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# Table of Contents

Table of Contents 1
List of Tables 2
List of Figures 3
Acknowledgements 4
Abstract 5
Introduction 6
  Importance of Play 6
  Play and Treating Childhood Anxiety 7
  Play Differences Among Children with an “Overcontrolled” Adjustment Style 12
Method 16
  Participants 16
  Procedures 17
  Mood Induction Method 18
  Measures 19
  Specific hypotheses 23
Results 24
  Data Analysis 24
  Interrater reliability 24
  Descriptive Statistics 25
  Preliminary Analysis 25
  Mood Induction Analysis 28
  Main hypotheses 29
    Correlations between the APS-BR and anxiety 29
    Effects of Conditions on Baseline and Post-Mood Induction APS-BR Scores 29
    Effects of High and Low Trait and State Anxiety Levels and Mood Condition Assignment on Post-Mood Induction APS-BR Scores 30
  Effects of STAIC scores and Mood Condition Assignment on Post-Mood Induction ASP-BR Scores 33
Exploratory Analyses 35
Discussion 35
  Play Following the Mood Induction 36
  Relationships between Play Skills and Anxiety 40
  Anxiety and Mood Induction Procedure on Play Skills 42
  Limitations 43
  Refinements and Implications 45
Appendix A. APS-BR Manual/STAIC/ Mood Induction Measures 48
Appendix B. Tables and Figures 68
References 81
List of Tables

Table 1. Participant Demographic Information
Table 2. Description of Procedures by Condition Group
Table 3. Baseline APS-BR scores by Grade and Condition, Mean (SD), F, p-values
Table 4. Overall Baseline APS-BR scores by Gender, Mean (SD), F, p-values
Table 5. Overall Baseline APS-BR Scores by School Site, Mean (SD), F, p-values
Table 6. STAIC Scores at Baseline, Mean, Standard Deviations, Range, F, p-values
Table 7. APS-BR Scores Baseline and Post-Mood Induction Procedures by Condition, Means (SD), F, p-values
Table 8. Frequency count, Pearson Chi-square values, and effect size values of Mood State at Time 1, Time 2, and Time 3 by Condition
Table 9. Correlations between the Baseline APS-BR and STAIC Scores
Table 10. Effects of Baseline Play Scores and Condition on Post Mood Induction APS-BR Scores
Table 11. Interaction between Grade and Condition for Mean (SD) Baseline Trait Anxiety Scores and Mean (SD) Frequency of Affect in Play Post-Mood Manipulation
List of Figures

Figure 1. Interaction between Condition and State Anxiety for Mean Organization in Play Post-Mood Manipulation

Figure 2. Interaction between Condition and State Anxiety for Mean Imagination in Play Post-Mood Manipulation

Figure 3. Interaction between Grade and Condition for Baseline Trait Anxiety Mean Score

Figure 4. Interaction between Grade and Condition for Mean Frequency of Affect in Play Post-Mood Manipulation
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Effects of Anxious Mood on Play Processes

Abstract

By

KELLY M. CHRISTIAN, B.S.

Children endorsing anxiety traits can potentially use play as a way to experience, access, and adjust to positive and negative emotional experiences. The present study investigated the relationship between play skills and anxiety in young school-aged children. Forty-three children were randomly assigned to either an anxious mood induction condition or control condition.

Results of this study indicated the anxious and control groups did not differ in play processes following the mood manipulation procedure. Overall, children in both conditions had significantly better play scores following the mood manipulation procedure when compared to baseline. In addition, a significant negative correlation was found between self-reported state anxiety and baseline Organization scores. Within the anxious mood induction condition, grade acted as a significant moderator on participant’s baseline and post-mood induction play scores. Third graders had significantly more organization, imagination, comfort, and affect in their play when compared to first and second grade children.
Introduction

Play is an essential part of child development. Children seem to be intuitively drawn to play and it is an inherent resource for them to learn about the world that surrounds them. Play also allows children to experience and talk about a variety of emotions while in an enjoyable and non-threatening environment. Children with chronic anxiety often appear to have difficulties identifying and understanding changes in emotional states. Children endorsing anxiety traits can potentially use play as a way to experience, access, and adjust to positive and negative emotional experiences. The purpose of this study was to look at the relationship between play skills and anxiety in young school-aged children. This study attempted to examine processes in children’s play and effects of anxiety by 1) investigating the effect of induced anxious mood on play and 2) examining associations between play and anxiety. It is hoped these findings will help inform how children use play when they are experiencing an anxious event and/or chronic feelings of anxiety.

Importance of Play

There are a number of processes expressed within children’s play that supports the development of adaptive skills that help children mature into adulthood. Play exposes children to a number of factors that are important for child development within the cognitive, fantasy, affective, interpersonal, and problem solving domains (Russ, 2004).

When children play, they are given an opportunity to think creatively, imagine new ideas, and gain insight into their world (Russ, 2004; Singer and Singer, 1990). Pretend play encourages children to understand and reason with many thoughts at one time. Moreover, research has suggested a positive relationship between children’s
creativity, often operationalized as divergent thinking, and the ability to express and understand many different emotions (Russ and Schafer, 2006; Russ, 2004; Seja and Russ, 1999). For example, Seja and Russ (1999) found that the amount and variety of emotions expressed in preschooler’s play significantly related to creativity on a divergent thinking task. Pretend play naturally offers children a non-judgmental world where they can experience and talk about a variety of feelings, and experiment communicating how they feel and practice solving problems (Russ, Robins, and Christiano, 1999; Scott, 1998). Pretend play, which allows for the expression of affect and fantasy, gives children an opportunity to master their emotions (Harris, 2000).

Play can be an arena for developing emotion regulation abilities and provide a safe medium to indirectly instruct young children how to express and modulate their emotions (Russ, 2004). As children gain emotional awareness, they develop cognitive scripts that integrate their emotions with behavior. Suggesting, children who are able to express emotion within a pretend play environment, should be more capable of expressing and interpreting emotions outside the realm of play (Russ and Schafer, 2006).

**Play and Treating Childhood Anxiety**

Play therapy has been a useful tool in therapeutic settings to help children express their feelings, modulate affect, problem solve and resolve conflicts (Chethik, 2000). Through play, children can learn appropriate ways to express emotion, gain comfort in experiencing emotions, and learn to discern subtle differences in emotional expression (Richards, French, Gill Nash, Hadwin, and Donnelly, 2007). Children that are better players may have more access to emotional information, which can translate to learning inter- and intra-personal problem solving skills and better coping skills to handle stressful
situations (Russ, 2004). Importantly, research has shown that children can be taught to improve their play skills (Russ, Moore, and Farber, 2004; Russ, 2003). Factors found to be related to children’s play abilities: coping; divergent thinking; and increased overall well-being, may improve from enhanced play skills (Moore and Russ, 2005; Russ, Moore, Farber, 2004). Additionally, encouraging good play skills in treatment may aid in the development and practice of effective coping skills and problem solving abilities which can later be applied to situations outside of play therapy (Russ, Robins, Christiano, 1999). Play therapy may be a useful therapeutic tool to expose children in a more familiar and comfortable setting to situations where they feel anxious.

Children that endorse anxiety traits often have difficulties identifying emotional states, have less understanding of emotional changes, and have maladaptive coping skills (Richards, et al., 2007; Suveg and Zeman 2004). Furthermore, children who have difficulties labeling and understanding distressing emotions, may experience negative feelings like worry, anger, and sadness more intensely. These emotions may be overwhelming and without effective coping skills, it may be very difficult for children to regulate their emotions on their own and potentially lead to feelings of inadequacy (Richards, et al., 2007; Barrett, Rapee, Dadds, and Ryan, 1996).

Research identifies several early predictors of internalizing disorder which are consistent with traits associated with anxiety: avoiding emotionally arousing situations, feeling unable to cope with specific anxiety provoking situations, and difficulties regulating emotions (Suveg and Zeman, 2004; Mennin et al., 2002; Shields and Cicchetti, 1998; Barrett, et al., 1996; Gross and Munoz, 1995). It has been found that play can reduce fears and anxiety, particularly for children with existing strong imaginative
abilities (Harris, 2000; Strayhorn, 2002). It may be possible for children experiencing clinical levels of anxiety to use play as a way to confront, access, and modulate positive and negative emotional experiences (Harris, 2000). Moreover, using repeated exposures within a play setting encourages children to develop self regulation abilities by practicing problem solving skills. While playing, children can learn how to breakdown problems into manageable parts that they repeatedly handle on their own, and gain confidence they can manage their distress.

Play can be a non-threatening environment for children to have exposure to anxiety provoking stimuli, gradually become desensitized, and reduce their anxiety sensitivity in those particular situations. Targeted interventions for children with anxiety disorders often focus on ways of reducing avoidance and allow the child to be comfortable with the emotional arousal associated with anxiety (Kendall, 2005).

Specifically, in treating children with significant phobias, play has been used to create a familiar environment that makes fears more manageable for children to confront and extinguish these phobias through repeated exposures (Knell, 1993).

For children with separation anxiety and other anxiety related problems, research shows that children who play and have better play skills have reduced anxiety levels. Milos and Reiss (1982) studied separation anxiety in kindergarteners and investigated if children’s teacher-reported anxiety levels would change following participation in different play and non-play activities. The results of the study indicated children participating in the play conditions had decreased anxiety when compared to the control group. In addition, children that had higher quality play, teachers reported lower anxiety concerning separation issues. Another study investigated the association of play,
expressed somatic complaints, and anxiety in first and second grade boys (Grossman-McKee, 1989). It was concluded that those who expressed more affect in play reported both less anxiety and somatic complaints (Grossman-McKee, 1989). This early research addressing the relationship between play skills and anxiety levels, suggests that participating in playtime activities and the quality of this play could potentially reduce anxiety levels in young children when compared to non-playtime activities and less developed play skills.

The quality and amount of fantasy in children’s play has also been shown to relate to a child’s ability to diminish anxiety levels. Children who participated in an anxious mood induction condition and were most anxious used fantasy to role play the source of their distress (Barnett and Storm, 1981). These children also had less anxiety following solitary play when compared to playtime with peers. These findings suggest children benefit more when anxious from the imaginative qualities of the play than from interacting with their peers. Fantasy in pretend play has also been shown to be related to later positive social behavior (Rubin et al., 1983; Fein, 1981). Children’s play could help diffuse negative emotions and resolve conflicts through role playing and provide an opportunity for them to develop a sense of empathy for themselves and others (Rubin et al., 1983; Fein, 1981; Biblow, 1973). Children could potentially have better coping skills, express negative affect, and master difficult experiences if they are able to utilize fantasy in play.

Furthermore, the fantasy component of play has the potential to help children re-work trauma related anxiety and resolve conflicts by giving them an opportunity to take control of a situation that may have been previously out of their control (Alvarez and
Phillips, 1998). Jacobsen et al. (2002) posited that post traumatic stress disorder (PTSD) can develop following a trauma because of a lack of processing that would interfere with cognitive processes necessary to understand and integrate the traumatic experience. Children’s play when expressed in narrative form could also be narrated back to the child by the therapist and framed in a way that is meaningful context for the child, allowing them to be aware of their internal dialogue. Through play, a therapist is able to model the experience and allow children to appraise the anxiety provoking situation in a new way and perhaps feel some relief by obtaining a sense of control in the modeled situation (Stuber and Borkovec, 2002; Harris, 2000).

In clinical practice, structured play interventions have allowed children to resolve a traumatic experience by increasing their emotional and cognitive understanding of the event. Gaensbauer and Siegel (1995) found that therapists who treat children following a trauma, modeled for children how use play in adaptive ways that encouraged them to identify and integrate their emotional experience with their cognitive understanding of the situation. The structured aspects of the play help children re-create the traumatic event, organize the experience, create personal meaning from the trauma, and desensitize fear associated with trauma. Furthermore, expressing emotions in play has been linked to enhance processing of emotion-laden memories (Russ and Schafer, 2006). In the safe environment play offers, children are allowed to test a number of different outcome scenarios and facilitate processing of difficult emotional experiences.

