ABSTRACT

Title of Thesis:	EXAMINING TEMPERAMENT: APPROACH AND AVOIDANCE
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This was a mixed methods examination of the approach and avoidance dimensions of temperament. These dimensions were measured through parent examples given on the Structured Temperament Interview (STI). Parents were interviewed by a research assistant and were asked to give both quantitative and qualitative examples of their child's behaviors representing the different distinct dimensions of temperament. A principal components analysis was conducted to help select factors and items to be examined in the qualitative study. Three main factors emerged from the principal components analysis: Prefers Familiar / Routine; Sociability; and Risk Seeking Approach / Short Sighted Approach / Risky. The two items with the highest factor loadings on each of the three factors were chosen for further exploration in the qualitative analysis. The emphasis of this study was on quantifying and classifying the parent examples for the six main items chosen through the principal components analysis.

EXAMINING TEMPERAMENT: APPROACH AND AVOIDANCE

By

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Chapter 1: Introduction

Temperament

The concept of temperament has its roots in the thought and writing of ancient Greek philosophers and physicians. In the 4th century B.C., Hippocrates developed a theory of the humors to help explain health and illness. Later, in the 2nd century A.D., Galen added to the existing theory with psychological interpretations. The ancient Greeks' main contribution to the foundation of temperament research was that individual differences in behavior could be explained by physiology. Over time, temperament researchers expanded their thinking to include an exploration of the link between temperament and emotions. For example, Wilhelm Wundt conducted laboratory studies to explore the relationship between temperamental disposition and the expression of emotions. In the 1960's, Alexander Thomas and Stella Chess developed one of the most popular theories of temperament. Thomas and Chess conceptualized temperament as a behavioral style. Most researchers of temperament agree that idiosyncrasies exist as a result of biological underpinnings (Strelau, 1998).

The first empirical studies on temperament began in the 20th century when researchers started moving away from theoretical research and towards empirical studies. The first empirical studies on temperament took place in Europe with the work of Ivan Pavlov, Gerard Heymans, and Ernst Kretschmer. Also during the 20th century, anthropologists and psychiatrists began to examine the relationship between the human biological makeup and inherited dispositions. Most temperament researchers, regardless of orientation, agree to the following fundamental features: temperament refers to behavioral characteristics, or dispositions, in which individuals differ; temperament is

relatively stable when compared with other phenomena; temperament has a biological basis; and temperament refers to characteristics of behavior such as intensity, speed, tempo, and fluctuation (Strelau, 1998).

Measurement Techniques

The most popular methods of measuring temperament include: observations, interviews, and questionnaires.

Observations. When examining the history of temperament, the first method of measurement used was naturalistic observations of behaviors. The most popular observations included having children play various games that elicited certain temperamental characteristics. The games that children played during these observations allowed for the quantitative analysis of the frequency, duration, and intensity of the behaviors of interest (Strelau, 1998).

Home observations. Researchers often conducted home observations of infant and toddler temperament. The rationale for observing in the child's home is based on the assumption that the home is the most natural environment for children until they begin attending school. The home environment allowed for naturalistic observation of parent-child interactions and the influence of those interactions on temperament. While naturalistic observations provide a unique perspective on child temperament, they are also influenced by the observer's limitations in being able to capture the whole range of the child's behaviors (Strelau, 1998).

Laboratory observations. Researchers used laboratory observations in order to control both the setting and the stimuli that children were exposed to during the observation period. Three major studies used laboratory observations of child

temperament: The Louisville Twin Study, Kagan's study on inhibited children, and Goldsmith and Rothbart's attempts to standardize laboratory methods for assessing child temperament (Strelau, 1998). The Longitudinal Twin Study incorporated standardized vignettes and videotaped infant/child behavior to create a temperament profile. Kagan's laboratory study examined inhibited and uninhibited children during standardized episodes and physiological data exhibiting temperamental dispositions. Goldsmith and Rothbart developed a Laboratory Temperament Assessment Battery (LAB-TAB), which enabled the assessment of five temperament dimensions: activity level, fearfulness, anger proneness, interest / persistence, and joy / pleasure (Strelau, 1998).

Criticisms of observations. Observations of temperament are based on the premise that behaviors are manifestations of temperamental traits. Observations can be influenced by reactivity effects, which occur when the process of observing alters the behaviors of the child. Observations can also be time consuming and require multiple observations to obtain reliable and valid data. The number of behaviors available during an observation period is also limited. Observations tend to be more reliable when multiple coders are able to observe and rate the behaviors of interest, but it also increases the cost of conducting observations. Lastly, observations are only effective when the observer is properly trained in temperament assessment (Strelau, 1998).

Interviews. Many physicians use interviews to understand the temperament of children. Interviews are used in measuring temperament by either allowing an individual to describe their own experiences and / or by having someone close to the individual describe the person's experiences. The interview is unique because it allows for the exploration of covert / internal reactions and behavioral states. Interviews are typically

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based on retrospective behavioral observations and therefore the information gathered is subjective. Interview questions are typically unstructured and are conducted face-to-face. Since the interview format requires a great deal of time from the interviewer, the number of interviews conducted is typically smaller than might be included in studies using questionnaires (Strelau, 1998).

Benefits of interviews. Clinicians can use this method of measuring temperament to obtain in-depth information from informants. For example, the interviewer can ask the informant a question about the child and then follow-up with questions to get an accurate picture of the child and his/her behavioral profile. Both structured and unstructured interviews allow for the flexibility to explore beyond what might be included in a questionnaire. For example, a structured interview format provides the opportunity to gather information about the continuity or discontinuity of a behavior over the course of time. An interviewee can also provide information about behaviors that are a result of factors other than temperament (e.g. experience) (Teglasi, 1998). Interviews are helpful when an informant is not willing to complete a questionnaire and/or has a lot of other paperwork to complete for a research project. Furthermore, interviews can help to rectify discrepancies between informants (e.g. teachers and parents) because it allows for gathering of detailed information about behaviors that are present across situations (Kristal, 2005).

Criticisms of interviews. Interviews have been criticized because they are time consuming and can produce inconsistent data. The interviewer has to spend a significant amount of time with the informant to gather enough data to make an accurate assessment of the child. The interview can produce different results depending on how much

information an informant is willing to give the interviewer and thus will be inconsistent across interviews. Social desirability may influence how much an informant, especially a parent, is honest with the interviewer. As in all methods of temperament, cultural factors will influence the interpretations informants provide about the child's behaviors (Kristal, 2005).

   Questionnaires. Temperament inventories have gained popularity in recent years due to the standardization of the measures and the ability to administer them to different populations of individuals. Questionnaires are the most commonly used temperament measure because they are relatively inexpensive and are easy to use (Teglasi, 1998). Researchers who use questionnaires to measure temperament tend to believe that the statements on the questionnaires are indicative of behaviors and reactions associated with particular temperament expressions. Temperament questionnaires differ from other measures of personality because the items focus on behaviors with a biological base versus learned reactions; they measure the how of behavioral reactions instead of the content of the behaviors; they measure behavior that is typically stable over a person's lifetime; they measure behaviors that have been present since infancy; they ask about behaviors that can be reliably observed by others; and they ask about type of activity and setting instead of cognitive aspects of behaviors. Questionnaires about child temperament are typically given to parents, caregivers, and teachers, whereas those for adolescents and adults are typically self-report (Strelau, 1998). Parents of young children are believed to be good informants due to their vested interest in closely observing their children and their ability to report on the subtlety of behaviors that are not observable in the laboratory (Teglasi, 1998).

Criticisms of questionnaires. Questionnaires have been criticized for observer

biases, and inaccuracies in recollections, observations, and interpretations of behaviors.

Parents may try to represent their children in a way that matches their conceptions of

their children, however, is inaccurate when compared to a normative population of

children (Teglasi, 1998).

Constructs. There is a close tie between the measurement techniques used and

the constructs that emerge from temperament research. Therefore, the discrepancies

found between different measures of temperament should not be explained as a result of

the shortcomings of the measure but as a result of the emerging constructs (Teglasi,

1998).

Measurement of Approach and Avoidance

Regardless of the method of measurement, temperament researchers need to be

mindful when conducting research with children. For example, when working with

infants and young children, as commonly occurs when measuring temperament, the

researcher needs to be considerate of the child's schedule. Temperament should not be

measured via observations when the child is off his/her schedule or feeling ill because

they may appear reactive to stimuli that might not typically elicit a reaction. It is ideal to

measure temperament, especially aspects of temperament such as behavioral inhibition,

during the early years of life. Including early measures of temperament helps the

researcher distinguish between behaviors that are a result of temperament and those that

are a result of experience. For example, behaviorally inhibited children have

demonstrated that they are able to develop adaptive strategies that may mask their

underlying temperament as they get older and understand socially appropriate behaviors (Degnan & Fox, 2007).

Approach and avoidance dimensions of temperament have been measured through behavioral observations, parent and teacher ratings, and peer and self-reports (Rubin & Coplan, 2010). Interview measures of approach and avoidance allow for the examination of behaviors over the course of time. While interview measures involve a dimension of subjective judgment from the interviewee, they also allow for a broader picture of the child and how he/she behaves in different situations, with different people, and with different stimuli.

Structured Temperament Interview

A new measure of child temperament was undertaken with the goal of clarifying the measurement of the constructs of temperament. More specifically the Structured Temperament Interview (STI) was created to closely examine the behavioral manifestations of temperament and the explanations parents provide when rating their child's temperament. This interview format provides a unique examination of both the child's behaviors and the parent's understanding and conceptualization of those behaviors. The STI allows for the examination of numerical ratings of behaviors similar to those found on temperament questionnaires and open-ended explanations of behaviors typical of interviews. The STI items differ from existing measures because they allow the interviewee to reflect on his/her quantitative answers and provide qualitative examples of the behaviors they have in mind.

The current version of the STI includes 112 items that parents answer in the company of a research assistant. The questions provide both the opportunity to rate the

child's behaviors on a Likert scale and to provide qualitative examples of the behaviors. The STI includes six dimensions identified in the literature: Attention/Distractibility, Approach/Avoidance, Self-Regulation, Emotionality (divided into positive and negative dimensions), Activity, and Reactivity (intensity and threshold). The research assistant leads the parent through the questions taking notes and tape recording the interview for accuracy of information. This format has proven to be more accurate than a standard questionnaire because the parent has the opportunity to clarify questions and reflect on their child's behavior with the research assistant. In some instances parents change their numerical rating of their child's behavior as they reflect and talk through their examples of the relevant behaviors with the research assistant.

Target Age Group

Temperament can be thought of as a set of inborn traits that determines each child's unique behaviors, how he / she experiences his / her world, and how he / she reacts to his / her life experiences (Kristal, 2005). Since most temperament researchers agree that temperament is early appearing in life, they tend to focus their studies on the early years of development, including infancy, toddlerhood, and preschool age. As children move from infancy to toddlerhood and then to preschool, the way in which they acquire autonomy is influenced by their temperament. Toddlers and preschoolers exhibit behavioral qualities of expression, exploration, experimentation, egocentricity, and energy. The temperament qualities that children demonstrate during infancy continue to affect their development and understanding of their world (Kristal, 2005).

Temperament fosters the growing child's drive for independence, development of fine and gross motor skills, development of cognitive and language skills, and

regulation of emotions and understanding others' emotions. How children navigate the changes in their social environment during toddlerhood and preschool is largely influenced by their temperament (Kristal, 2005).

The current study focuses on children ages 3 to 6 years old attending a university-based preschool. This age group allows for the exploration of expressions of temperament across multiple settings including school and home, the development of cognitive skills, the beginning of social understanding, and the building of social relationships with peers.

Developmental Outcomes

Children's temperament influences their behaviors, interpretations of their world, and reactions to stimuli in their world. These experiences have implications for both academic and socio-emotional development.

Academics. Child temperament, particularly approach and avoidance, has the potential to influence adaptation to the school environment. Experiences of success and failure in school influence how the child evaluates himself/herself, school, teachers, and peers. For example, differences in reactions to novelty may influence how readily children engage in classroom tasks or how easily they adapt to the classroom expectations. Temperament is likely to also influence how children interact with their peers and teachers in the school environment (Henderson & Fox, 1998).

Children who are highly avoidant of novel situations and people risk developing certain forms of anxiety. Children who are anxious, tend to be more avoidant, and their continued avoidance can be manifested in behaviors such as school avoidance and certain phobias. Children with specific manifestations of anxiety, such as social phobia, are at an

increased risk of premature withdrawal from school (Van Ameringen, Mancini, & Farvolden, 2003). Children who experience anxiety narrow their thoughts to the perceived threat, and therefore have trouble attending to academic tasks. Furthermore, a child experiencing high levels of anxiety may have difficulty remembering previously learned academic material (Wood, 2006).

When children have difficulty adapting to the demands of the school environment, their academic success is usually affected. A child's temperament is an important factor in determining how well the child adapts to new environments, such as school, and to new social and academic demands. Some researchers argue that temperament is as good a predictor of academic success as is cognitive ability (Martin, Olenjnik, & Gaddis, 1994). The goodness-of-fit model posits that a child's academic success is dependent upon the balance between the child's temperament and the demands of the school environment. For example, children with temperaments characterized by low self-regulation and low adaptability develop a poor fit with the school environment, and are therefore likely to have academic difficulty (Bramlett, Scott, & Rowell, 2000).

Three specific dimensions of temperament have been shown to consistently predict classroom behavior: activity, distractibility, and persistence. Some temperamental characteristics have been demonstrated to buffer children from having behavior problems in school. The more positive temperamental characteristics in school settings include high adaptability, low social inhibition, low negative emotionality, and high task persistence. The temperamental characteristics of persistence and adaptability have been closely linked to grades and standardized test scores (Bramlett, Scott, & Rowell, 2000). Research has demonstrated a moderately negative relationship between

activity level and distractibility and reading and math achievement in elementary school (Martin, Olenjnik, & Gaddis, 1994). These specific aspects of temperament and the influence on academics can be assessed through the ratings and examples given on the STI.

Social-emotional implications. Arguably equally as important as academics, social experiences play a critical role in normal child development. There are strong theoretical beliefs that social interactions, particularly peer interactions, serve to facilitate development of social understanding. The social adaptability aspects of temperament including the tendency to approach or withdrawal have been associated with social-emotional wellbeing. For example, children who are socially isolated, or who withdrawal, from their peers have limited opportunities for social learning. However, cautious approach to peers is not always maladaptive. For example, initial avoidance or non-approach of new peers, situations, and stimuli may serve as a protective function (Rubin & Asendorpf, 1993). On the STI, parents are given the chance to explain cautious or approaching tendencies their children have when interacting with new and familiar peers.

Social-emotional implications with teachers. Approach and avoidance tendencies influence peer interactions and interactions with adults in schools. Some believe that teachers' attitudes about students in their classroom mediate the relationship between child temperament and academic achievement. In other words, teachers think of students more positively when those students' temperamental characteristics fit with the classroom environment. The teachers' perception of the child may influence how he/she grades the child and the academic achievement of the child has the potential to influence

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the child's self-concept (Martin, Olenjnik, & Gaddis, 1994). The STI allows for a unique examination of the child's approaching and avoiding tendencies in both school and the home environment.

School psychologists and educators may apply the research on the connection between temperament and academic achievement, and between temperament and social-emotional adjustment.

Research Questions

The next chapters detail the conceptualization of temperament and define the approach / avoidance dimensions of temperament. These chapters highlight the intricacies involved in understanding the approach / avoidance dimensions of temperament and how they have been measured by other researchers. Existing studies have primarily examined temperament through behavioral questionnaires and structured observations. This particular study provided new information about the approach / avoidance dimensions of temperament through parent ratings and qualitative examples on interviews. There was very little literature on parent qualitative examples of temperament, and therefore this study provided a unique perspective in temperament research.

Due to the gap in the literature, the main research question for the current study was to investigate how parents conceptualize their child's temperament and what examples, or rationale, they provide for rating their child a particular way. In addition, the second research question addressed what common themes parents shared across the different ratings of the approach / avoidance dimension of temperament.

Parent examples were quantified and classified and then compared with the existing theoretical research on approach and avoidance. The STI is a relatively new measure of temperament and was designed to clarify the unique dimensions of temperament. This particular study aided in the clarification of the approach and avoidance dimensions of temperament as assessed by this particular interview.

These research questions were addressed by conducting a principal components analysis of the approach / avoidance scale on the STI to help to streamline the qualitative analysis. Once factors were chose from the principal components analysis, the two items with the highest loadings on each of the three factors were examined. Qualitative examples of the top six items were quantified and classified based on parent responses. While this study only examined one dimension of temperament, it was important to further our understanding of the intricacies involved in approaching and avoiding tendencies in childhood temperaments.

Chapter 2: Overview of the Literature

Defining Temperament

Temperament refers to behavioral characteristics in which individuals differ. These differences are described by concepts such as disposition, trait, quality, attribute, factor, dimension, type, and category and are used interchangeably by many researchers (Strelau, 1998). Early definitions of temperament differ in some ways; however, researchers tend to agree on the general concept. Temperament concerns the normal range of variability in behaviors. Table 1 below illustrates some of the early definitions of temperament.

Table 1

Definitions of Temperament

Author(s)	Definitions
Allport (1920's)	The characteristic phenomena of an individual's nature, including his susceptibility to emotional stimulation, his customary strength and speed of response, the quality of his prevailing mood, and all the peculiarities of fluctuation and intensity of mood, these being the phenomena regarded as dependent on constitutional make-up and therefore largely hereditary in origin.
Buss and Plomin (1984)	Temperament is inherited personality traits that are present in early childhood. The three personality traits include: emotionality, activity, and sociability as being the foundation for personality.
Eysenck (1940's)	Temperament is more or less a stable enduring system of affective behavior.

Definitions of Temperament

Author(s)	Definitions
Goldsmith and Campos (1987)	Temperament is individual differences in emotionality including individual differences in fear, anger, sadness, pleasure, interest, etc.
Kagan and Snidman (2004)	Temperament is a reflection of features that are inherent in the individual at birth, or an inherited biology.
Rothbart (2007)	Temperament is defined as individual differences in emotional, motor, and attentional reactivity measured by latency, intensity, and recovery of response, and self-regulation processes such as effortful control that modulate reactivity.
Strelau (1998)	Temperament is relatively stable across time as compared with other phenomena and is characterized by cross-situational consistency. Temperament has a biological basis and refers mainly to behavioral reactions such as intensity, energy, strength, speed, tempo, fluctuation, and mobility.
Thomas and Chess (1977)	Thomas and Chess posited one of the most popular definitions of temperament. They are known as the founders of contemporary temperament research in children and consider temperament as a behavioral style. They thought that temperament was best viewed as the 'how' of behavior. They believed it differed from ability, which is concerned with the 'what' and 'how well' of behaving, and from motivation, which accounts for why a person does what he/she is doing. They believed that temperament concerned the way in which a person behaves.

