ABSTRACT

Title of thesis: GENDER DIFFERENCES IN CHILDREN'S ACTIVITY LEVEL AS MEASURED BY PARENT AND TEACHER REPORT

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Gender differences in preschool children's activity level were investigated using archival data, consisting of temperament questionnaires and an open-ended interview. Parents of 63 preschool students ranging in age from 3 to 6 years completed the Temperament Assessment Battery for Children (TABC; Martin, 1988), the Colorado Childhood Temperament Inventory (Rowe & Plomin, 1977), and the Children's Behavior Questionnaire (Rothbart, Ahadi, Hershey, 1994). Teachers completed the TABC. The Structured Temperament Interview (Teglasi, 1994) was administered to both teachers and parents. Results support conceptualization of activity level as comprised of two factors: motoric movement and modulation. Mean gender differences were due to differences in frequency of boys and girls at the extremes of activity level continua. Qualitative analyses indicate parents and teachers conceptualize activity level similarly for both genders, and that low modulation of

activity level is maladaptive in preschool children. Implications for the measurement of activity level and intervention development are discussed.

GENDER DIFFERENCES IN PRESCHOOL CHILDREN'S ACTIVITY LEVEL AS MEASURED BY PARENT AND TEACHER REPORT

By

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CHAPTER I

Introduction

Temperament has been defined as the individual differences in behavioral dispositions that occur early in life and are relatively stable (Goldsmith et al., 1987). It describes more than what a child does or how often behavior occurs. Temperament describes "how" the child interacts with his or her environment (Thomas & Chess, 1977). Practitioners and researchers working within a temperament framework acknowledge that individuals act with and react to their environment and that children's adjustment is related to the dynamic interplay between the child and his or her environment (Buss & Plomin, 1984; Chess & Thomas, 1996). They also recognize that, for most children and those who care for and work with them, a better understanding of the ways in which a child's temperament is influencing his or her relationship with the environment can contribute to improved functioning (Sheeber, 1994; Teglasi, 1997; Thomas & Chess, 1977).

Conceptualizations of the temperament construct vary greatly in the "nature and number" of temperament dimensions and their relative importance (Teglasi, 1998; Wachs, 2000). Despite this diversity, activity level is included in all of the most researched conceptualizations of temperament (Goldsmith et al., 1987). As such, it is included as a factor on almost all temperament measures. Activity level, then, has emerged as one of the best-documented and most measured temperament dimensions. Individual differences in activity level are documented at an early age and are consistent over time (Eaton & Saudino, 1992). Gender differences in activity level are also well documented and are apparent even when measured in such diverse

ways as actometers, behavioral observations, and parent and teacher ratings (Eaton & Enns, 1986). Activity level has also been included in many of the most researched temperament constellations including the Difficult Temperament constellation (Thomas & Chess, 1977) and the Low Task Orientation factor (Keogh, 1989). When coupled with the other temperament dimensions that comprise these constellations, high activity level is associated with poor academic and social adjustment (Sanson, Oberklaid, Pedlow, & Prior, 1991). A better understanding of these constellations and the dimensions of which they are comprised, including activity level, has implications for early intervention and remediation of adjustment difficulties. Furthermore, as researchers attempt to develop more complex and comprehensive models of the relationship of temperament dimensions, including activity level, with adjustment outcomes and seek to determine the underlying mechanisms that explain these models, a more sophisticated understanding of temperament constructs will become necessary.

Gender differences in activity level have been documented in the literature for some time. There are, however, several reasons for further investigation of this finding. First, activity level is the only temperament dimension in which gender differences have been consistently and reliably found. It appears, then, to be a stable characteristic on which boys and girls differ. Because activity level is a salient characteristic to teachers and caregivers, it would be important to know whether and how they perceive and respond to gender differences. Second, extremely high levels of activity are associated with Attention Deficit Hyperactivity Disorder, a disorder that affects a disproportionate number of boys. Exploration of the gender differences

that are present in normal development may further our understanding of the role of activity in behavior and adjustment problems. Third, researchers in the fields of human development and developmental psychopathology have suggested that more research should seek to understand possible gender differences by exploring possible gender specific pathways in development (Colder, Mott, & Berman, 2002; Kagan, 2000).

Prior research provides a rationale for exploring gender differences in activity level in the preschool population. First, while gender differences in activity level peaks later in childhood, mean differences are present and meaningful in three and four-year-old children (Eaton & Enns, 1986). Second, the behavior of preschool-age children may be less influenced by processes of self-regulation and social influence than that of older children. Studying activity level in preschool-age children, then, provides us with a reliably measured gender difference that may be less influenced by other constructs, that appear later in development.

Although well documented, the gender difference in activity level has typically been studied as a one-dimensional construct and by looking at differences in mean activity level between groups of boys and girls. This study seeks to extend this understanding of activity level in preschool children in several ways. First, it will investigate whether mean differences reflect gender differences along the continuum of the activity level dimension or whether differences occur at one or both extremes. Second, Teglasi (1997) has suggested conceptualizing activity level as being comprised of two components: motoric movement and modulation. This composition has indeed been found in an earlier study of these data (Miller, 2001), but gender

differences in these two factors are yet to be examined. Finally, transcripts of parent and teacher responses to items assessing activity level on the Structured Temperament Interview (Teglasi, unpublished) will be explored to gain insight into the way others perceive and respond to gender differences in activity level and to explore whether activity level has a similar function for boys and for girls.

The research questions/hypotheses listed below were developed to address each of the areas of investigation described above. All analyses were conducted separately for parent and teacher respondents. This study replicates previous analyses with this sample (Erwin, 2000) and presents results from new analyses, as well.

Hypotheses #1 and #2

Previous analyses with this sample found that, for some measures and informants, preschool-aged boys were rated as being more active than preschool-aged girls. The analysis of the STI data, however, looked at Activity level as a unitary construct. The current study analyzes the STI data as two factors, the Activity-Motoric Movement factor and the Activity Modulation factor. Hypothesis #1 predicted that, on average, preschool-aged boys will have higher ratings on the Activity scales of questionnaire measures and on the Motoric Movement factor than preschool-aged girls. In addition, Hypothesis #2 predicted that, on average, preschool-aged boys will have lower ratings on the Modulation of Activity Level factor than preschool-aged girls. These hypotheses were tested by comparing mean values for each gender on the STI factors.

Hypotheses #3 and #4

This study posits that the mean gender differences on activity level documented in the literature may be due to differences in the numbers of boys and girls at extreme levels of activity and modulation of activity measures.

Specifically, Hypothesis #3 predicted that mean gender differences in activity level are due to differences in the number of boys and girls with extreme levels (i.e., either very high or very low) of activity. It was predicted that more boys than girls would have high levels of activity level and that more girls than boys would have low levels of activity level. Similarly, Hypothesis #4 predicted that mean gender differences in the modulation of activity level are due to differences in the number of boys and girls with extreme levels (i.e., either very high or very low) of modulation of activity. It was predicted that more boys than girls would have low levels of modulation of activity. These hypotheses were tested by comparing the frequencies of boys and girls in discrete categories along the activity level and modulation of activity level continua.

Research Question #5

The three commonly used temperament questionnaires included in this study each include an Activity scale. It is unclear the relative degree to which each of these Activity scales measure general activity versus modulation of activity. The relationship of each of these scales to the two factors of the STI was explored by examining the correlation among the Activity scales of each questionnaire measure and the STI factors.

Research Question #6

The relative degrees to which gender, individual differences in motoric movement, and individual differences in modulation of activity are responsible for individual differences in activity as measured by temperament questionnaires was explored. Partial regression analyses estimated the amount of variation on the Activity scales of the questionnaire measures that is accounted for by gender, motoric movement, and modulation of activity level, respectively.

Research Question #7

Parent and teachers' perceptions of activity level in preschool-age children were explored by conducting qualitative analyses of their responses to the Structured Temperament Interview. Differences and similarities between responses for boys and girls and between responses of parents and teachers were noted and described.

CHAPTER II

Literature Review

The body of literature on temperament is broad in scope and theoretical perspectives. Temperament research varies greatly in the types of measurement and constructs measured. Despite this variation, many attempts have been made to develop a consensus definition that encompasses the most agreed upon characteristics. Temperament, then, has been defined most broadly as the individual differences in behavioral tendencies that occur early in life and have a biological basis (Buss & Plomin, 1984; Eaton, 1992; Goldsmith, et al., 1987; Martin, 1997; Rothbart, 1986; Teglasi, 1998). While this definition incorporates characteristics common to most conceptualizations of temperament, theorists continue to disagree on "the number and nature" of temperament dimensions; that is, the behaviors or behavioral tendencies encompassed by this definition and that are most important to include in the study of temperament (Teglasi, 1997; Wachs, 2000). For example, Thomas and Chess (1977) identify nine temperament dimensions, while Rothbart and colleagues suggest fifteen (Rothbart, Ahadi, Hershey, & Fisher, 2001). Both, however, posit fewer higher order dimensions. Many other theoretical backgrounds (Buss & Plomin, 1984; Goldsmith and Campos, 1982; Thomas and Chess, 1977; etc.) also differ in the number and type of dimensions studied. In order to understand any consensus definition and to make sense of the differing emphasis of various temperamental dimensions across the research, it is necessary to review in some detail the most widely researched conceptualizations.

The earliest modern approach to the study of temperament is that formulated by Alexander Thomas, Stella Chess, and their colleagues. Thomas and Chess equate temperament to the term “behavioral style” or the ways in which individuals behave, the “how of behavior” in contrast to the “what” or “why” (Chess and Thomas, 1996). In Goldsmith et al. (1987), Thomas and Chess discuss three considerations in their formulation of the boundaries of temperament. First, temperament is an independent psychological attribute. It is not subsumed under cognitive or emotional processes. That is, while temperament interacts with these processes to affect behavior, it is not dependent upon or the causation of cognitive or emotional characteristics of the child. Second, temperament is not motivation, ability, or personality, but does interact with these constructs to shape an individual’s behavior. Third, temperament is an attribute that mediates the influence of one’s environment on one’s behavior. Thomas and Chess recognize that an individual’s temperament will have a transactional relationship with the individual’s environment. That is, temperamental traits will affect one’s environment just as one’s social context can intensify or minimize the expression of temperamental patterns (Goldsmith et al., 1987). This conceptualization of temperament is the result of the long and productive New York Longitudinal Study (NYLS) begun in 1956 (Thomas & Chess, 1977). This empirical study provided the foundation of future temperament research by providing a definition of the construct and a methodology to measure it. The following discussion of the NYLS and subsequent conceptualization of temperament is based largely on the description in a chapter by Thomas and Chess (Thomas & Chess, 1977).

The NYLS was begun in 1956 and continues to this day. Thomas and Chess began to collect interview data from parents of infants in response to frustration presented by their clinical work. The primary theoretical perspectives of this time focused on environmental causes for psychopathology to the exclusion of innate child characteristics. This perspective appeared counterintuitive to what Thomas and Chess observed in their clinical work, where environmental factors and characteristics of the child both seemed to be responsible for dysfunction. This contradiction between theory and practice, and the questions it raised, was the catalyst for the first anterospective, longitudinal study of individual differences in children. Longitudinal data collected during the NYLS consisted of interviews with parents and other informants (e.g., teachers, etc.), observational records, and standardized tests. To ensure maximum utility and validity, parent interviews were conducted so that the focus of questions was on recently occurring behavior and on the context in which these behaviors occurred. Parents were asked to describe the environment in which behavior occurred and the behavior of others that interacted with the child. The initial study consisted of 141 children and spanned a period of six years. The sample population consisted of families from upper-middle to upper class backgrounds and with significantly more education than the general population. Most families who participated were friends or colleagues of the experimenters. Subsequent studies have been conducted with populations of varying ethnic, SES, and physical and mental health. Content analyses of parent interviews about their infant children resulted in the following nine factors: Activity Level, Rhythmicity, Approach or Withdrawal, Adaptability, Threshold of Responsiveness, Intensity of Reaction, Quality of Mood,

Distractibility, Attention Span and Persistence (Thomas & Chess, 1977, p. 21). Further analyses of this data led to the conceptualization of three temperament constellations: easy, difficult, and slow to warm up.

Of most interest to this current study, is Thomas and Chess's conceptualization of the Activity Level dimension. They describe activity as the motoric component of a child's behavior measured as the relative proportion of active to inactive periods on a given day. In the NYLS study, parents were asked to report their children's activity during specific daily activities such as bathing, playing, crawling, etc. Information was also collected on the child's sleep-wake cycle. Activity Level was then scored as High, Medium, or Low. High activity level was associated with the Difficult temperament constellation. Although usually accepted and even appreciated at home, low activity level was seen as a possible hindrance to optimal school functioning. Thomas and Chess provide the example of the sluggish student who frustrates peers and teachers alike.

Thomas and Chess's conceptualization was the primary approach to temperament for many years and continues to greatly influence current research and theory. Buss and Plomin posit that this degree of influence is due, in part, to the empirical success of the NYLS data and the fact that so many measures were developed using this structure (e.g., ITQ, 1978; BSW, TTQ, DOTS, 1977) (1984). Buss and Plomin also note that despite these measures being based on the nine factor structure put forth by Thomas and Chess, little empirical evidence has been found to support this factor structure.

Lack of support for the nine factor structure and the growth of research in the fields of developmental psychology and developmental psychopathology have resulted in a number of alternative conceptualizations of the temperament construct that vary in the degree of similarity with the Thomas and Chess formulation. Two such theoretical approaches that have produced empirical support and which have theoretical implications for this study are presented next.

The following characteristics of the framework developed by Rothbart and colleagues summarized here are discussed in detail in a chapter by Rothbart (1986). The study of temperament by Rothbart and her colleagues has taken a psychobiological approach, defining the construct as "constitutionally based individual differences in reactivity and self-regulation, with constitutional referring to the relatively enduring biological makeup of the individual, influenced over time by heredity, maturation, and experience" (Rothbart, 1986, p.356). Reactivity refers to an individual's intensity of behavioral, endocrine, autonomic, and central nervous system responses, while self regulation refers to the cognitive and behavioral approaches which modulate the individual's reactivity (Goldsmith et al., 1987). Rothbart points out that conceptualizing temperament around these two constructs is especially helpful when taking a developmental approach to childhood behavior. Specifically, behavior will be expressed differently as the child becomes more mature because the degree of reactivity will become moderated by self-regulation. From this conceptualization of temperament, Rothbart and colleagues have proposed studying the following dimensions: negative reactivity, positive reactivity, and behavioral inhibition. Within this framework, temperament can be studied at both the behavioral

and emotional levels. Behavioral characteristics can be expressed by emotional, attentional, and motor activity levels of the individual. Reactivity can occur at the somatic, autonomic, endocrine and cognitive levels and may have a positive or negative valence. Individuals will vary in their threshold for intensity of reaction and recovery time. Self-regulatory elements of temperament are comprised of motor and attentional components and individuals will vary in these capacities. In contrast to Thomas and Chess, this conceptualization makes the distinction that temperament is not only responsible for behavioral style (the "how" of behavior), but also for an individual's predisposition's to particular reactions and emotions (Goldsmith et al., 1987).

Rothbart and colleagues view individual differences in activity level as a behavioral expression of reactivity and self-regulation. For example, a more reactive individual may be predisposed to respond to their environment in more active ways than a less reactive individual. In addition, an individual's capacity for self-regulation may affect their ability to adjust their activity level to meet environmental demands.

Another theoretical view supported by empirical study is that of Buss and Plomin (1984). They define temperament as inherited personality traits. These traits must be genetic in origin and appear in the first year of life (Goldsmith et al., 1987). Buss and Plomin restrict their set of behavioral tendencies to those reflected in adult personality traits. Thus, their conceptualization of temperament is a downward extension of adult personality traits. Buss and Plomin posit three temperament traits: emotionality, activity, and sociability. Emotionality consists of emotional and

behavioral arousal. The extremes of this dimension are a complete lack of emotional reaction and intense, out of control emotional reactions. The second trait, activity, is composed of the vigor and tempo characteristic of an individual's behavior. The extremes of this dimension would be lethargy and behavior bordering on hyperactivity. The last trait theorized by Buss and Plomin is sociability or individual differences in preferring to be with others or by one's self. Note that even the extremes on these dimensions represent normally occurring behavior and are not pathological. Buss and Plomin's original theory included a fourth dimension, impulsivity, which was later removed for lack of empirical support. Buss and Plomin describe five essential characteristics of temperament: inheritability (i.e., having a genetic component, appearing early in life), stability during development, retention into maturation, adaptiveness, and its presence, or the presence of an evolutionary analog in animals.

Buss and Plomin (1984) define activity as a measure of "total energy output" (pg.7). It describes how much motoric activity an individual expends. Defined this way, Buss and Plomin's conceptualization is analogous to that of Thomas and Chess. Similar to Thomas and Chess's and Rothbart and colleagues' proposed framework, they view activity as a separate dimension of temperament.