Pretend play can help children experience and modulate negative affect in repetitive and guided situations. Knell (1999) combines play therapy with cognitive and behavioral principles that result in teaching children adaptive problem solving skills and
leaves children capable of modulating their emotional experience and expression. Children who are anxious, may benefit from a structured play environment where they are given permission to actively process the negative affect associated with an anxiety provoking situation (Knell, 1999; Pearson, 2007). The cognitive behavioral approach to play therapy lends itself to treat anxiety through systematically desensitization and repeated exposures in order to extinguish maladaptive thoughts and behaviors.

Children who are able to play well, can use the play session to master their anxiety (Russ, 2003). Current research has not been able to accurately portray the mechanism behind how children utilize play to solve problems, but we know children who are anxious differ in how they used play compared to their peers who are not anxious. As shown in previous work, children that appear to internalize negative affect, play differently than those that express or otherwise cope with distressing emotions (Russ, 2004; Grossman-McKee, 1989, D’Angelo, 1995).

Play Differences Among Children with an “Overcontrolled” Adjustment Style

The current study builds on previous work by D’Angelo (1995) who investigated play differences among children grouped by adjustment styles following an anxious mood induction procedure. The study looked at ninety-five, inner-city children, six to ten years of age. The children were placed into one of three groups based on their adjustment style: overcontrolled; undercontrolled; and ego resilient. These groups were established by teacher nomination and the Achenbach Child Behavior Checklist- Teacher Report Form. The children in the overcontrolled adjustment group were defined as having internalizing problems while the undercontrolled adjustment group had more externalizing issues.
The children in this study were asked to play twice for five minutes and were assessed with the Affect in Play Scale (Russ, 1993). In between the play assessments the children were asked to participate in an anxious mood induction procedure (Masters et al, 1981; Goodwin and Williams, 1982). Children were told to think of something that makes them afraid, think about what happens, and how they feel during that time.

At baseline, internalizing children played significantly different when compared to the externalizing and well-adjusted children. The internalizing children had significantly lower scores on the cognitive composite, which is comprised of organizational, imaginative, and comfort processes in play. The internalizing children also showed less affect expression, a restricted range of affect types, and less intensity of affect. Specifically, they had less positive affect in their play when compared to children with in the other adjustment style groups.

Following the anxious mood induction, children across all the groups showed significantly more negative affect expressed in the play. It is possible that the children were using the play to process the negative affect from the mood induction procedure.

One of the limitations of D’Angelo’s study was that it lacked a control group. Without a control group the results of the study could merely be a practice effect. D’Angelo addressed this concern by highlighting that even though negative affect scores significantly changed after the mood induction, positive affect scores remained stable across the groups. Nonetheless, a control group is needed in order to truly see if a negative mood state will affect play abilities. In addition to adding a control group, the present study measured anxiety levels rather than teacher nominated adjustment styles to
investigate how anxiety and the anxious mood induction procedure relates to any observable differences in children’s play.

Children who have better play skills may be able to use play in a therapeutic way. Play skills have previously been found to relate to children’s ability to solve problems, express emotions, cope, and be better divergent thinkers. Therefore, children who have good play skills may have more resources available to them when having to deal with distressing emotions like anxiety. Findings that explore the relationship between play and anxiety could inform a later intervention, based on cognitive behavioral principles to help anxious children learn to utilize play in adaptive ways to deal with their anxiety.

Summary and Hypotheses

Play has demonstrated to be a useful resource for children dealing with distressing emotions (Russ, 2003; Kenealy, 1989; Rubin, Fein, Vandenberg, 1983; Barnett and Storm, 1981; Sutton-Smith, 1980). Children intuitively utilize play to help them modulate their emotions when they are upset (Kenealy, 1989). Play also gives children an opportunity to experiment with emotions and integrate them into a meaningful narrative (Gainsbauer and Siegel, 1995). In these ways, play can be a coping tool to help children process and express their emotions as well as guide their emotional development.

Anxiety disorders are prevalent across the lifespan and if left untreated in childhood, could result in an increased risk of developing adult anxiety as well as other maladies in the future (Kendall et al., 2004; Beidel and Turner, 1997; Turner et al., 1991). Children with anxiety often have difficulties understanding their emotions and present with inadequate coping skills (Richards, et al., 2007; Mennin et al., 2002; Suveg and Zeman, 2004; Shields and Cicchetti, 1998; Barrett, et al., 1996; Gross and Munoz, 1995).
Empirical evidence suggests children who have difficulties with anxiety could benefit from a targeted intervention that incorporates cognitive-behavioral elements such as modeling adaptive coping skills and role-playing (Knell, 1999; 1993). These elements could be used in play therapy to facilitate the learning of adaptive functioning skills and reduce anxiety levels in a safe environment familiar to children.

One purpose of the present study was to examine the relationship between children’s play skills and their current self-reported anxiety state as well as trait anxiety levels. A second purpose investigated the effect of induced anxious mood on play.

It was hypothesized that children who reported higher anxiety scores would have less affect and imagination in their baseline play when compared to children who reported less anxiety. Also, it was thought that following the mood manipulation task, children in the anxious mood induction condition who reported high levels of anxiety would have more constricted play, i.e. less affect, imagination, organization, and comfort, when compared to children reporting low anxiety in the anxiety condition.

In this study, it was hypothesized that overall, children in the induced anxiety condition would demonstrate more negative affect and imaginative elements in their play when compared to their baseline scores and also to the play of children in the neutral mood condition. Given previous research by Kenealy (1989) and D’Angelo (1995), it was thought that children in the anxious mood condition would use play to process and modulate negative emotions and therefore express more negative affect in their play. In addition, research has shown following an anxiety provoking situation children have increased fantasy in their play (Barnett and Storm, 1981). Moreover, the quality and amount of fantasy in children’s play has been shown to relate to a child’s ability to
diminish anxiety levels (Milos and Reiss, 1982). Therefore, children who are reporting less anxiety ought to demonstrate an increase in imagination following the mood manipulation. Children reporting higher anxiety may have less imagination when compared to low anxiety children within the anxious condition, but also show more imagination following the mood induction when compared to their baseline scores and the play of participants in the neutral condition.

**Method**

**Participants**

Demographic information for the sample can be found in Table 1. The participants were 43 first, second, and third graders from two local parochial elementary schools. Overall, the majority of the sample was female (56%) and the self-reported mean age of the participants was 7.56 (SD=0.98). Specific information about each participant’s race, ethnicity, and socioeconomic status was not obtained, however, each site reported the overall demographic information for the entire school. Percent qualifying for reduced or free lunch was used to describe the socioeconomic status of each site. Site 1 reported the majority of students Caucasian (66%) and 27% Black, 3% Hispanic, 3% Multi-racial, and 1% Asian. Site 1 also indicated 0% of their students qualified for reduced or free lunch. Site 2 also reported the majority of their students Caucasian (41%), however there was more diversity, with 24% of students Hispanic, 16% African American, 16% Multiracial, 2% American Indian, and 1% Asian. Site 2 reported that 85% of students qualified for free or reduced lunch. Parents were asked to sign and return a consent form to allow their child to participate. At Site 1, the participation rate was 30.88% with 68 consent forms sent home to parents of first through third graders and 21 returned
allowing their child to participate. At Site 2, 65 consent forms were sent home with students in the first through third grades and 22 (33.85%) were returned, consenting to have their child participate. Overall, the participation rate of the study was 32.33%. All children were asked for their verbal assent before beginning the study procedures.

Procedure

All children in the study met with the investigator for approximately 30-35 minutes for a single session (see Table 2 for description of procedures). After obtaining verbal assent, and when appropriate written consent, each child was randomly assigned to an anxiety mood induction condition or a neutral mood induction condition. Next, each child was administered the Spielberger State-Trait Anxiety Inventory for Children (STAIC) and then had their play assessed using the Affect in Play Scale-Brief Rating Version (APS-BR) (APS-BR, Cordiano-Sacha, Russ, Short, 2008; STAIC; Spielberger, 1973). Each child was then asked to pick one mood state that best shows how they currently felt from four faces (happy, just okay, sad and scared). They were then asked to rate the intensity of this mood state as well as the other three moods that were not initially chosen by the child.

Next, each child was then given the instructions for either the anxious or neutral mood induction condition. In the anxious mood induction, children were asked to think of a time when they felt scared. In the neutral mood induction, children were asked to think about a memory when they felt “just okay.” (Please see below for instructions) After the mood induction procedure, the children rated their mood state, had their play assessed again, and then rated their mood state a final time. After the final play assessment and mood check, all children were administered the State Anxiety subscale of the STAIC.
After the children completed their participation, parents were asked to complete and return directly to the examiner the Spielberger State-Trait Anxiety Inventory for Children-Parent Report- Trait Version.

**Mood Condition**

The forty-three children were randomly assigned to one of two conditions: an experimental (anxious mood) or control (neutral mood) condition (See Appendix A for mood condition Scripts).

**Anxious Condition**

In the experimental condition, children were asked to think of something that makes them afraid. The mood induction phase uses a technique proven to induce a mild anxiety state in children for the purposes of research (Masters et al, 1981; Goodwin and Williams, 1982, and D’Angelo, 1995). The following script was read to the child and intermittent eye contact is maintained for the next thirty seconds.

"Now I want you to tell me something that really makes you scared, something that makes you feel afraid. ---CHILD RESPONSE----- That’s right. ___ is really scary! You really feel afraid when _____. What else makes you scared? That's right that's really scary too. I want you to practice thinking about things like that. You pick one of those thing we mentioned and think about what happens and how you feel. You think about how afraid you feel when____.

In cases where the child recalled an upsetting event that was distressing to them, the child was asked to think of something else in order to minimize their distress. This procedure followed Moore, Underwood, and Rosenhan (1973) and D’Angelo (1995) who
found that children always thought of a less distressing experience when asked to recall another event.

**Neutral Condition**

In the neutral mood condition the children were asked to describe a neutral memory, one where they felt “just okay” and “fine” rather than being asked to think of something that makes them afraid. Children were asked to think about the steps for thirty seconds, the length of time of the anxious mood induction condition.

**Play Measure**

The Affect in Play Scale-BRV measures a child’s play with a standardized play task (Sacha Cordiano, Russ, and Short, 2008). This version is an adaptation of the Affect in Play Scale which scored the children’s play with a videotape of the session. This current brief rating version assesses children’s play as it occurs in session and uses a modified scoring system. Although, some children in this study were videotaped for later scoring with the original Affect in Play Scale system.

The children in each session are asked to make up a story using a set of three blocks and two human puppets provided by the examiner. Over five minutes the child’s play is observed and is assessed using criterion-based rating scales on a Likert scale of 1-4 to rate the child’s organization, imagination, comfort, and frequency and tone of affect expression during the task (Please see Appendix A for the APS-BR manual).

Organization measures the quality of the plot and story complexity. These qualities are rated using categories that range from a series of unrelated events with no cause-effect to an integrated, complex plot with a beginning, middle, and end. Imagination measures the uniqueness and novelty in the play as well as the child’s ability
to use pretend and fantasy. Imagination is scored in the play using categories that range from no make-believe, transformations, or fantasy in the play to many novel events, transformations, and additional characters or unusual plot twists. Comfort is a global rating for the child’s ability to immerse in the play and their overall enjoyment during the activity. The child’s comfort is scored on a range of reticent, distressed, and frequently stopping and starting during the play to comfortable, involved, and immersed in the play. Frequency of affect measures the amount of emotional expression in the play and is defined in affective units. An affective unit is a scorable, emotional expression by a single puppet and falls in one of eleven defined affect categories. Frequency of affect is tallied and then converted on the Likert scale ranging from low frequency of affect (1; 0-2 affect units) to high frequency of affect (4; > 15 units). The positive and negative tone of affect expression is based upon the amount of positive and negative affect units in the play. The scores in this category range from predominately negative affect (1) to predominately positive affect (4).