Most theorists agree that temperament refers to biologically based traits that are relatively stable over time. However, researchers tend to have unique ideas about the different dimensions of temperament and how they are expressed early on. Some researchers emphasize the emotionality aspects of temperament, where others focus more on the biological differences seen with children having different temperaments. The behaviors observed are a product of temperament interacting with the environment and therefore it is important to examine context when studying temperament.

Historical Perspectives of Temperament

Strelau (1998) provided a review of the historical roots of temperament in his text *Temperament: A Psychological Perspective.* The following table is a historical sketch of temperament based on that review.

Table 2

Historical Roots of Temperament

Year	Historical Significance to Temperament
4th Century B.C. – late 1800's	The concept of temperament has its roots in the thoughts of ancient Greek philosophers and physicians. Hippocrates, the father of medicine, developed a theory of humors to explain the states of health and illness and Galen, a Greek physician, built upon this theory with psychological interpretations. A major contribution of the ancient Greeks to the study of temperament was that they believed individual differences in behavior could be explained by physiological mechanisms. The variety of behaviors that individuals could exhibit was therefore reduced to a small number of temperament categories.

Historical Roots of Temperament

Year	Historical Significance to Temperament
1887	Wilhelm Wundt studied emotions and reaction time in his laboratory with the aim of establishing general laws of psychic characteristics and discovered individual differences in reactions that led him to conclude that individuals differed in temperament. Wundt distinguished four temperament types: cholerics, melancholics, sanguines, and phelgmatics. He believed that cholerics and melancholics had strong emotions and sanguines and phelgmatics had weak emotions. He also believed that sanguines and cholerics experienced rapid emotional changes whereas melancholics and phelgmatics experienced slow emotional changes.
1905	Gerard Heyman undertook a large study with the aim of describing the basic dimensions of temperament and determining to what degree heredity and environment contributed to the development of temperamental traits. Three basic temperament dimensions were distinguished: activity, emotionality, and primary-secondary function (e.g. perseveration). Eventually eight temperament types emerged, known as 'Heymans cube'. These eight types were: amorphous, apathetic, nervous, sentimental, sanguine, phlegmatic, choleric, and passionate.

Historical Roots of Temperament

Year	Historical Significance to Temperament
1910	Ivan Pavlov conducted the first empirical study on types of nervous system (TNS). Pavlov underlined the functioning significance of temperament, and the role of the Conceptual Nervous System (CNS) in an individual's adaptation to his/her environment. Through his laboratory studies, Pavlov was able to demonstrate the link between temperament characteristics and the CNS. Pavlov illustrated the concepts of arousal and protective inhibition to explain performance under highly stimulating conditions.
1912	Immanuel Kant built upon Pavlov's theory of temperament in his publication, *Anthropology*. Kant believed that temperament was a psychological phenomenon that consisted of psychic traits determined by the composition of an individual's blood.
1920's	Gordon Allport's conception of temperament in the 1920's was very influential in determining the meaning of temperament for emotion-oriented researchers. Allport is known as the founder of trait-oriented personality psychology. Allport's understanding of temperament referred to individual differences in emotions and that these dispositions were unchanged from infancy throughout life. He also believed that the behavioral manifestations of temperament were present from early infancy. Allport believed that two aspects of temperament could be characterized by dimensions: broad emotions – narrow emotions (the range of objects and situations an individual reacts to emotionally) and strong emotions – weak emotions (the intensity of feelings evoked by objects and situations).

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Historical Roots of Temperament

Year	Historical Significance to Temperament
1923	Carl Jung proposed that people are either extroverted or introverted. Jung believed that these two attitudes were anchored in biology and influenced the direction the libido expressed itself. He thought that these two attitudes expressed themselves through sensation, thinking, feeling, and intuition. Jung's theory resulted in the construction of the Myers-Briggs Type Indicator (MBTI).
1928	Arnold Gesell developed normative growth tables for infants and young children. He focused on the biological aspects of psychological development. Gesell observed significant differences in infants' behaviors and believed they were innate and separate from the environment.
1930's – 1950's	In the middle of the 20th century two of Pavlov's students attempted to adapt Pavlov's theory on TNS to children. Ivanov-Smolensky distinguished four types of higher nervous activity in children: the mobile type (positive and inhibitory reflexes are formed easily and quickly), the slow type (both kinds of reflexes are formed slowly, with difficulty), the excitable type (positive reflexes are formed easily and quickly, and inhibitory reflexes slowly with difficulty), and the inhibited type (positive reflexes are formed slowly, inhibitory reflexes easily and quickly). Pavlov's second student, Krasnogorsky, investigated the inhibitory reaction in children and distinguished two nervous systems: the normal and the inert (slow). He was also one of the first Pavlovian typologists to recognize that temperament changed due to environmental factors.

Year	Historical Significance to Temperament
1950's	Freud attributed differences in amount of energy in the libido and the excitability of the nervous system to temperamental differences.
1970's	The formal study of temperament was largely initiated in the New York Longitudinal Study (NYLS) conducted by Thomas and Chess in 1977. Thomas and Chess collected detailed parent reports of infant behaviors and concluded that nine different dimensions of temperament were responsible for individual differences. The nine dimensions of temperament included activity level, rhythmicity, approach-withdrawal, adaptability, threshold, intensity, distractibility, and attention span-persistence. Thomas and Chess believed that temperament referred to a general overarching style of responding rather than motivation to respond in a particular way. Thomas and Chess grouped children into three distinct temperament types: difficult, slow to warm up, and easy. They described difficult children as irregular, low in adaptability, withdrawing, intense, and negative. Slow to warm up children were low in activity level, withdrawing, low in adaptability, and moderately negative in mood. Easy children were regular, adaptable, approaching, mild, and positive. Thomas and Chess emphasized that temperament must be differentiated from motivations, abilities, and personality; and is always expressed as a response to an external stimulus, opportunity, expectation, or demand; and is an attribute of the child that influences the environment.

Historical Roots of Temperament

Year	Historical Significance to Temperament
1980's	Albert Mehrabian presented an emotion-based theory of temperament in which temperament was viewed as a characteristic emotional state. Goldsmith and Campos centered their temperament research around infants, and led them to conclude that motoric, facial, and vocal behavior of infants are all expressions of the affective systems. They proposed that infant temperament was observed by individual differences in tendencies to express primary emotions.

Although many dimensions of temperament have been studied over time, four

dimensions are common across all models and include activity, emotionality, approach-

avoidance/sociability, and attention/distractibility (Teglasi, 2006). Temperament and

experience together help to form a child's cognitions about self, others, their physical and

social world, their values, attitudes, and coping strategies (Rothbart, 2007). Children

show variability in their reactions to their environment, and these reactions form each

child's own unique temperament.

Approach and Avoidance

The approach and avoidance dimensions of temperament have been represented in

the literature as either being opposite ends of a continuum or as distinct dimensions. The

conceptualization of approach and avoidance as distinct or polar ends influences how

child temperament is perceived. The approach dimension of temperament is understood

as a general neurobiological sensitivity to positive stimuli that is accompanied by a

behavioral predisposition toward such stimuli. The avoidance dimension of temperament

is characterized by a general neurobiological sensitivity to negative stimuli and a

behavioral disposition away from such stimuli (Elliot & Thrash, 2010). The approach and avoidant temperament dimensions have biological value in that avoidance protects individuals from harmful stimuli and approach to positive stimuli can be rewarding. The STI examines particular situations, reactions to people, and reactions to stimuli, and whether they are approached or avoided, in other words this dimension of temperament as assessed by the STI is believed to be opposites on a continuum.

These types of temperament characteristics can be seen in young infants by subtle behavioral manifestations. For example, the newborn child shows distress and avoidant movements when unhappy. Infants as young as two months old demonstrate temperamental approach when they smile, laugh, and move their body. Behavioral inhibition is more readily noticed when the infant is about seven months old (Rothbart, 2007).

Approaching children are typically attracted by novelty, and they do not hold back when presented with new people, new places, or new things. These children are often sociable and outgoing and like to be hands-on learners. The STI uses examples of such novel situations to assess the degree of approach for that child in that particular situation. Withdrawing children need time to warm up to new situations and stimuli. These children are often hesitant with new people, new places, or new things. Children who withdraw often prefer the familiar or routine, are cautious, and will avoid risky situations. These children prefer to observe rather than do, and learn by watching others (Kristal, 2005). Items on the STI assess this dimension of temperament by asking parents questions about unfamiliar versus routine situations as well as safe versus risky situations.

Studies have shown that infants rated high in approach (or low in avoidance) were also rated as more rhythmic, cooperative, and manageable and less irritable than infants low in approach. Furthermore, teachers' ratings of child approach were also highly correlated with ratings of adaptability and positive mood. Based on Thomas & Chess's dimensions of temperament, children who easily approach novel and unfamiliar situations and/or people are perceived more positively (Henderson & Fox, 1998). These positive versus negative perceptions of approach and avoidance will be examined via the parent examples provided on the STI.

According to Teglasi (2006), the tendency to approach or avoid certain situations is often correlated with positive and negative emotions evoked in those particular situations. Children who are highly negatively reactive tend to cautiously approach new situations and/or may fear and avoid such situations. However, those low in negative reactivity might seek out novelty and/or risk in order to attain that particular emotional state. Sociability is often related to approach and avoidance dimensions of temperament and refers to the preference for being around others, regardless of their familiarity (Teglasi, 2006). The style of approaching or avoiding stimuli, people, and situations in a planned (proactive) or provoked (reactive) manner also influences adjustment (Henderson & Fox, 1998). The examples provided on the STI provide rich data as to whether the child is proactive or reactive in his/her approaching or avoiding tendencies.

Approach, Avoidance & Motivation

Children can approach or avoid stimuli, situations, and people for many different reasons. Early research assumed that approach/avoidance was based on the emotions of pleasure or fear. However, newer research has begun to examine a child's motivation to

approach or avoid stimuli, situations, and people. In approach motivation, behavior is directed by the possibility of a positive event and/or object. Avoidance motivation is directed by an undesirable possibility and/or negative stimuli (Elliot & Thrash, 2002). Both approach and avoidance motivations are essential to survival and human functioning. Avoidance motivation facilitates surviving, whereas approach motivation facilitates thriving. Most organisms possess some basic form of approach or avoidance that helps to regulate movement toward potentially beneficial stimuli and away from potential harm (Elliott, 2008). A large amount of research has documented that individuals evaluate most stimuli on a good/bad dimension, and do so immediately, without intention or awareness. When individuals make their good/bad evaluation they often evoke approaching or withdrawing behaviors that move them towards or away from that particular stimuli. In addition, the level of stimulation or novelty that children seek out or avoid depends on their reactivity to such stimuli.

Humans are complex beings and often do not show their initial behavioral predisposition to approach or withdraw. Humans have the ability to self-regulate their behaviors and therefore experience multiple levels of approach and avoidance motivation. Elliott (2008) believes that approach and avoidance motivation encompasses both reactivity and direct behavior. Reactivity refers to the initial activation and/or instigation that orients a person in a particular way. The direct behavior then occurs when the person responds behaviorally to that particular reactivity. The physical movement (or approach) towards a stimulus can represent getting something positive that is currently absent and/or maintaining something positive. The physical movement away

(or avoidance) of a stimulus can represent keeping something negative away and/or escaping something negative that is currently present.

Approaching and withdrawing. Researchers have begun to narrow the concept of approach and avoidance. One way this has been done is by examining the behavioral manifestations of approach and withdrawal. The approach-withdrawal dimension is narrower than the approach-avoidance dimension because it focuses on reactivity at the biological level only. Some researchers have focused on the approach-withdrawal dimension of human behavior because it is observable behavior associated with physical movement. These movement tendencies are believed to be associated with different areas in the human brain. For example, approaching behaviors are linked to activation of the left prefrontal cortex, whereas withdrawal is associated with the right prefrontal cortex (Elliott, 2008).

Behavioral Inhibition

Some researchers have focused their study of approach and avoidance on emotional aspects of these dimensions of temperament. Many of these researchers have linked early avoidance to later behavioral inhibition. Behavioral inhibition refers to one's initial negative emotional and motor reactivity to novelty. More recent research has attempted to examine both behaviors and affect when determining whether the child is truly inhibited. For example, when a child avoids a situation, and has negative affect when doing so, he/she would be demonstrating the inhibition system. However, avoidance without the presence of negative affect may indicate disinterest or low approach tendencies. Similarly, when a child approaches a stimulus with positive affect

he/she may be highly motivated to approach and would demonstrate low levels of inhibition (Putnam & Stifter, 2005).

When examined in toddlers, behavioral inhibition also includes vigilance and being withdrawn in the presence of novel people and situations (Degnan & Fox, 2007). Kagan and Snidman (1991) exposed 4-month-old infants to visual and auditory stimuli and found that infants high in motor activity and negative affect were more likely to be highly inhibited when they were 4-years-old (Putnam & Stifter, 2005). Behavioral inhibition has typically been measured by presenting a child with a novel object (e.g. clown, robot, etc.) and observing overt approach or avoidance. However, more recently researchers have questioned the inference that a child who does not approach a novel object/person is inhibited. Researchers are now considering whether the child who does not approach is truly inhibited or rather simply not interested in exploring (Putnam & Stifter, 2005).

Children who are able to regulate reactivity to novelty develop resilience, which allows for positive social skills to develop and decreases inhibited/anxious behaviors over time (Degnan & Fox, 2007). While the child's internal temperament contributes to behavioral reactivity and inhibitory control, external sources such as parenting and the caregiving context can influence the stability of behavioral inhibition. Children may develop adaptive attention and self-regulatory skills, supported by parenting practices, which contributes to a resilience process. The STI allows for an examination of behavioral inhibition and the parent's perspective on this type of behavior, how long it has lasted, and if it has remained constant over the course of the child's life.

Behavioral inhibition and social skills. As was stated earlier, social interactions early on are critical to social learning. Approximately 100 years ago, researchers began to study children's peer interactions. These interactions were thought to strongly influence a child's social understanding. Early researchers paid little attention to social withdrawal, because it was believed to be of little developmental significance. In the 1980's Jerome Kagan, along with his colleagues, began to emphasize the temperamental trait of behavioral inhibition. These behaviorally inhibited children were observed to be cautious and reserved in the face of novelty. Kagan's work laid the foundation for studying shyness in children and its stability over time. Rubin and colleagues began reporting their results from the Waterloo Longitudinal Study around the same time. The Waterloo Study was one of the first research projects to focus on social withdrawal in children over time. This study demonstrated that social withdrawal was relatively stable over time and was associated with negative outcomes such as low self-worth, loneliness, depression, internalizing disorders, and peer rejection (Rubin & Asendorpf, 1993).

Children who play alone can be exhibiting active isolation, a process in which the child is actively excluded, rejected, or isolated by his/her peers, or exhibiting social withdrawal, a process by which the child removes himself/herself from the peer group. When children engage in social withdrawal is it believed to be a result of factors that come from within the child (not imposed upon the child by the peer group). More recently, it has been observed that children who socially withdrawal are eventually also excluded by their peers. Rubin & Coplan (2010) believe that children withdraw socially due to a variety of motivations. For example, children may withdraw due to their inability to regulate emotions such as anxiety and fear, or they may withdraw due to a

non-fearful preference for solitary play. When children withdraw due to fear, they may be doing so as a result of behavioral inhibition, anxious solitude (wariness in familiar social situations), shyness (wariness to social novelty and/or perceived social evaluation), or social reticence (onlooker behaviors in the presence of peers) (Rubin & Coplan, 2010).

Rubin and colleagues have focused their research on social inhibition, which they believe is behavioral inhibition in the presence of unfamiliar peers. The trait of shyness has been conceptualized as a temperamental characteristic of wariness in the presence of social novelty or perceived social evaluation. Shyness has been described as a conflict between approach and avoidance, because the shy child may desire to interact with his/her peers but simultaneously desires to avoid social contact because of fear and anxiety. All of the terms researched by Rubin and colleagues have an underlying behavioral definition of withdrawal from social interactions. The concept of social withdrawal and behavioral inhibition can be examined from examples given on the STI for questions relating to familiar and novel peer interactions. The STI gives a unique glimpse of these children who are having their first social interactions with peers as they begin attending preschool.

Behavioral Approach and Behavioral Inhibition Systems

While most researchers examine approach and avoidance through observations, questionnaires, and interviews, some researchers focus on the physiological manifestations of temperament. One of the major physiological theories is called Reinforcement Sensitivity Theory (RST). RST posits that differences in personality reflect variability in individuals' sensitivity to reward or non-reward. The three motivational systems studied in research include the Behavioral Inhibition System (BIS),

the Behavioral Approach System (BAS), and the Fight-Flight-Freezing System (FFFS) (Wright, Lam, & Brown, 2009). Researchers have documented that approach and avoidance are regulated by two separate neural systems: the Behavioral Approach System (BAS) and the Behavioral Inhibition System (BIS). The BAS motivates behavior toward positive incentives, whereas the BIS inhibits approach to stimuli that signal the potential for punishment or non-reward (Putnam & Stifter, 2005). The BIS is closely related to the vulnerability to developing anxiety. Gray proposed that the primary functions of the BIS are to inhibit ongoing behavior, sensitize the individual to the presence of risk, and encourage behavioral caution, attention, and arousal. Gray describes the BAS as becoming activated when acquiring rewards or eliminating punishment (Smits & Boeck, 2006). The BAS is developmentally related to aspects of extraversion including positive anticipation and being outgoing. However, it is also linked to problems with impulsivity, anger, and frustration (Rothbart, Ahadi, & Evans, 2000).

The BIS promotes sensitivity to cues of punishment and hypersensitivity to such cues puts individuals at increased risk of developing internalizing problems. The BAS promotes sensitivity to cues of reward and hypersensitivity to such cues is related to increased risk for externalizing disorders. There is considerable support that heightened BIS sensitivity is related to social anxiety disorder with children and adults (Kimbrel, Mitchell, & Nelson-Gray, 2010).