Measurement of Temperament Constructs

As discussed above, temperament has been and continues to be conceptualized in widely varying and, at times, conflicting ways. The diversity of definition and classification has resulted in a body of research employing many different measures and measurement techniques. To explore and understand this

body of research, it is important to consider several measurement issues, some of which are general to the field of measurement of psychological phenomena and others that are more specific to the construct of temperament.

One characteristic of the body of temperament research is that several different ways have been developed to measure the construct, including questionnaires, observations, and interviews. Teglasi (1998) notes that questionnaires are the most common method because they are easy and quick to administer. Examples of the most commonly used questionnaires are the Temperament Assessment Battery for Children (TABC, Martin, 1988), the Colorado Child Temperament Inventory (CCTI, Rowe & Plomin, 1977), and the Child Behavior Questionnaire (CBQ, Rothbart, Ahadi, & Hershey, 1994). Questionnaires typically rely upon parental report and have been found to be inconsistent with behavioral observations by professionals, suggesting that there is a subjective component to the data they provide. This inconsistency among raters may be due to systematic bias, parents' lack of a normative base with which to compare their child, lack of opportunity to observe their child in settings in which they are absent, varying interpretation of items, and face validity of the questionnaire itself (Teglasi, 1998).

A second method of temperament measurement, lab and naturalistic observations, can overcome some of shortcomings with questionnaires described above. One benefit of observational data is that the trained professionals who make the observations will, presumably, have a better sense of what typical child behavior is and would be therefore, better able to provide unbiased reports. A serious downside of this method is that observations tend to be of short duration and occur in

one specific environment. Hence, they do not provide an adequate sampling of a child's behavior across settings and over time. It is of limited use to make inferences about a child's overall temperamental tendencies based on such narrow sampling. Naturalistic observations repeated over time provide a better description of continuity and do much to overcome the weakness of the observation technique conducted in a lab. Such naturalistic observations allow an unbiased and trained objective observer to accurately record environmental antecedents and consequences. When conducted in this manner, observations provide valuable information about the environmental context in which a child's temperament is expressed. The amount of time and other resources required to conduct such thorough naturalistic observations will prohibit their use in many situations, yet observations done at one point in time or in only one setting will be of limited validity in describing a child's temperamental qualities. In addition, possible influence on the child's behavior by the observer's presence must also be considered when interpreting observations. These difficulties make the observation technique less popular than the questionnaire and it is used less often as a measure of temperament. One exception is the work on behavioral inhibition by Kagan (1984) that assesses children's responses to novelty. In this line of research, observations of children in a novel, controlled lab setting is the preferred measurement technique.

The third general approach to measuring temperament is through the use of interviews. The Structured Temperament Interview (Teglasi, unpublished) is one example. Interviews provide a description of the child's temperament over time, in various situations, and at different developmental stages. For example, a parent can

provide descriptive information about a child's typical behavior in a variety of situations (e.g., while at home, with friends, in a crowded park full of strangers, etc.) and at different ages (e.g., as a toddler, in grade school, in adolescence, etc.).

When interviews are administered to a number of individuals in a child's life, an even richer and more complete picture of the child's temperamental characteristics develops. With more than one informant, the researcher is able to gain information about how the child reacts with different people and, very importantly, how others perceive and respond to the child's behavioral style. For example, a parent may not be concerned with her child's activity level, as she usually experiences her son alone in his own home where she can adjust her own behavior and the child's environment in response to him. The same level of activity may be of concern to the child's teacher, however, who has a normative base to which compare the child and different expectations of behavior in the classroom environment. Thus, a full picture of the child's functioning can only be obtained when both contexts are taken into account.

As the above example suggests, a temperament construct such as activity level may be measured very differently depending on who is responding to the questions. This highlights another characteristic of temperament measurement; that is, results often differ depending on the instrument used and/or the respondents questioned. Characteristics specific to the measure chosen or created by researchers will, to some extent, determine the obtained results and will reflect the conceptualization of the construct being measured (Kagan, 1988). It follows then that the inverse is also true. For example, one measure may ask questions pertaining to quantity of motoric movement and provide an index of activity. At the same time, a different measure

may contain items about a child's preference for active or less active tasks and may also purport to measure activity. The conceptual lack of clarity that results in situations such as the above example is the result of different conceptualizations using different measures, yet purporting to measure the same construct (Kagan, 1994). Teglasi (1998) makes the important distinction that when temperament measures result in different findings, this phenomenon should be considered a function of the different constructs being measured and not indicative of error in the instruments.

Temperament researchers must be careful when drawing conclusions from others' research and when choosing their own temperament measures. Prior to interpreting others' findings and presenting one's own, care must be taken to determine how they measure the temperament construct. That is, it is necessary to be precise about how the dimension of interest is operationalized and its relationship with other conceptualizations of the dimension.

Another general measurement issue that directly impacts the study of temperament is that of the level of specificity of the construct. As Teglasi (1998) explains, when constructing questionnaires it must be decided whether to include items which elicit judgments about specific observable behaviors or judgments about global traits and concepts. For example, a researcher might construct a questionnaire with several items asking a parent to indicate whether or not their child hits, calls others names, or hurts other children. The researcher would then make the inference that this child is aggressive as rated by his or her parent. An alternative way to assess whether the child is aggressive would be to simply ask the parent to indicate whether their child is aggressive. In response to this item the respondent, the parent, is asked

to make the inference and respond accordingly. One might argue that an advantage of asking respondents to rate specific behaviors is that it would seem to reduce bias and require the respondent to make fewer judgments in answering the item. However, it appears that both an accurate description of behavior *and* a measure of caregiver perceptions or biases may provide the most complete picture of the relationship between temperament and adjustment. For example, Sanson, Oberklaid, Pedlow, & Prior (1991) found that a single question tapping mothers' perceptions of how easy or difficult their child was compared to the average child (i.e., "overall, is your child easier or more difficult than average") was predictive of later behavior and adjustment. Specifically, the 8% of children who were rated in infancy by mothers as "more difficult" or "much more difficult" than average were more likely to engage in problematic behavior at the age of four or five. In addition, when asked this question in infancy, mothers' responses only moderately ($r = .49$) correlated with infants' scores on a scale of easy/difficult temperament based on mothers' frequency ratings of their child's behavior. The two types of queries appear to measure two different, though related, constructs. Furthermore, when these two measures (mother's perception of the child as difficult and child's difficult behavior) are combined, they are more predictive of later difficulty with adjustment than either measure alone. Sanson et al. posit that this finding highlights the transactional nature of temperament and environmental influences on children's development. When a mother has negative perceptions of and responses to her child's difficult behavior there is increased risk for adjustment difficulties, than that predicted from difficult behavior alone.

Teglasi (1998) identifies several other areas where conceptual clarity must exist to ensure accurate and meaningful measurement of temperament.

First, as the role of environmental context in the expression of temperament becomes more and more recognized, measures should reflect this. For example, a questionnaire which asks a parent to rate how active their child is will require the parent to decide whether to answer this question thinking of their child's behavior at the playground or at the dinner table. Depending on what context he or she chooses, the parent may answer the question very differently. Similarly, when asked to rate a child's sociability, an observer must not observe the child only in a new and unusual laboratory experience, but also in a comfortable, familiar environment before a valid measure of the child's temperamental style can be made. Finally, during interviews the respondent should be asked questions that elicit the description of environmental context. The respondent should be asked to describe the setting and other people's behaviors and reactions as well as the child's when providing examples of behavior.

Second, the developmental appropriateness of the measure must also be addressed. The same underlying temperamental predispositions will be behaviorally expressed differently as a child matures. A simplistic example would be that of a highly active child who, as a preschooler runs around the classroom and playground nonstop, but as an older child is able to regulate his behavior during class time, while remaining very active at home and during play. This child will continue to be more active relative to his peers, but as he matures, his behavior in the classroom will look very different. The underlying predisposition to being highly active has not changed,

merely the expression of this temperament. Temperament measures, then, must be composed of age appropriate items.

A third measurement issue that must be considered is whether the construct to be measured is categorical or continuous. Kagan (1994) explains that constructs are considered to be continuous if they differ only in magnitude and not in quality. An example of a construct that is often conceptualized as categorical is approach-withdrawal; individuals fall in categories that are conceptually and qualitatively distinct. A child described as high on approach will look different and have qualitatively different behavior than a child low on approach. In contrast to approach, activity level has historically been described as a continuous variable. A child with a high level of activity is simply more active than a child with low activity. The activity level of these two children varies only in a matter of degree. This conceptualization of activity level as a continuous variable does not preclude the idea that children may look qualitatively different depending on their activity level, especially at the extremes of the continuum and when one considers that differences in activity level may affect the expression of other temperament dimensions.

The last measurement consideration highlighted by Teglasi (1998), specification of how the temperament construct of interest is related to other temperament dimensions, addresses this issue. Although there is minimal (if any) empirical evidence at this time, one would expect activity level to play a part in the behavioral expression of other dimensions. For example, one can imagine an interaction between the temperament dimensions of activity and sociability. Two children with similar sociability tendencies, but with different levels of activity, may

behave in very different ways. Both children may seek and enjoy interactions with others, but if one child is more active in initiating social interactions, he or she may be perceived as being more sociable and may be more successful in achieving his or her social goals. In addition, activity level is very often included with other temperament dimensions to form clusters or constellations such as difficult (Thomas & Chess, 1977) and task orientation (Keogh, 1989).

Construct Validity of Temperament

In the early 1990s, several researchers addressed the issue of whether or not temperament and behavior problems are conceptually distinct (Bates, 1990; Sanson, Prior, & Kyrion, 1990a; Sanson, Prior, & Kyrion, 1990b). The issue is first raised by Sanson et al. (1990a) in a study that asked clinicians to rate how well items from temperament questionnaires measured behavior problems and how well items from behavior problem questionnaires measured temperament. The considerable overlap in the items (i.e., the same items were rated as measuring temperament and problem behaviors) was interpreted as indicative of a conceptual lack of clarity, especially with internalizing behavior problems. This led Sanson et al. to ask whether temperament and problematic behavior were two distinct, separate constructs.

In response to this question, Sheeber (1995) reexamined data from a previous study of a temperament-focused, parent training intervention for behavior problems (Sheeber & Johnson, 1994). The author's underlying rationale for looking at the data was that, if temperament and behavior problems are describing the same underlying construct, then intervention should affect them both similarly. However, if temperament and behavior problems do tap two distinct constructs, interventions

should have a differential effect. That is, one would expect a program intending to remediate behavior problems, but not intending to alter a child's temperamental style, to have an affect on the child's behavior, but not the child's temperament. This study allowed for such exploration because it collected mothers' ratings of their children's temperament and ratings of problem behavior. Prior to intervention all children were rated as having difficult temperament characteristics, defined as having scores of at least one standard deviation above the mean on at least three of seven Parent Temperament Questionnaire scales (PTQ, Thomas & Chess, 1977) and as having problematic behavior, defined as scores of at least one standard deviation above the mean on the Behavior Problems scale of the Child Behavior Checklist (CBCL, Achenbach & Edelbrook, 1983). Problem behavior was also described by mothers on the Parent Daily Report (PDR, Chamberlain & Reid, 1987). Intervention consisted of parent training to increase the goodness of fit between a child's temperament and parental expectations. Sessions included lessons designed to familiarize parents to the concept of temperament and strategies to identify and work with their child's temperament. Analyses comparing pre- and post- intervention reports did, in fact, show that this intervention reduced problem behaviors, but did not have an effect on temperamental qualities. Specifically, significant improvement was measured on both the Internalizing and Externalizing scales of the CBCL and on the Target Score of the Parent Daily Report, but no significant differences were measured on any of the temperament dimensions. In contrast, results for the wait-list control group indicate that both temperament and behavior remained stable. These results provide support for the view that temperament and behavior problems are conceptually

distinct. Sheeber notes that one weakness of the Sheeber and Johnson study is the possible confound that parents were instructed that temperament is a stable, relatively unchangeable characteristic, while behavior is not. It is possible then, that the parents did not observe changes in temperament because they were not expecting them to occur. While recognizing this limitation, Sheeber contends that it is unlikely that this was responsible for the obtained results. She points out that this characteristic of temperament and behavior was mentioned only one time in the first training session. In addition, data collected on mothers' knowledge of temperament indicates that their belief that temperament was a stable characteristic did not change before and after treatment. Also, the PTQ does not ask mothers to make explicit judgments on their child's temperament, but asks them to rate their child's behavior. Sheeber believes that it is highly unlikely that mothers mentally translated these items into temperament dimensions and had higher order constructs in mind when they responded. Finally, Sheeber highlights a 1982 study by Webster-Stratton and Eyberg in which similar results (i.e., behavior problems changed in response to intervention, but temperament ratings did not) were found and in which the intervention did not have a temperament component. Sheeber provides adequate evidence that childhood temperament and behavior problems are separate and distinct constructs, however, this distinction may not be as salient at all developmental stages. The two constructs may be less distinct during infancy when a child's behavior is much less regulated by other processes.

Activity Level as a Dimension of Temperament

Activity level is one of the most researched and well-documented temperament dimensions. It is included in the most influential and best studied conceptualizations of temperament. Thomas and Chess, Rothbart and her colleagues, and Buss and Plomin and their colleagues all provide theoretical and empirical support for its inclusion. There is ample empirical evidence that it embodies the most salient characteristics associated with temperament. That is, individual differences in activity level appear early in life, are relatively stable over time, although the actual amount of motoric activity may change with maturation, and are subject to the effects of context. In the next section, empirical support for each of these characteristics is explored in depth.

Early Appearing and Stable Individual Differences

Fetal motor development and the measurement of fetal motor movement has been an interest of developmental psychologists for some time and is one of the most studied aspects of fetal behavior (DiPietro et al., 2002). Eaton and Saudino (1992) found that individual differences in fetal movement as measured by mother report (counts collected by mother in natural settings over time) were significant and stable over gestational weeks 28 to 39 and that fetal movement peaks at 34 weeks. The authors interpret these results as suggesting that fetal motor movement is a temperament characteristic and recommended further research to investigate whether individual differences in fetal motor movement are consistent with infant activity level. Results of studies investigating the relationship between neo- and peri-natal activity levels have been inconsistent (see DiPietro et al., for review).

One recent study conducted by DiPietro et al. (2002) addresses, in part, this inconsistency. The study measured motoric movement at 24, 30, and 36 weeks gestational age, at a mean age of 14 days postpartum, and at one and two years. Participants were 52 women and their offspring. They were well educated, healthy and employed women with full term pregnancies. Fetal motor movement was measured by fetal actocardiograph and an activity level score, movement bouts (frequency) x movement amplitude (intensity), was calculated. The Neurobehavioral Assessment of the Preterm Infant (NAPI; Korner, Brown, Thom, & Constantinou, 2001) was administered at mean age of 14.2 days to assess neonate activity level. One-year infant temperament was measured using behavioral observations and produced the following scores: activity level, motor maturity, and distress to limitations. At two years, temperament was measured using the TABC and behavioral observations were coded for behavioral inhibition. Results suggested that by 36 weeks of gestation, stable individual differences in activity level appear and that fetal movement is correlated with activity level at one and two years. In contrast, fetal movement did not predict activity level at 14 days. DiPietro et al. suggest that this finding may be due to the measure used at that time, the NAPI, which measures neuromuscular maturity, not motoric activity level. Fetal activity level was negatively associated with Distress to Limitations (i.e., distress when frustrated and restrained) at one year and Behavioral Inhibition at two years. These results led the authors to posit that high prenatal activity level may be associated with later appearing temperament dimensions, such as emotional and behavioral regulation. Also interesting is the finding that the relationship between fetal measures and infant activity level at one

year varied by sex. Although the correlations were not significant, the relationship tended to be positive for boys and negative for girls. It may be that even in infancy and very early childhood, there are different developmental pathways of activity level for boys and for girls. Due to small sample size and high within-sex variation, however, the authors note that sex differences in fetal movement cannot be reliably ascertained at this time.

Korner et al. (1985) conducted a longitudinal study of fifty children between the ages of four and eight to investigate whether individual differences observed in the first days after birth were present later in childhood. The authors hypothesized at least a slight positive correlation between the activity level measured at both times despite a vast number of possible maturational and environmental variables. Activity level was operationalized as motility and measured at both times using an electronic activity monitor. The authors also hypothesized that an individual's variation in activity level as an infant might correlate with later behavioral style as rated by parents. Results indicated a modest positive correlation, .29, between high motoric activity level as a neonate and high activity level later in childhood. Specifically, those children who were most active in the first days postpartum were also the most active four to eight-year-old children. These results suggest that a predisposition to high or low activity level appearing in a very young child does remain constant over time, even when maturation and environmental influences would have ample time to have an effect. Although significant, the modest correlations suggest that other factors are involved. Results also indicated that there is a moderate positive correlation between neonates who were most active and children rated as most likely

to approach new experiences. This appears to be consistent with the finding by DiPietro et al. (2002), discussed above, that high Activity Level during fetal development is associated with less behavioral inhibition at two years.