The Affect in Play Scale-Brief Rating Version (APS-BR), was administered to assess play at both baseline and following the mood manipulation procedure. The APS-BR is highly correlated with the APS scales, indicating, the APS-BR and APS are measuring very similar constructs in children’s play (Sacha Cordiano, Russ, and Short, 2008; 2005). In two studies, the APS-BRV was found to have good validity in that it related to theoretically relevant criteria and high interrater reliability (Sacha Cordiano, et al., 2008; 2005).

*APS-BR Instructions:*
I am here to learn about how children play. I have here two puppets and would like you to play with them any way you like for three minutes. For example, you can have the puppets do something together. I also have some blocks that you can use. Be sure to have the puppets talk out loud. I’ll tell you when to stop. The child is told where there is one minute left with the instruction, “You have one minute left.”

*Mood Check and Intensity Ratings*

The children were asked to rate their current mood with the four faces and intensity scale to get a baseline rating and validate the mood induction phase (D’Angelo, 1995; Barlett, Burleson, and Santrock (1982); Moore, Underwood, and Rosenhan, 1973). The children were asked to think about their current mood and choose from a set of four drawn faces: happy, sad, scared, and mad, which one best represents their mood. The intensity of their mood is then assessed by having the children identify how much they felt the feeling by pointing to one of five towers ranging in size of one to five units. Reliability was established for the self rating using the faces by Barlett, et al. (1982) with the reliability found to be at the <0.001 level of significance.

The following instructions were read to each child (See Appendix A for a copy of the mood state instructions, Four Faces and Intensity measures).

*Mood at Baseline and Endpoint:*

I have four different faces here. Each one feels something different. This one is happy, this means you feel really good inside right now, this one is “just okay” this one means you’re not really happy or sad, this one is sad, this one means you’re feeling kind of down, and this one is scared, like when you have butterflies in your stomach. *(points to each face and labels each with a feeling)* I want you to think about which face is
most like how you feel right now. When you’re ready, point to the face that best shows how you feel. Okay, you feel_______? Now I want you to think about how much you felt _____ . I have five towers here from you to choose from. This one means you felt _____ just a little (points to 1 unit) and this one (points to 5 units) means you felt it a whole lot.” Now I want you to think about how much you feel (names the remaining three faces) and point to the tower.

*Mood assessed immediately after the mood induction:*

Following both the anxious and neutral mood induction procedures, all children were read the baseline and endpoint mood script with the exception of one change. They were told “I want you to think about which face is most like how you felt when you were asked to think about ______ (wait 5 seconds). Then they were asked to “Point to the face that best shows how you felt.”

*Spielberger State-Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973)*

The STAIC consists of two, twenty item scales that assess both the current anxiety state and tendency to respond in an anxious way. All the children are read items from the trait subscale of the STAIC and a self report of the frequency in which an item occurs is documented on a three-point scale: 1=almost never 2=sometimes 3=often. A trait anxiety score is computed by summing these items. STAIC scores range from 20 to 60 with higher scores indicting higher levels of trait anxiety. The STAIC was initially developed and standardized with children nine to twelve years old, it has been found to be a useful measure of anxiety for children as young as kindergarten (Shafer, 2004; Grossman-McKee, 1989; Papay and Spielberger, 1986; Papay, Costello, Hedl, and Spielberger, 1975). The STAIC has demonstrated good internal consistency and
convergent and divergent validity (Muris, et al., 2002; Spielberger, 1973). The trait anxiety subscale has demonstrated retest reliability between 0.65 and 0.71 (Southam-Gerow, Flannery-Schroeder, and Kendall, 2003) (See Appendix A for a copy of the STAIC and scoring criteria).

*Spielberger State-Trait Anxiety Inventory for Children-Parent Report-Trait Version (STAIC-PT; Strauss, 1973)*

The STAIC-PT is a modified trait version of the STAIC (Spielberger, 1973) to be used as a parent rating of their child’s trait anxiety. The measure asks about the child’s general anxious state from the parent’s point of view. It also has an additional six questions to address physiological responses to anxiety. Southam-Gerow et al. (2003) demonstrated with the STAIC-P-T very high internal consistency and moderate retest reliability. Correlations between parents were moderately high while child self reports of anxiety correlated poorly with the STAIC-P-T (Shafer, 2004; Southam-Gerow, et al., 2003) (See Appendix A for a copy of the STAIC-PT).

*Specific Hypothesis*

The main hypotheses for the present study were as follows:

1. There would be a significant negative relationship between levels of trait and/or state anxiety and frequency of affect and imagination scores on the APS-BVR.
2. Children in the anxious mood induction condition should have had significantly more negative affect and imagination in their play following the anxious mood induction procedures than children in the control group.
3. There would be an interaction effect between anxiety levels and mood condition. Specifically, children in the anxious mood induction condition who report higher levels of anxiety will have more constricted play when compared to children in the neutral condition and low levels of anxiety.

Results

Pearson Bivariate correlations were used to assess the relationship between the Baseline APS-BR scores and STAIC scores. An analysis of covariance was carried out to determine if there were significant differences between the condition groups on the organization, affective, and imagination dimensions of play following the mood induction when controlling for baseline play abilities. A repeated measures analysis of variance was also used to test differences between condition groups in baseline play and play after the mood induction procedure. However, only results from the analysis of covariance are reported because of the similar findings. A two-way between-groups analysis of variance was conducted to explore the impact of high and low levels of anxiety and mood condition on the participant’s play, as measured by the APS-BR. Multiple regression was carried out to explore how exposure to the mood induction procedure and anxiety levels effect post induction play scores.

Interrater reliability

Interrater reliability for the APS-BR was assessed by having an independent rater score 20 of the 43 tapes. Interrater reliability was determined using an intraclass correlation coefficient. A two-way mixed model was used, testing for absolute agreement with a 95% confidence interval. According to Shrout and Fleiss (1979), the use of the intraclass correlation coefficient is a more rigorous measure of interrater
reliability than other measures, such as alpha, because it measures absolute agreement, rather than just consistency between raters. The average scores for the intraclass coefficients were 0.79 for Organization, 0.77 for Imagination, 0.92 for Comfort, 0.83 for Frequency of Affect Expression, and 0.57 for Tone of Affect Expression. With the exception of Tone, the interrater reliability results were adequate.

*Descriptive Statistics*

Means, standard deviations, F, and p-values were calculated for all baseline APS-BR scores by grade, gender, and school and are presented in Tables 3, 4, and 5. Means, standard deviations, ranges, F, and p-values were calculated for the baseline STAIC-child report and STAIC-parent report and reported in Table 6. Descriptive statistics for each of the baseline and post-mood induction play scores, separated by condition, are presented in Table 7. There were different numbers of participants for different measures. Forty-three participants completed the study. For all of the child-report measures (STAIC, Mood Check, and APS-BR), the number of participants was 43, while twenty-six parents (N=11 control, N=15 anxiety conditions) reported their perception of their child’s trait anxiety.

*Preliminary Analyses*

One-way ANOVA’s and ANCOVA’s were conducted to explore if there were significant differences among subgroups of participants based on grade, gender, and school site, and their baseline and outcome play scores. Other preliminary analyses were conducted to determine whether the anxious mood induction was differentially effective for children based on grade, gender, and school site.
Baseline play scores were explored by grade (see Table 3). The pattern of data suggested a significant difference in the baseline Organization scores between grades, [F (2, 40) = 5.491, p=0.008, eta=.46] in which children in older grades had higher baseline play scores (M= 3.75, SD=0.62) than did children in first (M=2.56, SD=1.15) and second grades (M=2.47, SD=1.06). A trend was also observed where Tone scores indicated participants in first grade displayed more positive affect compared to second and third grades [F (2,35)= 2.37, p=.10, eta=.37). Grade was also entered as a possible covariate in the analysis of post-mood induction play scores and no significant differences were found.

There were no gender differences among baseline or post-mood induction play scores (see Table 4).

Baseline play scores were explored by school site (see Table 5). There was a significant difference in baseline Tone scores by school site [F (2,35)=4.36, p=.04, eta=.33] in which children at Site 1 had more negative affect in their play (M=2.65, SD=1.09) when compared to children at Site 2 with more positive affect (M=3.33, SD=.91). Further, self reported baseline trait anxiety levels was entered as a covariate, in the analysis of baseline play scores by school site given the significant mean difference in trait anxiety levels between the two school sites [F(1,41)= 9.49, p=0.004]. Trait anxiety was only a significant covariate by school for baseline Tone scores [F (1,35)=4.38, p=.04, partial eta squared 0.11]. Participants at Site 2 on average displayed more positive affect in their baseline play and reported greater levels of trait anxiety. School was also entered as a possible covariate in the analysis of post-mood induction play scores and no significant differences were found.
There were no significant differences in variance between condition groups for all of the post-mood induction play scores (see Table 7). However, participants in the anxious condition appeared to play differently following the mood induction. To explore other possible sources of variance, a one-way ANOVA was conducted to look at differences in baseline play scores by grade, gender, and school within the anxiety and neutral conditions.

Participants in the anxious condition, showed a significant difference in baseline play by grade for Organization [F (2,18)=6.880, p=.006], Imagination [F (2,18)= 4.206, p=.032], Comfort [F (2,18)= 9.486, p=.002], and Frequency of Affect [F (2,18)=5.960, p=.010] scores (see Table 3). Within the neutral condition, only baseline Tone was significant by grade, [F (2,18)=3.62, p=.05] (see Table 3). There were no other significant differences in baseline play scores among participants assigned to the neutral condition. Gender and school variables did not significantly account for differences in baseline play scores in either mood condition.

Within each condition, possible sources of variance in post-mood induction play scores were also explored. In both conditions a stepwise multiple regression procedure was performed with post-mood induction play scores as the dependent variable and grade, school, and gender variables as simultaneous predictors. Only one of the predictor variables, grade, contributed significantly to post-mood induction play scores in the anxious mood condition, Organization [R=.713, R^2=.509, F (1,19)=19.664, p=.008], Imagination[R=.533, R^2=.284, F (1,19)=7.544, p=.013], Comfort [R=.562, R^2=.316, F (1,19)=8.771, p=.008], and Frequency of Affect [R=.555, R^2=.308, F (1,19)=8.462, p=.009]. For children in the anxious mood condition, grade accounted for 50.9% of the
variance in Organization scores, 28.4% of the variance in Imagination scores, 31.6% of the variance in Comfort scores, and 30.8% of the variance in Frequency of Affect scores.

Within the neutral mood condition, none of the above predictor variables significantly contributed to differences in post-mood induction play.

In light of the preliminary analysis, grade appears to be a significant moderator in predicting play scores at baseline and post-mood induction for children in the anxious mood condition. As a result, grade was controlled for in the hypothesis testing where relevant.

*Mood Induction Analysis*

A Chi-square test for independence was conducted to determine if the experimental and control conditions differed significantly in their self reported mood state at Time 1 (prior to the mood induction), Time 2 (following the mood induction), and Time 3 (after the final play session), Each participant was asked to rate their mood state using the Four Faces measure and answers were coded the following way: 1=happy, 2=just okay, 3=sad, and 4=scared.

The frequency counts, Pearson Chi-square values, and effect size values are presented in Table 8. Results indicate between groups there was a significant difference in mood following the induction procedures with a large effect size \( \chi^2 (3,43) = 17.71, p=.001, \text{Cramer’s } V=.64 \]. There were no differences in mood between groups at baseline or following the final play period. After the mood induction procedures, those in the anxious group rated themselves as feeling significantly more negative following the induction procedures than participants in the neutral group. The mood manipulation
check indicated the induction procedures were effective in inducing a more negative mood state.

Main hypotheses

Correlations between the APS-BR Baseline Scores and Anxiety

Pearson Bivariate correlations were used to examine the correlations between scores on the APS-BR and baseline scores on the STAIC (see Table 9). It was hypothesized that frequency of affect and imagination baseline play scores would negatively correlate with trait and state anxiety scores. No significant correlations were observed between the baseline play scores and the self reported and parent reported trait anxiety subscale of the STAIC. There was a significant, negative correlation between the baseline Organization score and self reported state anxiety ($r = .379$, $p < .05$). This correlation met Cohen’s criteria for a moderate effect size (1995). The hypothesis was not supported, however, findings are consistent with previous research indicating a significant negative relationship between state anxiety scores and organization in play (Grossman-McKee, 1989). In addition, Grossman-McKee (1989) reported no significant correlations between play scores and trait anxiety scores.