The BAS is sensitive to cues signaling rewards, including active approach, and is linked to the medial forebrain and lateral hypothalamus. It is also influenced by the neurotransmitters dopamine and norepinephrine. The BIS operates in situations of novelty, punishment, intense stimulation, and fear. It is involved in passive avoidance

and acts as a stop mechanism of active behavior. The BIS is linked to the frontal cortex of the brain and the neurotransmitters involved are norepinephrine and serotonin.

Physiological underpinnings. The BIS functions to stop ongoing behavior in order to process potential threat; whereas the BAS functions to process potential reward. The BIS allows for sensitively responding to cues of punishment, non-reward, and novelty in which ongoing behavior is interrupted to process these cues. Children with high BIS activation have increased levels of attention, arousal, vigilance, and occasionally anxiety. The BAS is sensitive to potential rewards, non-punishment, and escape from punishment; and has been associated with feelings of optimism, joy, and aggression (Amodio, Master, Yee, & Taylor, 2008).

The BAS is organized around the dopaminergic neurotransmitter system, which promotes goal-related behaviors in response to rewards or punishment. When observing this system in humans, striatal dopamine projections can be detected in the lateral and orbital regions of the prefrontal cortex. Approaching tendencies have been linked to the dorsolateral prefrontal cortex when measured in electroencephalography (EEG) studies. More specifically, greater left frontal asymmetry is associated with approach, whereas, greater right-sided frontal activity is associated with avoidance. Further studies have demonstrated that left frontal cortical activity is associated with high BAS scores at both the state and trait levels. The BIS is believed to be more associated with the noradrenergic and serotonergic networks to detect threats (Amodio, Master, Yee, & Taylor, 2008).

Related Temperament Factors

Approach and avoidance are complicated temperament dimensions. While they can be observed and measured as unique dimensions of temperament, other dimensions of temperament also influence their expression. The most common related temperament factors include attention, effortful control, and self-regulation.

Attentional control. Attention is directly related to approaching and avoiding tendencies because selective attention is a form of approach/avoidance and neurobiological systems such as the BIS/BAS are associated with attention. Children who are highly reactive, and highly attentive to potential threat, have a higher likelihood of developing later anxiety. The most commonly studied mechanism for anxiety is attentional bias. Furthermore, attentional processing is closely linked to high reactivity. Many researchers have acknowledged a mediating relationship between threat-related attentional processing and the link between temperament and anxiety. Models have demonstrated that high levels of reactive temperament are associated with increased risk of developing anxiety. This risk of developing anxiety is at least partially mediated by attentional bias towards threat related information. More regulated individuals might be better able to regulate the attention bias towards threat thus protecting the individual from developing anxiety (Vervoort, Wolters, Hogendoorn, Prins, De Haan, Boer, & Hartman, 2011).

Children who have heightened levels of negative affectivity also often have higher levels of sensitivity or attention directed towards threatening stimuli. Links have been shown between the BIS and attentional bias towards threat. Attention selectivity influences later emotion and cognitive processing and therefore influences children's

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perceptions of others and the world around them. Some researchers have demonstrated the link between increased vigilance, or heightened attentional control, towards threat and later development of anxiety. Although at an increased risk for development of anxiety, not all children who are high on negative affectivity develop later anxiety or psychopathology (Lonigan & Vasey, 2009). The attention children give to particular situations, stimuli, and people will be examined by ratings and examples provided on the STI as it relates to approach and avoidance.

Effortful control. Effortful control reflects the child's ability to use executive control processes to control his/her levels of reactivity and replace his/her tendencies with more appropriate or socialized methods of responding to threat. Effortful control allows for the inhibition of a dominant response to perform a non-dominant response. Effortful control can allow for attentional control in times of threat, novelty, or challenge. In situations of threat, effortful control moderates the negative affectivity experienced and internalizing and/or fear. Children who are high in effortful control tend to develop skills in overriding their negative affectivity and therefore more adaptively respond in particular situations. Therefore, effortful control can be seen as a resilience factor in preventing the development of anxiety (Lonigan & Vasey, 2009). Parents often provide qualitative examples of behaviors on the STI that demonstrate their child's ability to use effortful control.

Self-regulation. Self-regulation is also a dimension of temperament that is closely related to the tendency to approach or avoid. During the preschool years, the development of self-regulation becomes one of the more important child capacities. Self-regulation during times of frustration, challenge, and compliance with caregiver demands

becomes a defining feature of adaptive child behavior. Children learn how to self-regulate when they are able to modulate their reactivity to meet the goals and/or demands of the situation. The most fundamental aspects of reactivity include approach and avoidance during novel, unfamiliar, or challenging situations. The approach aspect of reactivity includes being sensitive to rewards, emotional exuberance, and excited anticipation for enjoyable activities. The approaching child demonstrates this quality with behavioral approach to novelty and challenge. The avoidance aspect of reactivity reflects sensitivity to potential threat, fear, and shyness. The avoidant child demonstrates this quality with behavioral withdrawal and inhibition in response to novelty and challenge (Dennis, 2006).

Approach and avoidance can be thought of as separate but interacting systems of reactivity rather than a continuum of reactivity. Children develop the potential to self-regulate their reactivity in novel situations and demonstrate behavioral manifestations of either approach or avoidance in those situations. Preschool age children are at an age of rapid development in self-regulation and also rely on external sources of support to regulate their behaviors (Dennis, 2006).

Goodness-of-fit. Children can regulate their goodness-of-fit by what they approach or avoid and can regulate their reactivity. Self-regulation allows a child to modulate his/her reactivity in situations of novelty, threat, or challenge. During infancy and early childhood, parents are critical role models for their children in learning how to deal with their reactivity and respond in an appropriate manner. Child emotional self-regulation is influenced by both child avoidance reactivity and parent modulation of the child's reactivity (Dennis, 2006). During the administration of the STI, parents often

provide examples of how they model self-regulation to their preschool age children during times of novelty or stress.

Parental Influences on Child Approach/Avoidance

Parental approach and avoidance are important in socializing children. A parent's reactivity to novelty, threat, and/or challenge influences the degree to which their child focuses on threats and whether they need to self-regulate their reactivity. Parental approach can be thought of as behaviors a parent uses to increase a child's reward sensitivity. Parents encourage approach by emphasizing positive rewards and positive outcomes. Parental avoidance involves behaviors that emphasize threats, problems, and lack of safety. These parental behaviors shape a child's self-regulation and reactivity to potential rewards or threats. Parental approach/avoidance can be either warm or controlling. Parental approach can encourage persistence to obtain rewards, however, it also has the potential to encourage child frustration when rewards are unattainable. Parental avoidance promotes child withdrawal and avoidance of negative outcomes or harm, however, it can also be linked to less persistence and more stress during challenges (Dennis, 2006).

Mother-child interactions. It is important to understand contextual factors that may influence infant temperament. Significant evidence suggests that the family is critical in the development of behavioral inhibition in children. More specifically, research has demonstrated that overinvolved, or overprotective, parenting styles are linked with increased child anxiety. Parents who encourage and reinforce avoidant behaviors or who indicate a lack of control over threat can increase anxious/withdrawal symptoms in their children (Raishevich, Kennedy, & Rapee, 2010).

Maternal acceptance, warmth, sensitivity, and responsiveness, however, have been associated with children who are less inhibited and exhibit more socially adaptive behaviors. Mothers who have behaviorally inhibited children, and are more sensitive to their child, often foster their child's self-esteem and therefore decrease the negative affect experienced by their child. An alternative viewpoint is that sensitive parenting could help to maintain behavioral inhibition suggesting that the child is not in control of his/her fears (Degnan & Fox, 2007).

Children learn a great deal through their early childcare experiences. Within the childcare context, children may engage in a diverse array of peer interactions that allows them to learn and apply skills outside of the childcare setting. Inhibited children who are exposed to peers early on may learn more adaptive approach strategies and become less inhibited over time (Degnan & Fox, 2007). These interactions with parents, peers, and teachers were examined through examples given on the STI.

Current Study

Using the literature review for support, the current study examined approach and avoidance as measured by the STI. An exploratory factors analysis was conducted to assist in selecting factors and items for the qualitative analysis. The principal components analysis allowed for the examination of the most significant items on each of the three main factors chosen. The emphasis of the study was on identifying common themes within the top items for parent explanation of their ratings.

The analysis provided information about the child's desire and preference for social activity versus solitary play, novel versus routine situations, and risky approach. These dimensions were explored in terms of their relation to the child's potential to

respond to reactivity and their ability to self-regulate. Parent examples were quantified and classified to understand their conceptualization of their child's behaviors. The examination of the qualitative responses helped to clarify aspects of approach and avoidance as measured by this temperament rubric. The qualitative examples were examined for the relationship to other related temperament factors such as self-regulation and attention. Although there have been a few analyses of structured diagnostic temperament interviews, most have focused on a single dimension of temperament or focused on clinic-referred samples. This qualitative examination of approach and avoidance was necessary because the current literature was lacking such an analysis of these particular temperament dimensions.

There were no a priori hypotheses about how the qualitative examples would be classified. There was an assumption that at the extremes of each rating scale parents would express concern about their child's ability to self-regulate and his / her attention. For children with more extreme ratings, the assumption was that parents had to engage in more external regulation of their child's behaviors.

Chapter 3: Research Methods

Summary of Purpose

The main purpose of this study was to quantify and classify parent examples provided on the approach / avoidance scale of the STI. A principal components analysis was performed to help streamline the qualitative study. The STI is a 112-item interview given to parents of children ages 3 to 6 years old attending a University based pre-school setting. Parents were interviewed by a research assistant and were asked to give both quantitative ratings and qualitative examples of their children's behaviors representing the different distinct dimensions of temperament. The current study explored the approach and avoidance dimensions of temperament as measured by the STI through parents' open-ended explanations of their child's approach-avoidance tendencies.

Design

This study focused on the quantitative ratings and the qualitative examples of the approach and avoidance dimensions of temperament as measured by the STI. The data that was collected for this particular study was part of a larger correlational study of child temperament. However, since the STI was the only measure examined for this study, procedural explanations were limited to those involving the planning, administering, and analyzing of the STI approach / avoidance dimensions.

Factor Analysis

The initial part of this study included an exploratory factor analysis of the approach / avoidance scale on the STI. There were 18 items on the approach / avoidance scale of the STI that were analyzed. The factor analysis served as a method of streamlining the data in order to obtain factors and items for the qualitative analysis.

Coding and Classifying Procedures

The main part of this study was the development of a coding / classifying system to help analyze the qualitative examples provided by parents. The coding system was developed by using the existing literature and by the themes that emerged from the qualitative responses themselves. Based on the literature, it was expected that the qualitative examples would include the child's ability to self-regulate and attend to potential threat or reward. Two individuals met and read through all of the qualitative examples across the items included in the analysis. As each example was read, general themes were created until all responses could be classified and no new categories were needed. An initial agreement was reached on overall coding themes and then one individual categorized all qualitative examples into themes. The second individual independently coded a sub-sample of 50 items to achieve inter-rater reliability. The two coders achieved 90% inter-rater agreement for the sub-sample.

Participants

The participants were parents of children ages 3 to 6 years old, who are currently attending, or have previously attended, a University based preschool setting. The sample was ethnically diverse, but largely middle class families that had a connection to the university. Either parent was permitted to participate in the interview, but the majority of the participants were the mothers of the children in the study. STI data was collected for 92 families participating in the larger correlational temperament study.

The Structured Temperament Interview

Creating a new measure of child temperament was undertaken with the goal of clarifying the measurement of the constructs of temperament. The current version of the

STI, including 112 items, is an expansion of a shorter version used to conduct pilot studies. The STI includes six dimensions identified in the literature: Attention/Distractibility, Approach/Avoidance, Self-Regulation, Emotionality (divided into positive and negative dimensions), Activity, and Reactivity (intensity and threshold). The measurement approach differs from extant scales in four basic ways: 1) the responses are obtained during interviews rather than via questionnaire or observational techniques; 2) items comprise broad definitions of constructs as expressed in particular conditions (e.g., social-task related; novel-familiar; risky-safe; preferred-non preferred) rather than as specific behaviors; 3) responses include quantitative ratings on five point scales and qualitative examples; and 4) each broad dimension includes sub-categories that fit emerging concepts in the literature (for instance, approach/avoidance has four categories: new people, new situations/tasks, familiar people, and familiar situations and tasks that are differentially related to adjustment) (see, Teglasi, et al, 2009).

Approach and Avoidance Dimensions

The tendency to approach or avoid is regulated by the child in order to maintain or change the existing level of emotionality and / or physiological arousal that he / she is currently experiencing. These dimensions are often included in measures of temperament as behavioral manifestations of temperament qualities. Children who are more reactive to novelty are more likely to demonstrate behavioral avoidance in such situations. These children show caution and / or avoid situations that present a potential risk or new circumstance. Children who approach more quickly do so either due to a desire for sociability or to seek rewards. Sub-constructs of approach and avoidance on the STI include: new people, new situations / tasks, familiar people, and familiar situations /

tasks. It is important to note that different results are often found with children and their

willingness to approach people versus situations and tasks.

Procedure

The interview data was archival, having been collected over the course of the past

several years. The data collection procedures are outlined below.

First, the research staff discussed research objectives with teachers / staff at the

preschool and parents at back to school night. The researchers then disseminated consent

forms to parents of children in the relevant age range. Families were given multiple

opportunities over the course of data collection to participate. The only basis for selection

for the study was the age of the participating child and parental permission.

Informational cover letters and informed consent forms describing the study were

distributed to the parents of the participating preschoolers. Signed permission forms

from parents or guardians constituted informed consent on behalf of the students. For

this portion of the study, parent permission was obtained to meet with and complete the

STI with a research assistant.

A research team divided the interviews among each other for completion. Each

data collector was trained in the administration of the STI to assure consistency and

reliability of data collection. The measure is typically administered in one,

approximately 120-minute session with one of the child's parents. However, the

interview can be broken into several shorter interviews to accommodate the parent's

schedule. When parents are unable to meet face-to-face the interview is completed over

the telephone with a research assistant. All parents are given a copy of the STI to follow

along with during the interview to allow them to reread questions and reflect on the answer choices.

All materials and data collected for the project are confidential, stored in locked file cabinets in the office of Dr. Teglasi, located at 3124 Benjamin Building in the Department of Counseling and Personnel Services. Only the people directly involved in the research have access to materials. After all data have been collected, all names will be removed. There is a file folder for each child in which all data for that child is kept. Each child is assigned a case number. A master sheet of names corresponding with case numbers is kept in a locked drawer. Data entry takes place on a secure computer and, each child is only identified by his / her case number. All data are double entered for quality assurance.

Chapter 4: Results

Descriptive Data

STI data was available for 92 of the 139 participants in the larger correlational temperament study. Participants had several opportunities to complete the STI over the course of the study; however, several families opted out of the interview portion. Data analyses for the current study included the 92 participants who completed the STI.

The gender for the participants was equally split between male and female preschoolers (Table 3).

Table 3

Gender of Student Participants

	Frequency	Percent
Male	46	50
Female	46	50
Total	92	100

The ages of the participants fell between 38 and 81 months old. The mean age for the participants was 55 months old with a standard deviation of 9.97 months.

The ethnicity of the preschooler participants can be found in Table 4 and the breakdown of the 'Other' ethnicities can be found in Table 5. The valid percent in Table 4 represents the percentage of non-missing data.

Table 4

Ethnicity of Student Participants

Ethnicity	Frequency	Percent	Valid Percent
European-American	45	48.9	55
African-American	11	12.0	14
Asian-American	11	12.0	14
Other	14	15.1	17
Missing	11	12.0	N/A

Table 5

'Other' Ethnicity Breakdown

Other Ethnicity	Frequency	Percent of Total Sample
African-American / Caucasian	2	2.2
African-American / Anglo-Saxon	1	1.1
European	1	1.1
European-American / Asian-American	1	1.1
European / African-American	1	1.1
European / Asian	1	1.1
Haitian American	1	1.1
Indian / European-American	1	1.1
Russian / Caucasian	1	1.1
Indian	2	2.2
Japanese	1	1.1
Multi-racial: Afro-Cuban / Irish / Spanish	1	1.1

The education level of the 92 parent participants who completed the STI can be found in Table 6. The valid percent in Table 6 represents the percentage of non-missing data.

Table 6

Education Level of Parents

Level	Frequency	Percent	Valid Percent
Bachelor's Degree or Some College	35	38	45
Graduate or Professional Degree	42	45.7	55
Missing	15	16.3	N/A

Factor Analysis

A principal components analysis was performed to assist in determining which factors and items would be examined through the qualitative study.

As shown in Table 7 the tests of assumptions were established for the Structured

Temperament Interview (STI) Approach / Avoidance scale. The Kaiser-Meyer-Olkin

Measure of Sampling Adequacy (KM0 = .734) was acceptable, and the Bartlett's Test of

Sphericity was significant (p<.000). The KMO provides a measure of sampling adequacy

to determine if factor analysis is appropriate to use with the existing sample size. KMO

values between 0.5 and 1.0 indicate that factor analysis is appropriate. A KMO value of

0.6 is a suggested minimum. The current KMO value (.734) confirms that the sample size

was appropriate to use with principal components analysis. Bartlett's Test of Sphericity

is a test statistic used to examine the hypothesis that variables are uncorrelated in the

population (Fabrigar & Wegener, 2012). The Bartlett's Test of Sphericity was significant

(p<.000) indicating correlated variables.

Table 7

Tests of Assumptions of STI

KMO Sampling Adequacy		.734
Bartlett's Test of Spericity	χ^2	638.915
	df	153
	Sig.	.000

p<.000

Additional results and information from the principal components analysis,

including specific item loadings, can be found in Appendix A.

Qualitative Coding

The qualitative examples that parents provided on the STI were examined based

on the three factors determined by the principal components analysis. The two items

with the highest loadings on their respective factors were chosen for qualitative analysis.

The factors and items included in the qualitative study can be found in Table 8.

Table 8

Qualitative Factors and Items

Factor	Item
Prefers Familiar Routine	68: To what extent does the child seek situations that depart from the routine
	61: To what extent does the child prefer routine situations as opposed to novel situations
Sociability	74: To what extent does the child approach unfamiliar adults in familiar surroundings
	76: How would the child respond if approached by other children who are outside the familiar circle of friends in a familiar setting
Risk Seeking Approach / Short Sighted Approach / Risky	63: To what extent would the child approach a pleasant situation after being told that someone could get hurt
	71: Would the child engage in a fun activity even after understanding that someone could get hurt

Frequencies. The qualitative answers of 48 participants were examined across each of the six items for this portion of the study. These 48 participants provided qualitative examples that included enough information to be quantified and classified according to themes. These examples were initially organized by numerical ratings for each item. The frequency of the numerical ratings for each of the items is summarized below.