The Effect of Context on Activity Level

Individual differences in activity level appear early in life and appear to be relatively stable over time. Empirical support for the presence of context effects on activity level can be found in the studies discussed next.

To investigate whether activity level varied as a function of environmental context, Cohen, Hulls, and Rhine (1978) sampled the activity level of boys aged three and four years in short 10 second intervals in naturally occurring contexts. Behavior was rated on a six-point scale ranging from 0, “no movement”, to 5 “extreme amplitude” (e.g., running). Children were observed in eight free play contexts in the preschool classroom: dramatic play, art, manipulative play, transient, sandbox, woodworking, block play, and other. Individual differences were found in children’s preferences for contexts and in the amount of movement typical for each context. These results caution against relying solely on behavioral observations in a limited number of settings as a measure of activity level, as the context in which children are observed appears to affect most children’s behavior. The authors of this study conclude that although the participants of this study were all boys, the results would generalize to girls. Although one might expect that similar to boys, there would be individual differences in the preference of activities and activity level while engaged in these activities for girls, the pattern of these individual differences may vary and it should not be assumed to be the same for both genders.

One study that explored possible gender differences in context effects was conducted by Eaton and Keats (1982). The authors explored whether a sex-by-situation interaction hypothesis would explain gender differences in children's gross motor activity level. Specifically, they investigated whether boys and girls differed in activity level dependent on whether they were alone or with same sex peers and whether the environment was novel or familiar. Drawing from work by Maccoby and Jackin, the authors proposed two hypotheses. First, that in novel situations, girls will "freeze up" more relative to boys and would be less active than boys would be. Second, that boys are more stimulated to higher activity levels by same sex peers than girls are. Sixty-nine (27 female, 42 males) preschoolers (M = 51.1 months) participated in the study. In one condition participants played alone in a laboratory play room and in the second condition they played in the same playroom with two other same-sex peers. Activity level was measured by actometer readings and by teacher rankings of activity level in the classroom. Results indicated that boys were more active in all situations and that both boys and girls were more active when in triads than when alone. Girls when alone were least active and boys in triads were most active. Boys rated as being highly active by teachers differed more on actometer ratings of motoric activity level from girls rated as highly active by teachers than boys and girls rated as having low activity levels did. This suggests that preschool boys and girls differ in activity level more at the upper extremes than at the lower one. Mean differences may not reflect gender differences along the continuum. Also, boys and girls rated as being highly active were more affected by context than boys and girls rated as having low levels of activity by their teachers. As relevant to

the current study as the results are, they did not support the hypotheses posed by Eaton and Keats. First, while preschool girls were less active overall, they did not appear to be more affected by stressful situations (i.e., novel experiences) than boys were. Instead, preschool children of both genders are less active in novel situations than in familiar ones. Second, while boys in a triad with same-sex peers were more active than girls in a same-sex triad, the effect of same-sex peers did not appear to be responsible for this difference. In summary, it appears that boys are, in general, more active than girls, but that the activity level of male and female preschool children is affected similarly by environmental contexts typically encountered.

Two Factor Structure of the Activity Level Construct

Activity level can be conceptualized as a temperament dimension composed of two primary factors: Activity (motoric movement) and Modulation (Teglasi, 1998). The Activity-Motoric Movement factor describes the general level of overall activity. The Activity-Modulation factor describes an individual's predisposition to regulate and adjust their activity level across time and situation. Previous factor analysis of the archival data used in this study did result in these two factors emerging on the both parent and teacher Structured Temperament Interviews (Miller, 2001).

Measurement of Activity Level

Much of the work done to establish individual differences in activity level has been done by Eaton and his colleagues. They conceptualize activity level as motoric and use measures that record physical movement. One such measure is the actometer. The actometer is a mechanical devise placed on a person's limbs that measure the amount of physical movement the person engages in during a specified

time. Eaton (1983) found strong correlations between actometer readings and parent and teacher ratings of preschool children's activity level. Because they correlated with an objective measure of motoric activity (actometer readings), Eaton viewed this as a validation of parent and teacher ratings of preschool children.

Eaton and Dureski (1986) sought to validate parent ratings of infant temperament in the same way. Actometer readings were taken for 46 infants ranging in age from 13.1 to 21.4 weeks and the infants' primary caregivers completed the Infant Behavior Questionnaire (IBQ). In the first study, correlations between the two measures were not significant. Eaton and Dureski posit that the length of the actometer measure (one 27-minute session) was too brief to compare to the caregivers extended interactions with the infant. In their second study the authors sought to resolve this issue. Caregivers again completed the IBQ, but also completed a shortened version of the measure and asked to rate these items in reference to the last 24 hours only. In addition, the actometers were left on the infant for 24 hours in the natural environment of the home. Again, the correlations between parent questionnaires and the actometer readings were not significant. Eaton and Dureski suggest that the parent reports of their children's activity level are simply not accurate at three months. Another, and possibly more likely rationale is that, what the actometer measures as activity level (i.e., arm and leg movement), may not be what parents are considering as active movement in their infant. Also possible, is that parents are taking contextual factors into account or are making relative judgments of which the actometer is incapable.

Alternate interpretations of the discrepancy between actometer readings and parent report of infant activity level highlight a weakness of using actometers as measures of activity level. That is, they provide information on general motor movement without describing the context in which this movement occurs. Researchers have worked around this weakness by averaging readings over time in order to report a more general sense of activity of the child, but this fix merely attempts to overcome an inherent weakness and still does not provide investigators with the environmental context of behaviors. If one knows only that a child is crying, it would be rash to assume that the child is dispositionally unhappy or upset. One would need to know what happened in the child's environment or his or her experience of the environment to make assumptions about the child's behavioral style. The activity ratings from actometers are similarly limited. Without knowing the environmental context, the antecedent and consequences of a child's active behavior, it is difficult to know anything more than the fact that he or she moved her arms around more or less often than other children at the time of measurement. The actometer, then, provides us with some normative information about children's activity, but this information is limited when making inferences about an individual's behavioral style.

The questionnaire measures selected for this study were chosen because they have good psychometric properties, are used in research, and represent varying temperament conceptualizations. All of the measures used in the current study share a similar limitation to the actometer, however, in that they provide information about activity only in respect to the way the construct is operationalized. A brief discussion

of the underlying conceptualization of activity level employed by each of the measures used in this study is, therefore, necessary.

TABC (Thomas and Chess, 1977)

Based on the work of Thomas and Chess, the Activity factor on this measure is primarily concerned with the motoric component of activity level. Items elicit information regarding the relative amount of active versus inactive behavior typical of the child across settings. Activity Level is then categorized as High, Medium, or Low.

Colorado Child Temperament Inventory (CCTI, Rowe & Plomin, 1977)

This questionnaire measure combines Buss & Plomin's EASI temperament dimensions with the temperament characteristics of Thomas and Chess. Consistent with both of these conceptualizations, the activity scale is a measure of gross motor movement.

Child Behavior Questionnaire (CBQ, Rothbart, Ahadi & Hershey, 1994)

The CBQ is a parent-report measure developed for children age three to seven years. The thirteen items that make up the Activity Scale measure the rate and magnitude of gross motor activity.

Structured Temperament Interview (Teglasi, unpublished)

The activity scale on the STI is comprised of four items to which caregivers are asked to rate children on a five-point Likert scale. Developed for children between the ages of three and seven, it can be administered to parents and teachers. Two sub-factors of Activity are assessed: a general activity level factor and a modulation of activity level factor.

The TABC, CCTI, and CBQ all provide a measure of activity level when conceptualized as a unidimensional construct- motoric movement. In contrast, the STI provides a measure of activity level comprised of two factors: Motoric Activity Level and Modulation of Activity Level. The activity scales of the questionnaires clearly measure motoric activity level to a large degree. The extent to which they are also measuring modulation of activity level has not been established.

Gender Differences in Activity Level

One of the most consistent empirical findings in the literature about temperament is that boys are generally more active than girls. This gender difference is present across studies with different operational definitions of activity level, when different measures and instruments are used, and at different age levels.

Eaton and Enns (1986) summarized much of the research in this area when they performed a meta-analysis of 205 comparisons from 127 studies. Although all studies of gender differences that met the authors' criteria were included regardless of age, ninety percent of the studies had a mean age of 15 years or less. The results, then, are most applicable to gender differences in childhood and early adolescence. Excluded from the meta-analysis were studies whose subjects had clinical levels of hyperactivity. Studies included in the meta-analysis used a range of measures that the authors coded as ratings, observations, or instruments. Overall, the mean effect size across all studies was .49, suggesting that the average male youth is more active than 69% of females youths of the same age. Greater effect sizes were found with samples of older subjects. Specifically, no effect size was found with studies of prenatal subjects, studies with subjects ranging in age from 0 to 11 months had an effect size

of .29, studies of preschool subjects had an effect size of .44 and studies with subjects older than preschool age had an effect size of .64. Eaton and Enns also found that situational factors affect whether gender differences will be found. That is, the more restrictive or structured the environment, the less gender predicted activity level. This is not surprising, as one would expect the less restrictive environments to allow for more individual differences in behavioral expression. Eaton and Enns were also interested in whether the type of measure used affected whether gender differences were found. They anticipated that the more objective the measure, the smaller the differences between male and female activity level. They reasoned that if sex role stereotypes were responsible in part for the observed gender differences, then studies using measures such as rating scales and interviews would produce larger effect sizes than studies using objective measures such as actometers. This, however, was not found. In fact, only the sensitivity (number of items addressing the construct) and inclusiveness (number of ways the construct was measured) of measures had an effect on gender differences. Larger effect sizes were found with studies that used more sensitive and inclusive measures. Gender differences in activity level are not the result of measurement error or respondent bias. On the contrary, the more psychometrically sound the measure, the more robust the findings. Overall, the results of this meta-analysis suggest that gender differences are reliably found with all but prenatal participants and that the gender difference in activity level increases as children get older. One of the questions raised by the results of the meta-analysis is whether the increase in gender differences with age is due to biological maturation or social influences that magnify gender differences.

A study conducted by Eaton and Yu (1989) addressed this question. They explored whether boys were more active than girls due to boys physically maturing at a slower rate. As boys physically mature slower than girls and physical maturity results in a decrease in activity level, the authors posited that the discrepancy in physical maturity may be the underlying cause of gender differences in activity level in childhood. Eaton and Yu found that girls were physically more mature than boys and that 11% of the variance of a child's activity level was explained by physical maturity. Results also indicated that sex accounted for 25% of the variation in activity level. Maturity level did significantly predict activity level for boys, but not for girls. It appears that maturity is differentially related to activity level depending upon gender. Eaton and Yu conclude that maturational differences alone do not account for the gender differences found in young children. Also of interest, maturation appears to be related to age-related differences in activity level for boys, but not girls. This suggests, perhaps, a different developmental pathway for the two genders.

A more recent study by Martin, Wisenbaker, Baker, & Huttunen (1997) looked at gender differences in temperament in the same 376 children at six months and five years. The Infant Temperament Questionnaire (ITQ) and the Parent Temperament Questionnaire (PTQ) were completed by caregivers at 6 months and five years respectively. The ITQ has a four factor structure consisting of biological irregularity, threshold, distress to novelty, and activity /intensity. The PTQ is composed of eight factors, one of which is activity level. Analyses showed that the best predictor of the PTQ activity level scale at the preschool age is the activity/intensity scale on the ITQ at the infant age. This finding suggests that the

two scales do, in fact, measure a similar trait and that this trait is consistent over time. Martin et al. raised the issue of respondent bias and discussed the difficulty in interpreting whether stable individual differences in activity level are the effect of actual characteristics of the child or are due to stable biases of the respondents. They addressed this issue in their study in two ways. First, the authors explained that the large number of subjects, 2000 infants, reduced the effects of respondent bias. Second, several demographic and psychological characteristics of the respondent and the child's family were measured and analyzed to see if systematic bias due to these characteristics was present. They found these characteristics to have no relationship with the measured temperament and concluded that the results were not the result of systematic bias. While the activity/intensity factor on the ITQ was the best predictor of later activity level, gender differences on this factor were not found in infancy. The authors suggest that this may be due to the fact that only four questions on the ITQ were directly related to intensity. As other studies have documented relatively small gender differences in activity level in infancy, perhaps a more sensitive or inclusive measure is required to measure them. In contrast, a significant gender difference, with boys more active than girls, was found at five years (es = .26) on the activity level factor of the PTQ. This is smaller that expected in light of the results of the meta-analysis conducted by Eaton and Enns (1986). As with the ITQ, perhaps the PTQ is not a highly sensitive or inclusive measure of activity level. To summarize, while a gender difference was not present at infancy, it was present at five years. Although not as large in magnitude as the effect sizes found in the meta-analysis conducted by

Eaton and Enns, the results of this study are consistent with the conclusion that a gender difference does exist in young children and this difference increases with age.

In summary, research has shown that a gender difference in activity level does exist, is present at an early age, and increases in magnitude from infancy to later childhood. It is less clear what effects this early appearing gender difference may have in teacher and parent perceptions of their children.

While there does not appear to be studies directly addressing this question, a study by Mondschein, Adolphe, and Tamis-LeMonda (2000) does provide a clue. Mondschein et al. had mothers estimate their infants' motor performance on a series of tasks and found that mothers do have different expectations of characteristics of their children depending on their children's gender. Specifically, when compared with actual performance measured in a laboratory environment, mothers of boys overestimated their infants' motor abilities and mothers' of girls underestimated their child's motor abilities. Despite these expectations, no actual gender differences were found in the sample of twelve female and eleven male eleven month-old infants. To explain these results, the authors suggest that early appearing gender differences in activity level may influence mothers' expectations for motor performance. That is, more active infants may be expected to have better motor development by mothers. Active infants do tend to reach motor milestones earlier than less active infants (Matheny, Brown, & Wilson, 1971), but this does not explain why there is an early bias prior to the fact. If mothers' of boys and mothers' of girls are constructing different expectations of their children's future motor development due to gender

differences in activity level, it may be that there are other domains of development, such as social skills and intelligence, that are affected by this bias as well.

Positive and Negative Correlates of Activity Level

Activity Level and Temperament Constellations Associated with Negative Adjustment

There is empirical evidence that high or unregulated activity level in children is associated with academic and social maladjustment, especially when present with certain other temperament dimensions (Keogh, 1989; Martin, 1988; Nelson, Martin, Hodge, Havill, & Kamphaus, 1999; Thomas & Chess, 1977). Activity level is a dimension of Thomas and Chess's difficult temperament constellation, which is associated with school maladjustment (Sanson et al., 1991) and behavioral problems at home and at school (Thomas & Chess, 1977). Activity level is also part of the low task orientation factor, which has been shown to be related to children's problems in school performance (Keogh, 1989). Martin et al. (1989) conducted a longitudinal study and found that self-regulation of activity level, when coupled with self-regulation of attending behaviors, predicted reading and math performance in school. Similarly, Nelson et al. (1999) found that kindergarten children's low self-regulation of activity level and attention, as reported by parents, is predictive of school performance problems at third grade. While these associations are low to moderate in strength, the domains of adjustment involved (i.e., academic performance, social competence, etc.) are of utmost importance in children's development.

High Activity Level Alone as a Predictor of Negative Outcomes

Measurable, negative outcomes are less well documented when activity level is considered alone. This likely reflects the reality that it is the interaction of different

temperament characteristics and characteristics of a child's environment that ultimately accounts for adjustment outcomes. Nonetheless, research has shown that high activity level alone in infancy may be associated with later temperament traits that can be seen as risk and protective factors for later adjustment (e.g., behavioral inhibition, sociability) (Korner et al., 1985; DiPietro et al., 2002). Active children have also been shown to be more susceptible to accidental injury (Carey, 1998).

Positive Correlates of High Activity Level

In contrast to most research findings, which link high activity level to negative outcomes, a recent study by Campbell, Eaton, and McKeen (2002) suggests that children's activity may serve a functional purpose. High levels of activity, therefore, would have a positive effect on children's development. Campbell et al. distinguish between two types of individual differences in activity level in young children. One, the "extraneous movement position" attributes individual differences in activity level to differences in the amount of nonfunctional or repetitive movements and high activity levels would be associated with low regulation and behavior control. The second conceptualization, the "exploratory movement position" describes movement used in purposeful, advantageous, exploratory behavior and individual differences in activity level are the result of differences in this purposeful type of movement. In contrast to the extraneous movement position, high activity levels would be associated with behavioral control. Campbell et al examined the relationship between activity level, as measured by actometer and behavioral inhibition, as measured by contra-habitual task performance, with 4 to 6 year-old children (M= 5.5 years, 40 girls, 45 boys). Contra-habitual tasks require individuals to respond in a manner

inconsistent with a habitual or stimulus-driven response. For example, a stimulus consistent response would ask a child to tap a table with a wand imitating an examiner's pattern of taps. In contrast, a stimulus inconsistent response would ask the child to tap a table with a wand while reversing the examiner's pattern. For the younger children in the sample (less than five and a half years), higher levels of activity level, as measured by actometer, along with attention and alertness, were associated with increased ability for behavioral control and task performance. While this is only one study, it highlights that there are multiple ways of conceptualizing the relationship between activity level and adjustment outcomes and documents that more needs to be understood about activity level.