Effects of Conditions on Baseline and Post-Mood Induction APS-BR scores

An ANCOVA was conducted to explore the relationship between condition and post-mood induction play scores while controlling for baseline play. It was hypothesized that children in the anxious mood condition would have more negative affect and imagination in their play following the mood induction procedures when compared to their baseline play scores and neutral group play scores following the mood manipulation procedure. As predicted, a significant relationship was found between all baseline and
post-mood induction play scores (see Table 10). Overall, all participants had improved play scores following the mood manipulation procedures. After controlling for baseline play scores, no significant differences were observed between the two mood condition groups on the post induction play scores (see Table 10). When grade was added as a covariate, grade emerged as a significant effect for the Frequency of Affect play scores, however the main result was still intact. Although not reaching significance, it is important to note the post-mood induction Frequency of Affect play scores were greater for participants in the anxious mood condition than for those in the neutral mood condition \[ F (1,40)= 2.23, p=.138, \text{ns, partial eta }=0.055 \]. Post-mood induction Imagination scores also showed grade as a moderator at the trend level, however differences in Imagination were not accounted for by condition assignment. Furthermore, the hypothesis was not supported, as there were no significant differences in the amount of negative affect between conditions following the mood induction procedures.

**Effects of High and Low Trait and State Anxiety Levels and Mood Condition Assignment on Post-Mood Induction APS-BR Scores**

A two-way between-groups analysis of variance was conducted to determine the impact of high and low levels of anxiety and mood condition on the participant’s play, as measured by the APS-BR. It was hypothesized that children who reported high levels of anxiety and assigned to the anxious mood induction condition, would have more constricted play when compared to children in the neutral condition and children reporting low levels of anxiety. With the exception, that imagination scores would be higher in the anxious condition when compared to the neutral condition.
An accepted clinical cutoff score for the STAIC could not be found and limitations in sample size led to the decision to use a median split method to analyze differences among reporters of high and low anxiety. To determine high and low anxiety groups, a median split was conducted and participants were divided into two groups depending on their self-reported trait and state anxiety scores. In this sample, those with a score of 39 and above were considered to have high trait anxiety and less than or equal to 38 with low trait anxiety. Participants with state anxiety scores of 29 or greater were considered to be in the high state anxiety group and those reporting scores below 28 were put in the low state anxiety group. Richards, et al. (2007) reported using a median split method to analyze high and low anxiety levels in children using the STAIC. The reported means of Richards, et al. (2007) sample were comparable to those found the current sample with a mean trait anxiety score of 38.46 (SD=7.94) and a mean state anxiety score of 32.48(SD =6.53).

The interaction effects between trait or state anxiety levels, assigned mood condition and all of the post-mood induction play scores were not statistically significant.

When looking at the effects of high and low state anxiety, a main effect at trend level was found for condition assignment and Organization in play [F (1,39)= 2.984 p=.09]. Additionally, there was a main effect for state anxiety level and Organization in play at trend level [F (1,39)= 2.750, p=.10]. The effect sizes were small [partial eta squared=.071 and .066 respectively] indicating these findings may be due to chance. The mean Organization play scores by condition and state anxiety group assignment are shown in Figure 1. Findings suggest support for the hypothesis with a trend towards significance where participants in the neutral condition and reporting low state anxiety levels on
average have greater organization in the play than participants in the anxious condition reporting high state anxiety levels.

In addition, there was a trend towards significance main effect for state anxiety group and Imagination in play \([F (1,39)= 3.887, p=.06]\). Again, the effect size was small \([\text{partial eta squared}= .09]\). The mean Imagination play scores by condition and reported state anxiety are reported in Figure 2. These findings suggest that there is a trend toward significance that state anxiety levels and the amount of imagination in play are negatively related as hypothesized.

Preliminary analysis indicated grade to be a significant moderator in predicting some play scores at baseline and post-mood induction for children in the anxious mood condition. In addition, it is important to control for baseline play scores in order account for changes in play between baseline play and play after the mood manipulation procedure. After controlling for baseline play scores and grade, a significant main effect emerged between participants with high and low trait anxiety and the Frequency of Affect scores \((F=6.80, p=.01)\). However, the interaction of trait anxiety level and condition assignment was not significant in accounting for differences in Frequency of Affect scores \((F=1.3 , p=.262, ns)\). When looking at state anxiety levels and controlling for grade and baseline play scores, condition assignment and state anxiety no longer explained variance in post-mood induction Organization play scores \((F=1.46, p=.24, ns\) and \(F= 0.10, p=.76, ns)\) respectively. In addition, state anxiety no longer explained the variance in post-mood induction Imagination scores at a trend level \((F= 1.53, p=.22, ns)\).
Effects of STAIC scores and Mood Condition Assignment on Post-Mood Induction APS-BR Scores

To address the statistical challenges of using a median split method of identifying high and low anxiety participants, multiple regression analyses were conducted to examine if differences in baseline state and trait anxiety scores or mood condition assignment accounted for changes in play processes. A multiple regression procedure was performed individually, with each of the post-mood induction APS-BR play scores as the dependent variable, and baseline play scores, assigned mood condition and either state or trait anxiety scores as simultaneous predictors.

When looking at state anxiety scores, predictor variables mood condition and state anxiety, significantly contributed to only one dependent variable, Imagination \[R = .430, R^2 = .185, F (2, 40) = 4.550, p = .017\]. The baseline state anxiety level and assigned mood condition explained 18.5% of the variance in post-mood induction Imagination scores. Only baseline state anxiety levels made a statistically significant contribution to the model, (\(\beta = -.388, p = .01\)), indicating a negative relationship between state baseline levels and imagination scores. Hierarchical multiple regression was used to assess the ability of state anxiety to predict Imagination scores after controlling for the influence of baseline play scores and grade. Grade and baseline play were entered at Step 1, explaining 43.3% of the variance in post-mood induction play. After entry of the baseline state anxiety and mood condition at Step 2 the total variance explained by the model as a whole was 49.6%, \([F (4,38) = 9.34, p < .001]\). The state anxiety measure and mood condition explained an additional 6% of the variance in post-mood induction play when
controlling for grade and baseline play, \[R^2_{\text{change}} = .06, F_{\text{change}} (2, 38) = 2.32, p = .11, \, \text{ns}\] and does not significantly impact the post-mood induction Imagination scores.

A trend towards significance was found with post-mood induction Organization scores as the dependent variable and baseline state anxiety scores and assigned mood condition as predictors \[R = .333, R^2 = .111, F (2, 40) = 2.499, p = .095\]. The baseline state anxiety level and assigned mood condition explained 11.1% of the variance in post-mood induction Organization scores. Only state anxiety scores were found to contribute trend level significance to the model, (beta = -.258, p = .092). When controlling for grade and baseline Organization scores, state anxiety scores no longer predict post-mood induction Organization scores, \[R^2_{\text{change}} = .02, F_{\text{change}} (2, 38) = .77, p = .468, \, \text{ns}\].

In examining the relationship between trait anxiety, condition assignment and play abilities, a multiple regression procedure was performed separately with each of the post-mood induction APS-BR play scores as the dependent variable and baseline self-reported trait anxiety scores and assigned mood condition variables as simultaneous predictors. Neither predictor variables, contributed significantly to any of the dependent variables.

Hierarchical multiple regression was used to control for the influence of grade and baseline play scores on the ability of trait anxiety and assigned condition to predict post-mood induction scores. Only the Frequency of Affect post-mood induction play score emerged with a significant finding (see Table 11). Grade and baseline play were entered at Step 1, explaining 40.8% of the variance in post-mood induction play. After entry of the baseline trait anxiety and mood condition at Step 2 the total variance explained by the model as a whole was 50.1%, \[F (2, 38) = 9.54, p < .001\]. The trait anxiety measure and
mood condition explained an additional 9% of the variance in post-mood induction play when controlling for grade and baseline play, \( R^2 \text{change} = .09, F \text{ change} (2, 38) = 2.38, p = .03 \). In the final model, only trait anxiety scores were significantly significant, \( \beta = -.252, p = .04 \). Overall, the result indicated children on average in later grades had higher Frequency of Affect scores and lower trait anxiety scores while earlier grades demonstrated less affect in their play and reported more trait anxiety (See Table 11 for descriptive statistics and Figures 3 and 4). This finding suggests support for the hypothesis that children who report feeling less anxious would have more affect in their play.

**Exploratory Analyses**

Hierarchical multiple regressions were conducted within the anxious mood condition to explore the extent reported post-mood induction mood state was reflected in post-mood induction play. Grade and baseline play were entered at Step 1 given the significant differences in grade and baseline play within the anxious condition. Post-mood induction APS-BR play scores were entered individually as the dependent variable and reported mood state following the mood induction was entered as a predictor at Step 2. No significant differences were observed within the anxious condition between the post-mood induction mood state and play scores on any of the five APS-BR criteria.

**Discussion**

The major question in this study was whether induced anxiety would influence children’s pretend play. The major results of the study were that, after adjusting for baseline play skills and grade of participants, no significant differences were observed in
play processes following the mood induction between the two condition groups. It is important to note that the mood manipulation check showed that the mood induction procedures worked and children in the anxious condition reported a more negative mood state. Overall, children in both conditions had significantly better play scores following the mood induction procedure. Although results did not reach significance, on average, children in the anxious mood induction group had more affect and positive feelings in their play following the mood induction procedures. Also not a significant finding, however important to note, is that participants in the neutral mood induction group had higher organization and imagination scores on average when compared to the anxious mood condition. In addition, a significant negative correlation was found between self-reported state anxiety and baseline Organization scores and no significant correlations were found between reported trait anxiety and play scores. This finding is consistent with prior research investigating the relationship between play scores on the APS and STAIC in first and second grade boys (Grossman-Mckee, 1989). In addition, children that reported lower state anxiety had significantly higher Imagination scores than those with greater state anxiety. Further, children in later grades on average had higher Frequency of Affect scores following the mood manipulation and lower trait anxiety scores, while earlier grades demonstrated less affect in their play and reported more trait anxiety.

*Play Following the Mood Induction Procedures*

Overall participants in both condition groups demonstrated improved play scores following the mood induction procedure. This finding was consistent with D’Angelo (1995) who found that all children across internalizing, externalizing, and well adjusted groups improved during a second play task, following an anxious mood induction
procedure. The present study added a control group, and current findings indicate that the anxious mood induction procedure may not have explained the improved play scores as it was suggested in D’Angelo’s work. Rather, the better play scores may be a practice effect since improvement occurred in both our control and experimental conditions.

The improved play scores may be due to practice effects where the children may have been more comfortable using the play task items, puppets and blocks, to experiment with new ideas and develop more depth stories. It also may be the case that the children may have a better sense of the amount of time they had to play and played longer in the second play session. Another possible reason for the improved scores is that the children may have felt more comfortable playing in front of the rater, because following the initial play tasks all children were given the same positive feedback, “You did a good job!” This positive feedback may have prepared some children for the second play session in that they may have felt more confident that they are playing “the right way.” This may have gave them permission to take risks and play in more imaginative and in depth ways.

Children often use play to rehearse experiences they face in their daily lives. Anecdotally, children were often observed playing stories about recess and having a friend over to their house. Typically, during the first play session children dealt with “what are we going to do” and would have the puppets negotiate and try out different activities. During the second session, often the characters had already decided what they were going to do and now the characters were spending less time having a dialogue and spent more time “doing” the activities which resulted in more play. This “doing” could impact a number of play processes. Specifically, the amount of organization in the play,
as well as the imagination, which may increased as children have time to brainstorm and try out new ideas in their play.