Factor 1: Prefers Familiar / Routine was evaluated by examining Item 68: To what extent does the child seek situations that depart from the routine; and Item 61: To

what extent does the child prefer routine situations as opposed to novel situations. The frequency of responses can be found in Table 9 and Table 10.

Table 9

Frequencies for Item 68: Seeks Departure from Routine

Answer Choice	Frequency
1: Extreme preference for change in routine	0
2: Strong preference	6
3: Medium preference	22
4: Mild dislike of change	17
5: Extreme dislike of change	3

Table 10

Frequencies for Item 61: Preference for Routine

Answer Choice	Frequency
1: Almost always	5
2: Often	14
3: Sometimes	23
4: Rarely	6
5: Almost never	0

Factor 2: Sociability was evaluated by examining Item 74: To what extent does the child approach unfamiliar adults in familiar surroundings; and Item 76: How would the child respond if approached by other children who are outside the familiar circle of friends in a familiar surrounding. The frequency of responses can be found in Table 11 and Table 12.

Table 11

Frequencies for Item 74: Approach Unfamiliar Adults in Familiar Setting

Answer Choice	Frequency
1: Extremely approaching	3
2: Highly approaching	18
3: Moderately approaching	17
4: Rarely approaching	10
5: Almost never approaching	0

Table 12

Frequencies for Item 76: Approached by New Children in Familiar Setting

Answer Choice	Frequency
1: Restrained; self conscious	0
2: Reserved	6
3: Warm but mildly reserved	24
4: Immediately relaxed	13
5: Unrestrained enthusiasm	5

Factor 3: Risk Seeking Approach / Short Sighted Approach / Risky was evaluated by examining Item 63: To what extent would the child approach a pleasant situation after being told that someone could get hurt; and Item 71: Would the child engage in a fun activity even after understanding that someone could get hurt. The frequency of responses can be found in Table 13 and Table 14.

Table 13

Frequencies for Item 63:Approach Pleasant Situation After Knowing Someone Could Get Hurt

Answer Choice	Frequency
1: Almost always	10
2: Often	10
3: Occasionally	14
4: Rarely	10
5: Almost never	4

Table 14

Frequencies for Item 71: Engages in Fun Activity After
Understanding Someone Could Get Hurt

Answer Choice	Frequency
1: Almost always	11
2: Often	14
3: Occasionally	12
4: Rarely	6
5: Almost never	5

Coding themes. Subsequently, the examples within the numerical ratings were organized according to common themes. When multiple numerical ratings elicited similar themes the ratings were combined. For example, the ends of the rating continuum were often collapsed into one coding category. The common themes for each of the items are detailed below. The complete qualitative coding rubric can be found in Appendix C.

Factor 1: prefers familiar / routine. The first factor from the principal components analysis is Prefers Familiar / Routine. The top two STI items that represent this factor are Item 68: To what extent does the child seek situations that depart from the routine; and Item 61: To what extent does the child prefer routine situations as opposed to novel situations. Each of these items and their qualitative themes are detailed below.

Item 68. This particular item looks at the extent that children seek situations that depart from the routine. The frequency of the numerical responses for this item can be found in Table 9. Overall, the majority of the sample endorsed either a 3 (medium preference for departure from routine) or a 4 (mild dislike of changes in routine). There were no ratings of 1 (extreme preference for changes in routine). The themes for each of the numerical ratings for Item 68 can be found in Tables 15, 16, and 17.

Table 15

Themes For a Rating of 2 on Item 68

Theme	Frequency
Child prefers risky activities; pushes boundaries with new activities	1
Child prefers doing different, novel activities	1
Child likes departure from certain aspects of routine; depends on the specific departure from routine	2
No example	2

Table 16

Themes For a Rating of 3 on Item 68

Theme	Frequency
Is willing to try new things within the context of family	2
Child likes routine, but is willing to change; doesn't get upset when change is introduced	8
Child likes routine and is cautious when something new is introduced	1
Likes to have choices in activities	2
In particular situations likes departure from routine	4
Parental preference for routine / departure from routine frames child's perspective	1
Child doesn't have a preference for routine	1
No example	3

Table 17

Themes For a Rating of 4 or 5 on Item 68

Theme	Frequency
Enjoyment of doing the same activities repeatedly; creature of habit; doesn't enjoy new activities or situations	12
Reaction depends on how the parents frame the new situation	3
Only departs from routine when something is particularly interesting	2
No example	3

Item 61. This item examines the extent a child prefers routine situations as opposed to novel situations. The frequency of numerical responses for this item can be found in Table 10. Overall, the majority of the sample endorsed either a 2 (often prefers routine) or a 3 (sometimes prefers routine). There were no ratings of 5 (almost never prefers routine). The themes for each of the numerical ratings for item 61 can be found in Tables 18, 19, and 20.

Table 18

Themes For a Rating of 1 or 2 on Item 61

Theme	Frequency
Child is rigid with routines; doesn't want to change for the sake of familiarity; change in routine may cause the child to become upset	10
Child has a preference for routine or doing the same things but isn't emotional when routine is changed	6
Child enjoys routine, but also enjoys novel activities	1
No example	2

Table 19

Themes For a Rating of 3 on Item 61

Theme	Frequency
Child likes routines but is also able to "go with the flow"	4
Child has an equal preference for routines and novel situations	5
Child prefers routines in particular settings and / or situations (e.g. school); deviation from routine for preferred activity is accepted	9
Child takes time to "warm up" or adjust to new situations	2
Child prefers routine and may be upset by change; worries about change	2
No example	2

Table 20

Themes For a Rating of 4 on Item 61

Theme	Frequency
Enjoys new / different activities; is up for anything new; doesn't seem to need routine	3
Thrives off of new activities, excitement or adventure seeking	3

Factor 2: sociability. The second factor from the principal components analysis is Sociability. The top two STI items that represent this factor are Item 74: To what extent does the child approach unfamiliar adults in familiar surroundings (such as new or rare visitors to the home or classroom); and Item 76: How would the child respond if approached by other children who are outside the familiar circle of friends in a familiar

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setting (in the neighborhood or at school). Each of these items and their qualitative

themes are detailed below.

   Item 74. This item examines the extent a child approaches unfamiliar adults in

familiar surroundings. The frequency of numerical responses for this item can be found in

Table 11. Overall, the majority of the sample endorsed 2 (highly approaching), 3

(moderately approaching), and 4 (rarely approaching). There were no ratings of 5 (almost

never approaching). The themes for each of the numerical ratings for item 74 can be

found in Tables 21, 22, and 23.

Table 21

Themes For a Rating of 1 or 2 on Item 74

Theme	Frequency
Approaches particularly in familiar context / environment (e.g. home or school)	7
Doesn't respond differentially to new people; potential for risky interactions	9
Child will always approach new adults but may initiate contact in a shy / less overt way	2
Child will approach new adults but hangs back to observe first	1
No example	2

Table 22

Themes For a Rating of 3 on Item 74

Theme	Frequency
Child is likely to approach in familiar context / environment (e.g. home or school)	6
Willing to engage but doesn't always initiate the interaction	2
Child will approach new adults but hangs back to observe first; takes time to warm up	5
Child is selective in or cautious about who he / she will approach	4

Table 23

Themes For a Rating of 4 on Item 74

Theme	Frequency
Likes to observe new adults in familiar surroundings; slow to warm up; hangs back	7
Resistant to approach even within familiar surroundings	2
No example	1

Item 76. This item examined how a child would respond if approached by other children who are outside of the familiar circle of friends in a familiar setting (e.g. neighborhood or school). The frequency of numerical responses for this item can be found in Table 12. Overall, the majority of the sample endorsed 3 (warm but mildly reserved) and 4 (immediately relaxed). There were no ratings of 1 (restrained). The themes for each of the numerical ratings for item 76 can be found in Tables 24, 25, and 26.

Table 24

Themes For a Rating of 2 on Item 76

Theme	Frequency
Child is reserved around new children; may not approach other new children; may avoid interacting with new children	4
Child would interact with other new children but would not initiate the interaction	1
No example	1

Table 25

Themes For a Rating of 3 on Item 76

Theme	Frequency
Differential approach to familiar and unfamiliar children; has warm reaction to new children	2
Child will engage, but may try to assess the situation; needs time to warm up	10
Child will engage with other children, but won't initiate the interaction; interaction may be limited	3
Approach is reflective of parental coaching / encouragement to meet new people	1
Child's reaction to new children depends on his / her mood that particular day	2
Child's response to new children depends on how often he / she interacts with them	1
No example	5

Table 26

Themes For a Rating of 4 or 5 on Item 76

Theme	Frequency
Approach is characterized by overall friendliness; being outgoing	10
Child is likely to approach in familiar context / environment (e.g. home or school)	2
Child might hang back initially to see if he / she will be accepted by peers	1
No example	5

Factor 3: Risk seeking approach / short sighted approach / risky. The third factor from the principal components analysis is Risk Seeking Approach / Short Sighted Approach / Risky. The top two STI items that represent this factor are Item 63: To what extent would the child approach a pleasant situation after being told that someone could get hurt; and Item 71: Would the child engage in a fun activity even after understanding that someone could get hurt. Each of these items and their qualitative themes are detailed below.

Item63. This item examines to what extent a child would approach a pleasant situation after being told that someone could get hurt. The frequency of numerical responses for this item can be found in Table 13. The sample was relatively evenly split across the Likert scale for this question. Themes for each of the numerical ratings for item 63 can be found in Tables 27, 28, and 29.

Table 27

Themes For a Rating of 1 or 2 on Item 63

Theme	Frequency
Unrestrained approach of situations regardless of danger	11
Child would engage in activity but would use safety measures; cautious approach	6
The novelty of a situation has more influence than the level of danger	1
No example	2

Table 28

Themes For a Rating of 3 on Item 63

Theme	Frequency
Unrestrained approach of situations regardless of danger	3
Depends on the danger level of the activity / and who is involved in doing the activity; evaluation of activity	2
If the activity was particularly interesting child would approach or engage in activity	3
The idea of someone getting hurt would deter child from engaging in activity	2
Child would reluctantly engage in activity but would use safety measures; cautious approach	3
No example	1

Table 29

Themes For a Rating of 4 or 5 on Item 63

Theme	Frequency
Fear of hurting self	2
Empathic responding; getting hurt overrides everything else; won't do if risky	9
Child is cautious when risk is involved	2
Child might still try to approach even after knowing he / she could be hurt	1

Item 71. This item examines if the child would engage in a fun activity even after understanding that someone could get hurt. The frequency of numerical responses for this item can be found in Table 14. The sample was relatively evenly scattered across the Likert scale for this question. The themes for each of the numerical ratings for item 71 can be found in Tables 30, 31, 32, and 33.

Table 30

Themes For a Rating of 1 on Item 71

Theme	Frequency
Child will engage despite understanding someone could get hurt; not concerned with getting hurt; acts invincible	8
Child would evaluate situation but would likely still engage	1
Parents regulate levels of dangerous activities child can engage in	1
No example	1

Table 31

Themes For a Rating of 2 on Item 71

Theme	Frequency
Unregulated engagement; not concerned with getting hurt	5
Child will approach when watching other children doing task successfully	1
Child doesn't respond differentially to different levels of risk	1
Child would use a cautious approach but would still engage in the activity	4
If child understood the activity was dangerous he / she might not engage in the activity	1
No example	2

Table 32

Themes For a Rating of 3 on Item 71

Theme	Frequency
Cautious approach; engagement in activity; may involve parental explanation	3
Child may engage depending on the type of activity; would engage in preferred activity; may assess the level of risk	4
Child would likely engage in activity regardless of level of risk	2
Needing external reminders of danger	1
No example	2

Table 33

Themes For a Rating of 4 or 5 on Item 71

Theme	Frequency
Won't engage in activity; fear or concern with getting hurt	7
Child's reaction is dependent on how parent's frame situation	2
Cautious approach; engagement in activity; may involve parental explanation	2

Inter-rater reliability. Inter-rater agreement was calculated to examine the assignment of qualitative examples to each categorical theme. It illustrated how well this particular coding system worked with these qualitative examples. Two individuals independently coded a sub-sample of 50 items to achieve inter-rater reliability. The coders achieved 90% inter-rater agreement for the sub-sample.

Discussion questions. The results of the qualitative analysis allow for a deeper examination of the different categories of responses and commonalities across questions. The discussion section addresses the emerging factors and how they related to the existing research on approach / avoidance. The ratings within the average range and the extreme ends of the rating continuum for each of the factors were also explored. Finally, the usefulness of the information found in this study for practitioners and teachers is explained.

Chapter 5: Discussion

The goal of the present study was to quantify and classify the parent examples of the approach / avoidance dimensions of temperament as measured by the STI. This chapter provides explanations of the results of the qualitative coding of parent examples in relation to the existing literature and the limitations of the current study. More specifically the three factors were explored and compared to the existing literature and the average and extreme ratings across the six main items were evaluated.

Emerging Factors

The factors that emerged from the principal components analysis included Prefers Familiar / Routine, Sociability, and Risk Seeking Approach / Short Sighted Approach / Risky. The factor names were derived from the items that most strongly correlated with each factor.

Familiar / routine. Children who have preferences for routines, or familiar activities, tend to have temperaments that make them strive to maintain order in their environment and have known expectations (Joyce & Oakland, 2005). Novel situations, or changes to routine, can be difficult for some children. In novel situations, both low positive affectivity and high behavioral inhibition predict low behavioral approach / engagement. However, while low positive affectivity affects approaching behaviors in both novel and familiar contexts; behavioral inhibition does not typically lead to low approach tendencies in familiar contexts. While often interpreted as ends of a continuum it is important to distinguish between behavioral inhibition and positive affectivity because they can lead to different outcomes. Children who are high in behavioral inhibition often have the desire to approach people and novel stimuli, but have fear about

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doing so. Children with low positive affectivity tend to avoid approaching because of a lack of interest or desire to engage. Low positive affectivity is often associated with depression and behavioral inhibition is often correlated with the development of anxiety (Laptook, Klein, Durbin, Hayden, Olino, & Carlson, 2008).

In the present study two items assessed children's level of comfort with departure from routine. Teglasi (2006) illustrated that children who are highly negatively reactive tend to cautiously approach new situations and / or may fear and avoid such situations. Approximately half of the sample was rated as disliking changes in routine. Children that fell into this category often experienced emotional distress when required to depart from their routine schedule. Within this category parents described having to prepare their child ahead of time for change in order to help them transition. Low positive affectivity was also observed within this population of children because a group of the participants were rated as only departing from their routine when something was particularly interesting. These children would not seek out change, but when something novel caught their attention they were willing to depart from routine.

Sociability. Sociability can be defined as the preference for being around others. Children who are very sociable can be thought of as extroverted. Extraversion has been found to strongly correlate with happiness and overall well-being. Children who are extroverted are typically predisposed to experiencing positive affect in social situations. Studies have shown that temperament accounts for somewhere between 9 to 29% of the variance in children's happiness. More specifically, children who were more social, less shy, less emotional, and less anxious, were happier (Holder & Klassen, 2010).

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In the present study two questions examined how children approached new children and new adults in familiar contexts. The majority of the sample was rated as willing to approach new children and adults in familiar contexts. Within this group of children who were willing to approach new people, there were a variety of levels of comfort in the interaction. Parents often rated their child as more approaching due to the familiarity of the context (e.g. home or school). A distinction was also made between the child's willingness to interact with new people and their ability to initiate that particular interaction. Many of the children were considered "slow to warm up" to new individuals. Children who are "slow to warm up" tend to be hesitant to approach new people and are slow to adapt to new situations. These children are typically more inhibited than their peers (Grady, Karraker, & Metzger, 2012). Sensitive parenting with children who are slow-to-warm-up involves allowing the child to assess the situation and gain comfort before engaging with new people.

Risk seeking approach. Parents and teachers have the responsibility to keep children safe when they are in their care. This can prove to be a challenge when children have temperaments that make them more likely to engage in risk taking. Risk taking is characterized as behaviors that have uncertain outcomes. There can be positive and negative outcomes as a result of risk taking. A positive outcome of risk taking involves self-improvement and new learning experiences. Negative outcomes of risk taking include injury and harm (Little, 2006).

Specific aspects of temperament including being highly active, impulsive, and under-controlled have been associated with risk taking and potential for injury / harm (Boles, Roberts, Brown, & Mayes, 2005). Risk taking behaviors were observed in the

current study on two items assessing the degree to which children approach pleasant situations and / or engage in fun activities even after understanding that someone could be hurt. The majority of the sample fell between occasionally and almost always approaching these situations or engaging in these activities despite knowing that someone could be hurt. The children from this sample who were risk takers were described by their parents as having an unrestrained approach of the situation regardless of the level of danger.

Children who have temperaments characterized by high approach tend to have a neurobiological sensitivity to rewards or positive stimuli (Elliott & Thrash, 2010). Parents in the current study often highlighted that their child would engage in the activity because they would be enticed by the fact that the activity was fun. These children are likely more sensitive to the potential reward they receive from approaching the pleasant situation or fun activity, and tend to focus less on the fact that they may be hurt.

Average Ratings

Thomas and Chess' (1977) research demonstrated that approximately half of all infants studied had an "easy" temperament that was characterized by high rhythmicity, approach, and adaptability, low intensity, and positive mood. The current study also found that approximately half of the participants were rated as average across items assessing preference for routine, sociability, and risky approach. The average ratings for each of the three factors are examined below.

Average ratings for familiarity. Average ratings for familiarity and routine included children who had a medium preference for departure from routine and / or who sometimes prefer what is routine and familiar. The most common theme for children

within this category was that they preferred routine, but were willing to change and / or

didn't get upset if their routine was changed. In other words, these children were able to

flexibly change their daily schedule to accommodate a novel activity. Children with

more flexible temperaments tend to show tolerance and adaptation to change (Joyce &

Oakland, 2005). Parents who rated their children within this category valued their child's

ability to "go with the flow" when they needed to make a change in their child's daily

routine.