New Research Directions

While the correlational studies cited above demonstrate that an association does exist, they do not explain the underlying mechanisms of how high or low activity level and adjustment are related. In addition, more research must account for the documented gender difference in activity level in children to determine the extent to which, if at all, this may account for gender differences in adjustment. Two recent studies, which have explored possible mechanisms to explain the relationship between young children's activity level and adjustment and which have investigated the degree to which gender may be involved, are discussed next.

Graziano, Jensen-Campbell, and Sullivan-Logan (1998) investigated the mechanisms underlying the development of behavioral predispositions (i.e., temperament) to later personality characteristics. The authors posit that children's behaviors will influence parents' and teachers' expectations about future personality

characteristics. This, in turn, will predispose certain responses, perhaps encouragement or discouragement, from caregivers that will then interact with temperament characteristics to shape future behavior. The result is a system of dynamic and transactional interactions among children's behavior, adult expectations, and adult behaviors. The authors suggest that a highly salient and consistent individual difference such as activity level would contribute to a large extent in such a system. For example, the authors hypothesize that high activity level in a child may be seen by caregivers to be predictive of adult extroversion. If this personality style is valued by caregivers, they may engage in behaviors that encourage such behavior, thus increasing the likelihood of its expression. Conversely, if extroversion is not valued by caregivers, they may discourage such behavior. Graziano et al. also suggested that similar behavioral styles will signify to caregivers "different personality characteristics and developmental trajectories" for boys and for girls (p. 1268). That is, the same behaviors will be interpreted differently for boys than for girls and would be seen as indicative of different outcomes. Gender, then, is a potential moderator in the relationship between temperament and later personality. The authors conducted a study to test the hypothesis that teacher reports of activity level would correlate with objective measures of motoric activity level and would predict teachers' expectations about the preschoolers' adult personalities. The authors did indeed find that that high activity level predicted teachers' expectations that boys would be extroverts, but no relationship was found for girls. Unfortunately, actual teacher behavior was not measured. This would be a logical next step in testing their hypotheses. While investigating the relationship between a child's activity level and

others' perceptions of that child's development, Graziano et al. highlight the futility of studying such relationships without considering gender. Further exploration of gender differences in activity level in preschool children, as the current study attempted to do, may provide us with information to better understand the complexities of children's development.

Colder, Mott, and Berman (2002) investigated whether infants' activity level, coupled with level of fearfulness predicted externalizing or internalizing behavior problems later in childhood. While Colder et al.'s study employs a different framework than the proposed study (i.e., Gray's and others' psychobiological model of personality, the relative strength of the behavioral approach system compared to the behavioral inhibition system), the conceptualization and measurement of activity level is consistent with that of the proposed study. The authors hypothesized that high levels of activity and low levels of fear (representing a relatively strong Behavioral Approach System) would predict later externalizing problem behavior and low levels of activity and high levels (relatively strong Behavioral Inhibition System) as predicting internalizing problem behavior. Also relevant to the proposed study is the authors' hypothesis that gender would moderate this relationship, with the relationship between activity level measured in infancy and later problematic behavior being stronger for boys than for girls. Questionnaire data was collected from mothers' of 523 children (47% female, 52.3% Caucasian) during infancy and at 4, 6, and 8 years of age. Low fear and high activity level in infancy predicted externalizing behavior for boys, but not for girls. High fear and low activity level predicted both externalizing and internalizing problems for boys, suggesting that this

pairing may be indicative of an overall lack of behavioral and emotional regulation. Girls classified as having high levels of fear and low levels of activity level in infancy were not found to be more likely to have internalizing or externalizing behavior problems in childhood. In summary, these results suggest that activity level, at least when paired with high or low levels of fearfulness, is associated with later behavior problems for boys, but not for girls. In addition, both high and low levels of activity levels in infancy predicted externalizing behavior problems for boys. Results must be interpreted cautiously as several limitations are noted by the authors such as a complete reliance on parent report and the possible overlap of their measurement of infant activity level with a more general level of reactivity in infancy. Despite these limitations, more longitudinal research with temperament constellations and the effect of gender on these relationships will be invaluable to our understanding of development. The Colder et al. study highlights the complexity of the transactional relationship between temperament and environment and the impact other factors, such as gender, may have on adjustment outcomes.

Rationale for Study

Gender differences in activity level have been well documented in the literature using both "objective" measures, such as actometers, and by comparing the mean scores of rating scales and questionnaires. These methods provide information about quantitative group differences, but do not provide information on the underlying reasons for these group differences. As past research has not investigated gender differences when activity level is conceptualized as composed of two factors, it is unclear whether this difference is the result of variation in Activity level, Activity

Modulation or both. In addition, although group mean differences are reliably found, it is not known whether group differences occur across the activity level continuum or are the result of differences at either extreme. Too little is known about whether parents and teachers respond to active behavior in boys and in girls in similar ways. It may be that gender differences in activity levels result in differing expectations for and interpersonal relationships with boys and girls. It is apparent, therefore, that there are several gaps in our understanding of and measurement of activity level in preschool children. This study sought to address these gaps.

Furthermore, researchers in the field of developmental psychopathology are beginning to discuss the importance of addressing gender specific pathways to pathological outcomes (Colder et al., 2002; Kagan, 2000). While the focus of this study is not pathological behavior it sought to provide information about gender differences occurring in typical development. A better understanding of gender differences in normal development may help to explain why many times the number of boys are diagnosed with ADHD than girls.

Hypotheses and Research Questions

This study addresses each of the areas described above with the research questions and hypotheses described below. It explores gender differences in activity level when conceptualized as being made up of an Activity and Modulation factor. In addition, it looks at transcribed responses to the Structured Temperament Interview to gain information about commonalties and differences that may exist among parent and teacher perceptions of activity level in preschool boys and girls.

Hypotheses #1 and #2

Hypothesis #1 and #2 concern mean differences between preschool-aged boys and girls on the Activity Level and Modulation of Activity Level factors of the STI. Specifically, Hypothesis #1 predicted that, on average, preschool-aged boys will have higher ratings on the Activity Level factor than preschool-aged girls and Hypothesis #2 predicted that, on average, preschool-aged boys will have lower ratings on the Modulation of Activity Level factor than preschool-aged girls

Hypotheses #3 and #4

Hypothesis #3 predicted that mean gender differences in activity level are due to differences in the number of boys and girls with extreme levels (i.e., either very high or very low) of activity. It was predicted that more boys than girls would have high levels of activity level and that more girls than boys would have low levels of activity level. Similarly, Hypothesis #4 predicted that mean gender differences in the modulation of activity level are due to differences in the number of boys and girls with extreme levels (i.e., either very high or very low) of modulation of activity.

Research Question #5

The three commonly used temperament questionnaires included in this study each have an Activity scale. It is unclear the relative degree to which each of these Activity scales measure general activity versus modulation of activity. The relationship of each of these scales to the two factors of the STI was explored.

Research Question #6

The relative degrees to which gender, individual differences in activity, and individual differences in modulation of activity are responsible for individual differences in activity as measured by temperament questionnaires was assessed.

Research Question #7

Parent and teachers' perceptions of activity level in preschool-age children were explored by conducting qualitative analyses of their responses to the Structured Temperament Interview.

The focus of this study is the temperament dimension of activity level only. It is beyond the scope of this study to explore the inter-relations that are documented in the literature between activity level and other dimensions of temperament.

CHAPTER III

Methodology

Introduction

The methodology section will describe population characteristics, procedures followed in data collection, measures used, and analyses of data. The current study uses archival data collected form 1995 to 1997 as part of an ongoing research project exploring current temperament constructs and measures. The following descriptions of the participants and procedures used in collecting this archival data are adapted from a previous description by Erwin (2000).

Participants

Letters inviting participation in the study were sent to parents of all students (approximately 105) who attended an urban, university-based preschool during the years 1995-1996 and 1996-1997. This preschool is characterized by a low teacher-student ratio, highly trained teachers, and a non-referred student population. Classroom structure allows children the choice of many activities. Parents of 63 children consented to participate in the study. There are incomplete data on three students who left the preschool during the course of the study; two students moved out of the area and one student left the preschool. Partial data collected on these three students are included in the analyses. For two of these three students, parent and teacher interviews and teacher questionnaires were complete, but parent questionnaires were not completed. For the other student, parent data were complete, but teacher interview and questionnaires were not completed because the child left the school.

The preschool sample consisted of 31 male and 32 female children ranging in age from 36-78 months. Ethnicity of the sample was 60% Caucasian, 11% Asian, 6% African American, and 5% Hispanic.

Measures

This section describes only the Activity Scales of each measure, as they are most relevant to the present study.

Temperament Assessment Battery for Children- Activity Scale (Martin, 1988)

The TABC is designed to measure temperament characteristics of children three to seven years old and is comprised of three parts; parent and teacher report forms and a clinician form. The parent and teacher forms are composed of 48 Likert scale items that assess the six following temperament variables: Activity, Adaptability, Approach/Withdrawal, Emotional Intensity, Distractibility, and Persistence. Consistent with Thomas and Chess's (1977) conceptualization of temperament, with which this scale has been most closely associated, the activity scale measures motoric vigor. The activity scale on both the parent and teacher forms consist of eight items with a seven-point Likert response format with anchors ranging from "hardly ever" to "almost always". The published manual for the TABC (Martin, 1988) provides reliability statistics for the entire measure. Test-retest reliability for the entire measure over one year is .60 and internal consistency of the parent form, as measured by coefficient alpha, is .75. Internal consistency for the sample used in this study, as measured by coefficient alpha, is .74 and .87 for parent and teacher forms, respectively.

Colorado Child Temperament Inventory (Rowe & Plomin, 1977)

The CCTI is designed to measure temperament characteristics of children one to six years of age from parent report. It consists of 30 items that assess the following six scales: Sociability, Emotionality, Activity, Attention Span, Reaction to Food, and Soothability. Consistent with the conceptual framework of Buss and Plomin (1984), the items that comprise the activity scale assess the tempo and vigor of motor movement. Parents are asked to rate "How much is the child like" behavioral descriptions using a five-point Likert scale ranging from "Strongly agree" to "Strongly disagree". Test-retest reliability over a one-week period is .80. Internal consistency for the sample used in this study, as measured by coefficient alpha, is .30. This value is much lower than the estimates of internal consistency obtained for the other measures, and suggests that the CCTI may be less accurate when measuring activity for this sample. This should be considered when interpreting results of the present study.

Children's Behavior Questionnaire (Rothbart, Ahadi, Hershey, 1994)

The CBQ, a parent-report measure for children ages three to seven years, includes 195 itemsthat measure the following 15 temperament characteristics: Approach/Anticipation, Smiling and Laughter, High Intensity Pleasure, Activity Level, Impulsivity, Shyness, Discomfort, Fear, Anger, Sadness, Soothability, Inhibitory Control, Attention Focusing, Low Intensity Pleasure, and Perceptual Sensitivity. The 13 items that comprise the Activity Scale measure the rate and magnitude of gross motor activity, reflecting the conceptualization of Rothbart and colleagues. Stability of the Activity scale is estimated at .70; internal consistency at

.81. Internal consistency for the sample used in this study, as measured by coefficient alpha, is 77.

Structured Temperament Interview (Teglasi, unpublished)

The STI is comprised of 80 Likert scale items designed to measure the following nine temperament dimensions: Activity, Distractibility, Attention, Emotionality, Approach/Avoidance, Socialibility, Adaptability, Reactivity, and Self-Regulation. Respondents rate each of the 80 items on a five-point Likert scale. The anchors describe fundamental aspects of the trait, not examples of behaviors. For each item respondents are encouraged to provide examples indicating why they selected each rating. The four constructs are measured by one item each comprising the Activity Scale measure the tempo, vigor, frequency, preference, and self-modulation of motor activity. By conducting interviews with both parents and teachers, and by asking respondents to provide their rationale for each rating, a rich measure of the child's temperamental characteristics within the environmental context is obtained.

As briefly mentioned in Chapter Two, previous analysis of the data used in this study has documented a two factor structure of the Activity Scale of the STI, consisting of a Activity- Motoric Movement factor (items 1 and 4) and an Activity-Modulation factor (items 2 and 3) (Miller, 2001). Internal consistency of the Motoric Movement factor for this sample, as measured by coefficient alpha is .56 for parent respondents and .79 for teacher respondents. When corrected for item length using the Spearman-Brown prophesy formula, these values were .86 and .95, respectively. Internal consistency of the Modulation factor for this sample, as

measured by coefficient alpha is .52 for parent respondents and .74 for teacher respondents. When corrected for item length using the Spearman-Brown prophesy formula, these values were .84 and .93, respectively.

Procedure

Parents completed three questionnaires (TABC, CCTI, and CBQ) and participated in a structured interview (STI) with graduate students trained in its administration. Specifically, all graduate student administrators had received training on how to present the purpose of the interview and temperament constructs to teachers and parents. Teachers completed one questionnaire (TABC) and were also administered the STI. All responses were confidential and neither teachers nor parents were informed of information provided by the other respondents. In addition to the quantitative, numerical data provided by all measures, the responses to the STI were transcribed verbatim to allow qualitative analyses of parent and teacher responses as well.

Analyses

Hypotheses #1 and #2

Previous analyses with the archival data that were used in the current study found mean gender differences on a general activity level dimension in the direction (boys more active than girls) expected based on the literature. Specifically, teachers rated boys as more active than girls on both teacher measures, the TABC and STI. In contrast, parents rated boys significantly more active than girls on the TABC, but not on the CBQ, CCTI, or STI (Erwin, 2000). Erwin did not, however, investigate whether mean differences were present when activity level is conceptualized as being

comprised of two factors. The proposed study tested two hypotheses regarding mean gender differences when activity level is conceptualized in this way.

Hypothesis #1 predicted that preschool-aged boys will be rated as more active than girls on the General Activity factor of the STI. Mean scores for boys and for girls on the activity scales of the questionnaire measures and on the General Activity factor of the STI were compared. Similarly, Hypothesis #2 predicted that preschool-aged boys will be rated as modulating their activity level less than preschool girls on the Modulation of Activity factor of the STI. Mean scores for boys and for girls on the Modulation of Activity factor were compared.

Hypotheses #3 and #4

To explore whether gender differences in activity level and in modulation of activity level may be attributable to differing frequencies of extreme ratings, the hypotheses that more boys will be rated as having high activity level and more girls will be rated as having low activity level, and that more boys will be rated as having low modulation of activity were tested. Using the Activity scales of the questionnaire measures, quartile were used as the cutoff values resulting in four discrete levels of activity for each measure. For the STI, the cutoff points for categories were developed from the anchors of the Likert scale. Specifically, the two lowest anchors, 1 and 2, were collapsed to form the Low Activity and Modulation of Activity categories, the middle anchor, 3, formed the Middle Activity and Modulation of Activity categories; and the two highest anchors, 4 and 5, were collapsed to form the High Activity and Modulation of Activity categories. A Chi-square analysis tested whether the proportion of boys and girls in each discrete category differs significantly

from random expectation. When a chi-squared distribution was significant, the adjusted standardized residuals within the cells of the contingency table were used to determine where the significant differences occurred (Argesti, 1996).

Research Question #5

The extent to which each of the questionnaire measures measure activity level versus modulation of activity level was assessed. The degree to which each of the Activity- Motoric Movement and Activity- Modulation factors correlate with the Activity Scales of each of the questionnaire measures was determined.

Research Question #6

The relative degree to which gender, individual differences in activity, and individual differences in modulation of activity are responsible for individual differences in activity as measured by temperament questionnaires were assessed by computing partial correlation coefficients for each pair. These analyses measure the strength of the relationship between activity level or modulation of activity level, as measured by the STI, and ratings on activity scales of each of the questionnaire measures when other factors are controlled for.

Research Question #7

To gain better understanding of how parents and teachers conceptualize activity level in children and to determine whether parent and teacher descriptions of activity level differ for boys and for girls, the verbatim transcripts of parent and teacher responses to the four items on the Activity Scale of the STI were explored. Parent and teacher responses to these items were transcribed verbatim as part of an earlier study and were provided by that study's author (Erwin, 2000). The coding

scheme consisted of conceptual categories drawn from two sources: (1) the literature on activity level in preschool children and (2) comparative analysis of the transcribed interviews themselves. First, in reviewing the literature, several constructs (e.g., behavioral difficulties, parental attributions, context, etc.) appear to be relevant to activity level in children. These constructs served to guide qualitative exploration of the data. Subsequent reading of the responses led to identification of the actual categories, which are: context, nature of activity, trait, and intervention. These four categories were sufficient to classify all of the responses. Strauss and Corbin (1998) describe the process of comparative analysis as "each incident is compared to other incidents at the property or dimensional level for similarities and differences and is grouped or placed into a category" (p. 78). This type of conceptual ordering is not necessarily done to quantify qualitative data, but to clearly organize data into distinct categories that can then be described. Responses were read without regard to respondent or gender and recurring themes were noted. Responses were not coded at the level of broad descriptive categories, not specific details. For example, a response was coded as to whether it described the activity the child was engaged in (Nature of Activity) or not. The specific activity (e.g., "puzzle" vs. "blocks" vs. "running") was not the focus of investigation. Coding was conducted by the study's author and her research advisor, and interrater reliability was established. Investigation of gender differences was then conducted at the level of these descriptive categories.