While children in both conditions demonstrated improved play scores, there were no significant differences found between the neutral and anxious mood conditions. There are a number of possible reasons why differences were not found. One, the study used a random sample of children in the community. This sample was not targeted to have a particularly high risk group of anxious children and it was unknown if any children in the study actually experience clinical levels of anxiety. In addition, this study builds off of the methods and findings of D’Angelo (1995) who used teacher nominations based on adjustment styles to establish group assignment while the current study randomly assigned children to each condition.

Therefore, children in the study who may truly experience elevated levels of anxiety may experience the anxious mood induction procedures differently than children not experiencing anxiety. It may be the case, that children who are more sensitive to feelings of anxiety and are more easily distressed by physiological feelings of anxiety may avoid thinking about their self generated scary memory. Children who enjoy the physiological feelings associated with anxiety, (ie risk takers and thrill seekers), may allow themselves a more intense experience during the anxious mood induction than children avoiding these feelings. However, the opposite may also be true, and that those sensitive to anxiety may be more responsive the anxious mood induction procedures. It may be the case that anxious children may be more equipped to self generate a number of lucid, scary memories and be more susceptible to feelings of anxiety than a non-anxious child.
Therefore, children who feel anxious on a clinical level may be responding differently to the anxious mood induction procedures than children not experiencing problematic anxiety. Consequently, the children within the anxious mood condition may not respond to the procedures in their play in a similar manner. The effect of the induced anxious mood may be masked by the differential effects of the procedure for children who are more or less sensitive to experiencing anxiety. Using a clinically anxious population of children in this study may have controlled for differences in the mood manipulation experience.

Further exploration of the effect of the anxious mood induction procedure showed that children in older grades within the anxiety condition demonstrated significantly higher Organization, Imagination, Comfort, and Frequency of Affect scores after the mood conduction procedures and when controlling for baseline play skills. Therefore, the older children within this condition may have experienced the anxious mood induction procedures differently. Moreover, the significant post-mood induction play differences between grade levels in the anxious group were not observed in the neutral-mood induction group indicating that the anxious mood induction procedures effected children differentially based on grade.

Another reason differences in play were not observed between the anxious and control conditions could be that the mood manipulation procedure in the anxious group may not have been strong enough to impact the post-mood induction play scores. In the previous study by D’Angelo (1995), results indicated that following the anxious mood induction procedures, all children showed significantly more negative affect in the play and concluded children were possibly using the play to process the negative emotions.
The play scores that are thought to be the most sensitive to mood manipulation are frequency of affect and tone. Tone did not differ significantly between conditions, however, on average more positive emotion was displayed in the anxious mood condition. Differences between conditions in the amount of affect in the second play task was close to trend level significance, showing participants in the anxious mood condition had more affect in their play. This may be a chance finding, however it may also be an indication, that a subgroup of children in the anxious mood condition, experienced the mood manipulation procedures differentially which may have impacted a change in their play skills. In addition, children in the neutral mood condition on average appeared to have greater organization and imagination in their play. This also did not reach a significant level and therefore may be a chance finding. However, it could mean that without the anxious mood manipulation, children in the control condition were better able to rehearse and practice playing, demonstrating an increase in the cognitive elements of their play rather than focus on the emotional elements following an anxious mood induction procedure.

**Relationships between Play Skills and Anxiety**

Another purpose of the present study was to examine the relationship between children’s play skills and their current, self-reported anxiety state as well as trait anxiety levels. The correlations between the APS-BR and the STAIC-child report as well as the parent report of child’s trait anxiety revealed only one significant finding. There appeared to be a significant, negative relationship between self-reported state anxiety levels and the amount of Organization in baseline play skills. There were no other observed relationships between baseline play scores and children’s reported state and trait anxiety.
levels. The negative relationship between state anxiety levels and organization is consistent with the findings of Grossman-McKee (1989). Moreover, as it was found in the current study, self reported trait anxiety scores were not associated with play skills (Grossman-McKee, 1989).

Preliminary analyses revealed that there were significant differences in trait anxiety levels between the two school sites. Participants at Site 2 on average displayed greater levels of reported trait anxiety. The overall differences in socioeconomic status (SES) at each school site may have contributed to the observed differences in reported trait anxiety levels. At Site 2, 85% of children enrolled at that school qualified for reduced or free lunch compared to 0% of children at Site 1. A greater percentage of children at Site 2 are living in a lower level income household when compared to children from Site 1. The difference in SES level between the sites, may indicate those at Site 2 potentially experience additional stressors associated with living in a lower income household that children at Site 1 do not experience. However, overall there were no differences observed in baseline play abilities between the two sites. These findings suggest the differences in SES between school sites did not moderate children’s play abilities. This is an important finding that implies children across differing socioeconomic classes are able to develop good play skills and perhaps promote adaptive skills.

When differences in baseline play skills were examined further for each school site and trait anxiety was controlled for, children at Site 2 reporting higher levels of trait anxiety demonstrated significantly more positive affect in their baseline play. This
finding does not support the hypothesis that children reporting greater levels of anxiety would have more negative affect in their play.

One possible explanation is that the hypothesis is wrong and children who experience feelings associated with trait anxiety more often, are more likely to show positive emotions in their play. Kenealy (1989) found that children reported that they regularly turn to play to help them cope with upsetting emotions. Moreover, children reporting greater levels of trait anxiety may also demonstrate more positive affect in their play to counter negative feelings. Following this logic, children with higher trait anxiety, like those at Site 2, may use play more often to help regulate their emotions when dealing with stressors and show more positive affect in their play to feel good.

Anxiety and Mood Induction Procedure on Play Skills

It was hypothesized that children in the anxious mood induction condition who also reported greater levels of anxiety would have more constricted play when compared to children in the neutral condition and reporting low levels of anxiety. When examining the interaction of self reported anxiety levels and assigned mood condition on play skills, a statistically significant, negative relationship was observed between state anxiety levels and Imagination scores. Similarly, a trend towards significance was observed between the organizational elements of play, state anxiety levels, and condition assignment. When grade level and baseline play skills were controlled for in these analyses, the differences in imagination and organization were no longer significant or at trend level. However, a significant negative relationship was found between the reported trait anxiety levels and the amount of affect in children’s play following the mood manipulation procedure. In
addition a significant positive relationship was found between grade and the amount affect in second play assessment.

These findings suggest support for the hypothesis that children reporting higher levels of anxiety had more constricted play than those reporting low levels of anxiety following the mood induction procedures. This effect was not observed when accounting for the effects of grade and baseline play skills, with the exception of testing the interaction of trait anxiety and mood condition on play skills. As previously discussed, the lack of differences in play among high and low anxious children across the anxious and neutral mood induction groups may be a result of differences based on grade level, the nature of fear and avoidance effecting how children participated in the mood induction procedures, and the strength of the mood induction procedures. In addition, the STAIC information was gathered by self-report. Younger children may not be accurate reporters of their state or trait anxiety levels and parental report may have revealed differences between high and low anxious children and their play scores following the mood manipulation procedures. Parent report of their child’s trait anxiety was collected; however, the lack of parental participation did not allow this information to be included in the analyses.

Limitations

A major limitation in this study was that we were restricted by the small sample size of only 43 children from two, different school sites. A larger sample of children may have given more power to find other significant findings where trend level findings were found.
Another limitation in this study was that some, but not all of the participants were videotaped during the play task. For this reason, the sample experienced different conditions during the play task. Steps were taken to try to keep the environment similar in that a video camera was placed in the same position facing all participants while they played. However, the examiner still had to disrupt the flow of the procedures by turning the camera on and off signaling to the child that they were in fact videotaped.

Another limitation in this study is that the STAIC measure given to children to indicate state and trait anxiety levels does not have a published clinical cutoff. Therefore, it is uncertain if children in this study who are labeled with “high” anxiety are truly experiencing clinically significant anxiety. Additionally, this study did not intentionally recruit high and low anxious participants, but rather a random sample of children. Therefore, it may be the case that none of the children in the high anxiety group were experiencing clinically significant anxiety. However, despite this limitation, a common method of indicating high and low anxiety was employed, and the reported STAIC means of high and low anxiety groups in other samples were comparable to those found in this study (Richards, et al. 2007).

The final limitation came from the fact that the mood induction procedures could not be controlled and that children may not have had the same mood manipulation experience. The mood induction procedure used a self-generated scary or just okay memory. It was noted, that children’s scary memories varied from “seeing a spider” to more elaborate memories describing a time they were alone at night, during a scary storm with naked tree branches scratching at their bedroom window. Additionally, some children were unable to think of a memory and instead reported a scary thought, like
seeing a bear in the woods alone. Moreover, many children in the neutral condition needed to be redirected to think of a just okay memory and not a scary memory. Some children were told prior to their participation that “a lady would be coming to the classroom to scare them” and this may have primed some children randomized to the neutral condition to think about a scary memories even after being told otherwise. In effect, the examiner was unable to control for the memories children thought about and could only redirect children to think of something else if it was not appropriate. Furthermore, it could not be measured how much each participant thought about their memory when prompted to think about it for thirty seconds. Alternative methods of mood induction procedures were considered, however given these limitations, generally it is difficult to induce a mood in a standard way with children.

Refinements and Implications

After completing this study there are a number of refinements that could be made that might have impacted the results of the study. For example, using the original Affect in Play Scale (APS) version may have been a better measurement choice because it is a more sensitive measure of affect in play. The scoring methods of the APS may have been able to detect significant differences in affect frequency and tone of affect that may have otherwise been missed with the less sensitive APS-BR. The children who were videotaped for this study will have their play scored again with the original Affect in Play Scale system to assess for differences in play between the condition groups.

Additionally, the mood check procedure may not have accurately identified the child’s primary affect throughout the mood manipulation because it limited the child to
choose from four different categories of emotions. A free-response mood check may have indicated a less robust mood manipulation procedure.

Finally, using parental report of their child’s anxiety level may have been a more accurate picture of each child’s trait anxiety level. However, given the low response rate by parents, child’s report of trait anxiety was used.

The results of this study support the need for future research exploring anxiety and its impact on play processes. The current study does not clearly indicate if or how children in the anxious mood manipulation play differently from children in the neutral mood condition. However, there are indications that different subgroups of children responded differently in their play following the mood manipulation prompts based on both grade level and school site. One significant result of the study indicated that some children with higher levels of trait anxiety had more affect, specifically more positive affect in their play. In addition, older children showed a significant increase in Organization, Imagination, Comfort, and Frequency of Affect scores following the anxious mood manipulation procedures.

Next steps for developing a play intervention may be to focus on helping children with higher anxiety levels to express more negative emotions in play. It may be, that the positive affect expressed in play is a method of avoiding distressing feelings and temporarily improve mood without dealing with their fears and anxiety. Moreover, younger children may find participating in a play intervention more helpful than older children to relieve anxiety. Results from his study imply that older children may have other ways of coping with an anxious situation that may negate their distress in a way that does not affect their play the way it did for younger children.
The results of this study support continued research in the area of play and anxiety in children. Previous research has indicated that the quality and amount of imagination in play was related to the children’s ability to diminish anxiety levels (Milos & Reiss, 1982). In addition, Russ, Robbins, & Christiano (1999) found that children who had their play assessed and had more imagination, could generate more ideas to cope with a stressful situation when asked four-years later. All children in the study demonstrated significantly improved play abilities following the mood induction procedures. This suggests that with practice, play skills may improve and potentially lead to the development of adaptive coping skills later in childhood.

Previous research has supported that play is an invaluable resource for children that helps them gain insight into their world, manage emotions, problem solve, and just as important, feel good. Play has also demonstrated to be a useful therapeutic tool for treating children with clinical levels of anxiety. Anxiety disorders are prevalent across the lifespan and if left untreated could impact children’s emotional, cognitive, and behavioral development. In addition, untreated early childhood anxiety increases the risk for future mental health disorders. Therefore, future research should be carried out to address the limitations cited in this study and perhaps lead to a greater understanding of how anxious situations impact play processes. Furthermore, it is important to research if contemporary children still prefer to use play to help regulate their emotions, in addition to how they might use play to cope with feelings of anxiety.
Appendix A.

