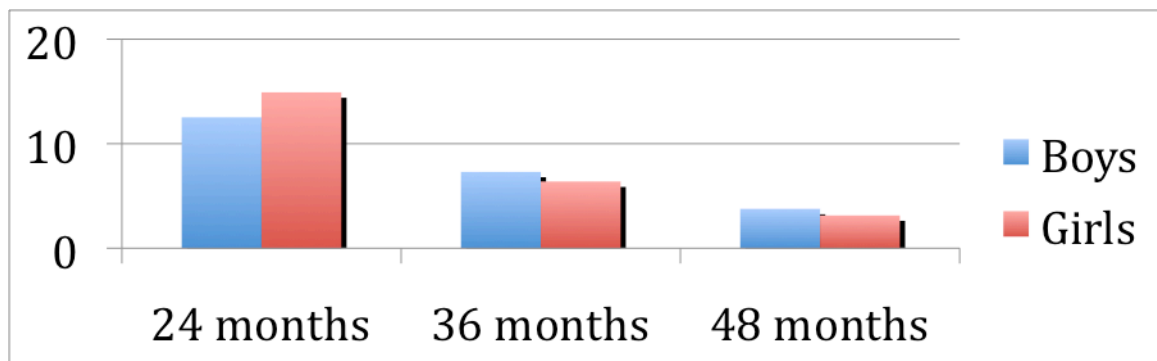


Figure 6: *Mean number of epochs of anger aggregates during Waiting Task at all available ages for boys and girls in sample*





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Education

June 2006 - May 2010	Pennsylvania State University University Park, Pennsylvania Schreyer Honors College
Major	Psychology Bachelor of Arts
Minors	Human Development and Family Studies Political Science
Thesis Title	Gender Differences In Emotion Expression In Young Children
Thesis supervisor	Pamela M. Cole, PhD.
June and July 2008	CIEE: Study Abroad in Seville, Spain

Presentation/ Awards

2006-2010	Deans List
March 2010	Presented thesis findings at Psi Chi Research Conference
Psi Chi	Member of the National Honors Society of Psychology

Research Experience

September 2007 – Present	<b>Dr. Pamela M. Cole: Development Of Toddler Study</b> -Emotion coding team leader -Train new research assistants on coding emotion expressions -Code features indicating anger, sadness, happiness, and anxiety
January 2008 - May 2009	<b>Dr. Kristin Buss: Toddlers Into Kindergarten Emotion Study</b> -Entered surveys filled out by subjects' mothers -Conducted experiments with subjects in varying tasks

-Coded mother's and children's vocalizations

September  
– December 2008

**Dr. Theresa Vescio: Independent Research**

-Created a survey on homosexual views and analyzed results  
-Created a poster presentation to discuss results of survey

September 2007  
- May 2008

**Dr. Kelly Cichy: Hotel Administration Research Study**

-Coded telephone conversations between hotel managers and interviewers  
    - Noted important events in workers days  
    - Noted relations between parents and children  
-Coded telephone conversations between hotel managers' children and interviewers  
    - Noted important events in children's days  
    - Noted interactions between children and parents  
-Coded subjects daily conflicts with customers, friends, and family members

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Work Experience

September 2008  
-Present

**Community Help Centre: Crisis Hotline**

Centre County, PA

- Trained as a short-term crisis counselor relating to emotional support, crisis intervention, alcohol, tobacco and other drugs, and basic needs  
-Work in crisis intervention, short-term counseling, information and referrals, emergency food, emergency temporary shelter placement, and drug and alcohol intervention and information  
-Answer Gay Lesbian hotline, Women's Resource Center, Aids Project, Senior Resource Center, Alcoholics Anonymous, and Counseling Alternatives  
-Board member position  
-Train new volunteers

September 2009  
- May 2010

**Mental Health Practicum: Friendship Group**

Supervisor: Dr. Janet Welsh

-Six weeks of training in class (Psychology 477)  
-Taught a group of four first grade boys with mental health problems  
    -Children were diagnosed with Autistic Spectrum Disorder, Attention Deficit Hyperactive Disorder, Oppositional Defiant Disorder, etc.  
    -Created Lesson plans  
    -Taught social skills to children  
    -Behavioral management

-Reviewed and critiqued clinical skills

June and  
July 2009

**Camp SHIP (Summer High Intensive Program) Counselor**

Charles County, MD

-Worked at a camp for children ages two through five with Autism Spectrum Disorder  
-Assisted the teacher with behavioral management, teaching, and playing with the children

June 2007  
- August 2007

**Friends' Central Camp Counselor**

Wynnewood, PA

-Worked as a mentor and role model for 25 seven year olds

September 2006  
- February 2007

**THON: Rules and Regulation**

University Park, PA

- Controlled security on the dance floor during a 46 hour dance marathon  
- Worked to raise money for pediatric cancer research