CHAPTER IV

Results

Introduction

Some of the results presented in this section replicate previous findings while others seek to extend these findings. The exploration of correlations among the STI Activity Scale factors and questionnaire measures, and the qualitative analysis of parent and teacher responses on the STI in relation to gender differences are unique to this study. The first section of the chapter (Hypotheses #1 - #4) presents mean gender differences in activity level and explores the nature of these differences. The second section (Research Questions #5 and #6) considers the relationship among the Activity factors of the STI and the Activity scales of questionnaire measures. The final section (Research Question #7) pertains to qualitative and descriptive analysis of parent and teacher responses on the STI.

Gender Differences in Activity Level

Hypothesis # 1

It was predicted that preschool-aged boys are more active than girls. An analysis of variance (See Table 1.) was conducted to determine whether or not this difference was present in the sample. A previous study, Erwin (2000), analyzed the Activity scales of questionnaire measures (CCTI, TABC, CBQ) and each of the four questions on the Activity scale of the STI separately and found that boys were more active than girls when rated by teachers, but not when rated by parents. Further examination of the data, conducted for the present study, analyzed the STI data when questions 1 and 4 were collapsed to form the Activity- Motoric Movement factor.

Support for Hypothesis #1 was found on three of four measures. For all measures, even when results were not statistically significant, males were rated as having higher levels of activity. The effect of gender on activity scale ratings range from medium to large. Assumptions of normality for these data were met.

Hypothesis #2

An analysis of variance (see Table 2) was conducted to test the prediction that preschool-aged boys would be rated as modulating their activity level less than would girls. Note that items 2 and 3 from the STI were collapsed to form the Activity-Modulation factor. Similar to results for Hypothesis #1, a gender difference was present on the STI Activity-Modulation factor for teacher ratings, but not parent ratings. Specifically, when rated by teachers, more boys were rated as having lower levels of modulation of activity level than were girls. Gender differences in modulation of activity level are present when rated by teachers, but not by parents. As with Motoric Movement factor, the effect of gender on the modulation factor of the STI was large.

Thus on both STI Activity factors, Activity-Motoric Movement and Activity-Modulation, support was found for the hypotheses that boys are more active than girls was found. This finding supports the position that the gender difference in activity level, well-documented in the temperament literature, is the result of differences in both the degree of motoric movement and the degree of modulation.

Hypothesis #3

To explore whether or not mean gender differences in activity level are the result of gender differences along the motoric movement continuum or a function of differences at the extremes, a chi-square test was conducted on the frequency of

preschool children in discrete categories: Low, Medium, and High. It was predicted that more boys than expected would be rated in the High category, and that more girls than expected would be rated in the Low category. This hypothesis was tested first, with the questionnaire measures (CBQ, CCTI, and TABC) and second, with the STI.

Table 1.

Means and Standard Deviations for Gender Effects on Activity Level in Preschool Age Children

	Male		Female		ANOVA		
Measure	M	SD	M	SD	F	P	η^2
CBQ	5.30	.67	4.80	.83	6.56	.01	
CCTI	3.87	.48	3.80	.63	.27	.61	.01
TABC (parent)	3.70	.80	3.24	.90	4.46	.04	.07
TABC (teacher)	4.62	1.43	3.47	1.20	12.02	.01	.17
STI Activity-Motoric Movement factor (parent)	3.83	.70	3.53	.78	2.56	.12	.04
STI Activity-Motoric Movement factor (teacher)	3.90	.88	3.05	.69	18.72	<.01	.24

Table 2.

Means and Standard Deviations for Gender Effects on Modulation of Activity Level

	Male		Female		ANOVA		
Measure	M	SD	M	SD	F	P	η^2
STI Activity-Modulation factor (parent)	4.17	.62	4.36	.46	1.94	.17	.03
STI Activity-Modulation factor (teacher)	3.51	.86	4.20	.56	14.21	.00	.19

Questionnaire Measures

For the questionnaire measures, categories were created based on quartile cut-offs of the Activity scale scores (see Table 3). On the questionnaire measures, the frequencies in the discrete categories were found to be significantly different from expectations when rated by teachers, but not by parents. Specifically, when teachers were respondents (TABC), significantly more boys than expected (adj. residual = 3.1, $p < .01$) were rated in the fourth quartile (above the 75th percentile) and significantly more girls than expected (adj. residual = 2.5, $p < .05$) were rated in the first quartile (below the 25th percentile). None of the parent-rated measures showed significant departure from expectations. This finding indicates that mean differences in motoric movement found in teacher ratings on the TABC, are indeed the result of differences at the extremes of this continuum. Furthermore, it can be said that mean differences are not the result of differences in the middle range of activity level. Results of an

ANOVA comparing the mean values of scores falling in the second and third quartiles indicated no gender difference (M=3.97, F=3.78, F=.650, df=1, p=.426). Gender differences were not expected in the mid-range of the activity level continua, and this finding suggests strongly that the average boy and girl do not differ on activity level.

Structured Temperament Interview

For the STI Activity- Motoric Movement factor, discrete categories of Low, Medium, and High were created. For the Low category, Likert scale ratings of 1 and 2 were collapsed. The Medium category consisted of Likert scale ratings of 3. For the High category, Likert scale ratings of 4 and 5 were collapsed. In order to carefully examine where actual differences in frequencies occurred along the continuum, each item of the STI was analyzed individually. Indeed, on the questions that comprise the STI Activity-Motoric Movement factor, results varied depending on the question asked (See Table 4.). In response to Question #1 (How active is this child?), frequencies of children classified as Low, Medium, or High were not significantly different from expectation for boys and for girls when rated by parent or teacher respondents. In response to Question #4 (preference for high or low activity tasks), however, frequencies of children classified as Low, Medium, or High were significantly different from expectations for both boys and girls when rated both by parents and by teachers. Specifically, significantly more boys than expected were rated as preferring high activity level tasks (z-scores calculated as the adj. residual = 4.2, $p < .01$) and significantly fewer boys than expected were rated as preferring low

Table 3.

Frequencies of Children in Discrete Categories along the Activity Level Continuum as Measured by Questionnaires

		Frequencies per Level					
Item	Gender	1	2	3	4	X^2	p
CBQ (parent)						4.16	>.2
	Male[a]	4	6	10	9		
	Female[b]	10	9	7	6		
CCTI (parent)						5.59	>.1
	Male[a]	7	7	5	10		
	Female[b]	8	2	12	10		
TABC (parent)						2.70	>.2
	Male[c]	5	7	6	11		
	Female[b]	10	7	8	7		
TABC (teacher)						13.26*	< .01
	Male[c]	3	5	9	13		
	Female[d]	12	10	8	3		

Note. [a]n=29. [b]n=32. [c]n=30 [d]n=33. *phi =.45

Table 4.

Frequencies of Children in Discrete Categories along the Activity- Motoric Movement Continuum as Measured by the Structured Temperament Interview

		Frequencies per Level				
Item	Gender	Low	Medium	High	χ^2	P
Question 1: General Activity Level (Parent)					.460	>.20
	Male [a]	1	5	24		
	Female[b]	2	4	26		
Question 1: General Activity Level (Teacher)					5.89	>.05
	Male[a]	3	7	20		
	Female[c]	5	16	12		
Question 4: Preference for quiet or active tasks (Parent)					9.83*	< .01
	Male [a]	1	13	16		
	Female[b]	11	11	10		
Question 4: Preference for quiet or active tasks (Teacher)					19.29**	< .001
	Male[a]	2	9	19		
	Female[c]	12	17	4		

Note. [a] n=30. [b]n=32. [c]n=33 *phi=.40 **phi=.55

activity level tasks (z-scores calculated as the adj. residual = 2.8, $p < .01$). In addition, when rated by parents, significantly fewer boys than expected were rated as preferring quiet activities (adj. residual = 3.1, $p<.01$). Results indicate that the gender difference in preference for high or low activity level tasks is the result of differences at the extreme levels of this continuum.

Hypothesis #4

To explore whether or not mean gender differences in modulation of activity level are the result of gender differences at the extremes of the activity level continuum, a chi-square test was conducted on the frequency of preschool children in discrete categories: low, medium, and high (see Table 5). For the Low category, Likert scale ratings of 1 and 2 were collapsed. The Medium category consisted of Likert scale ratings of 3. For the High category, Likert scale ratings of 4 and 5 were collapsed. It was predicted that more boys than expected would be rated in the Low Modulation of Activity category. In response to Question #2 of the STI (Modulation of AL), frequencies of children classified as Low, Medium, or High were significantly different from expectations for boys and for girls when rated by teacher respondents, but not when rated by parents. Specifically, for both boys and girls, fewer children than expected fell in the Low category. In addition, more girls than expected fell in the High category. Chi-square analysis of Question #3 (Modulation of AL when motivated), could not be conducted due to frequencies of zero in the Low category of this question. Further analysis of this finding is discussed later in the qualitative results section of this chapter.

Table 5.

Frequencies of Children in Discrete Categories along the Modulation of Activity Level Continuum as Measured by the Structured Temperament Interview

		Frequencies per Level				
Item	Gender	Low	Medium	High	χ^2	p
Question 2: Modulation of AL (parent)					1.43	>.20
	Male [a]	1	6	23		
	Female[b]	1	3	28		
Question 2: Modulation of AL (teacher)					15.74*	< .01
	Male[a]	6	16	8		
	Female[c]	1	7	25		
Question 3: Modulation of AL when motivated (parent)					n/a	
	Male [a]	0	3	27		
	Female[b]	0	0	32		
Question 3: Modulation of AL when motivated (teacher)					n/a	
	Male[a]	2	5	23		
	Female[c]	0	2	32		

Note. [a] n=30. [b]n=32. [c]n=33. *phi=.50

Relationships among Measures

Research Question #5

Given that questionnaires are the standard measurement technique for assessing activity level in children, the relative degree to which they each measure motoric movement and modulation of activity was explored. In order to assess the extent to which each of the questionnaire measures measure motoric movement versus modulation of activity, as conceptualized by the STI, correlation coefficients were calculated among each of these factors on the STI and the Activity Scales of the questionnaire measures (See Table 6.). For parent ratings, the Activity-Motoric Movement factor of the STI was found to be positively correlated with the Activity scales of the TABC, CCTI, and CBQ. In addition, the Activity-Modulation factor of the STI was found to be negatively correlated with the Activity scales of the TABC, CCTI, and CBQ. Similarly, for teacher ratings, the Activity-Motor Movement factor of the STI was positively correlated with the Activity Scale of the TABC and the Modulation of Activity factor was negatively correlated with the Activity Scale of the TABC. These findings indicate that the Activity scales of the questionnaire measures assess both motoric movement and modulation of activity level, as conceptualized by the STI. The strength of the associations among the STI factors and questionnaire measures varied, indicating that different questionnaires measure varying degrees of motoric movement and modulation of activity. Research Question #6, discussed next, further documented these relative differences.

Table 6.

Correlations among Activity Level and Modulation of Activity Level Factors of the STI and Activity Scales of Questionnaire Measures

Factor	Measure		
	CBQ	CCTI	TABC
		Parent	
Activity Level	.549*	.510**	.351**
Modulation of Activity Level	-.267*	-.260**	-.384**
		Teacher	
Activity Level	n/a	n/a	.728**
Modulation of Activity Level	n/a	n/a	-.577**

Note. **p < .01. *p < .05.

Table 7.

Partial correlations among the Activity-Motoric Movement and Activity-Modulation factors of the STI and the Activity scale of the CBQ

Factor	Control Variable	Partial Correlation	df	p
Activity- Motoric Movement				
	Gender	.52	57	.00
	Modulation Factor	.56	57	.00
	Gender and Modulation Factor	.53	56	.00
Activity-Modulation				
	Gender	-.22	57	.09
	Motoric Movement Factor	-.29	57	.03
	Gender and Motoric Movement Factor	-.26	56	.05

Table 8.

Partial correlations among the Activity-Motoric Movement and Activity-Modulation factors of the STI and the Activity scale of the CCTI

Factor	Control Variable	Partial Correlation	df	P
Activity- Motoric Movement				
	Gender	.51	57	.00
	Modulation Factor	.52	57	.00
	Gender and Modulation Factor	.52	56	.00
Activity-Modulation				
	Gender	-.25	57	.05
	Motoric Movement Factor	-.28	57	.03
	Gender and Motoric Movement Factor	-.29	56	.03

Table 9.

Partial correlations among the Activity-Motoric Movement and Activity-Modulation factors of the STI and the Activity scale of the TABC for Parent Respondents

Factor	Control Variable	Partial Correlation	df	P
Activity- Motoric Movement				
	Gender	.31	57	.02
	Modulation Factor	.36	57	.01
	Gender and Modulation Factor	.33	56	.01
Activity-Modulation				
	Gender	-.35	57	.01
	Motoric Movement Factor	-.39	57	.00
	Gender and Motoric Movement Factor	-.37	56	.00

Table 10.

Partial correlations among the Activity-Motoric Movement and Activity-Modulation factors of the STI and the Activity scale of the TABC for Teacher Respondents

Factor	Control Variable	Partial Correlation	df	P
Activity- Motoric Movement				
	Gender	.67	60	.00
	Modulation Factor	.73	60	.00
	Gender and Modulation Factor	.72	59	.00
Activity-Modulation				
	Gender	-.49	60	.00
	Motoric Movement Factor	-.58	60	.00
	Gender and Motoric Movement Factor	-.59	59	.00

Research Question #6

To assess the amount of variance on the Activity scales of the questionnaire measures explained solely by each of the Activity factors on the STI, partial correlations were computed for each pair (i.e., CBQ and Activity-Motoric Movement, CBQ and Activity-Modulation, CCTI and Activity-Motoric Movement, CCTI and Activity-Modulation, TABC and Activity-Motoric Movement, TABC and Activity-Modulation). Partial correlation is a measure of the unique contribution to the variation in a dependent variable contributed by a variable when all other relevant variables are controlled for. The partial correlations between each of the STI Activity factors and the Activity scale of the CBQ, when controlling for the other STI Activity factor and for gender are presented in Tables 7-10. Both of the factors continued to be significantly correlated with Activity scale of each questionnaire measure. Furthermore, the partial correlations were very similar to the first order correlations. These findings indicate that each variable (gender, STI Activity-Motoric Movement, and STI-Modulation) contributes independently to variance in the questionnaire measures. This finding is not unexpected given the low correlation between the two factors of the STI for both respondents (for parents $r = -.057$, $p = .62$; for teachers $r = -.268$, $p = .034$).

<u>Analysis of Responses on the Activity Scale of the STI</u>

Research Question #7

To explore parents and teachers' perceptions of activity level in preschool-aged children, descriptive categories were developed and the transcribed interviews

were coded for each child. Gender differences were then assessed at the level of the descriptive categories.

Coding of Qualitative Data

The qualitative data consisted of the descriptions accompanying parent and teacher Likert-scale ratings on the STI. Only one of two items of each factor was explored in this manner. Interrater reliability was initially measured at .75. After review and clarification of descriptive categories, interrater reliability rose to .85. Each description was viewed in regard to following categories, defined below: context, nature of activity, trait, and intervention. A binary coding scheme (1=present, 0=not present) was used to indicate whether these categories were present or not in the description. Most descriptions included more than one category.

1. Context

Descriptions were coded positive for context if respondents discussed the child's activity as occurring within a particular context, either internal or external. For example, the following descriptions were coded positive for context:

"not extremely [active], unless he's tired.", and

"When he's outside, really runs and everything, [but] in the room, tends to be more sedate."

2. Nature of Activity

Descriptions were coded as positive for nature of activity if respondents described the activity in which the child engaged. For example, the following descriptions were coded positive for nature of activity:

"moves around a lot, runs in the room", and

"likes physical activity, likes to dance, if there's music on she'll dance", and

"sometimes watches TV, If he's watching TV, he's grasping everything like a little sponge, soaks up everything tends to be busy."

3. Trait

Descriptions were coded positive for this characteristic if respondents attributed a stable characteristic to the child while discussing their activity level. This was usually accompanied by a degree of inference on the part of the respondent as to the purpose of or reason behind a child's behavior, as in the following examples:

"very social", and

"not a morning person", and

"just a motor- a high energy kid".

4. Intervention

Descriptions were coded positive for Intervention when the respondent identified either an action on the part of someone else or modification of the environment (external regulation) in response to the student's activity level. For example:

"I have to talk him into indoor playing instead of outdoor playing because it's uncomfortable, this jumping around.", and

". . needs an adult to say you need to take your jacket off, you need to do this . . ."