Scoring Manual for the Affect in Play Scale - Brief Rating

The Affect in Play Scale – Brief Rating (APS-BR) consists of a standardized play task and a criterion-based rating scale. The APS-BR is appropriate for children 6-10 years of age, which includes children in grades one through three.

The APS-BR measures the amount and tone of affect expression in children’s pretend play. The scale also rates the amount and quality of organization, imagination, and comfort in the child’s play. Play sessions are five minute standardized puppet play periods. The rating is done by the observer during the five minute task. Timing should be discreet, and a stopwatch should not be used.

The APS-BR Play Task

The play task consists of two human puppets, one boy and one girl, and three small blocks that are laid out on a table. The puppets have neutral facial expressions. Both Caucasian and African-American puppets are used, depending upon the child population. The blocks are brightly colored and of different shapes. The play props and instruction are unstructured enough so that individual differences in play can emerge. The task is administered individually to the child. The instructions for the task are:

I’m here to learn about how children play. I have here two puppets and would like you to play with them any way you like for five minutes. For example, you can have the puppets do something together. I also have some blocks that you can use. Be sure to have the puppets talk out loud. The video camera will be on so that I can remember what you say and do. I’ll tell you when to stop. Go ahead, put the puppets on, and start.
The child is told when there is one minute left with the instruction, “You have one minute left.”

**Prompts and Special Circumstances**

1. If the child does not know to put on the puppets, tell the child to put them on. Let the child know when she can start and start timing from that point.

2. If the child does not start to play, prompt the child after 30 seconds by saying, “Go ahead, have the puppets do something together.” Two prompts of this sort can be given. After two minutes of no play, the task should be discontinued.

3. If the child plays but does not have the puppets talk, prompt with “Have the puppets talk out loud so I can hear” after 30 seconds. Two prompts can be give, spaced about one minute apart.

4. If a child has been playing, but then stops before time is up, prompt with “You still have time left, keep on playing.” Prompt a second time if needed with “Keep on playing, I’ll tell you when to stop.” Most children who already played will be able to continue with prompts. If they cannot, then discontinue after two minutes of no play.

5. Be sure not to give any verbal reinforcement during the child’s play. It is important however to be attentive and watch the child and be interested. After the child has finished, say “That was good” or “That was fine.”

6. If you cannot hear something the child said, it is appropriate to ask the child to repeat it and speak louder. It is fine to do this occasionally, but do not repeatedly ask the child to repeat or speak louder.
7. Be sure to stop after five minutes. A wristwatch with a second hand is adequate. Time in an unobtrusive manner.

The APS-BR Rating Scale

As you are watching the 5-minute taped session, rate the child on Organization, Imagination, Comfort, Frequency of Affect Expression, and Positive/Negative Tone of Affect Expression. Make sure to confine the scoring to the pretend play between the puppets. Verbalizations by the child not relating to the play are not scored. You may find it helpful to keep a written dialogue of the child’s play. You also want to keep track of the general plot of the play, including transformations, new characters, and events.

**ORGANIZATION:**

*Measuring the quality of the plot and story complexity. The rating categories are not “all-or-none” categories. For example, a child does not have to have all aspects of a 3, if one aspect is particularly salient. One aspect can compensate for deficiencies in other aspects.*

**4-POINT LIKERT SCALE**

1- Series of unrelated events, no cause-effect; disjointed; story is very simple

2- Some cause-effect; series of somewhat related events organized; story is somewhat simple

3- More cause-effect; related events resembling an integrated plot; story is somewhat complex

4- Integrated plot with beginning, middle, & end; story is complex
EXAMPLES:

1- events are completely scattered, story jumps around from event to event without any continuity or similarity between events or any continuing storyline (could be either no real events occurring, or events that have no linkage, and are completely unrelated)

2- events are a little less scattered, may be periods of connected events, but still no overarching plot or storyline that is consistent throughout (could be sets of events that have consistency within each other, but are not joined together as a whole – i.e., puppets get in a fight, then build something with blocks, then do something else…)

3- events are joined into a somewhat consistent storyline, with a more structured plot and events that would follow naturally (could be events within the context of a day, but not extremely detailed or completely structured – i.e. puppets go to school, come home, play together, build something with blocks…)

4- events are very detailed and all interconnected within a highly structured plot that is consistent throughout (could be puppets get up, eat breakfast, go to school, eat lunch, go to one puppet’s house, play with blocks, eat dinner, have a fight, make up, go home, go to bed)
**IMAGINATION:**

*Measures the novelty and uniqueness of the play and the ability to use pretend and fantasy; imagination indicates the ability to use the blocks and/or puppets to pretend with them, to make up stories, and to create novel events; transformations involve pretending that the block is something else.* The rater is encouraged to keep track of the number of transformations, although an exact count is not necessary. The rating categories are not “all-or-none” categories. For example, a child does not need to have all aspects of a 3, if one particular aspect is especially salient. One aspect can compensate for deficiencies in other aspects.

**4-POINT LIKERT SCALE**

1- No make-believe, transformations, or fantasy, or only one of these, without the context of a story

2- Several transformations, with some fantasy and pretend events, but no novel events; some variety

3- Many transformations, variety of events, but few novel events; some fantasy and pretend events or addition of other characters

4- Many transformations, many novel fantasy events; addition of other characters or unusual twists

**EXAMPLES:**

1- Child is not really doing anything with the puppets or blocks, there is little verbalization, puppets have very simple conversations with each other and do not build anything with the blocks, or blocks are used without description of what is being built
2- Puppets build simple things with the blocks (i.e. house, tower, table) and have a little more detail in their conversations (could be puppets pretending to play house, or going to school), a little bit of variety in the events or transformations, but nothing especially different or unique

3- Puppets build many things with the blocks, and a wide variety of things, some of which may be a little different or unique, puppets may add some (not many) other events or objects to the story (i.e. both puppets having a conversation with their mother, who is not really there, pretending to pick flowers that are not really there)

4- Puppets build many unique and different things using the blocks (i.e. computer, spaceship, telescope, swing set, car) with a wide variety of transformations and events, other characters or objects are introduced into the story, and unusual or different twists are present (i.e. going in a spaceship, flying, etc…)

**COMFORT:**

*Global rating for overall comfort in playing; lower end rates comfort (ability to play), while higher end indicates comfort and enjoyment (immersion in play).*

**4-POINT LIKERT SCALE**

1- Reticent, distressed; stops and starts

2- Some stiffness; not enjoying or involved in play

3- OK, but not completely involved or enjoying; continues to play

4- Comfortable, involved, and enjoying the play
EXAMPLES:

1- Child cannot really “get into” the play, may look to examiner or express that he/she doesn’t know what to do, child seems not to want to play or expresses that he/she doesn’t want to play, once child begins playing, he/she stops frequently and cannot pick back up easily, session may be discontinued because of child’s inability to play continuously

2- Child may take time to “get into” the play and seem hesitant or reluctant to play, may look to examiner for encouragement or instruction, child eventually begins to play but may stop from time to time, child is able to continue or “get back into” the play, but is not enjoying or involved in the play, may ask how much time is left or express that he/she doesn’t know what to do

3- Child may take a little time to get started, but once started, child continues to play, child is somewhat involved and enjoying the play, once he/she gets started, he/she doesn’t stop often or need encouragement or instruction from the examiner, child’s affect and tone of voice indicate some level of involvement or enjoyment in the play, even though child is not completely immersed

4- Child is eager and enthusiastic to play, is able to “jump right in” and continue playing throughout the session, child does not need encouragement or instruction from the examiner, and tone of voice and affect indicate that child is completely immersed in and enjoying the play
FREQUENCY OF AFFECT EXPRESSION:

Measures the frequency of affective expression. The rater should attempt to tally each unit of affect expression. The tally should be an estimation, so as not to detract from the other rating. A unit of affect expression is defined as one scorable expression by an individual puppet. In a two-puppet dialogue, expressions of each puppet are scored separately. A unit can be an expression of an affect state (e.g. “This is fun.”), an affect theme (e.g. “Here is a bomb that is going to explode.”), or a combination of the two. The expression can be verbal (e.g. “I hate you.”) or non-verbal (e.g. one puppet punching the other). If non-verbal activity, such as fighting, occurs in a continuous fashion, a new unit is scored about every five seconds (timing should be discreet - no stopwatch is necessary).

AFFECT CATEGORIES:

Aggression: Expression of anger; fighting, destruction, or harm to another character or object; or reference to destructive objects (guns, knives) or actions (breaking).

Nurturance/Affection: Expressions of empathy or sympathy with another character; affection; helping and support.

Happiness/Pleasure: Expression of positive affect that denotes pleasure, happiness, having a good time, enjoyment, and contentedness.

Anxiety/Fear: Expressions of fear and anxiety. Content such as school anxiety, doctors visits, fears, concern about punishment, and worry. Actions of fleeing and hiding, agitation.
Sadness/Hurt: Expression of illness, physical injury, pain, sadness, loneliness.

Frustration/Disappointment/Dislike: Expressions of disappointment and frustration with activities, objects, and limitations.

Competition: Expressions of wanting to win, competitive game-playing, pride in achievement, and striving for achievement.

Oral: Expressions of oral content of food, cooking, eating and drinking. Affect expressions are positive about oral content.

Oral Aggression: Expressions of oral aggressive themes such as biting or food that has negative affect associated with it.

Anal: Expression of anal content including dirt and making a mess.

Sexual: Expressions of sexual content.

4-POINT LIKERT SCALE

1- Low (0-2 affect units present)

2- Mild (< 8 affect units present)

3- Moderate (8-15 affect units present)

4- High (> 15 affect units present)

TONE OF AFFECT EXPRESSION:

Measures overall tone of affect in the story, based on the average amount of positive or negative affect expression in the affect units in the child’s play. If there is no affect present, do not give the child a score for this category.

4-POINT LIKERT SCALE

1- Predominately negative affect dominates the play; overall negative tone to play and negative affect units
2- Somewhat negative affect dominates the play; there is a mix of negative and positive affect units, but there is a generally negative affect tone to the play

3- Somewhat positive affect dominates the play; there is a mix of positive and negative affect units, but there is a generally positive affect tone to the play

4- Predominately positive affect dominates the play; overall positive tone to play and positive affect units

EXAMPLES:

1- Almost all of the affect revolves around events that are sad, frustrating, disappointing, or upsetting; puppets are predominately angry, aggressive, and upset; fighting, crying, or anger is present

2- Most of the affect revolves around negative events, but there are some positive events mixed in; the negative events dominate the story, and fighting or other aggression may occur; the story may end on a negative note

3- Most of the affect revolves around positive events, but there are some negative events mixed in; the positive events dominate the story, and affection or other happy events may occur; the story may end on a positive note

4- Almost all of the affect revolves around events that are happy, affectionate, pleasurable, enjoyable, or fun; puppets are predominately happy, affectionate, and having a good time; physical affection, verbal praise, or evidence of enjoyment is present.
HOW-I-FEEL QUESTIONNAIRE
Developed by C.D. Spielberger, C.D. Edwards, J. Montuori, and R. Lushene
STAIC Form C-1

Name: ___________________________ Age: _______ Date: _______

DIRECTIONS: A number of statements which boys and girls use to describe themselves are given below. Read each statement carefully and decide how you feel right now. Then put an X in the box in front of the word or phrase which best describes how you feel. There are no right or wrong answers. Don’t spend too much time on any one statement. Remember, find the word or phrase which best describes how you feel right now, at this very moment.