Average ratings for sociability. Average ratings for sociability included

children who were moderately approaching of new adults in familiar contexts, and who

were warm but mildly reserved with new peers in familiar contexts. Popular themes

within the average ratings of sociability included the fact that many of the children

needed time to warm up to new people or would engage with new people but wouldn't

initiate the interaction. Rubin (2010) categorized these types of children as shy. His

theory was that shy children were conflicted between approaching and avoiding people in

new situations. Parents who rated their children within this category used examples of

their children needing time to observe before approaching new people. These children

are likely more sensitive to the potential reward of social interactions than their

behaviorally inhibited peers because they eventually approach or reciprocate social

interactions with new people.

Average ratings for risk-taking / high approach. Average ratings for risk-

taking or high approach included children who occasionally approached a pleasant

situation or engaged in a fun activity after understanding that someone could get hurt.

These children demonstrated self-regulation in not approaching dangerous situations.

According to Dennis (2006), children are able to self-regulate when they modulate their reactivity to the demands of the situation. Children within this category illustrated their ability to self-regulate by using safety measures when engaging in potentially dangerous activities and / or assessed the level of risk involved in the activity before engaging. They demonstrated a cognitive understanding of risk and showed an ability to safely engage in fun activities to avoid potential harm.

Commonalities of average ratings. The qualitative examples of average ratings across the three factors shared some commonalities. For example, parents who rated their children in the average range across the factors viewed them as more flexible overall. These children were able to adapt to change and modulated their level of reactivity to change. Children within the average range also demonstrated more self-regulation. For example, they were better able to regulate their emotional reactions to changes in routine and changes in peer groups. They were also better at inhibiting impulsive behaviors during risky activities.

Extreme Ratings

Although temperament refers to the normal range of variations in behaviors and emotions, psychopathology can result from pervasive unregulated emotional and behavioral responses in inappropriate contexts (Dougherty, Bufferd, Carlson, Dyson, Olino, Durbin, & Klein, 2011). As was originally hypothesized, children who were rated in the more extreme ends of the rating scale on the six items assessed tended to have lower self-regulation of emotions and behaviors. The extreme ratings for the three factors are detailed below.

Extreme ratings for familiarity. Extreme ratings for familiarity included children who either had an extreme preference or an extreme dislike for changes in routine.

Extreme preference for routine. Children who were rated as having an extreme preference for routine tended to enjoy doing the same activities repeatedly and showed rigidity with routines. This rigidity often expressed itself by children having emotional reactions to changes in routines and difficulty with transitions. Children who are behaviorally inhibited tend to show fearfulness, wariness, and low approach when presented with new situations. Recent studies have shown that social and non-social behavioral inhibition are two distinct constructs. Therefore, children rated as having an extreme preference for routine do not automatically show behavioral inhibition with new people (Dyson, Klein, Olino, Dougherty, & Durbin, 2011). For example, one child in the current study was rated as mildly disliking changes in routine and highly approaching of new adults in familiar surroundings. She showed behavioral inhibition in new contexts but not with new people. These children required more extensive parental explanation and warning when a routine needed to be changed. When routine changes occurred within the school context it took more time for these children to adjust.

Extreme preference for change. Children who were rated as having an extreme preference for changes in routine tended to prefer risky activities and / or enjoyed novelty. Several parents described children in this category as adventure seeking. Children who were rated in this category are more likely to activate the BAS because they anticipate rewards when seeking out new or adventurous activities. These children were described as enjoying changes to their routine or seeking out new activities.

Extreme ratings in sociability. Extreme ratings for sociability included children who were either extremely approaching / had unrestrained enthusiasm or almost never approached / were restrained around new adults or children.

Extremely approaching. Children who were rated as extremely approaching of new people were described by parents as having difficulty responding differentially to new people and potentially engaging in more risky interactions with new people. Positive reactivity to novelty is an aspect of temperament that is associated with approaching behaviors. In addition, children who exhibit a combination of high positive affect and approaching behaviors are also likely to show impulsivity, hyperactivity, and sociability in childhood. When appropriately regulated, children with high approach tendencies show socially adaptive behavior. However, children who lack self-regulation of their social exuberance often show signs of behavior problems (Degnan, Hane, Henderson, Moas, Reeb-Sutherland, & Fox, 2010). Children within this category were either extremely approaching of new people because they were in a familiar environment (e.g. home or school), or they didn't differentiate between people that they were willing to approach. Parents of children who didn't respond differentially to new people in their environment engaged in external regulation of their children's behaviors to ensure their safety.

Restrained / never approaching. Children who never approached new people had difficulty engaging with both new adults and peers. Parents often identified that their child would avoid interacting with new peers. According to Rubin and Coplan (2010), when children purposefully remove themselves from social situations they are exhibiting social withdrawal. This behavior can eventually lead to peers excluding the child from

future social interactions. According to research, children typically withdraw from social situations for a variety of reasons including a desire for solitary play or anxiety and fear of new peers. Parents of children in this category gave examples of their children needing time to warm up to new peers. They tended to observe from afar or disengaged in their activity when around children they had not met before.

Extreme ratings in risk-taking / high approach. Extreme ratings for risk seeking approach included children who either almost always or almost never approached a pleasant situation or engaged in a fun activity after being told that someone could get hurt.

Almost never engages in risky activities. Children who rarely or never engaged in activities after understanding that someone could get hurt tended to show a fear of hurting themselves or simply wouldn't engage if the activity was described as risky. Children within this group likely have an activated BIS and are sensitively responding to cues of punishment and / or harm that could be caused by engaging in activities that are dangerous (Amodio, Master, Yee, & Taylor, 2008). Children with heightened BIS sensitivity are at a higher risk of developing internalizing disorders (Kimbrel, Mitchell, & Nelson-Gray, 2010).

Almost always engages in risky activities. Negative associations have been found between effortful control and behavioral problems. In other words, children with lower effortful control, or behavioral control, tend to exhibit more problematic behaviors such as Attention Deficit Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD). ODD has been associated with disinhibition, impulsivity, and non-compliance (Dougherty, et al., 2011).

Researchers have demonstrated that children are more likely to engage in risky behaviors when they perceive themselves as less vulnerable to being injured. Parents have the opportunity to provide secure environments for their children by first identifying that their child engages in risky activities when left independent, and second by securing the child's environment from potential harm (Boles, et al., 2005). Parents who rated their children within the extreme range on items assessing risky approach often cited their need to remind their child of the potential for injury and / or harm. These children were described as fearless and not worried or concerned with injury. One qualitative category mentioned within the extreme rating was that the child would engage in the dangerous activity but would use safety measures while doing so. These more cautious children seem to be qualitatively different from those that engaged in risky activities without any consideration of potential injury.

Commonalities of extreme ratings. The qualitative examples within the extreme ends of the rating continuum shared some commonalities. Children either fell into extremely approaching or extremely avoidant categories. The presence of the BIS and BAS motivational systems was very evident within the extreme ratings. Children within these categories appeared to be clearly motivated either by the potential gain of rewards or avoidance of risk / behavioral caution.

Self-Regulation

Preschoolers are at an age where their ability to self-regulate is under development. Self-regulation during times of frustration, challenge, and novelty becomes a defining feature of adaptive development (Dennis, 2006). Children who were rated within the extreme ends of the rating continuum typically had less developed skills in

self-regulation. Many parent examples within the extreme ratings involved the use of external regulation (i.e. parent reminders) to keep children safe in different contexts. For example, one category within the Risk Seeking Approach examples included parent regulation of dangerous activities. These parents identified that their children had not yet mastered self-regulation and provided external reminders to ensure their child's safety.

Parenting Influences

Parenting behaviors / styles have been linked to both adaptive and maladaptive child development. In addition, studies have shown that parents' perceptions of their child's temperament predict parenting behaviors. Parent-child interactions during fear-provoking situations are critically important to healthy child development (Kiel & Buss, 2010). Several of the qualitative examples from this study were contextualized within family interactions and involved parental guidance through new situations. For example, Item 68 included a common theme that the child's reaction to changes in routine depended on how the parents framed the new situation. These examples demonstrated that when parents were in tune with their child's emotions and reactions to novelty they tended to engage in more preparation for and explanation of departure from routine. With this preparation and planning, parents felt that their children responded more flexibly to changes in routine.

The fit between the child's temperament and the parent's reactions to the child's behaviors plays a large role in child development. For example, mothers of children who are slow-to-warm-up who force their children to engage with other new children too quickly put pressure on their child to interact in a manner that is inconsistent with their temperament (Grady, Karraker, & Metzger, 2012). Within this study, several children

were rated as slow-to-warm-up. The parent examples demonstrated that they were in tune with their child's need for space and to be able to observe before interacting with new people. None of the parents interviewed discussed forcing social interactions when their children weren't ready to engage with others.

Implications for Practice

Preschool is often the first time children leave home for an extended period of their day. They are expected to interact with new adults and children, and there are new expectations for their behavior. Children's temperaments play a large role in how they adapt to these changes and cope with new expectations. When teachers have an understanding of child temperament they can better prepare children for these transitions and expectations.

Student-teacher relationships. Children's relationships with adults play a significant role in their intellectual, social, and emotional development. Research has demonstrated that positive student-teacher relationships are related to healthy social-emotional development and school success. Whereas negative student-teacher relationships are correlated with behavior problems, school avoidance, adjustment problems, and less developed knowledge of academic concepts (Griggs, Gagnon, Huelsman, Kidder-Ashley, & Ballard, 2009).

Children with more secure student-teacher relationships in preschool exhibit more complex play, higher ego resiliency, extroversion, and receive higher sociometric ratings from their peers in elementary school. They also show fewer signs of aggression than children with insecure student-teacher relationships (Griggs et al., 2009). It is critical for

teachers to understand temperament so that positive relationships can be formed between students and teachers.

Collectively, teachers hold ideas about the qualities of a model student that include: high attention, adaptability and approach, and low activity and reactivity. Students are viewed as less teachable the more they differ from this set of characteristics. Increasing teachers' understanding of individual differences allows for purposeful problem solving in the classroom and fosters positive student-teacher relationships. When teachers understand individual temperament differences they acknowledge that different students will process the same environment differently. For example, children who experience behavioral inhibition may have trouble processing cognitive information (Rothbart & Jones, 1998). This type of information is important for teachers to use when planning lessons and creating group activities. It also allows the teacher to understand the root of particular behaviors and helps to foster a positive relationship between students and teachers.

Assessment of temperament. Although temperament has been extensively researched, educators and school psychologists rarely evaluate it as part of a school-based assessment. Experts in the field have advocated for a formal measure of temperament to be included in comprehensive evaluations to assist with educational decision making and planning of interventions. Assessment of temperament is critical due to its direct correlation with school adjustment and classroom behaviors. For example, assessment of temperament could allow a school psychologist to measure school readiness by examining aspects of attention, activity level, and emotionality needed to be a successful student (Griggs et al., 2009). The STI provides a comprehensive measure of

temperament and allows for the examiner to achieve a deeper understanding of temperament through parent qualitative examples.

Multiple observers. Parents and teachers have the opportunity to observe children in different contexts. These different perspectives allow school psychologists to collect unique data from both observers to provide comprehensive services. School psychologists can use the data given by parents and teachers to determine temperamental and situational determinants of observed behaviors. This information can be used to create a good fit between the child's temperament and the school environment. Furthermore, educators who recognize temperamental differences between their students can plan for situations in the classroom accordingly. For example, a teacher may help an avoidant child to prepare for a change in schedule and routine to allow him / her to adjust in advance of the change (Henderson & Fox, 1998). When educators and school psychologists gain an understanding of students' temperaments they can better plan instruction and develop successful interventions.

Limitations

One of the limitations of the current study is that the ethnicity of the participants is relatively homogenous with approximately 50% of the population being European-American. In addition, the sample is relatively homogenous in socio-economic status due to the preschool being part of a university setting. Future studies may attempt to recruit participants from both a university setting and a community based preschool to allow for more diversity in socio-economic background.

A second limitation is the number of participants who provided qualitative examples. Approximately half of the available STI's lacked enough qualitative

information to be able to analyze themes. As a result, the qualitative analysis in this particular study was representative of half of the participants who completed the interview portion of the larger correlational study.

The third limitation for the current study is the number of participants who completed the interview. Although the sample statistics were sufficient, the statistical power of the principal components analysis could be improved in future studies with the addition of participants willing to complete the interview.

Future Research

Future research could address some of the limitations of the current study. For example, if this study was replicated it could include several preschool samples from diverse socioeconomic backgrounds. This would allow for more generalizability of the results to children of diverse backgrounds. In addition, it would be interesting to analyze the STI data in relation to other data collected in the larger correlational study of temperament. This would allow for the STI to be compared with additional data from teachers, parents, and preschoolers. Lastly, future studies should consider including follow-up questions to clarify parent examples. For example, the interviewer may ask specific questions about how a parent responds to particular behaviors to provide more information about the parent-child dynamic.

Appendices

Appendix A

Table 34 illustrates the Total Variance Explained by each factor included in the principal components analysis. Typically, factors with an Eigenvalue of 1.0 or greater are included as part of the statistical model. In this study, five factors had Eigenvalues of 1.0 or greater; however, when examining the scree plot it was determined that the first three factors contributed the majority of variance in the model. Therefore, analyses were performed using a three-factor model. The three factors in the principal components model were Factor 1: Prefers Familiar / Routine, Factor 2: Sociability, and Factor 3: Risk Seeking Approach / Short Sighted Approach / Risky. The factors were named based on the items that comprised each factor. These three factors contributed a total of 53.124% of the total variance explained.

Table 34

Total Variance Explained by Factors

Factor	Initial Eigen Values			Extraction Sums of Square Loadings			Rotation Sums of Square Loadings
	Total	Percent of Variance	Cumulative Percent	Total	Percent of Variance	Cumulative Percent	Total
1	5.072	28.175	28.175	5.072	28.175	28.175	3.273
2	2.469	13.715	41.890	2.469	13.715	41.890	3.989
3	2.022	11.234	53.124	2.022	11.234	53.124	3.400
4	1.071	5.950	59.075				
5	1.053	5.851	64.926				
6	.946	5.253	70.179				
7	.831	4.614	74.793				
8	.779	4.328	79.121				
9	.607	3.370	82.490				
10	.536	2.979	85.469				
11	.502	2.787	88.256				
12	.429	2.384	90.640				
13	.379	2.108	92.748				
14	.378	2.098	94.846				
15	.327	1.815	96.661				
16	.249	1.385	98.046				
17	.215	1.194	99.240				
18	.137	.760	100.000				

The correlations between each of the three factors were relatively low (Table 35). The correlations ranged from .166 to .237.

Table 35

Correlations Among Approach/Avoidance Factors

	Prefers Familiar/Routine	Sociability	Risk Seeking Approach/Short Sighted Approach/Risky
Prefers Familiar/Routine	1	.166	.192
Sociability		1	.237
Risk Seeking Approach/Short Sighted Approach/Risky			1

The Commonalities, or the proportion of variance explained by common factors, are shown in Table 36.

Table 36

Communalities of STI Items

	Initial	Extraction
Item 61: prefers routine	1	.660
Item 62: seeks excitement	1	.607
Item 63: approaches pleasant thought told could get hurt	1	.788
Item 64: novel but not risky	1	.402
Item 65: risky	1	.587
Item 66: familiar	1	.482
Item 67: seeks challenge in familiar setting	1	.251
Item 68: seeks departure from routine	1	.643
Item 69: asked to try new activity	1	.653
Item 70: seeks adventure, excitement	1	.534
Item 71: seeks fun though understands that someone may get hurt	1	.753
Item 72: preference for company	1	.437
Item 73: lively enthusiasm in group	1	.463
Item 74: approach unfamiliar adults in familiar setting	1	.517
Item 75: approach familiar adults	1	.431
Item 76: if approached by less familiar children	1	.492
Item 77: approaches well known adults outside immediate family	1	.366
Item 78: initiates with peers outside circle of friends	1	.498

The individual item loadings within the Approach/Avoidance STI scale were examined (Table 37) and helped to create the names of each factor. Items 68, 61, 66, 69, 70, and 64 loaded onto Factor 1: Prefers Familiar/Routine. Items 74, 76, 73, 72, 78, 75,

and 77 loaded onto Factor 2: Sociability. Finally, items 63, 71, 65, 62, and 67 loaded

onto Factor 3: Risk Seeking Approach/Short Sighted Approach/Risky. The top two items

for each factor were selected for further analysis by examining parent qualitative

examples.

Table 37

Pattern Matrix: Item Loadings on Three Main Factors

Item	Factor		
	Prefers Familiar/Routine	Sociability	Risk Seeking Approach/Short Sighted Approach/Risky
Item 68: seeks departure from routine	**.802**	.047	-.059
Item 61: prefers routine	**-.796**	-.073	-.003
Item 66: familiar	**-.645**	.332	.215
Item 69: asked to try new activity	**-.543**	-.358	-.260
Item 70: seeks adventure, excitement	**.492**	.083	.418
Item 64: novel but not risky	**-.447**	-.296	-.152
Item 74: approach unfamiliar adults in familiar settings	.145	**.691**	-.047
Item 76: if approached by less familiar children	-.061	**-.684**	-.019
Item 73: lively enthusiasm in group	-.057	**.684**	.017
Item 72: preference for company	-.013	**.680**	-.208
Item 78: initiates with peers outside circle of friends	-.028	**-.673**	-.089
Item 75: approach familiar adults	-.191	**.662**	-.005

Pattern Matrix: Item Loadings on Three Main Factors

Item	Factor		
	Prefers Familiar/Routine	Sociability	Risk Seeking Approach/Short Sighted Approach/Risky
Item 77: approaches well known adults outside immediate family	-.099	**-.580**	-.001
Item 63: approaches pleasant though told could get hurt	-.095	-.188	**.924**
Item 71: seeks fun though understands that may hurt someone	-.211	.010	**.881**
Item 65: risky	-.191	.079	**-.723**
Item 62: seeks excitement	.465	.108	**.498**
Item 67: seeks challenge in familiar setting	.038	.266	**.355**

The relationship of each item on the Approach / Avoidance scale with the three main factors was examined in the Structure Matrix (Table 38). The items are organized in descending order according to how well they represent each of the three factors.