Results

After each respondent's descriptions were coded as present or not present (1 or 0) on the four categories described above, frequencies were computed. Data were examined and summarized to determine whether any relationship existed between the variables of gender and respondent and the frequencies of the descriptive categories

(context, nature of activity, trait, and intervention). Chi square analyses were conducted to determine statistical significance of any such relationships.

Chi square analyses comparing frequencies of coding category dependent upon respondent were not significant. Chi square analyses comparing frequencies of coding category dependent upon gender were not significant either. These findings suggest that parents and teachers describe children's activity level using similar constructs. When describing a child's activity teachers are as likely to talk about context, trait, or intervention as are parents. In addition, respondents described both genders using similar constructs. Respondents are as likely to discuss context, trait, and intervention when describing the activity of boys and girls.

The only variable that had a significant relationship with any of the categories coded for responses was the item on the STI Activity scale (See Table 11.). Specifically, when respondents were parents, context was coded 78% of the time when describing modulation of activity, as compared with only 51% of the time when describing motoric movement (x^2=8.56, df =1, $p < .01$). In addition, trait was coded 24% of the time when discussing motoric movement, as compared with only 7% of the time when describing modulation of activity (X^2 = 5.45, df = 1, $p <.02$). The same pattern was observed when teachers described children's behavior. When respondents were teachers, context was coded 81% of the time when describing modulation of activity, but only 51% of the time when describing motoric movement (X^2 = 11.08, df = 1, $p < .001$). In addition, trait was coded 35% of the time when discussing motoric movement, but only 9% of the time when describing modulation of activity (X^2 =11.04, df = 1, $p < .001$). In contrast, the percentage of responses

coded for nature of activity and intervention were not significantly different when describing motoric movement or modulation of activity when rated by either respondent.

Descriptive Analysis of Modulation of Activity

Recall from earlier in the chapter that frequency counts for children rated in discrete categories on the STI questions were compiled and presented in Tables 4 and 5. On Items 2 and 3 of the STI, both of which make up the Activity- Modulation factor, extremely low frequencies were found for some cells (See Table 5). For both boys and girls, the number of children that fell within the Low range was much lower than expected. Presented in Table 13 are parent and teacher responses for all of the children rated in the Low category on item 2. Similarly, Table 14 contains the parent and teacher responses for all children rated in the Low category on Item 3. Descriptive analyses follow.

Table 11.

Frequency of Parent Responses Containing Coding Categories for STI Items 1 and 2

Coding Category	Item	Category Present Y	N	Total	X^2	p
Context					8.56*	.01
	#1: How active is this child?	28	27	55		
	#2: Modulation	42	12	54		
	Total of #1 and #2	70	39	109		
Nature of Activity					3.83	.1
	#1: How active is this child?	48	7	55		
	#2: Modulation	39	15	54		
	Total of #1 and #2	87	22	109		
Trait					5.45**	.02
	#1: How active is this child?	13	42	55		
	#2: Modulation	4	50	54		
	Total of #1 and #2	17	92	109		
Intervention					1.71	.2
	#1: How active is this child?	7	48	55		
	#2: Modulation	12	42	54		
	Total of #1 and #2	19	90	109		

*phi=.28 **phi=.22

Table 12.

Frequency of Teacher Responses Containing Coding Categories for STI Items 1 and 2

Coding Category	Item	Category Present Y	N	Total	X^2	P
Context					11.08*	.001
	#1: How active is this child?	28	27	55		
	#2: Modulation	46	11	57		
	Total of #1 and #2	74	38	112		
Nature of Activity					1.77	.2
	#1: How active is this child?	47	8	55		
	#2: Modulation	43	14	57		
	Total of #1 and #2	90	22	112		
Trait					11.04**	.001
	#1: How active is this child?	19	36	55		
	#2: Modulation	5	52	57		
	Total of #1 and #2	17	88	112		
Intervention					1.71	.2
	#1: How active is this child?	4	51	55		
	#2: Modulation	9	48	57		
	Total of #1 and #2	13	99	112		

*phi=.31 **phi=.31

Table 13.

Parent and Teacher Responses Falling in the Low Category on Item 2 (Modulation of Activity Level) on the STI.

Respondent	Gender	Interview Responses
Teacher (n=7)		
	Boys (n=6)	Certain situations, like when we're cleaning up, we would try to calm him down in **circle time.** He's a little bit more low-keyed when we're taking nap, or we get close to take nap. He's still active. When I think about him, it tends to be slow. No matter what the situation is, even his motor. He has to think about how to move, how to do it. At four he needs to be faster, and he's not. You consider the verbal activity, you have to keep after him during **story time**. Keep talking to him. We still see action, usually I have to change the whole group because of him. Like at **circle time**, almost never, very active and his attention does not seem to focus on anything group situated. **Circle time**. Usually spins around, rocks back and forth, puts his hands down his pants, usually is moving and bopping peers with is hands. [He] is usually asked to leave. We have a special bench outside in the hall with a big stuffed animal. Needs to be really hands on all the time. In **circle time**, it's hard because there's nothing that he can touch or feel. When he's touching and feeling, he's fine. When he's engaged in an activity he's fine. A lot of his reactions would be governed by some of the issues he's dealing with. It depends upon the activity, if it's something that doesn't involve things, fine. He will stand out from the group. If you observe him in the same kind of situations over time, you'll get a sense that his reactions are different.
	Girls (n=1)	During a **circle time** she will move all over the place or crawl around. [She] doesn't like to sit for **circle time**.
Parent (n=2)		
	Boys (n=1)	If it's something he wants to do, like a puzzle, he can sit there. Like in church, or banquet, he sat there but he was moving,

	spinning in the chair. Really hard for him. He can do it if he wants to.
Girls (n=1)	Is loud, has a hard time being quiet. Tries so hard, [but] just has a full voice. It just doesn't work. At the movie theater, we try and hope that the movie's not too crowded.

Considering the responses presented in Table 13, modulation of activity level seems to refer to children's ability to decrease their activity level to meet situational demands; all but one of the descriptions described children being too active for situations. For all responses, low modulation of activity level was disruptive or maladaptive. Respondents describe problems resulting from children being too active when participating in quiet, focused, group activities. A prime example is circle or story time, which was mentioned by five of the seven teacher respondents.

Comparing the responses presented in Table 14 to responses falling in the medium or high modulation of activity categories on Item 3 suggests that modulation when motivated is related to preference for activities. Parents and teachers infer children to be motivated when they are engaging in preferred activities. Responses in the Medium and High categories suggest that when children are engaged in activities of their choosing, their activity level matches that of their peers and the expectations of adults. Examining the responses in Table 14 suggests that the children falling in the Low category are also able engage in appropriate activity level when engaged in a preferred activity. For both children, however, teachers described only one activity that children engaged in appropriately. Perhaps, then, children considered to have low levels of modulation of activity when motivated have a more restricted range of

activities in which their activity level matches that of their peers and the expectations of adults.

Table 14.

Parent and Teacher Responses Falling in the Low Category on Item 3 (Modulation of Activity Level when Motivated) of the STI

Respondent	Gender	Interview Responses
Teacher (n=2)		
	Boys (n=2)	Follows other children. Blocks. If he's able to control that activity and if he's involved. If it's something he's interested in, an activity like blocks. He can work in blocks forever. He'll be sustained for a good 30 minutes.
	Girls (n=0)	
Parent (n=0)		

CHAPTER V

Discussion

Introduction

Gender differences in Activity Level are well documented in the temperament literature. Indeed of all the temperament constructs, Activity Level is the only one for which gender differences are reliably and robustly found (Martin, Wisenbaker, Baker, & Huttunen, 1997). In addition, many people have observed first-hand the difference in activity level between young boys and young girls. Spend time around young children at a playground or in a preschool classroom, and gender differences in activity level seem readily apparent. Perhaps because of the ample empirical and anecdotal evidence that boys are more active than girls, in-depth exploration of the phenomenon is lacking in the literature. This study contributes, therefore, to the existing temperament literature by taking a closer look at gender differences along the activity level continuum, by considering differences when activity is conceptualized as having two components (Motoric Movement and Modulation), and by exploring open-ended interview data. In the course of this study, not only was the effect of gender on children's activity level explored, but more general questions regarding measurement of the activity construct were addressed. In this latter vein, the study was influenced by the work of Erwin (2000), Miller (2001), and Rothman (2003), and Teglasi (1998), and their stated goal of clarifying of how temperament constructs are conceptualized and measured.

Findings

Gender Differences in Activity Level

Mean differences in the expected direction (boys more active than girls) were found both on questionnaire measures and on the STI. This finding was more robust for teacher respondents than for parents. That gender effects were significant for teacher ratings, but less so for parent ratings is not without precedent in the literature. Martin (1988) and Schoen and Nagle (1994) report gender differences on the teacher form, but not the parent form, of the TABC. A mean gender difference (girls higher modulation than boys) was also found in modulation of activity level, but only when teachers were respondents. The current study went beyond merely replicating previous studies documenting a gender difference by exploring whether this difference is the result of gender differences along the activity level and modulation of activity level continua or at their extremes.

Regarding motoric movement, differences at the extremes of the continuum were found only when with the teacher as respondent. Significantly more boys than girls were rated as having high levels of motoric movement, and significantly more girls than boys were rated as having low levels of motoric movement. Specifically, 43% of boys fell in the High category compared with only 9% of girls, and 36% of girls fell in the Low category compared with only 10% of boys. These findings suggest that, at least for teacher ratings, gender differences at the extremes of the activity level continuum are responsible for mean gender differences. It is not that the average boy is more active than the average girl, but that there more very active boys than girls. The gender difference in motoric movement also appears to be a

function of the types of tasks (quiet or active) that boys and girls engage in. Parents rated over half of the boys as preferring to engage in active tasks and only one as preferring quiet tasks. Similarly, teachers rated more boys than girls as preferring active tasks (63% of boys compared with 12% of girls) and more girls than boys as preferring quiet tasks (36% of girls compared with 6% of boys). Given that most children are able to modulate their activity level to tasks demands, as discussed in the next paragraph, and that more boys than girls are engaging in active tasks, it makes sense that boys are observed to be more active than girls. Based only on these results, however, it is not possible to say whether children gravitate to tasks that suit their predisposed activity level or they modulate their activity level to suit task demands. As with many adaptive natural phenomena, the association is likely transactional in nature.

Regarding modulation of activity level, significantly more girls than boys were rated by their teachers as exhibiting a high level of modulation of activity. Specifically, 75% of girls were rated as having high levels of modulation compared with only 27 % of boys. In addition, very few children were rated as exhibiting a low level of modulation. Only 11% of boys and girls fell within the Low category. This finding is even more pronounced when children are “motivated” to modulate their activity.

Descriptive analysis of parent and teacher responses on the STI suggests that low modulation of activity level is problematic and maladaptive. This is consistent with the documented association between low levels of regulation across temperament constructs and difficulties with adjustment (Sanson, Overklaid, Pedlow,

& Prior, 1991). In addition, modulation was almost always described as a child decreasing his or her activity level to meet situational demands. One might posit that, in general, teachers place more task demands on children than do parents due to the classroom environment and the educational process. Perhaps this explains why activity level seems to be more salient for teachers than for adults. Teachers likely have more opportunity than parents to witness children's ability to modulate their activity level to situational demands.

Qualitative and descriptive analyses of the open-ended responses provided by parent and teachers on the STI Activity- Motoric Movement and Activity-Modulation factors suggest that the gender differences discussed above are not the result of gender bias on the part of the respondents. The frequencies with which respondents used the descriptive categories of context, nature of activity, trait, and intervention did not differ between boys and girls. To the extent that the descriptors used by respondents when describing children's activity level can be thought of as markers of the way they (respondents) conceptualize activity, parents and teachers appear to be thinking similarly when describing activity level for boys and for girls.

Measurement

This study provides support for the conceptualization of activity level as being comprised of two factors. The fact that gender differences were found in one direction of the motoric movement factor and the opposite direction on the modulation factor, suggests that these factors measure two separate concepts. The fact that they differ in the directions consistent with expectations based upon theory lends further validity to this construct. The low correlation between the two factors

of the STI is evidence that the two constructs do not merely constitute the polar ends of the same continuum.

Additional support for the two factor composition was found in the correlational analyses comparing the STI factors with the Activity scales of the questionnaire measures. The activity factor on the STI is significantly correlated with the activity scales of the CBQ, CCTI, and TABC. The modulation of activity factor is also significantly correlated with the Activity scales of the questionnaire measures, but in the opposite direction and to a lesser degree. In general, then, the questionnaire measures measure preschool children's motoric movement to a greater extent than the degree to which they measure modulation of activity. In addition, the degree to which each factor of the STI uniquely contributed to the variance of the questionnaire measures, when gender and the other factors were controlled for, did not differ from the first order correlations between the two variables. Motoric movement and modulation of activity seem to contribute independently to activity as measured by the questionnaire measures.

The final set of findings supporting a two factor conceptualization of activity includes the results of the qualitative analysis of the STI. The extent to which respondents described context, nature of activity, trait and intervention when describing children's activity did not differ for boys and girls. The use of these descriptors did not vary between respondents either. That is, parents and teachers used context, nature of activity, trait, and intervention to the same degree when describing both boys and girls. It appears the degree to which the STI measures activity is not confounded by respondent or gender.

Differences in the frequencies of two of these descriptors (context and trait) were present when the two items of the STI were compared. Specifically, context was present in 77% of responses describing a child's modulation of activity, but was present in only 51% of responses describing a child's motoric movement. This finding is not surprising given that modulation of activity can be thought of as the appropriateness of activity level to situational demands. In addition, descriptions of activity level as a trait were present in 24% of responses describing children's motoric movement, but were present in only 8% of responses describing children's modulation of activity. Perhaps respondents consider modulation as a component of activity that children exercise some control over. Remember that parents and teachers considered most children to be able to do this.

Limitations

There are limits to the generalizability of the results of this study. The findings pertaining to gender effects and measurement issues can only be applied to the preschool population. While literature shows that gender differences become more pronounced with age (Eaton & Enns, 1986), it is impossible to know whether or not the same mechanisms underlying gender differences posited by this study would hold true at any other developmental stage. The importance of context was emphasized throughout this study. At the particular school from which the sample pool was drawn class and play time is relatively unstructured; circle time/story time is probably the most structured part of the day. To the extent that other preschool classroom environments might be more structured, results would be expected to differ.

The primary statistical conclusion validity threat is small sample size. Small sample size increased the likelihood of type I error and prohibited all together the quantitative analysis of some data.

Applications

The importance of context on the expression of children's temperament necessitates that activity be assessed with information provided by multiple informants, preferably teachers and parents. Instead of being concerned with discrepancies between different raters, evaluators should embrace them as being indicative of a natural phenomenon. Children's motoric movement and modulation of activity is significantly impacted by context. Since parents and teachers observe children in different settings, differences in ratings are expected. The qualitative analyses of responses to the STI suggests that parents and teachers, in general, are not conceptualizing children's activity level differently, but are simply observing different behaviors in different settings. Using this framework as a guide, clinicians can facilitate home school communication and better integrate their assessment results.

The preschool classroom is, arguably, the least structured learning environment (compared with later grades). Yet even in this environment the expectation clearly exists that children can and will modulate their activity level to match situational demands. When children do not do so, it is disruptive to group activities and viewed as problematic by teachers. Common interventions, such as time out, segregate children from their peers and/or remove them from the learning environment. Alternative interventions, for example for children who are at the

higher end of the normal activity level continuum, might focus instead on modifying the learning environment to meet the needs of individual children. Such interventions should focus not on reducing a child's activity level, but on increasing the likelihood that his or her activity level will match situational demands. One way this might be done is to modify the child's environment in such a way as to "set him or her up" for success. For example, parents or teachers of a child with a high activity level may encourage and facilitate a child to play with other high activity level peers. Also, parents of such a child may select a school where there are fewer demands for "quiet" low activity play and learning.