1. I feel ..................................... □ very calm □ calm □ not calm
2. I feel ..................................... □ very upset □ upset □ not upset
3. I feel ..................................... □ very pleasant □ pleasant □ not pleasant
4. I feel ..................................... □ very nervous □ nervous □ not nervous
5. I feel ..................................... □ very jitty □ jitty □ not jitty
6. I feel ..................................... □ very rested □ rested □ not rested
7. I feel ..................................... □ very scared □ scared □ not scared
8. I feel ..................................... □ very relaxed □ relaxed □ not relaxed
9. I feel ..................................... □ very worried □ worried □ not worried
10. I feel ..................................... □ very satisfied □ satisfied □ not satisfied
11. I feel ..................................... □ very frightened □ frightened □ not frightened
12. I feel ..................................... □ very happy □ happy □ not happy
13. I feel ..................................... □ very sure □ sure □ not sure
14. I feel ..................................... □ very good □ good □ not good
15. I feel ..................................... □ very troubled □ troubled □ not troubled
16. I feel ..................................... □ very bothered □ bothered □ not bothered
17. I feel ..................................... □ very nice □ nice □ not nice
18. I feel ..................................... □ very terrified □ terrified □ not terrified
19. I feel ..................................... □ very mixed-up □ mixed-up □ not mixed-up
20. I feel ..................................... □ very cheerful □ cheerful □ not cheerful

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HOW-I-FEEL QUESTIONNAIRE
STAIC Form C-2

Name: __________________________ Age: ________ Date: ________

DIRECTIONS: A number of statements which boys and girls use to describe themselves are given below. Read each statement carefully and decide if it is hardly-ever, or sometimes, or often true for you. Then for each statement, put an X in the box in front of the word that seems to describe you best. There are no right or wrong answers. Don't spend too much time on any one statement. Remember, choose the word which seems to describe how you usually feel.

1. I worry about making mistakes ................. □ hardly-ever □ sometimes □ often
2. I feel like crying .................................. □ hardly-ever □ sometimes □ often
3. I feel unhappy .................................... □ hardly-ever □ sometimes □ often
4. I have trouble making up my mind ........... □ hardly-ever □ sometimes □ often
5. It is difficult for me to face my problems...... □ hardly-ever □ sometimes □ often
6. I worry too much .................................. □ hardly-ever □ sometimes □ often
7. I get upset at home ............................... □ hardly-ever □ sometimes □ often
8. I am shy .......................................... □ hardly-ever □ sometimes □ often
9. I feel troubled ..................................... □ hardly-ever □ sometimes □ often
10. Unimportant thoughts run through my mind and bother me .................. □ hardly-ever □ sometimes □ often
11. I worry about school ............................. □ hardly-ever □ sometimes □ often
12. I have trouble deciding what to do .......... □ hardly-ever □ sometimes □ often
13. I notice my heart beats fast ..................... □ hardly-ever □ sometimes □ often
14. I am secretly afraid .............................. □ hardly-ever □ sometimes □ often
15. I worry about my parents ....................... □ hardly-ever □ sometimes □ often
16. My hands get sweaty ............................ □ hardly-ever □ sometimes □ often
17. I worry about things that may happen ...... □ hardly-ever □ sometimes □ often
18. It is hard for me to fall asleep at night ...... □ hardly-ever □ sometimes □ often
19. I get a funny feeling in my stomach .......... □ hardly-ever □ sometimes □ often
20. I worry about what others think of me ...... □ hardly-ever □ sometimes □ often

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Directions: A number of statements which boys and girls use to describe themselves are given below. Read each statement carefully and decide if it is hardly-ever, sometimes, or often true for your child. Please respond to the questions as you think your child would. Then for each statement, put an X in the box in front of the word that seems to describe how your child would answer. Don’t spend too much time on any one statement. Remember, choose the word which seems to describe how your child usually feels.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Hardly-ever</th>
<th>Sometimes</th>
<th>Often</th>
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<tbody>
<tr>
<td>1.</td>
<td>I worry about making mistakes.</td>
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<td>I feel unhappy.</td>
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<td>4.</td>
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<td>5.</td>
<td>It is difficult for me to face my problems.</td>
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<tr>
<td>6.</td>
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<td>It is hard for me to fall asleep at night.</td>
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<tr>
<td>19.</td>
<td>I get a funny feeling in my stomach.</td>
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<tr>
<td>20.</td>
<td>I worry about what others think of me.</td>
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</table>
Scoring Key for STAI for Children

Scoring Instructions for STAIC Form C-1

Fold this paper in half and line up next to the appropriate item numbers on the answer sheet. Be sure you are on the correct side of the answer sheet (Form C-1). Total the scoring weights shown for the marked responses.

Total Score for C-1

1. Calm ........................................... 1 2 3
2. Upset ........................................... 3 2 1
3. Pleasant ...................................... 1 2 3
4. Nervous ...................................... 3 2 1
5. Jittery ........................................ 3 2 1
6. Rested ......................................... 1 2 3
7. Scared ........................................ 3 2 1
8. Relaxed ........................................ 1 2 3
9. Worried ...................................... 3 2 1
10. Satisfied .................................... 1 2 3
11. Frightened .................................. 3 2 1
12. Happy ........................................ 1 2 3
13. Sure .......................................... 1 2 3
14. Good ......................................... 1 2 3
15. Troubled ..................................... 3 2 1
16. Bothered ..................................... 3 2 1
17. Nice .......................................... 1 2 3
18. Terrified ..................................... 3 2 1
19. Mixed-up .................................... 3 2 1
20. Cheerful ..................................... 1 2 3

Scoring Instructions for STAIC Form C-2

All items on the A-Trait scale are scored as follows:

1 point for “hardly ever”
2 points for “sometimes”
3 points for “often”

Total Score for C-2

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MOOD CHECK

I have four different faces here. Each one feels something different. This one is happy, this means you feel really good inside right now, this one is “just okay” this means you’re not really happy or sad, this one is sad, this one means you’re feeling kind of down, and this one is scared, like when you have butterflies in your stomach. (points to each face and labels each with a feeling) I want you to think about which face is most like how you feel right now. When you’re ready, point to the face that best shows how you feel. Okay, you feel________?

Now I want you to think about how much you feel________. I have five towers here from you to choose from. This one means you feel ______ just a little (points to 1 unit) and this one (points to 5 units) means you feel it a whole lot.” Now I want you to think about how much you feel (names the remaining three faces) and point to the tower.

BL MOOD CHECK:  Primary and Intensity: ____________       ____________

Other and Intensity: ____________       ____________

Other and Intensity: ____________       ____________

Other and Intensity: ____________       ____________

MOOD INDUCTION:

"Now I want you to tell me something that really makes you scared, something that makes you feel afraid. ---CHILD RESPONSE----- That’s right. ___ is really scary! You really feel afraid when_____. What else makes you scared? That's right that's really scary too. I want you to practice thinking about things like that. You pick one of those things we mentioned and think about what happens and how you feel. You think about how afraid you feel when____.”

“Now I want you to tell me something that made you feel just okay, something where you didn’t feel really happy or really sad. ---CHILD RESPONSE----- That’s right. ___ does seem like you would feel just okay! You really feel okay when_____. What else makes you feel okay? That's right that's one too. I want you to practice thinking about things like that. You pick one of those things we mentioned and think about what happens and how you feel. You think about how just okay you feel when____.”
MOOD CHECK

Post Induction

“I have the same four different faces here. Each one feels something different. Remember, this one is happy, this means you feel really good inside right now, this one is “just okay” this one means you’re not really happy or sad, this one is sad, this one means you’re feeling kind of down, and this one is scared, like when you have butterflies in your stomach. (points to each face and labels each with a feeling) I want you to think about which face is most like how you felt when you were asked to think about ________ (wait 5 seconds). When you’re ready, point to the face that best shows how you felt. Okay, you felt ____ when you thought of _______?

Now I want you to think about how much you felt _____. I have five towers here from you to choose from. This one means you felt _____ just a little (points to 1 unit) and this one (points to 5 units) means you felt it a whole lot.” Now I want you to think about how much you feel (names the remaining three faces) and point to the tower.

Post Ind. MOOD CHECK: Primary and Intensity: ____________ ________

Other and Intensity: ____________ ________

Other and Intensity: ____________ ________

Other and Intensity: ____________ ________
Four Faces Measure

Scared  Sad  Just Okay  Happy
Intensity Ratings

- Not at all
- Just a Little Bit
- Some
- A Lot
- A Whole Lot
### Appendix B.

Table 1.  

*Participant Demographic Information*

<table>
<thead>
<tr>
<th>Condition</th>
<th>Gender</th>
<th>Grade</th>
<th>Site 1</th>
<th>Site 2</th>
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<tbody>
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<tr>
<td></td>
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<td>Grade 3</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
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<td>10</td>
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<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
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<tr>
<td></td>
<td></td>
<td>Grade 3</td>
<td>3</td>
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<td><strong>Total</strong></td>
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Table 2.

*Description of Procedures by Condition Group*

<table>
<thead>
<tr>
<th>Anxiety (Experimental) Condition</th>
<th>Control Condition</th>
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<tbody>
<tr>
<td>STAIC-Full scale</td>
<td>STAIC-Full scale</td>
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<tr>
<td>Baseline Measures:</td>
<td>Baseline Measures:</td>
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<tr>
<td>APS-BVR</td>
<td>APS-BVR</td>
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<tr>
<td>Mood Check and Intensity Rating</td>
<td>Mood Check and Intensity Rating</td>
</tr>
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<td>Mood Induction: Anxiety</td>
<td>Mood Induction: Neutral</td>
</tr>
<tr>
<td>Mood Check and Intensity Rating</td>
<td>Mood Check and Intensity Rating</td>
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<tr>
<td>Post-Mood Induction Play:</td>
<td>Post-Mood Induction Play:</td>
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<tr>
<td>APS_BVR</td>
<td>APS_BVR</td>
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<tr>
<td>Mood Check and Intensity Rating</td>
<td>Mood Check and Intensity Rating</td>
</tr>
<tr>
<td>STAIC-State subscale</td>
<td>STAIC-State subscale</td>
</tr>
</tbody>
</table>
Table 3.

*Baseline APS-BR scores by Grade and Condition, Mean (SD), F, p-values*

<table>
<thead>
<tr>
<th>Condition</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
<th>F</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>2.25(1.04)</td>
<td>2.00(.93)</td>
<td>2.83(.98)</td>
<td>F(2,19)=1.26</td>
<td>0.31</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.38(.52)</td>
<td>2.00(1.0)</td>
<td>3.00(.89)</td>
<td>F(2, 18)=6.88</td>
<td><strong>0.01</strong></td>
</tr>
<tr>
<td>Overall</td>
<td>1.81 (.91)</td>
<td>2.00(.93)</td>
<td>2.92 (.90)</td>
<td>F(2,40)=5.49</td>
<td><strong>0.01</strong></td>
</tr>
<tr>
<td><strong>Imagination</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>2.38 (.92)</td>
<td>2.13 (.99)</td>
<td>2.50(1.05)</td>
<td>F(2,19)=.27</td>
<td>0.77</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.50(.54)</td>
<td>2.14(.69)</td>
<td>2.67(1.03)</td>
<td>F(2, 18)=4.21</td>
<td><strong>0.03</strong></td>
</tr>
<tr>
<td>Overall</td>
<td>1.94 (.85)</td>
<td>2.13(.83)</td>
<td>2.58 (.99)</td>
<td>F(2,40)=1.85</td>
<td>0.17</td>
</tr>
<tr>
<td><strong>Comfort</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>3.25(.89)</td>
<td>2.88(.99)</td>
<td>2.83(.75)</td>
<td>F(2,19)=.49</td>
<td>0.62</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.38(.74)</td>
<td>3.00(1.16)</td>
<td>3.33(.82)</td>
<td>F(2, 18)=9.49</td>
<td><strong>0.00</strong></td>
</tr>
<tr>
<td>Overall</td>
<td>2.31(1.25)</td>
<td>2.93(1.03)</td>
<td>3.08 (.79)</td>
<td>F(2,40)=2.16</td>
<td>0.13</td>
</tr>
<tr>
<td><strong>Frequency of Affect</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>2.13(1.13)</td>
<td>2.13(1.25)</td>
<td>2.33(1.03)</td>
<td>F(2,19)=.07</td>
<td>0.93</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.38(.52)</td>
<td>2.57(.79)</td>
<td>2.17(.75)</td>
<td>F(2, 18)=5.96</td>
<td><strong>0.01</strong></td>
</tr>
<tr>
<td>Overall</td>
<td>1.75 (.93)</td>
<td>2.33(1.05)</td>
<td>2.25(.87)</td>
<td>F(2,40)=1.66</td>
<td>0.20</td>
</tr>
<tr>
<td><strong>Tone</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>3.63(.52)</td>
<td>2.38(1.41)</td>
<td>2.40(.89)</td>
<td>F(2,18)=3.62</td>
<td><strong>0.05</strong></td>
</tr>
<tr>
<td>Anxiety</td>
<td>3.20(1.30)</td>
<td>3.00(.89)</td>
<td>3.17(.75)</td>
<td>F(2, 14)=.07</td>
<td>0.94</td>
</tr>
<tr>
<td>Overall</td>
<td>3.46 (.88)</td>
<td>2.64(1.22)</td>
<td>2.82 (.87)</td>
<td>F(2,35)=2.37</td>
<td>0.11</td>
</tr>
</tbody>
</table>
Table 4.