Table 38

Structure Matrix

Item	Factor		
	Prefers Familiar/Routine	Sociability	Risk Seeking Approach/Short Sighted Approach/Risky
Item 61: prefers routine	**-.809**	-.206	-.173
Item 68: seeks departure from routine	**.799**	.167	.106
Item 69: asked to try new activity	**-.652**	-.510	-.449

Structure Matrix

Item	Factor		
	Prefers Familiar/Routine	Sociability	Risk Seeking Approach/Short Sighted Approach/Risky
Item 70: seeks adventure, excitement	**.587**	.264	.532
Item 66: familiar	**-.548**	.276	.170
Item 64: novel but not risky	**-.525**	-.406	-.308
Item 74: approach unfamiliar adults in familiar setting	.251	**.704**	.145
Item 78: initiates with peers outside circle of friends	-.157	**-.699**	-.254
Item 76: if approached by less familiar children	-.179	**-.698**	-.193
Item 73: lively enthusiasm in group	.060	**.678**	.169
Item 75: approach familiar adults	-.082	**.628**	.115
Item 72: preference for company	.060	**.628**	-.050
Item 77: approaches well known adults outside immediate family	-.196	**-.597**	-.158
Item 63: approaches pleasant though told could get hurt	.051	.016	**.861**
Item 71: seeks fun though understands that may hurt someone	-.041	.184	**.843**
Item 65: risky	-.317	-.124	**-.741**
Item 62: seeks excitement	.579	.304	**.613**
Item 67: seeks challenge in familiar setting	.151	.356	**.425**

Appendix B

Table 39

Literature Definitions

Literature Term	Definition
Approach	Reflects sensitivity to rewards, emotional exuberance and excited anticipation for pleasurable activities, and behavioral approach to novelty and challenge.
Avoidance	Reflects sensitivity to potential threats, fear and shyness, and behavioral withdrawal and inhibition in response to novelty and challenge (Carver, 2004; Derryberry & Rothbart, 1997; Kagan, 1999; Panksepp, 1998).
Behavioral Inhibition	One's initial negative emotional and motor reactivity to novelty (Kagan, Reznick, Clark, Snidman, & Garcia Coll 1984). When assessed in toddlerhood it is also described as vigilant and withdrawn behavior in response to novel people and situations.
Control Process	Modulation of reactivity to meet goals (Carver, Sutton, & Scheier, 2000; Derryberry & Rothbart, 1997; Davidson & Fox, 1989; Davidson et al., 2002; Fox, 1994; Posner & Rothbart, 2000).

Literature Definitions

Literature Term	Definition
Emotion Regulation	One's ability or tendency to initiate, maintain, or modulate internal emotional states and emotion-relevant physiological processing; it often is accomplished through shifting or focusing attention or cognitively manipulating one's assessment of a situation.
Emotion-Related Behavioral Regulation	The ability to inhibit behavior when appropriate, including impulsive behavior, as well as the ability to initiate, maintain, and modulate emotionally charged behavior when necessary.
Inhibitory Control	An executive function that is defined as the ability to effortfully inhibit undesired approach behavior. Children who can inhibit attention and behavior directed toward a desired but prohibited item show greater conscience and are perceived by their parents as more socially skilled and better able to manage negative emotions (Kochanska, Murray, & Coy, 1997; Shoda et al, 1990).
Parental Approach	Behaviors that serve to increase child reward sensitivity, such as emphasizing and anticipating rewards and positive events.

Literature Definitions

Literature Term	Definition
Parental Avoidance	Behaviors that serve to increase threat sensitivity, such as emphasizing and anticipating threats, problems, and compromised safety.
Reactivity	The behavioral and physiological excitation, responsiveness, or arousal of an individual (Rothbart, Ahadi, & Evans, 2000).
Regulation	The neural or behavioral processes that alter an individual's level of reactivity (Rothbart, Ahadi, & Evans, 2000). Theoretically it occurs at the physiological, attentional, emotional, or behavioral level, and matures later in development than emotional reactivity (Davidson, Putnam, & Larson, 2000). It is the child's gradual progression from reliance on caregivers to modulate arousal toward the acquisition of independent regulatory skills.
Regulatory Style	Individual differences in the management of internal emotion-relevant states (emotion regulation), emotion-related overt behavior, or stress-inducing situations.

Literature Definitions

Literature Term	Definition
Resilience Process	Achieving positive adaptation despite experiencing significant threat, adversity, or risk (Luthar, Cicchetti, & Becker, 2000). Resilience also is suggested to result from mechanisms and factors that lead to competent adaptation, known as protective effects, rather than from individual characteristics or extraordinary circumstances (Cicchetti & Garmezy, 1993; Luther et al., 2000; Masten, 2001).
Soothability	The ability to recover from emotional distress and arousal; makes a contribution to self-regulation. Quickly recovering emotional equilibrium after experiencing frustration during an emotional challenge promotes effective coping with stressors and reductions in distress (Posner & Rothbart, 2002).

Appendix C

Qualitative Coding

Factor 1: Prefers Familiar/Routine
Item 68. To what extent does the child seek situations that depart from the routine?

1 Extreme preference for changes in routine	2 Strong preference	3 Medium preference for departure from routine	4 Mild dislike of changes in routine	5 Extreme dislike of changes in routine

Frequency of 1: 0
Frequency of 2: 6
Frequency of 3: 22
Frequency of 4: 17
Frequency of 5: 3

Themes for ratings of 2's: Strong or extreme preference for changes in routine
- Child prefers risky activities; pushes the boundaries with new activities:
  - (#0067) 2 (strong preference) At night time we often go for a walk in the town and he rides his bike and he likes to try and do different things on his bike all the time. He's always asking if he can do this or that and kind of pushing the boundaries as he gets more comfortable doing risky things. But almost every time we go to town, there's some new stunt or trick he wants to try.

- Child prefers doing different / novel activities:
  - (#0063) 2 (strong preference) Somewhere in between a 2 and a 3…she does like doing something different…she really does…but not extreme preference…that would definitely not be it. She definitely…I've never seen her not like the opportunity to do something different.

- Child likes departure from certain aspects of routine; depends on the specific departure from routine:
  - (#0114) 2 (strong preference) Likes knowing that when she gets up in the morning there is routine, also when she comes to school there is a scheduled day. Then likes to mix it up within those parameters.
  - (#0128) 2 (strong preference) depending on what it is he might seek it out to figure out what it is.

- No example:
  - (#0061) 2 strong preference for non-routine.
  - (#0065) 2 (strong preference) she does have a pretty strong preference

Themes for ratings of 3's: Medium preference for departure in routine
- Is willing to try new things within the context of the family:
  - (#0046) 3 (medium preference) My schedule varies. She kind of goes with the flow. The main constant is if I'm around or if she knows that I'm not far she can cope with it.
  - (#0001) 3 – when we travel she loves it, she likes to stay up, over the weekend she loves to sleep in.

- Child likes routine, but is willing to change; doesn't get upset when change is introduced:
  - (#0012) 3- He usually likes to have a routine and stick to a routine but he also likes to try new things. So sort of a mix of sometimes wanting to try something new and sometimes wanting to stick with a routine.
  - (#0004) 3- He doesn't mind parting from the routine but I'm not sure he's necessarily looking for that actively. He's comfortable in a routine but he's comfortable with new things. I don't know that he has a preference.
  - (#0019) 3(medium preference) He's pretty run of the mill. Did you type that I said my son is run of the mill? That's not good. He doesn't really have a strong preference. He's fine with routine- he likes routine. Average, run of the mill- that's my son!
  - (#0031) 3 (medium preference) She doesn't necessarily seek situations that depart from the routine. If they present than she is interested.
  - (#0033) 3 (medium preference) I don't really feel like he seeks it out but he's also not afraid of departing. So it's pretty down the middle on that.
  - (#0100) 3 (medium preference) she is fine with routine but she is also fine with changing it
  - (#0119) 3 (medium preference) she likes to go into school and knows the routine but if something's different for the day it's okay … there's no stress about it.
  - (#0132) 3 (medium preference) in most cases he doesn't dislike changes from routine, but he doesn't necessarily seek it out most of the time

- Child likes routine and is cautious when something new is introduced:
  - (#0069) 3 (medium preference) he likes his familiar stuff but not so tied to it that he won't consider something new … but is cautious.

- Likes to have choices in activities:
  - (#0002) 3 – It's more about choice. He wants choices. Sometimes, he's like, do I have to go to school today, and he's bummed out it's a school day. He might wish that he could stay home but it's not a real strong thing, just a medium.
  - (#0127) 3 (medium preference) mild. I think about our evenings … some new proposition comes he might be happy.

- In particular situations likes departure from routine:
  - (#0003) 3- So, he'll go see something new. He got new things for his birthday and he definitely wants to check it out.
  - (#0094) 3 (medium preference) Normally we go – we stay home during the weekday but sometimes he'll ask if he can go to my brother's house.
  - (#0108) 3 (medium preference) During the year she has a routine that she likes but she doesn't have a routine during the summer and she loves it … she can be like … in the middle.
  - (#0109) 3 (medium preference) Like this morning my mom was off from work so she was going to spend the morning with the girls and she wanted to stay home from school to stay with her grandma, but she had to go to school. She wanted to depart from her routine of school to stay with her grandma.

- Parental preference for routine / departure from routine frames child's responses:
  - (#0093) 3 (medium preference) He does not seem to make a point of trying to change routine. Although, on that one I tend to have a strong preference for departing from the routine so I don't necessarily stick to morning or night or weekend routines- every weekend is different. We don't have a particular routine for the week or weekend days- we're always doing something different. It may be that he has this automatic departure from the routine so he hasn't shown a strong preference to seek it out because it's already there but I'd probably have to say 3.

- Child doesn't have a preference for routine:
  - (#0117) 3 (medium preference) I don't think she really cares about the routine … it's not important to her.

- No example:
  - (#0083) 3 (medium preference) no example
  - (#0131) 3 (medium preference) no example
  - (#0144) 3 (medium preference) no example

Themes for ratings of 4's and 5's: Mild or extreme dislike of change in routine
- Enjoyment of doing the same activities repeatedly; creature of habit; doesn't enjoy new activities or situations:
  - (#0005) 5 –It's more than mild. But it's less than extreme. But given the choice I'll definitely go with extreme. Again, we've been working with a child psychologist who works with children who are on the spectrum for about a year and a half and giving him and us coping strategies. That has helped so deviations from the routine are much more tolerable than they used to be.

- o (#0024) 4 – She has a mild dislike of changes in routine. She likes to do new stuff if they fit into the new stuff time block. She wants to have lunch when it's time for lunch and nap when it's time for nap.
- o (#0029) 4 (mild dislike of changes) Like I said when we were on vacation she prefers to go to the same pool every day. She didn't even want to go to a pool at another hotel. It was kind of hard to get her off of that.
- o (#0037) 5 (extreme dislike) He likes to do the same things over and over…he likes familiarity
- o (#0048) 4 (mild dislike of changes) She doesn't really like the field trips. She likes to go but she has problems the next time she is in school.
- o (#0057) 4 (mild dislike of changes) 4- She doesn't really seek for those situations.
- o (#0064) 5 (extreme dislike) he is very much a creature of habit
- o (#0085) 4 (mild dislike of changes) like changes in routine he doesn't really like
- o (#0092) 4 (mild dislike of changes) He can deal with changes but he would prefer to stay with the routine. Like bed time. Or bath. We have a routine and he knows what to do and he does it. Like if we switch things up like sometimes I'll say no bath because it's too late. He'll protest and say, I really really want a bath. And it's not because he loves baths, it's because it's the routine.
- o (#0126) 4 (mild dislike of changes) That can go to extreme though depending on what it is … I didn't anticipate his reaction to changing the route to school (which was crying 10 to 15 minutes) … that happened one time and I thought it was odd.
- o (#0137) 4 (mild dislike of changes) If it's really out of her routine she won't jump in to do that.
- o (#0142) 4 (mild dislike of changes) When we drive to school on campus and there are 3 turns we could take … and he likes to go the front way all the time.

- Reaction depends on how the parents frame the new situation:
  - o (#0023) 4-It all depends again on how we frame it. If we say, we are going to stop at McDonalds but there's a playland there so she'll love it then she's fine with it. So it's a departure from the routine but if we tell her it's gong to be great, she'll do it. It wouldn't be what she would suggest.
  - o (#0066) 4 (mild dislike of changes) Again, this goes back to, have we been through the whole explanation, negotiation, getting used to phase of something or not.
  - o (#0081) 4 (mild dislike of changes) she definitely want it but if we give her enough advance warning she'll do it and handle it.

- Only departs from routine when something is particularly interesting:
  - o (#0014) 4(mild dislike of changes) It depends, if it gets her interest she will try it but she can stick to a routine as well.

- (#0047) 4 (mild dislike of changes) It's not something that she is going to specifically seek out and we know her well enough to not push things that are too different from the routine on her. But for example, a trip to see a puppet show- she would certainly be happy to go do that from time to time.

- No example:
  - (#0060) 4 (mild dislike of changes) no example
  - (#0088) 4 (mild dislike of changes) no example
  - (#0139) 4 (mild dislike of changes) no example

Item 61. To what extent does the child prefer routine situations as opposed to novel situations?

1 Almost always prefers what is routine or familiar	2 Often	3 Sometimes prefers what is routine or familiar	4 Rarely	5 Almost never prefers what is routine or familiar

Frequency of 1: 5
Frequency of 2: 14
Frequency of 3: 23
Frequency of 4: 6
Frequency of 5: 0

Themes for ratings of 1's and 2's: Always or often prefers what is routine
- Child is rigid with routines; doesn't want to change for the sake of familiarity; change in routine may cause child to become upset:
  - (#0001) 2(often) – especially at school because at first when she attended school, she was scared esp. not being able to speak English, principal wanted mom to stay (at school routine is very important)
  - (#0005) 1 (always routine) Known quantity, routine, structure is always much better to him.
  - (#0037) 2(often) – He definitely thrives off of routine…if it's something out of the ordinary he sometimes doesn't like it.
  - (#0057) 2 – I think often…it depends…but sometimes mom drives her to school…if dad drives her she likes it…but that is a special situation….she likes her own pillow…and always has those for sleep….but w/o it…but sleep w/o it she doesn't like it…she likes routine.
  - (#0060) 2- She would prefer routine. Certain things she likes to…there just seems to be certain things she likes or have to happen in a certain way…we are learning how to tie her shoes…she likes to tie things together…and she will want to tie your arm up…it's kind of the way she likes to approach a lot of things…she wants you to just sit back and listen to what she says…as far as routine the daily routine…she definitely

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prefers…if get a nice routine going she will ask why things are not happening the way she likes.

- o (#0064) 1 – he likes his routines…so 1 almost always prefers what is routine or familiar.
- o (#0066) 2 (often) D: Routine to her is acceptable. Deviations from that are sometimes difficult. M: I tend to think it's not because it's routine. It's that routine activity is accepted so you don't have to go through the negotiation of doing the non-routine activity so everything else is subject to this negotiation. It's not clear to me that it's the routine nature but that they have been established.
- o (#0085) 2 (often) when his teachers aren't there and there's a substitute that's stressful for him because it's a change and what their expectations are for them, he tests different staff members – he prefers routine or structure
- o (#0092) 1 (always routine) He kind of really, really gets attached to routines and will perpetrate some himself. If we did it once that day, he will continue it that way just because he's familiar with it.
- o (#0131) 2 (often) – She's cautious and reserved and laidback and low key and she can get on a stage and perform but at the same time she's known someone for a while and gets afraid.

- Child has a preference for routine or doing the same things but isn't emotional when routine is changed
    - o (#0014) 2 (often) I think often she would prefer a routine situation. Reading the same book sometimes- she likes that sometimes.
    - o (#0023) 2 (often) If you ask her if she wants to go to a new restaurant or a restaurant she has been to she'll say the one she's been to. She doesn't want to try new things for the sake of trying new things. She'd rather go for the sure bet.
    - o (#0019) 2(often) It depends on what the situation is. If it's novel it would be a trip or something cool and he likes that. But in general routines. Driving to school- my husband drives a certain way and I go a different way. And he's like mom, you are supposed to go that way, that's the way dad goes.
    - o (#0024) 2 (often) She likes to talk through what the day is going to hold. She likes, we are going to have dinner and then we'll play and then we're gonna have bath, and then we're going to brush teeth, and then we're going to read a book. She likes to repeat it back. But she likes doing fun new things too.
    - o (#0047) 2 (often) She doesn't seek out novel situations. She is a child of routine. But if something novel or unusual happens she'll be interested.
    - o (#0126) 1 – almost always … it doesn't mean that he is distressed if something new comes about.

- Child enjoys routine, but also enjoys novel activities:

- o (#0088) 2 – He prefers routine…but if something is fun and out of the routine he would want to do that

- No example:
  - o (#0081) 1 – no example
  - o (#0139) 2 – often prefers routine situations. No example.

Themes for ratings of 3's: Sometimes prefers routine
- Child likes routine but is also able to "go with the flow":
  - o (#0003) 3 (sometimes prefers routine) Definitely not overly- he doesn't have problems if it's different than the routine.
  - o (#0031) 3 (sometimes prefers routine) She is perfectly happy getting up, going to school, doing her normal routine but if something else gets thrown in there- she gets picked up early or I have lunch with her, she is perfectly happy with that too.
  - o (#0063) 3 (sometimes routine) – She is a roll with the punches kind of a person. Sometimes…but she kind of goes with the flow…sometimes she will ask questions about something that is new…she will check to see what is coming up…if it's not…she likes to be prepared…for what is coming up.
  - o (#0069) 3 – sometimes prefers … he definitely likes to play the same games again … he built a fort in the beginning of the summer and really wanted to play forts but was fine with moving on … but he definitely likes to go back to things he knows.

- Child has an equal preference for routine and novel situations:
  - o (#0012) 3 (sometimes prefers routine) If we're walking in an area that we've been to before and there is one section that we've been to and one we haven't been to he'll kind of vary on going to the place he knows as opposed to saying, hey lets look over here, we haven't seen it yet. It's kind of half and half.
  - o (#0083) 3 – sometimes prefers routine and familiar but gets pretty excited about new situations
  - o (#0109) 3 (sometimes routine) – she's right in the middle. She likes familiar situations but she likes new ones too.
  - o (#0127) 3 (sometimes prefers routine) - he likes what we do regularly … if I have a lot of regular activities he enjoys then but he also likes new activities.
  - o (#0142) 3 – He gets excited about doing new things … but also likes new things.

- Child prefers routines in particular settings and/or situations (e.g. school); deviation from routine for a preferred activity is accepted:
  - o (#0002) 3 (sometimes prefers routine) It's that whole, I want to be at home, I want my stuff and hang out here versus taking in a new situation

like we're going to Hershey Park today- and would you like to ride a roller coaster and he's like yes! He's not very fearful.