APPENDIX

Parent and Teacher Responses on the Structured Temperament Interview- Activity Scale

Question #1

CODE	1	2	3	4	5
1001		active full of life, probably falling into the average category but in his nature he's very bright like he seems to shine and there's a wonderful vitality to him			
2001		between one and two, extremely active seems to imply a negative thing, he's very appropriately extremely active, the only time that there's a a undersirable level of being very acitveis when he's tired, at lunch time, after lunch time he			
		self-control, is more impulsive and over active, lack of control, he's usually very able to focus, he's a very active child but really in a positive sense, appropriately active except as I said when the tiredness factor comes in when he kind of loses			
		control, not cranky at all, extremely happy, extremely active, unable to control and moderate his activity to be appropriate at the lunch table running around, throwing, but happy, some children get that way when they're tired and he's one of them			

1002		fairly active, not extremely, unless he's very tired, he's moving, he's climbing and stuff, he's building things, he's running around, hopping from spot to spot, does focus and do stuff with Lego, stay on task but keeps himself busy quite often			
		moves around a lot, doesn't seem to make a difference where, same everywhere			
2002			varies tremendously with situation, if it's something real active outside running around even within those situation, he's comfortable with the children, he'll be extremely active, if something about it bothers him, or he has a concern, he'll be withdrawn		
			in a lot of things, he'll be average, it really depends on sensory integration issues really affect b/c there are social areas it impact and there are also a lot of tasks, lot of skills that behaviors will be different		
1003		active, at times choice 1 but generally choice 2, when he hasn't had a chance to get out, bad weather, during times when he's playing w/ his brothers, that makes him very excited at times, generally #2			

2003	extremely active, up and about during group time, can't sit still, very involved, participates a lot, chooses the more active centers like blocks building cars, constantly circulating around the room, very sociable, movements are very acrobatic,				
	can see the way he moves, has good controlof his body so he has a lot of energy, nap time he used to nap but lately he's been up, sits up, likes to look to see what others are doing				
2004	running aound, very much a runner, climbs, likes to hop, skip, has a tough time sitting still in the circle, outside you can definitely see the energy, in high gear all the time, runs in the room when she first comes in, always running through the door				
1005		not uncomfortable active, but active, wants to move a lot and sometimes he gets quite agitated, rushes to the place, I have to talk him into indoor playing instead of outdoor play b/c it's uncomfortable, this jumping around, likes to play outside a lot			
		didn't see too much of sports, maybe his age, but not into kind of group, don't go too much with the rules,not a morining person, so taking out from the morning, active rest of the day, put a 2 b/c more fast, 1 is for a child who			

		cannot be controlled,			
		he's controllable			
2005		loves to run on the playground, usually chooses large motor activities, go to more active, rather than sitting reading books, he'll pick something where the action is			
1006			likes physical activity, likes to dance, if there's music on she'll dance, also very social, if her friends outside playing she'll wnat to be outside too, based on what is going on, moments that she doesn't do anything, likes to watch t.v.		
2006			depends upon what time she comes in the morning, pretty average, not overly active, like running around the room, sometimes can be really bubbly, when she comes in the morning usually kind of sits and figures out what she wants to do, sucks her thumb		
1007	outdoor settings, very active, indoors he's active especially in a familiar environment, around the house you'll always see him doing something, more active outside, when we get up we start going, from there until we				

	lay down, we turn a switch on when we				
	wake him up, going to bed isn't the easiest thing in the world to do, around nap time when he gets tired out, has to physically slow down				
2007		if he comes in and he's had a bad night, he's usually over, extremely active, just where he can't control himself, other mornings he's more lethargic, but he's usually very active, always on the run, moving around, picking things up			
1010		doing power rangers or wrestling while watching tv, jump on trampoline downstairs or run and jump on pillows, like to jump on our bed or use the swing set outside			
2010		real physical person, likes to be hopping, jumping around a lot, but that's not to say that he's not focused, at physical times he's very physical, like outside he's running			
1011		can sit still, constantly in motion, will take things from one room to another and just always into different things, can sit still and listen to reading, does have quiet time			

2011		unusual child b/c sometimes can be very pensive and sometimes he's silly and active, b/c of active level which does occur on a regular basis I give him a 2			
1012		if initiating things likes to be involved, if she hears music, she will dance, if you read to her, has stuffed animal as an audience, not a passive person, dances often			
2012			enjoys gross motor activities, times she likes to sit and do fine motor, has a good balance		
1013	active, very high energy, she pretty much is either asleep or up, doesn't have any transitions periods or down time, hates taking a nap, she does not like to lay down, does notlike to sleep, when she's up, she's busy, will sometimes watch t.v,				
	likes to jumprope, jump on beds, swim class, gymnastics, just a motor, a high energy kid not in a bad way, when she wants to sit down, read or draw, she can do that for 20 to 30 min				
2013		both very active, can also be very calm, depends on time of day, when she comes in the morning she's more calm, kinda observing, has calm expression on her face, a very blank expression, then other times, she giggles, really loud, when she's at activities			

		very active during activity time when we're outside, during group time actively participates, other times really composed, depends on her interest or what's going on, or if she's excited about something, very active			
1014		keeps busy, veryinterested in keeping his mind moving, doesn't drift off and just dawdle, if he's watching something, he's grasping everything, like a little sponge, soaks up everything, tends to keep busy, only time he is down andnot using his mind is			
		when he doesn't feel good or he's ill, beyond that he's always on the go			
2014	agitated, he really can't be still if he's upset about something, real physical energy				
1015	from the moment she wakes up, she comes in and says it's morning time, she's just constantly going, got a lot of energy, entertains herself if we don't find something to entertain her, only time not active is when she's sleeping				
2015	constantly moving around the room, having a hard time sitting still, doesn't typically walk to an activity, jogs or runs, outside extremely rambunctious, has lots of energy, when she walks into the room, it's like "I'm here" and she just has to announce				

	to you all the news, makes a loud entrance, just wonderful				
1016		active but not overly so, generally evenly spaced throughout whatever she's doing, when with a couple of friends at the swimming pool, when it came time for running they ran around a lot, then they slowed down when they were playing in the pool, when			
		they got out they would just slow down and play with the dog, so the running was active and playing with the dog was slow			
1017		in her daily life she maintains a level of activity of doing things, she's watching a show about dancing, she'll get up and start dancing, constantly with her younger sister playing around in an active manner, when given the choice, she's always outside			
		running around playing, tends to have a real active enthusiasm			
2017			compared to other children she's no more sedate, she willgo onthe rug and dance around, she's active in her dramatic play, will sit at the table coloring, getting very excited is rare, is pretty purposeful and congruent to the situation		
1018		has times when she's very active, times that she can sit for long periods of time, maybe looking at a puzzle or a book			

2018				isn't as active, even outside, we'll walk around, pretend to go into the playhouse and sit, or do those types of activities, or walk with her friends	
1019	never sitting without doing something, has a wonderful attention span, but I've never seen her just sit, wants to be playing with dolls, if she's in the bathtub, she can't just take a bath, got to have sixteen dolls in there, making up stories, and in				
	her own world, she's constantly moving,up at the crack of dawn, we try to get her to bed very early but it doesn't work, watching her is like turningon a light switch, literally where she will fall asleep in the middle of a sentence, has a lot of energy				
	and she wants to move, take advantage, wants to go, wants to explore, very curious, when I pick her up at 5:00 I would like to go home and crash, she's got so much energy				
2019		one of youngest in the class, her activity level is higher than some of the other children, can't sit in circle time as long, likes active, dramatic play, tends to be drawn more to those activities although she's also capable of sitting for long periods			
		exuberant personality and is active socially			

1020		much rather be running outside than sitting and doing anything other than maybe a Disney movie, she climbed over the chair when she was 6 mos old, walking by the time she was 7 mos and hasn't slowed down since, running by the time she was 7 1/2 mos old			
2020		very involved and busy in every part of the room with the children and also with adults, likes a lot of adult interaction, don't ever recall seeing her just sitting there since she's very busy, as soon as you walk into the room, sit next to me			
1021		sort of a darter, darts from place to place, she's very dramatic, I would never say hyperactive, really a mover, on the active side			
2021		has periods of time where she can be a little lethargic or she cankind of take a step backwards, pretty much always on the go, always into something, always moving around			
1022			after school wants to run outside, and play with friends, doesn't just collapse, tends to get very tired after dinner and will want to do more calm activity, watch tv, at school very active, runs around the playground, but not frenetic		

2022	has no inner control, usually comes in the room, needs to be reminded three or four times when he walks in the room to do jobs, most children know to come in, choose a job, sign themselves in, put their lunch away, he comes in, jacket on, lunch box				
	in hand, goes right over to the block area, needs an adult to say you need to take your jacket off, you need to do this, that				
1023		likes active games, sometimes he enjoys quiet games also, just running, riding bicycles, enjoys that more than reading			
2023	comes in just a ball of fire when he comes in the room, pretty on the go most of the day				
1024	loves to move around a lot, in the playground, evenif she gets hurt, she's happy				
2024			has spurts, type of child that gets very excitable, there's momentary stuff, any type of novel situation, if there's something new in the classroom, she excited, you get the motor movement and the activity, general mood in the classroom is avg		
1025		his mind is always thinking, very creative, plays a lot of creative games, actively involved in them, airplane going, shoosh, across the room			

2025			likes the block play, able to domorekind of quiet, sitting activities without a problem, on playground also		
1026			likes to read the books, watch tv, sometimes likes to just sit, like to go outside running and to play, sometimes the playground many children play and she doesn't like that		
2026			not overly active, comes in the morning, does her routines, no problems, doesn't need reminders, has a goal, knows where she wants togo, usually coloring or drawing		
1027	if we go out or even stay home, always going out to play, he will want to play this and play that, doesn't sit there still, high energy, eats a lot and plays a lot				
2027			when he's outside, really runs and everything, ina the room, tends to be more sedate, when he's really involved with some of the children he'll become more active, still more towards less active		
1028			not super active, likes to do very concentrate things where she's sitting down, artisitic kinds of things, but likes to be outside and playing, running around and bicycling		
2028				not an active gal, loves to sitin your lap and read books, read stories	

1029		enjoys lots of sports, he's always initiating a sport, initiating activities with his father, wrestling, skating, bicycling, skateboarding, does have the ability to sit down and be still, can sit through entire church service with his father, likes to			
		be with his Dad			
2029			engages in both more active plays on the playground but can do more quiet activities, even in the block area he can concentrate and play quietly		
1030	very active, always moving, never walks from one room to the next, always running to get there, have to get there, came out going, came out on the run, passion is baseball, sports is his favorite, keeps me in shape				
2030	just running, throwing balls, kicking balls, enjoys that a lot, always on the move, not necessarily just to run, involved in active play, prefers that				
1031	when she's playing, always talking, always moving, she sits down for an activity she willsit and read a book or watch tv but for the most part she is constantly on the go				

2031			very creative, loves playing when she comes here she's got the kids building a clubhouse, very instrumental in them into creative play, when she's outside, she's running, interested in her bike, then she can come back in and do puzzles, sit quietly, do		
			jello and willwait until it's her turn to do stuff		
1032				just sitting and watching tv or looking at books or drawing, loves drawing, at other times she's hyper, running all around in the apartment and I have to take her to the park, more calm playing by herself, sometimes the weather has to do with being more	
				active	
2032				any time an adult addressed her directly she will withdraw, will not make eye contact, won't even speak, even if it is like do you want to come over here and paint or did you want a turn, she won't respond, and other times will be very clingy and	
				affectionate	
1033	lot of running, always wants to move around				
2033	always in motion, always running around the room, jumping up and down, wiggling				

1034	can sit and watch a movie or two in a row, but when he's active he's just going, if he's not in front of the tv he's going, climbing on the couch, jumpingoff, running and literally run up and down the hall, run around the apartment screaming and yelling,				
	picking up things and putting them down, jumping on the bed, running from room to room, got purpose to it, although it looks chaotic to me, when I focus on what he's doing, he's talking about things as he's climbing the couch and he's climbing it for a				
	purpose and then jumping off for a reason, he does it a lot, I keep the tv on a lot just to slow him down, just to keep his attention, its hard for me to have him because it is not that big of an apartment				
2034		always moving on the playground and doesn't sit forlong periods of time			
1035		he runs around, energetic but can sit still watching tv or reading books			
1036			no example		
2036			no example		
1037		when she becomes excited or enthusiastic, she'll get out of her chair, jump up and down, when she's finished eating she's ready to leave the table, also has very good focus, capable of sitting and listening to a book for as long as you read it to			

		her,			
		on playground likes to climb, likes to run, prefers not to go down a slide, prefers to do activities that involve her sort of operating in an environment as opposed to getting on a slide and just going down it, likes to be doing the thing			
2037		does a lot of themore sedentary activities like she's content with a book and all of that, whenever given the opportunity to do physical stuff, she's there and doing it, pretty open to anything, does a lot of the rough and tumble stuff with guys sometimes			
		or other girls, can sit quietly for long periods of time			
1038		if she sits down with some kind of project, reading a book or watching a video or even playing house, she can easily do that, like on the move			
2038		pretty active			
1039		not extremely active b/c after a while she gets tired, very like soon, she gets tired, doesn't like staying inside the house			
2039			really appropriately moderate in activity, can be very quiet, sometimes		

			encourage her to get up and go and move some, outside can be very active		
1040		loves to play sports, got free time wants to be physically active			
2040			no example		
1041		likes to play, run around, does exercise and does things like that, can spend time sitting quietly in general she likes to get up in the morning and start moving around, likes to get dressed in the morning with the whole family			
2041			she doesn't tend to run around the room all the time, are times when she walks and times when she sits, pretty average		
1042		little more active than the average child but doesn't bounce off the walls, any time he is asked to do something he's supposed to do his activity goes way down			
2042	often jumps form one thing to the next, not alot of quiet, sit down time on his own, interest wanes and that causes him to go on to the next thing, doesn't appear that he's often forced to follow something through, its the instant that it is mastered that				
	he goes on to something else and not explore it, high energy, needs to do lots of different things				
1043	did not speak English well				

2043				if it is free play and his friends are there, he's active with them, if they are not there and he comes early, he likes quiet games, not very active, he's just kind of look at the room	
1044	always running around, climbing things, riding the bike, very active				
2044	just moving from one space to another, outside activities, he runs, always doing something				
1045		he's active but likes stuff like Leggoes but he'll sit and play with those for a long time, he gets excited about stuff or goes outside arms and legs flying			
2045			not oneof those kids that's always running around the room but he's not lethargic either, kind of modulated tempo		
2046			has her typical kindergarten times where she wants to play dog on the floor, crawl around, giggle and laugh, can also be very attentive at a story time		
1047	just races back and forth all the time, drives me crazy, I end up having to say "Please just sit down" or "Go to bed," has these toys and he makes lots of sounds, late in the day when he starts to get tired, he slows down, seems to go with his hyper level				

2047		enjoys moving around outside on the playground and in the classroom, no matter where he is, whether its housekeeping or playdo, you'll see the extra movement, if it isn't gross motor there's some kind of movement			
1048		does more physical, physically she's much more, she's much more mentally demanding, always right there, she's not very happy, doesn't really sit and watch tv very much, will watch a Barney tape but very seldom is she engrossed			
2048		bouncy,peppy			
1049		running around, dependent upon what the item is that she is doing, outside in the park, extremely active, constant movement, going from one amusement to another, slides to tire swing to dolphins on a spring, insde if she is reading, very nonactive, sits			
		for an hour			
2049			likes to read books quietly on her own, also engage with other children as far as going to dramatic play or going to outdoor activities, riding bikes		
1050			can sit still and watch a movie, sits still, likes music, reads books, colors, lies to rider her bike and play outside, play ball		

2050	just on the go a lot, has stuff to do, has friends and she's not shy				
1051	extremely active except if he's doing something that's not an active type thing, like reading a book or watching tv				
2051	always involved insomething around the area, block area, walking, running, outside-bikes, running				
2052			sometimes she'll do some quiet activities, sometimes she'll do active when she's outside		
1052	runs around, plays, moves around quite a bit				
1054		she's busy and when people knew her as a baby, "she's very busy," but she could still focus on, wasn't bouncing off the walls			
2054			there's times that she moves around more, but she's not constantly in motion and it's notlike she likes to sit still all the time		
1055	he never sits still, always running from place to place, evenif its been a really long day, at home he's still ready to go				
2055		motor			
1056	very active, always talking, always doing, yet when he's at a task, in general very active, always climbing, always risk taking, I always get feedback from other people "How do you do it?" he's so active				
2056		always moving			

1057			tends to be calm, not always moving that much, more active when he's with his friends, it's changing and he's getting a bit more active		
2057				it isn't as if he doesn't run or anything, but his general when you look at hime for the whole day, is more sedentary	
1058		high energy, always running around, playing in the sandpile			
2058			enjoys sitting and she can alsomove around like other four year olds		
1059	always on the move, will go from one end of the house, she'll get a mission in her mind, she'll go from one end to the other engaging in completely purposeful activity for 45 min, if she's not sitting there reading a pileof books she'll be engaged in				
	pretend play, if she's not doing that she'll want to be cooking in the kitchen, its pervasive and high energy				
2059		she's moving all the time, not unfocused but active			
1060			can do both quiet writing and art activities that requires that she sustain attention, but she's also can have her share of runningin the room and on the playground		
1061		likes to run, but I wouldn't say he's extremely active inthe way that you can calm him down and have him sit, not like over reactive hyper			

2061			not overly like bouncing off the walls or going crazy like running around in circles, usually pretty active, got like a focus and involved		
1062	no example				
2062	very high energy from the moment he walks in the door he usually cannot even get his lunch our of the lunch box, peaking round, "what's he doing," and he's kind of like all over the room				
1063		active, but pretty amenable to discipline, exercises a lot, wants to be on the swings all the time to play, able to control herself			
2063			very sedentary inside but very active outside		
2064	very active, tends to run about a lot, tends to be the child who around the rim, hops a lot, climbs				