*Overall Baseline APS-BR scores by Gender, Mean (SD), F, p-values*

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>F, p-values</th>
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</thead>
<tbody>
<tr>
<td>Organization</td>
<td>2.32 (1.16)</td>
<td>2.08 (.88)</td>
<td>F=.56, p=.46, ns</td>
</tr>
<tr>
<td>Imagination</td>
<td>2.21 (.86)</td>
<td>2.17 (.96)</td>
<td>F=.02, p=.88, ns</td>
</tr>
<tr>
<td>Comfort</td>
<td>2.74 (1.10)</td>
<td>2.75 (1.13)</td>
<td>F=.001, p=.97, ns</td>
</tr>
<tr>
<td>Frequency</td>
<td>2.21 (.92)</td>
<td>2.00 (1.02)</td>
<td>F=.49, p=.49, ns</td>
</tr>
<tr>
<td>Tone</td>
<td>3.12 (.86)</td>
<td>2.86 (1.20)</td>
<td>F=.57, p=.46, ns</td>
</tr>
</tbody>
</table>
Table 5.

*Overall Baseline APS-BR Scores by School Site, Mean (SD), F, p-values*

<table>
<thead>
<tr>
<th></th>
<th>Site 1</th>
<th>Site 2</th>
<th>F, p-value</th>
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</thead>
<tbody>
<tr>
<td>Organization</td>
<td>2.33 (.91)</td>
<td>2.05 (1.09)</td>
<td>F=.87, p=.35, ns</td>
</tr>
<tr>
<td>Imagination</td>
<td>2.24 (.89)</td>
<td>2.14 (.94)</td>
<td>F=.13, p=.72, ns</td>
</tr>
<tr>
<td>Comfort</td>
<td>2.86 (.96)</td>
<td>2.64 (1.22)</td>
<td>F=.43, p=.52, ns</td>
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<tr>
<td>Frequency</td>
<td>2.05 (.97)</td>
<td>2.14 (.99)</td>
<td>F=.09, p=.72 ns</td>
</tr>
<tr>
<td>Tone</td>
<td>2.65 (1.09)</td>
<td>3.33 (.91)</td>
<td>F=4.36, p=.04*</td>
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*p<.05
Table 6.

*STAIC Scores at Baseline, Mean, Standard Deviations, Range, F, p-values*

<table>
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<tr>
<th>Condition</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min/Max</th>
<th>Range</th>
<th>F, p-value</th>
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<td><strong>Child Report State Anxiety</strong></td>
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<tr>
<td>Control</td>
<td>22</td>
<td>29.41</td>
<td>4.40</td>
<td>23-46</td>
<td>23</td>
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<tr>
<td>Anxiety</td>
<td>21</td>
<td>28.76</td>
<td>4.38</td>
<td>20-37</td>
<td>17</td>
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<tr>
<td>Overall</td>
<td>43</td>
<td>29.09</td>
<td>4.35</td>
<td>20-46</td>
<td>26</td>
<td>F=.23, p=.63, ns</td>
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<tr>
<td><strong>Child Report Trait Anxiety</strong></td>
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<tr>
<td>Control</td>
<td>22</td>
<td>38.86</td>
<td>6.35</td>
<td>27-51</td>
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<tr>
<td>Anxiety</td>
<td>21</td>
<td>39.00</td>
<td>7.17</td>
<td>27-51</td>
<td>24</td>
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<tr>
<td>Overall</td>
<td>43</td>
<td>38.93</td>
<td>6.68</td>
<td>27-51</td>
<td>24</td>
<td>F=.004, p=.95, ns</td>
</tr>
<tr>
<td><strong>Parent Report of Child’s Trait Anxiety</strong></td>
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<td></td>
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<tr>
<td>Control</td>
<td>11</td>
<td>31.82</td>
<td>7.13</td>
<td>23-46</td>
<td>23</td>
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<tr>
<td>Anxiety</td>
<td>15</td>
<td>29.20</td>
<td>5.76</td>
<td>21-39</td>
<td>18</td>
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<tr>
<td>Overall</td>
<td>26</td>
<td>30.31</td>
<td>6.37</td>
<td>21-46</td>
<td>25</td>
<td>F=1.07, p=.310, ns</td>
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Table 7.

*APS-BR Scores Baseline and Post-Mood Induction Procedures by Condition, Means (SD), F, p-values*

<table>
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<tr>
<th></th>
<th>Baseline APS-BR</th>
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<th>Post-Mood Induction APS-BR</th>
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<td></td>
<td>Control</td>
<td>Anxiety</td>
<td>F, p</td>
<td>Control</td>
</tr>
<tr>
<td>Organization</td>
<td>2.32 (1.00)</td>
<td>2.05 (1.02)</td>
<td>F=.77, p=.38</td>
<td>3.09 (1.10)</td>
</tr>
<tr>
<td>Imagination</td>
<td>2.32 (0.95)</td>
<td>2.05 (0.87)</td>
<td>F=.96, p=.33</td>
<td>2.86 (0.94)</td>
</tr>
<tr>
<td>Comfort</td>
<td>3.00 (0.87)</td>
<td>2.48 (1.25)</td>
<td>F=2.56, p=.12</td>
<td>3.45 (0.91)</td>
</tr>
<tr>
<td>Frequency</td>
<td>2.18 (1.10)</td>
<td>2.00 (0.84)</td>
<td>F=.37, p=.55</td>
<td>2.27 (0.99)</td>
</tr>
<tr>
<td>Tone</td>
<td>2.86 (1.15)</td>
<td>3.12 (0.93)</td>
<td>F=.57, p=.46</td>
<td>2.58 (1.07)</td>
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Table 8.

*Frequency count, Pearson Chi-square values, and effect size values of Mood State at Time 1, Time 2, and Time 3 by Condition*

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<th>Condition</th>
<th>Happy</th>
<th>Just</th>
<th>Sad</th>
<th>Scared</th>
<th>Chi-square value</th>
<th>p-value</th>
<th>Cramer’s V</th>
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<tbody>
<tr>
<td>Time 1 (Baseline)</td>
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<td></td>
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<tr>
<td>Control (N)</td>
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<td>7</td>
<td>0</td>
<td>1</td>
<td>.01</td>
<td>.99</td>
<td>.02</td>
</tr>
<tr>
<td>Anxiety (N)</td>
<td>13</td>
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<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2 (Post-mood induction)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Control (N)</td>
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<td>13</td>
<td>2</td>
<td>0</td>
<td><strong>17.71</strong></td>
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<td>.64</td>
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<td>Anxiety (N)</td>
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<td>9</td>
<td>2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Time 3 (After 2nd play task)</td>
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</tr>
<tr>
<td>Control (N)</td>
<td>17</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>4.59</td>
<td>.10</td>
<td>.33</td>
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<tr>
<td>Anxiety (N)</td>
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<td>0</td>
<td>1</td>
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</table>
Table 9.

*Correlations between the Baseline APS-BR and STAIC Scores*

<table>
<thead>
<tr>
<th></th>
<th>Child Report State Anxiety(^a)</th>
<th>Child Report Trait Anxiety(^a)</th>
<th>Parent Report of Child’s Trait Anxiety(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>-.379*</td>
<td>-.019</td>
<td>.059</td>
</tr>
<tr>
<td>Imagination</td>
<td>-.210</td>
<td>.053</td>
<td>.192</td>
</tr>
<tr>
<td>Comfort</td>
<td>-.140</td>
<td>-.113</td>
<td>.071</td>
</tr>
<tr>
<td>Frequency</td>
<td>-.036</td>
<td>.111</td>
<td>.139</td>
</tr>
<tr>
<td>Tone</td>
<td>-.034</td>
<td>.066</td>
<td>-.309</td>
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</tbody>
</table>

\(^*p < .05\)
\(^a\)n = 43 Child Report
\(^b\)n = 26 Parent Report
Table 10.

*Effects of Baseline Play Scores and Condition on Post Mood Induction APS-BR Scores*

<table>
<thead>
<tr>
<th>Post-Organization</th>
<th>Control, Mean (SD)</th>
<th>Anxiety, Mean (SD)</th>
<th>Baseline Play Effect, F, p, eta</th>
<th>Condition Effect, F, p, eta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.09 (1.10)</td>
<td>2.62 (1.12)</td>
<td><strong>F=60.79,</strong> p&lt;.001, eta=.60</td>
<td>F=1.21, p=.28, eta=.03</td>
</tr>
<tr>
<td>Post-Imagination</td>
<td>2.86 (0.94)</td>
<td>2.48 (1.12)</td>
<td><strong>F=23.78,</strong> p&lt;.001, eta=.37</td>
<td>F=.61, p=.44, eta=.02</td>
</tr>
<tr>
<td>Post-Comfort</td>
<td>3.45 (0.91)</td>
<td>3.10 (1.09)</td>
<td><strong>F=79.99,</strong> p&lt;.001, eta=.67</td>
<td>F=.05, p=.83, eta=.001</td>
</tr>
<tr>
<td>Post-Frequency</td>
<td>2.27 (0.99)</td>
<td>2.52 (0.98)</td>
<td><strong>F=23.24,</strong> p&lt;.001, eta=.37</td>
<td>F=2.23, p=.14, eta=.05</td>
</tr>
<tr>
<td>Post-Tone</td>
<td>2.58 (1.07)</td>
<td>3.11 (1.10)</td>
<td><strong>F=5.48,</strong> p=.03, eta=.14</td>
<td>F=1.05, p=.31, eta=.03</td>
</tr>
</tbody>
</table>
Table 11.

*Interaction between Grade and Condition for Mean (SD) Baseline Trait Anxiety Scores and Mean (SD) Frequency of Affect in Play Post-Mood Manipulation*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Neutral Condition</th>
<th>Anxiety Condition</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trait Anxiety</td>
<td>Frequency of Affect</td>
<td>Trait Anxiety</td>
</tr>
<tr>
<td>Grade 1</td>
<td>39.63 (7.21)</td>
<td>2.00 (0.54)</td>
<td>40.88 (8.32)</td>
</tr>
<tr>
<td>Grade 2</td>
<td>38.88 (4.94)</td>
<td>2.38 (4.94)</td>
<td>37.43 (6.55)</td>
</tr>
<tr>
<td>Grade 3</td>
<td>37.83 (7.76)</td>
<td>2.50 (1.05)</td>
<td>38.33 (6.89)</td>
</tr>
</tbody>
</table>
Figure 1.

*Interaction between Condition and State Anxiety for Mean Organization in Play Post-Mood Manipulation*
Figure 2.

*Interaction between Condition and State Anxiety for Mean Imagination in Play Post-Mood Manipulation*

![Bar chart showing interaction between condition and state anxiety for mean imagination in play post-mood manipulation.](chart.png)
Figure 3.

Interaction between Grade and Condition for Baseline Trait Anxiety Mean Score
Figure 4.

*Interaction between Grade and Condition for Mean Frequency of Affect in Play Post-Mood Manipulation*
References