- o (#0033) 3 (sometimes prefers routine) The reason I pick 3 is that he's usually fair game for something new unless the alternative is that he could do something routine. If it was something new and he didn't have the choice then he would be fine with it. But if he had the choice he might go with the routine.
- o (#0046) 3 (sometimes prefers routine) It depends on what it is. I tried to get her to play soccer one time and that was a bunch of kids running around that she didn't know and it was kind of chaotic and she was not into that. But we went to a gymnastic class and that was a little bit more orderly. That wasn't kids running around in random. It was organized more and she liked that a lot better.
- o (#0065) 3 – sometimes prefers what is routine and familiar…I'd say coming home after school…coming straight home after school and getting a snack…and getting to play…sometimes I will try to run errands after I pick her up and she doesn't want to do that…but if I would be taking her to Chuck E Cheeses straight after she would be happy with that
- o (#0093) 3 (sometimes) Between 3 and 4. It's so situational dependent; it's hard to generalize. It depends on what routine or novel situation. I'd say 3 in general.
- o (#0094) 3 (sometimes) It's sometimes but not always… they have a normal routine schedule… that they come and sometimes I tell him he has a field trip or you are going to go some where…
- o (#0119) 3 – sometimes … we have the routine but then when we break it it's fun for her … if we have a night that we go out and she gets to stay up late.
- o (#0128) 3 (sometimes prefers routine) – I think it depends on what the novel situation is he might be interested or it might take a little coaxing.
- o (#0132) 3 (sometimes prefers routine) There are certain routines he wants to stick with, like his bedtime routine. But at other times of the day, he's pretty flexible.

- Child takes time to "warm up" or adjust to new situations:
  - o (#0029) 3 (sometimes prefers routine) Like when we were on vacation, she wanted to go to the pool every day and didn't want to go exploring or if we were leaving- that's what she thought was vacation and was sort of stuck on that and didn't think anything else would be fun. And she can have trouble transitioning. She took gymnastics and when she first went it was difficult for her to adapt but now that she knows the routine, she's comfortable.
  - o (#0114) 3 Likes to mix it up change it up. In the last year, she can be a little bit shy at first. Like when she first started in the red room. Between 3 and 4. More comfortable in a group that includes at least one of her friends. Really happy if her friend Name is there, though a few new kids were there. If someone who's Asian in her class, immediately gravitates to

that Asian child. Name's parents are 94hinese. I don't know if she's conscious of it. Seeks them out even if she doesn't know that.

- Child prefers routine and may be upset by change / worries about change:
    - (#0048) 3 (sometimes prefers routine) First I thought, she does not need a routine but it seems that every time they take the kid to a field trip the next time she has school she has difficulty to let me leave. It is really strange to me- it came as a surprise to me.
    - (#0144) 3 (sometimes prefers routine) – We're very routine and scheduled … so 3. She will verbalize the routine.

- No example:
    - (#0137) 3 (sometimes prefers routine) no example.

Themes for 4's: Rarely or never prefers what is routine
- Enjoys new / different activities; is up for anything new; doesn't seem to need routine:
    - (#0004) 4 (rarely) He's up for anything. He's not a kid who needs routine at all. He likes new and different things to do.
    - (#0100) 4 (rarely) she is good with routine but always open to new things
    - (#0117) 4 – rarely … she adjusts really quickly … she doesn't have to have a routine.

- Thrives off of new activities, excitement or adventure seeking:
    - (#0061) 4 (rarely) – He likes some routine because it's comforting…he really thrives on doing new and different stuff…if he's tired he might prefer to stay home…but he likes to do exciting things.
    - (#0067) 4 (rarely) He likes new things. He likes doing new stuff. He's adventurous. He seems to enjoy that. So if there's a new task, like ice skating that we've been doing recently, he gets really excited about frozen ponds and stuff like that because he wants to go check them out and go try more ice skating and find new ponds that we can go skate on.
    - (#0108) 4 (rarely) – You know she would rather do something different than the routine … she's much more prefers exciting adventurous.

Factor 2: Sociability

Item 74. To what extent does the child approach unfamiliar adults in familiar surroundings (such as new or rare visitors to the home or classroom)?

1 Extremely Approaching: almost always seeks out new people	2 Highly approaching: often and easily approaches new people	3 Moderately Approaching	4 Rarely Approaching: usually hangs back in the company of new people	5 Almost never approaching, keeps distance

Frequency of 1: 3
Frequency of 2: 18
Frequency of 3: 17
Frequency of 4: 10
Frequency of 5: 0

Themes of 1's and 2's: Extremely or Highly Approaching of New People

- Approaches particularly in familiar context / environment (e.g. home and/or school):

    o (#0002) 2(highly approaching) – In our home, an architect comes, he's ready to show the architect around the house and talk to him. Show him his trains.
    o (#0063) 2 (highly approaching) …esp. because of familiar surroundings…like feeling safe in her classroom would make her feel fine.
    o (#0033) 2 (highly approaching) If they're in familiar surrounds he's pretty- he'll go to new people, he'll talk to them, he'll talk about his interests fairly easily.
    o (#0094) 2 (highly approaching) sometimes he told me that we had a new teacher today and I say okay he explains that what the new teacher told them and sometimes he asks the…
    o (#0109) 2 (highly approaching) She's been a good friend to a new girl in the classroom who was sad and she was being a good friend to her.
    o (#0127) 2 (highly approaching) he's nice to our visitors … he was totally nice and fine with substitute teacher in art class one time … she was nice but didn't have enough experience with children she wasn't as cheerful but he was totally fine and said that she was a nice lady … he just accepted that she was a nice substitute teacher.
    o (#0144) 2 (highly approaching) highly if they are in our house.

- Doesn't respond differentially to new people; potential for risky interactions:
    o (#0019) 2(highly approaching) We went shopping yesterday and I was looking for something and we were trying to find out where the kids shoes were and he walked away from me and asked a sales clerk where the shoes were.
    o (#0029) 2 (highly approaching) We were at a time share resort where people sort of said hi, what's your name, how are you? And by the end of the week, she'd say, hi, what's your name, how old are you? That was sort of a shift and now she always greets people. If a stranger is walking down the house she'll wave or engage in a conversation almost to the point where you always have to be watching her.
    o (#0001) 2(highly approaching) – when she just attends school because she didn't understand, she would find adults and hold her hand to feel safe; if we have a visitor she will be very outgoing and get excited.

- o (#0046) 2 (highly approaching) Some kids are annoying to her- she'll say is that kid over there yours? He's taking my stuff.
- o (#0093) 2 (highly approaching) He doesn't seem at all bothered by not knowing people.
- o (#0065) 1 extremely approaching…almost always meeting new people…if we have friends over that she doesn't know she will run to them and give them a hug
- o (#0117) 1 (extremely approaching) It depends on the person … sometimes she can be extremely approaching … she's all over the person … sometimes she doesn't understand personal space. When we would go to the library when she was really little she would run up to people…from the beginning she was very social and very approaching.
- o (#0132) 2 (highly approaching) most of the time he's not too shy about new people, he wonders about who are they. Most of the time he'll approach somebody new.
- o (#0142) 2 (highly approaching) One. This is what has scared us since he was little. He's extremely approaching … he's not hesitant … new people don't bother him. Actually I'll change that to a two.

- Child will always approach new adults but may initiate contact in a shy/less overt way:
  - o (#0083) 1 (extremely approaching) always seeks out new people but in a coy way
  - o (#0100) 2 (highly approaching) On occasion she can appear to be shy but for the most part she will approach any person in a familiar surrounding

- Child will approach new adults but hangs back to observe first:
  - o (#0031) 2 (highly approaching) She'll go look at them, she'll go talk to them. She might go talk to them if she sees them or that other people are talking to them. But she'll usually look for a few minutes and assess the situation.

- No example:
  - o (#0057) 2 she's highly approaching
  - o (#0128) 2 (highly approaching) no example.

Themes for ratings of 3's: Moderately Approaching
- Child is likely to approach in familiar context / environment (e.g. home and/or school):
  - o (#0003) 3(moderately approaching) – So like a nurse in a doctor's office he's never seen before- he's open to that. He's interested in talking to that person at a moderate level.

- (#0048) 3 (moderately approaching) It depends between 2 and 3. Generally I would say number 3 but then with some people she just clicks. Most of the time it's 3.
- (#0064) 3 (moderately approaching) He doesn't typically talk to random people…in his classroom they share a bathroom and he seems to be interested in the other classroom…and likes the teacher in the other classroom…and he was okay approaching her.
- (#0069) 3 (moderately approaching) more apt to approach you in a familiar setting … if you are new to the classroom he'll approach you because you must be okay because you're on his turf.
- (#0119) 3 (moderately approaching) so many people at school that come in and out … and at our house she's moderately approaching.
- (#0139) 3 (moderately approaching) I've been surprised how willing he has been to approach new adults in the home and show them things.

- Willing to engage but doesn't always initiate the interaction:
  - (#0004) 3(moderately approaching) – I think he is very social for his age. He doesn't hide from new adults. But he's not necessarily initiating the conversation. He'll say hi and hope they initiate a conversation.
  - (#0067) 3 (moderately approaching) He's getting more comfortable with that as he gets older. We had a visitor recently- I guy that was coming, a contractor was coming to work on our plumber and my son was engaging him in conversation in a way that surprised me because he hadn't really done that before. The guy initiated it but my son didn't seem that shy and then he kept talking to him throughout the night.

- Child will approach new adults but hangs back to observe first; takes time to warm up:
  - (#0023) 3 (moderately approaching) She won't run up to them at first. She'll watch for a minute or two but once she sees that we think they're okay, she'll want to talk to them.
  - (#0061) 3 (moderately approaching) moderately…he will talk to someone…but he won't necessarily hang out with them a lot…it took him a little bit to warm up with mom's friend on Sunday.
  - (#0066) 3 (moderately approaching) M: She was in one classroom in the summer and switched, in the fall. And I think it took a good two weeks for her to warm up to those teachers. I think it was a distressing transition.
  - (#0081) 3 (moderately approaching) she'll stay away for awhile until she feels comfortable to the person and she can be very approaching sometimes.
  - (#0114) 3 (moderately approaching) Hesitant at first but warms quickly.

- Child is selective in or cautious about who he / she will approach:
  - (#0037) 3 (moderately approaching) he used to approach more often, but now he's kind of stopped…he's more cautious now I guess… and it depends on the person, if he thinks they are safe to approach I guess…(me: do you see him approach certain people more often than

others you said?) yeah, if it's a little kid or something or a friendly looking person…I don't know, some people he'll approach and some he won't…so I guess it's…he's got some kind of criteria. He won't approach, like some old guy standing there, he's not going to approach him, but he'll approach somebody his age.

- o (#0047) 3 (moderately approaching) She is not going to approach them that much but she will certainly talk to them. It's going to totally depend on the moment or the mood. But she is not likely to just go right up to them but she will accept them in their presence.
- o (#0060) 3 (moderately approaching) sometimes…they get set off by things…and just don't say.
- o (#0108) 3 (moderately approaching) she's a little shy with approaching … she might want to but she's a little shy

Themes for ratings of 4's: Rarely or Never Approaching
- Likes to observe new adults in familiar surroundings; slow to warm up; hangs back:
    - o (#0005) 4(rarely approaching) – He doesn't approach unfamiliar adults. He'll be watching, and observing, and trying to get a grip on who this person is and what their doing and everything. He doesn't quickly warm up to people.
    - o (#0012) 4(rarely approaching) – Like having a party at the house, and there are people he doesn't know, he probably won't go up to them.
    - o (#0014) 4(rarely approaching) She usually hangs back if it's people she never sort of met.
    - o (#0024) 4 (rarely approaching) Adults, she's not going to go up and ask, who are you? She's going to wait to see their role in the environment.
    - o (#0088) 4 (rarely) rarely approaching usually hangs back…if we have friends over that he hasn't met…he will hang back…he'll warm up eventually but it takes him a little time
    - o (#0092) 4 (rarely) I don't think he keeps his distance. He doesn't purposefully avoid them but he won't initiate. No, I change that to rarely. Occasionally have seen him in the observation booth talking to whatever random aid is sitting next to him about whatever he's interested in.
    - o (#0131) 4 (rarely approaching) in fact we did just have someone new come to the house for me to interview for babysitting and I had her answer the door and she did but then she came back to me … she's moving more to moderate … she used to want to be right by me and now she'll approach more.

- Resistant to approach even within familiar surroundings:
    - o (#0085) 4 (rarely approaching) substitute example, even around family members, at his grandmom's house, like someone new is there, and we tell him to say hi or bye he'll say no, and I'm like sorry!

- o (#0137) 4 (rarely approaching) Won't do it very often especially with someone she doesn't know.

- No example:
    - o (#0126) 4 (rarely approaching) no example.

Item 76. How would the child respond if approached by other children who are outside the familiar circle of friends in a familiar setting (in the neighborhood or at school)?

1 Restrained, self conscious, minimally responsive	2 Reserved	3 Warm but mildly reserved	4 Immediately relaxed	5 Unrestrained enthusiasm

Frequency of 1: 0
Frequency of 2: 6
Frequency of 3: 24
Frequency of 4: 13
Frequency of 5: 5

Themes for 2's: Reserved around new peers
- Child is reserved around new children; may not approach other new children; may avoid interacting with new children:
    - o (#0004) 2 (reserved) –He tends to be very much more quiet around other kids than adults. He is definitely reserved around other kids- especially ones he doesn't know.
    - o (#0066) 2 (reserved) M: At the farmers market we often see other kids and unless they are kids that she already knows she doesn't really play with them but if it's kids she already knows, it's all out running around.
    - o (#0081) 2 (reserved) well if we go to a playground that's a little far away, if she's playing with something and another kid comes up she will probably drop what she's playing and move around to somewhere else.
    - o (#0131) 2 (reserved) she wouldn't outwardly reach out to them

- Child would interact with other new children but would not initiate the interaction:
    - o (#0047) 2 (reserved) She would answer their questions or whatever but she would also wonder who is this weird kid and why are they talking to me?

- No example:
    - o (#0139) 2 (reserved) no example.

Themes for 3's: Warm but mildly reserved around new peers
- Differential approach to familiar and unfamiliar children; has warm reaction to new children:

- o (#0003) 3(warm but mildly reserved) So if there is a familiarity issue. The familiar people he's really engaged and warm and then moderately warm with those he doesn't know as well but definitely not fearful.
- o (#0137) 3 (warm but mildly reserved) Generally a warm child. 3. If she sees someone who's reserved she'll invite them in.

- Child will engage, but may try to assess the situation; needs time to warm up:
    - o (#0014) 3 (warm but mildly reserved) When you go to a playground where she never met someone she is warm but it can take a few minutes before she is comfortable and starts playing with that person.
    - o (#0019) 3(warm but mildly reserved) If they are his age. If it's a baby, he's not nice to little babies. He says he's allergic to babies. If the kid is his age he'll be warm but a little bit reserved because he doesn't know them. I don't know why he doesn't like babies.
    - o (#0031) 3 (warm but mildly reserved) She would assess the situation. And she would have noticed them first and then decided weather she wanted to play with them or not before they approached her.
    - o (#0048) 3 (warm but mildly reserved) Between 3 and 4. Sometimes K brings a new friend to a playgroup and then she needs a little bit – she is friendly, she is nice, but she needs a little bit to warm up to the new child.
    - o (#0064) 3 (warm but mildly reserved) warm but mildly reserved at first…but then tends to come out of his shell…and that's relatively new…but before he had unrestrained enthusiasm…he was super excited at first because he hadn't been around other kids.
    - o (#0067) 3 (warm but mildly reserved) He would be reserved at first. It takes a little while for him to warm up. He'll warm up after a short time and then quickly be fully engaged like in 15 minutes.
    - o (#0088) 3 (warm but mildly reserved) if he was at school and there were new kids he may hang back a little bit
    - o (#0094) 3 (warm but mildly reserved) 2 to 3. 3. It really depends if I invite somebody to visit us at home. It's okay for him to play with the friends kids for the first time… he just watching them play
    - o (#0127) 3 (warm but mildly reserved) probably he's in the middle. Well he gets new friends at the park but not immediately … he needs to see them for a while and then they become friends … not immediately.
    - o (#0144) 3 (warm but mildly reserved) until she knows them better.

- Child will engage with other children, but won't initiate the interaction; interaction may be limited:
    - o (#0023) 3 (warm but mildly reserved) She is a little reserved if they're unfamiliar people. She is warm but wouldn't initiate contact.
    - o (#0046) 3 (warm but mildly reserved) She gets a little shy.
    - o (#0092) 3 (warm but mildly reserved) He'll talk but he won't be very extraverted. He'll give whatever response. Like if it's what's your name,

he'll give them his name but there won't be a lot of talking or exchange.

- Approach is reflective of parental coaching / encouragement to meet new people:
    - (#0005) 3 (warm but mildly reserved) We've been oppressing upon him that he's always going to meet new people and there will be kids that warm up to him. We know parents that have kids that we won't see all the time and he'll warm up and then as time goes by and the course of the afternoon progresses, he's warmer than initially but it's definitely not unrestrained enthusiasm. But he's midly reserved there.

- Child's reaction to new children depends on his / her mood that particular day:
    - (#0061) 3 (warm but mildly reserved) It depends on his mood…whether it is a fun thing we are doing
    - (#0060) 3 (warm but mildly reserved) I've seen this go both ways…so 3…it depends on her mood…but definitely if she's with a group of people that she knows.

- Child's response to new children depends on how often he / she interacts with them:
    - (#0037) 3 (warm but mildly reserved) it depends on how often he sees them

- No example:
    - (#0069) 3 (warm but mildly reserved) no example.
    - (#0085) 3 (warm but mildly reserved) no example.
    - (#0109) 3 (warm but mildly reserved) no example.
    - (#0119) 3 (warm but mildly reserved) no example.
    - (#0126) 3 (warm but mildly reserved) no example.

Themes for 4's and 5's: Immediately relaxed around new peers / unrestrained enthusiasm
- Approach characterized by overall friendliness; being outgoing:
    - (#0001) 4 (immediately relaxed) – she can always play with other kids; when we go to the playground she can always find a friend
    - (#0002) 5 (unrestrained enthusiasm) –This is the observation that our son made- I think they were at a public park and had never been there and he was with his grandparents. My older son said S always makes friends. He was disappointed because that's something that S is really good at.
    - (#0024) 4 (immediately relaxed) She is very friendly and outgoing and willing to take other people into the circle.
    - (#0029) 4 (immediately relaxed) She can get into conversations with other children very easily.
    - (#0063) 5 (unrestrained enthusiasm) like at the zoo she ran up to an unfamiliar girl and said let's go play…she said I made a new best friend today…kids are totally open.

- o (#0093) 4 (immediately relaxed) He seems to be very comfortable meeting other kids and playing with him. Last weekend we went on the metro downtown and on the ride back home, Sam hopped on the seat next to a boy his age and started playing with him and they played together on the metro ride home. A complete stranger and he was comfortable right away.
    - o (#0108) 5 (unrestrained enthusiasm) You know she's very open so maybe a 5.
    - o (#0117) 5 (unrestrained enthusiasm) she makes the friends at the playground … she's not alone very long … doesn't matter the age she goes for it.
    - o (#0128) 4 (immediately relaxed) if they are new kids … not familiar … he would be relaxed and approach them.
    - o (#0132) 4 (immediately relaxed) he's not generally reserved, he'll approach new kids pretty readily and try to find something they have in common. He'll use things to initiate contact.

- Child is likely to approach in familiar context / environment (e.g. home and/or school):
    - o (#0012) 4 (immediately relaxed) Like meeting new kids at the playground- so it's a playground he knows but there's someone new- he'll play with them. He doesn't seem uncomfortable with them.
    - o (#0142) 4 (immediately relaxed) if he's at his regular school with new kids he's relaxed.

- Child might hang back initially to see if he / she will be accepted by peers:
    - o (#0033) 4 (immediately relaxed) Occasionally you might see slight hesitation but usually I would say for the most part it's immediately relaxed. There might be a little, are they going to accept me? But after he feels that there is no more apprehension.

- No example:
    - o (#0057) 4 immediately relaxed…she's good
    - o (#0065) 5 (unrestrained enthusiasm) no example.
    - o (#0083) 4 (immediately relaxed) no example.
    - o (#0100) 4 (immediately relaxed) no example.
    - o (#0114) 4 (immediately relaxed) no example

Factor 3: Risk Seeking Approach / Short Sighted Approach / Risky

Item 63. To what extent would the child approach a pleasant situation after being told that someone could get hurt?

1 Almost always	2 Often	3 Occasionally	4 Rarely	5 Almost never

Frequency of 1: 10

Frequency of 2: 10
Frequency of 3: 14
Frequency of 4: 10
Frequency of 5: 4

Themes for 1's and 2's: Always or often approaching pleasant situations after being told someone could get hurt
- Unrestrained approach of situations regardless of danger:
    - (#0002) 2 (often) He is not completely fearless but usually with a pleasant situation. Yeah- the bike riding, he has known all along that he could fall off. We took the training wheels off pretty early but that's something that he really enjoys doing. He knows he could get hurt.
    - (#0012) 1 (almost always) When he got his new bike for his birthday or in any situation, if we say, you have to be really careful or you might fall, if it's something he wants to do that won't deter him.
    - (#0033) 1 (almost always) Those are the things he likes to do. Even if he knows. Trampoline, bike riding, he does the rock climbing. He is always willing to. I am trying to think of a time he thought he could get hurt and didn't try and I can't think of one.
    - (#0046) 2 (often) If you were doing something that was fun and you told her that she could get hurt she would still do it. If she sees other people doing it then she'll do it in a heart beat. Like the rock wall at Maryland. She was like 3, and they wouldn't let little kids couldn't go up there but they had a whole bunch of other people climbing. They were telling her the reasons she couldn't go up there because she's really small and all this stuff. But she was like, I want to go, I want to go. So they ended up putting her in the rigging even though the straps were big. She ended up trying to climb up the wall and they ended up pulling her up like 40 feet and she loved it. And I think some people would have been really scared but she wanted to do it again and again.
    - (#0061) 1 (almost always) – He'll still do it. He loves riding his scooter…which isn't particularly safe…he knows he can get hurt…but still does it.
    - (#0064) 1(almost always) – I think he wouldn't care…my husband has been throwing him around since he was little…he has no fear with it
    - (#0065) 2 – often…I keep thinking of her saying 'mommy it's okay I don't mind'….she says this a lot…she will bear the discomfort
    - (#0066) 2 (often) D: I don't think she worries too much about getting hurt. She'll jump off things and she'll often launch herself at me assuming that I'll catch her.
    - (#0093) 1 (almost always) That doesn't hinder him on that type of activities. The risk of injury doesn't deter him.
    - (#0132) 2 (often) that usually doesn't dissuade him, he thinks "well I wouldn't get hurt". He would often still do it.

- o (#0142) 1 – almost always … because mommy spends all her time saying "don't do that you might get hurt."

- Child would engage in activity but would use safety measures; cautious approach:
  - o (#0029) 1 (almost always) She would still do it and be cautious. She's cautious enough. If it's pleasant- she'll wear a helmet. Or when she rides a scooter she wears knee pads and elbow pads. She understands how to protect herself.
  - o (#0024) 1 (almost always) She would still do it. She knows she needs her helmet but wants to be able to ride with the big kids.
  - o (#0060) 2 (often) – She would continue into the situation but she would do so cautiously…and it's a funny way she goes about doing things…she will go after something and try something new..but she's particular about everything…like her rock climbing…we tell her to be careful and you can fall…but she's really good at it…and it's fun to watch.
  - o (#0067) 1 (almost always) If you explain to him how he could get hurt he would understand and avoid that in most cases. I think he's able to know how to enjoy a situation appropriately.
  - o (#0131) 1 – almost always … she would use good judgment … she would have good body confidence in playground/bike situations. She would know her capabilities.
  - o (#0139) 2 – He will ride his bike and play on the playground but I would say that's an occasionally … maybe even an often … he definitely takes it into consideration … but it doesn't prevent him from doing something he enjoys … he won't just blow it off … it's definitely going to be in the back of his mind.

- The novelty of a situation has more influence than the level of danger:
  - o (#0005) 2 (often) For him, tell him it's really be hurt. That's not what drives him. It doesn't affect him. He's more hesitant if it's a new situation even if you can't get hurt. The get hurt doesn't even register with him. That's not what makes him hesitant. What makes him hesitant is the newness, not the hurtness.

- No example:
  - o (#0100) 2 (often) no example
  - o (#0109) 2 (often) No example

Themes for 3's: Occasionally approaching pleasant situations after knowing someone could be hurt
- Unrestrained approach of situations regardless of danger:
  - o (#0085) 3 (occasionally) Between 3 and 4, running in the street type of thing he'll just go and not think about, but some things he knows are dangerous like a cord or putting things around your neck or a knife, but if it's jumping off your bed he'll try to do it

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- o (#0117) 3 – occasionally … I think she would try to do something over again even if she was told it wouldn't be a good idea or someone would get hurt.
- o (#0137) 3 (occasionally) I don't know how often she thinks about the getting hurt part. Approach it occasionally. Doesn't think about what could happen. Will say "but it didn't happen."

- Depends of the danger level of the activity / and who is also involved in doing the activity; evaluation of activity:
  - o (#0014) 3 (occasionally) She would probably want to do it. Depending on the activity. She is allergic to dairy products but she still likes to eat pizza. She will have some acne on her body but she still wants to eat it.
  - o (#0128) 3 – occasionally. It would depend on the activity and what he observes and who might be involved and if others were involved he might be more willing to try it … he might evaluate it and decide what to do.

- If the activity was particularly interesting child would approach or engage in activity:
  - o (#0019) 3 (occasionally) If it was something that he looked interested in, he still might occasionally approach it even though he was told someone could get hurt. But then again, he might not.
  - o (#0048) 3 (occasionally) She is really good in biking now so she tries to do biking with one arm and doing crazy things like that.
  - o (#0119) 3 – occasionally … she would definitely respond that someone got hurt but maybe if it was fun enough.

- The idea of someone getting hurt would deter child from engaging in activity:
  - o (#0063) 3 – This is hard…b/c she is a little bit fearful…if she is told someone that would get hurt…I think that would change her mind her about going to go do it. If you are talking to her about someone getting hurt…we just try to tell her about something like that…we will explain to her about safety…she will understand that safety is first. Last year at her other school sometime she fell off the slide and broke her elbow…that plays into how she will react to someone getting hurt.
  - o (#0108) 3 – occasionally … she would be afraid to get hurt … she's more careful when it comes to that.

- Child would reluctantly engage in activity but would use safety measures; cautious approach:
  - o (#0069) 3 (somewhat reluctant) – you know … with the whole bike riding he knows he can get hurt but he still likes to do it … he's cautious about it
  - o (#0088) 3 – he's more cautious…even when he's younger all the other kids would go down the slide…he would kind of hang back…but he will do it
  - o (#0114) 3 (occasionally) A little bit cautious. 3. Occassionally. A ferris wheel she would know she wouldn't get hurt. Danger, she's a little more

standoffish.

- No example:
    - (#0094) 3 (occasionally) no example

Themes for 4's and 5's: Rarely or never approaching pleasant situations when told someone could be hurt
- Fear of hurting self:
    - (#0001) 4 (rarely) – when husband went to teach her the monkeybars, she didn't want to continue when told she could get hurt
    - (#0081) 4 (rarely) she will probably say no

- Empathic responding; getting hurt overrides everything else; won't do if risky:
    - (#0004) 5 (almost never) I think it's more his empathetic personality. He does not like to see anyone get hurt so that possibility would take away all the fun. The possibility of someone getting hurt would override everything else in his mind.
    - (#0003) 4 (rarely) So yesterday actually a next door neighbor boy was climbing a tree very high, and he said to him don't do that- it's not safe. So he's not only not doing that himself but he's telling others not too.
    - (#0023) 5 (almost never) That's just the kind of things she doesn't do- if there's risk involved.
    - (#0037) 4 (rarely) – when he's warned about something being dangerous he usually won't attempt it.
    - (#0047) 5 (almost never) If I specifically said, that riding a bike is something where people fall off all the time and that's why you have helmets it would be 5, almost never. I would never sell it that way. I would sell it a different way. If you go into all the pleasantness of it first and the other thing is you need to be careful then she might be okay. But someone could get hurt is a major part of the description so I'm going with 5.
    - (#0083) 4 – rarely… as long as she understands that somebody can be hurt…she understands somebody can be hurt
    - (#0092) 5 (almost never) He would become obsessed with the someone getting hurt piece and not go near it.
    - (#0126) 4 – rarely. Yeah if there's any chance of being hurt … he's very conscious about safety.
    - (#0144) 4 – rarely … she doesn't like to take a lot of chances.

- Child is cautious when risk is involved:
    - (#0031) 4 (rarely) She's cautious.
    - (#0127) 4 (rarely) – He was brave on his scooter … he's careful …for example on bike he goes down hill very slowly … it seldom happens that he hurts someone by accident. My daughter hurts accidentally more often. My daughter bit me quite badly during breastfeeding but he was much

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more careful. He's very careful.

- Child might still try to approach even after knowing he / she could be hurt:
    - (#0057) 4 – rarely…she doesn't care that her sister has an injury sometimes…so she likes to learn.

Item 71. Would the child engage in a fun activity even after understanding that someone could get hurt?

1 Almost always	2 Often	3 Occasionally	4 Rarely	5 Almost never

Frequency of 1: 11
Frequency of 2: 14
Frequency of 3: 12
Frequency of 4: 6
Frequency of 5: 5

Themes for 1's: Almost always engages in fun activities even after understanding someone could get hurt
- Child will engage despite understanding someone could get hurt; not concerned with getting hurt; acts invincible:
    - (#0005) 1 (almost always) It's funny. If it's fun, and he'll like it, he'll do it. The getting hurt is not what he's worried about.
    - (#0012) 1 (almost always) Like jumping into a pool and having us tell him over and over again not to jump into a certain area. Or jumping carefully so he doesn't slip. It doesn't seem to bother him at all. He'll keep doing it.
    - (#0024) 1 (almost always) Trampoline, moon bounce.
    - (#0031) 1 (almost always) She would get right in there.
    - (#0064) 1 (almost always) he doesn't usually fear very much
    - (#0066) 1 (almost always) M: Absolutely. There's a bench that she has that's in the kitchen for her to be able to get up to the counter and lately she loves to jump off of it. And she still does it. She knows she could get hurt, she has gotten hurt, she still does it.
    - (#0100) 1 (almost always) saying someone could get hurt is different than saying she can get hurt
    - (#0142) 1 (almost always) and do it repeatedly.

- Child would evaluate situation but would likely still engage:
    - (#0128) 1 (almost always) he would evaluate it but would try to engage if he could.

- Parents regulates level of dangerous activities child can engage in:
    - (#0033) 1 (almost always) The skate boarding example. The other day our neighbor is an older kid and he had a skate board and he wanted to try it

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and I wouldn't let him because we didn't have a helmet and I didn't think he was ready for it. But he was ready to do it even though he knows it can be a dangerous thing.

- No example:
  - (#0131) 1 (almost always) no example

Themes for 2's: Often engages in fun activities even after understanding someone could get hurt
- Unregulated engagement; not concerned with getting hurt:
  - (#0002) 2(often) – The bike riding, doing the monkey bars, whatever.
  - (#0019) 2 (often) If he thought it would be fun he would still going to engage in it even if someone could get hurt or he saw someone get hurt. He would still try it- still engage in it.
  - (#0029) 2 (often) Like riding a bike- she's still interested in doing it.
  - (#0109) 2 (often) if she knows it's fun she would risk it.
  - (#0139) 2 (often) because if he saw a chance to do something fun with his friends but knew he could fall he would still do it.

- Child will approach when watching other children doing task successfully:
  - (#0046) 2 (often) Like as long as it looks fun and she sees other people successfully doing something she's going to try.

- Child doesn't respond differentially to different levels of risk:
  - (#0093) 2 (often) I'm not sure how well he really assesses risk. You mentioned the bicycle example. He's got a bicycle and I tell him that people can fall and skin their knees or crack their head or whatever and people and he will still want to go do them. And sports injuries don't perturb him at all. He'll want to rough house and jump around on the furniture and not be perturbed at all that he could get hurt. You could fall and bang your head on a table, which he has done. That doesn't seem to slow him down. But then the water park example, there are certain slides that he won't go on because of the perceived risk where the actual probability of him getting hurt in these other things is greater than he would get hurt on these slides. It's his perception of risk. It might be risky but if he has done it before. So I would say often.

- Child would use a cautious approach but would still engage in the activity:
  - (#0060) 2 (often) she'll be cautious…but she would always still do it.
  - (#0063) 2 (often) it would just be how you phrased that to her…sometimes the phrasing of it to be safe and follow the rules that would be different for her. Like she likes to go on the trampoline and will stay towards the middle.
  - (#0108) 2 (often) I don't think she really got any bruises before … she's very careful … she has good judgment with this.

- o (#0132) 2 (often) he often thinks he can be careful enough

- If child understood the activity was dangerous he / she might not engage in the activity:
    - o (#0067) 2 (often) He listens to instructions and as long as he's told what the risk is, he'll avoid it.

- No example:
    - o (#0057) 2 (often) no example.
    - o (#0065) 2 (often) no example.

Themes for 3's: Occasionally engages in fun activities after understanding that someone could get hurt
- Cautious approach; engagement in activity; may involve parental explanation:
    - o (#0001) 3 (occasionally) – if it's very fun she will want to try, but she will know to be very careful
    - o (#0083) 3 (occasionally) because a lot of the stuff is that she needs to be careful b/c somebody could get hurt…she understands there is a relative risk
    - o (#0137) 3 (occasionally) Not something she's chosen. Wouldn't choose it herself. Not jumping to do it.

- Child may engage depending on the type of activity; would engage in preferred activity; may assess the level of risk:
    - o (#0014) 3 (occasionally) Again it depends what it is. The example of her liking the pizza but again she is allergic to dairy.
    - o (#0069) 3 (occasionally) depends on what it is … he would weigh his risks … see anyone got hurt and then try
    - o (#0094) 3 (occasionally) between 2 or 3. I think maybe 3. If he really understands that he might get hurt or if he got hurt before.
    - o (#0119) 3 (occasionally) like a moonbounce at a birthday party she would try.

- Child would likely engage in activity regardless of level of risk:
    - o (#0085) 3 (occasionally) mm-hmm (laughs) I think he would
    - o (#0127) 3 (occasionally) I can say "don't run here, you can fall" like in the national park he would still run … and eventually he fell but good that it was a soft place to fall.

- Needing external reminders of danger:
    - o (#0048) 3 (occasionally) You have to remind her again that this is probably not a good idea.

- No example:
    - o (#0114) 3 (occasionally) no example
    - o (#0117) 3 (occasionally) It's a fine line between 2 and 3.

Themes for 4's and 5's: Rarely or never engages in fun activities after understanding someone could get hurt

- Won't engage in activity; fear or concern with getting hurt:
    - (#0004) 5 (Almost never). Again, he doesn't like to see anyone or anything get hurt at all. So that would override any feelings of fun he thought he would have.
    - (#0023) 4 (rarely) She is risk-adverse.
    - (#0037) 5 (almost never) he wouldn't do it.
    - (#0047) 5 (almost never) If that's part of the description, she would get that and it wouldn't be something. If you are at a playground or something like that and the person who is giving directions focuses on the safety part, that would be bad salesmanship.
    - (#0092) 5 (almost never) No, no way. He's kind of obsessed with people not getting hurt.
    - (#0126) 5 (almost never) he's very concerned with things that could hurt him … like electrical outlets and that he could get hurt … we explain it to him that electrical outlets are like fire … he's concerned with fire … he's concerned with the soundness of the construction of our house because he's seen some destruction from storms with trees falling.
    - (#0144) 4 (rarely) if someone could get hurt she's not going to do it.

- Child's reaction is dependent on how parent's frame situation:
    - (#0061) 4 (rarely) I can get him to stop something if I tell him it could hurt someone. It's really hard to get him to take leave of all of his sticks at the playground b/c he loves sticks…but he will at least stay away from others.
    - (#0081) 4 (rarely) she wouldn't entirely try or actively go, but if you give her enough promotion, sometimes we kind of force her to, but then she'll feel better after she tries

- Cautious approach; engagement in activity; may involve parental explanation:
    - (#0003) 4 (rarely) – He's pretty cautious. It's partially from the siblings that will tell him not to do something. They're trying to protect him or something.
    - (#0088) 4 (rarely) he's cautious about himself getting hurt.

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