Question #2

		2	3	4	5
1001		when there's something exciting or something new or something he's interested in, he will shift into higher gear and you'll see more acitivity in his body movements and in his voice, his speech will be faster, more excitement about him, there are			
		e he'll select an watch something or omputer or self- be contemplative			
2001	tiredness is the only exception				
1002		when he has to attend and sit at school he can do that, given the choice to move or sit, he's in motion a lot, doesn't matter when he's at home or in school or my family's or friends, he's buzzing around, even bringing him in the office he's all over the			
		place, pulling stuff out of the drawers, climbing the chairs			
2002					a lot of his reactions would be governed by some of the issues he's dealing with, depends on the activity, if its something that doesn't involve things,fine, really depends, he will stand out from the group if you observe him, in the same kind of
					situations over time you'll get a sense that his reactions are

					different
1003	no example				
2003			sometimes has a difficult time getting his body still and focusing, or he is listening, he is attending but he's constantly moving, even during reading time, he is able to sit down and read a book quietly but more often than not more active		
2004			sometimes we have to intervene and tell her to calm down and get control of her body, she is able to sit down and read, gets involved with reading, very imaginative little girl, almost in her own little world, very often you'll find her in the reading		
			corner holding up a book like a teacher, making up a story, into writing, quite expressive and so she is able to vary her activity		
1005		tends to go a little bit more on the active side, able to listen, the library he's very quiet, very respectable			
2005			usually he can, if you tell, sit down, he can control it usually, story time, he's fine, can really adjust in varied situations even though he's normally active		
1006		is busy doing something where she has a friend over and then we want her to go wash her hands for dinner, start to calm down,can sit at the table and eat a meal, can do that			

2006		painting, can bring herself down to paint, dancing, bouncing around a little more			
1007			most of the energy is channeled in the appropriate way, sometimes he goes overboard and it does carry over, when he's playing, has a younger brother who is three and a half and a lot of times things just get out of hand, it can go overboard with the too		
			active, especially in the house, it's more outdoor activity than an indoor activity, due to the weather, especially now that is cold and he can't be outside all that much, very roughhouse, he keeps telling me he wants to go out, transitions does not want		
			to come in, doesn't want to sit down, doing something and doesn't want to come in and eat, stop the activity and he rush through so he can go back and do it		
2007			couldn't control it at all at the beginning of the year and he's really learned how to control, become more focused on his activities and if it's something really interests him, then he'll become more focused, depends on the way he is in the morning		
			time and if he's had a bad night, really affects him a lot, very sporadic,there's a lot of things going on in his life, family situations, it really shifts, if there's a certain drawing activity he's		

			involved in he'll settle down a bit		
1010	in church you don't have to tell him to be quiet, in restaurants he does generally, if we have been there long enough he gets a little ancy and we have to remind him, in car he sometimes gets a little active and we have to tell him to settle				
2010	circle time his body is focused and centered but at physical outdoors times he's very active				
1011			reading, he's able to sit still, sometimes you have to tell him two or three times not to get up, like dinner time, we're trying to get into a pattern of we all sit together for a while and talk he's still having trouble with that piece of I have to sit		
			still even when I'm finished and Mom and Dad aren't		
2011			strong attn span for any kind of paper and pencil task, drawing, very calm, very much in cotnrol, puppets or little toys, get him on the rug for any kind of motor activity, or for anything else, stories, he has a hard time		
1012	theater, she sits quietly, she knows that she can interfere during intermission, when on playground can run around				

2012		usually adapts well, story or something like that she can sit, gross motor she usually participates and interacts so she adapts to situation, are times she chooses not to participate in things			
1013		she needs to sit down, be quiet, she's pretty good at following directions, she understands how to switch gears			
2013		gets active during transition time, after activities for clean up, will start to run around and loses her focus, needs to be redirected, usually in control of self			
1014		ask him to sit quiet he will, depends upon how long you are asking him to sit quietly, he'll go along with the program and do what is expected of him			
2014			unless having a bad day where he is impulsive, it would be a three but there's impulsive behavior which come consistently on days that he's real upset which is maybe half the time, or a third of the time, a lot has beengoing onin his family, on days he's		
			upset it is hard for him to do a quiet activity		
1015		got a puppet for Easter and she was playing with it all day, playing approriately but then shook it in my sister's face, that was when it wasn't modulated, she had high energy and it did not meet my sister's expectations			

2015		at beginning of the year she has a harder time,now she's really trying, sits there and tries to keep her hands to herself, very social, so it is hard for her not to play with her neighbor			
1016		can be slow during story time and she can be active, she knows when it is time to do something, she can do it accordingly			
1017		enjoys reading, enjoys sitting with a book and recognizing pictures, when she does that she makes up stories, she likes arts and crafts, she enjoys sitting and watching a video or sitting with her sister, exploring something with her hands which is not			
		active but more creative			
2017		not as active on the playground as some children, but has a balance of activity, usually moves around, a vigorous activity she usually chimes in and if it is quiet time she is quiet, and listens to the story doesn't usually fidget, usually follows the			
		activity, we do large muscle activity in the great room, tends to run and move around			
1018		tends to be able to sit when she's required to sit at school while at home it is an entirely different situation			
2018		gross motor activity, she'll participate			

1019		hard time at quiet time, hates it, says "I'm bored," rarely sleeps, if she's sick she'll sleep, if they;ve been outside running around like carzy and the sun's kind of sapped her energy, she may nap, hard for her to lay there for an hour and a half where			
		they can't do anything, she wants to be doing stuff, if we go to mass, she likes the singing but after awhile it gets very boring for her, if we take her to a restaurant, no problem, she'll sit with us, but we know to bring crayons, include her in			
		conversation			
2019		can modulate during seat work, can do centers, concentrating on math and language activities, can do almost 45 minutes now			
1020		as long as its not a real long time period, if you're expecting her to sit still for a day or so its not going to work, when she's interested in something she will sit, likes writing rather than drawing, sit there and draws little lines, tiny little line			
2020		can control it well, demanding in terms of wanting you to be with her only or meeting her needs at that moment, but also sensitive and can wait her turn, which she's learned to do			

1021			can be calm for awhile or it might be that she she wants to needle her brother so she may crawl under the table and start, depends on what the situation calls for from her point of view, she is absolutely aware of what correct behavior is, whether she		
			follows it is another whole matter		
2021		is she gets overly excited about something that's happening that day, you can really tell, yesterday was her birthday so she was just wound to be wound, didn't matter where she was, but in circle its modulated			
1022		adjusts to situations, in the morning has a harder time adjusting, more jittery, wants to be moving things, using his hands and that kind of thing			
2022					circle time, usually spins around, rocks back and forth, puts his hands down his pants, usually ismoving, bopping peers withhis hands, usually asked to leave, we have a special bench outside in the hall with a big stuffed animal, needs to be really hands
					on all the time, in circle time its hard because there's nothing that he can touch and feel, when he's touching and feeling he's fine, when he's engrossed in an activity he's fine

1023			if you ask him to be quiet, he would do it, usually yes but sometimes no, if you go to a music concern or stuff like that or to the library we would ask him to be quiet and he is		
2023			we have to give him a lot of reminders, has had never been to preschool before, moved four time in the last five year of his life to different countries, never been away from Mom or Dad, not really with other children, we're really socializing him here		
			even eating, sleeping, everything, couldn't speak English when he came		
1024		can play with 3 year olds and can play with 6 year olds, loves to play with all kinds of kids as long as she's kind of in charge, likes to play board games but likes to be in charge, can write, can do everything, should be in charge though			
2024			what happens is, is way off the chart, on the field trip it's kind of like every 3 minutes, "I'm so excited about being here," that kind of thing, gets very but can usually do it		
1025	very adaptable, we can take him on long car trips and he sits and he's happy looking out the window the whole time, go to a ball game and he'll yell				

2025		sometimes there's a difficulty in transitioning, in the initial transitioning, eventaully able to shift, but there's a need for us to arouse him a little when we're doing more seatwork/center work b/c he's not quite there with us so we give him extra			
		stimulation, will sometimes happen at group time, so I'm not sure it's the stimulation that's doing it or he hasn't become involved, so he doesn't kind of go with what's going on in the group			
1026		needs to be quiet, like in the library, I say don't make any noise, it's fine			
2026	always able to vary her activity level, circle time, she comes, she cleans up, comes to circle, outdoor time, she gets her jacket on, she's ready, she goes outside				
1027		over time he learned that's the rules and all the children follow the rules, if at home I say that we have to stop this, we have to do something else, he works very well if you tell him 5 minutes before, two more minutes, you remind him again, then he			
		goes, if you say do it right not, he's not going to be happy			
2027		on the playground and in the room			

1028	she is one who takes her time getting into any activity, and so the first few times around of the activity, her activity was fairly under the norm, she'll sit back and will not participate until she knows what's going on, and then she'll jump in, and it				
	will be appropriate, generally there' kind of a lag time before she does jump in, gymnastics lessons, she was very shy and withdrawn and would go sit in the corner and watch, would not participate at all, by the fourth one, she was inthelead, wanted to be				
	the first one on the balance beam to show what she could do				
2028			tends to hang and chat with the teacher rather than running, her preference is to take things nice and slow, she does run, but not as much as the average if you're comparing her to other children, she lingers, she'll be the last one to get her coat on		
1029		shopping the other day, strangers said could you two please be quiet, I shop so rarely, I was in Wal Mart for 2 hours shopping, it was more than I should have expected him to do			
2029			can shift sometiems, sometimes he needs help settling down especially during transition times		

1030				is loud, has a hard time being quiet, tries so hard, just has a full voice, it just doesn't work. movie theater, we try and hope that the movie's not too crowded	
2030	transition from outside to come in and having to wash up to have lunch, takes transition well, not wandering off to places, during circle time, attn is focused				
1031	church she tends to sit a bit more quietly, if we are at McDonald's she'll be jumping and playing and that kind of thing, someone's house her behavior tends to be a bit better, she definitely varies her behavior in relationship to situational demands that				
	she is faced with, if we tell her no she is more likely to misbehave				
2031	no example				
1032	she can calm down when she's really hyper, it happens all the time when she's really hyper and she's running all around, we live with my parents and they don't like when children are running around, she just tells her to slow down and go somewhere else				
	and she understands it and goes somewhere else, if something is real interesting for her, and she's excited about it, she can do it				

2032		if it involves where she needs something or something has happened where she needs help or she's been disappointed because something has happened in a way that she didn't like it, she'll just kind of lash out and occasionally hit, or her voice will raise			
		but most of the time when we ask her what is wrong, she doesn't respond at all, she didn't get a turn acting out stories, we didn't know that she was disappointed until it was time to wash hands for lunch and she just lay on the floor, there are many			
		times where she will just lie on the floor and it's hard to kind of rouse her, but when she's engaged, her AL is very appropriate to the situation, can do writing tasks on the computer			
1033		can sit down to an activity he's interested in			
2033			if it is something that he is interested in he's able to sit and focus, if he could care less he can't get control, in circle we might be dealing with the weather in the morning or might be counting how many people are here, he has a hard time paying attn		
			to that unless he has a job, loves to have a job and then he listens, when we did leprechauns, he just thought those were the coolest, he connected with		

			the leperchauns		
1034			I can take him to a restaurant and depending on who's there and what kind of resaurant it is, he'll sit there for half of the visit, then starts to weasel under the table, trying to get out, if he gets out you gotta get him or understand he's gonna go		
			running off, he'll go meet people, find the candy, whereever the candy is, he'll find it, he can sit just with me for 30 to 45 minutes, when we're with friends 15 min		
2034			depends on if he's getting frustrated, he can usually attend to something if he wants to , when he's motivated to do it, when he doesn't want to do something, it's not that he's more active, it's that he will balk, his AL will be modulated b/c he's resist		
			something, more about his feeling about the activity than it is physically, when he hits any kind of frustration he'll just disengage from the activity or get a little hyperactive, like rollingpencils or even hittinghimself a little, flip side of that is		
			when he doesn't want to do something he will modify his activity by just putting his head on the table		

			and refusing to do it		
1035	pretty appropriate				
2035					like at circle time, almost never, very active and his attention does not seem to focus on anything group situated
1036	no example				
2036			transition time he needs help modulating, at rest time, he needs quite a few reminders, when its something he chooses to do he's closer to a 2		
1037		if she's not in the mood to be in a restaurant she will move around, when she is in the mood, she can do it			
2037		playing a rough and tumble game, if something else comes up, she can adjust, it does take a little adjustment time			
1038	quiet activity, she's doing it quietly				
2038	does transitions very well, does the natural thing, when it's clean up time, she'll spend more time withit, but then she's able to transition into what we ask her to do				
1039		adjusts very well, you have to tell her, if you tell her, she does it, inside the home, it's always there that this is indoors, you cannot run, and in the alley, we have to go from our place to an elevator, I remind her, you shouldn't run			
2039	no example				

1040		the most difficult time to do that is in the evening where he wants to play but it is time to calm down for bed, if we find something interesting to do that is not a physical activity, he can shift gears play on the computer instead of playing hockey			
2040		no example			
1041		can be settled down if you are talking to her or if she does something more quiet, very easy to direct her into the actions you like her to do most of the time			
2041				during a circle time she will move all over the place or crawl around, doesn't like to sit for circle time	
1042		has difficulty saying its quiet time now I have to be quiet, ordinarily he will, quiet time he'll be quiet or if Mom says it's time to play, he'll play, not a huge task to help him change his AL, generally try to give him warnings about upcoming changes,			
		school recommended this			
		can sit and listen during group listening time, small group working time he can sit pretty much and do the work, given the choice on his own, he will go area to area as opposed to staying in one place			
1043	no transcript				
2043			sometimes he has to be directed to clean up and then go to group time or when he goes from lunch to nap		

1044		he play he focused or interested			
2044				certain situations like when we're cleaning up, his level we would often try to calm him down, circle time he's a little bit more low keyed like when we're taking a nap or we get close to nap he's still active	
1045		there are times, just at a restaurants where he wouldn't sit still and just kind of wiggled everywhere, we were there for an hour			
2045			on playground he has more energy, in classroom he's focused on what he's doing		
2046		are times when things get kind of giddy and silly, it's nothing beyond the range of what we would expect			
1047			when he's running or playing or whatever, and when I need him to be quiet, he doesn't seem to be able to be quiet, upon request, unless it is somethingthat he wants to do, if I'm on the phone andhe wants my attn, he's constantly you know, and I'll say be		
			quiet and that kind of thing and he can't do it		
2047			he's at the point now at circle time when we're gathered he can usually attend and focus, at other times though he tends to be more moving		

1048			sitting down for dinner, she tries to get away with as much as she can, all depends on her mood, like if we're going out someplace, all the sudden she's got a bad attitude or she's in a bad mood and she doesn't want to do it, then she's very stubborn to		
			anything, she's a mood child		
2048		pretty good about being able to change, in circle time, loves to chat, so that's her little thing, but other than that, can do it			
1049	very in tune with what she's doing, doesn't have a tea party, has a very active tea party, has to have something in the tea pot, everybody has to attend, serves things				
2049		transitions are okay with her b/c she goes from free choice to group time without any hesitation			
1050		she has to be reminded, we'll do that, need to go in there, need to use out inside voices, generally she can change, sometimes she gets tired and whatever, wants to move on or wants to talk			
2050			when comes in the morning, has to have her moment, if someone tries to say hi to her, no way		
1051	watching tv, he can calm down				
2051	book time, he knows to sit down and it's quiet time, and if it's outside time, he can go out there to be active				

1052		sometimes on occasion she can't shift well, usually no problem			
1053		usually, like if we went to Jeepers or something, he would get fired up about it			
2053				when I think about him, it tends to be slow, no matter what the situation, even the motor, has to think about how to move and how to do it, at four he needs to be faster and he's not	
2052		knows the expectations like when we are cleaning up she's up she cleans up and does a lot of it and sometimes she doesn't			
1054		pretty much on target, amount of energy she needs to express for an activity is usually appropriate to the activity			
2054		does the social thing though, loves to chit chat, that's what kind of pulls her away at times			
1055				if it's something he wants to do, like a puzzle, he can sit there, like in church, or banquet, he sat there but he was moving, spinning in the chair, really hard for him, he can do it if he wants to	
2055			gotten much stronger as far as in group time, much more able to sit in groups, beginning to develop that		
1056			I'm constantly giving him feedback, "if you settle down, you won't spill your milk, when you're sitting at the dinner table, you sit on your bum, don't run through the restaurant," he's		

			learning but not modulated		
2056				you consider the verbal activity, you have to keep after him during story time, keep talking to him, we still see action, usually I have to change the whole group b/c of him	
1057		can modulate, if we're going to a restaurant, can take him			
2057			will play a little bit more, does run in the playrground, sometimes he will shift in that situation, even on the playground isn't running, natural tendency is to be real slow		
1058	no example				
2058		usually during story time calm down which is usually outside which is very active, can usually adapt			
1059			getting better, wasn't very good about that a year and a half ago, she's approaching four her language is really starting to explode and she can modulate it a lot better, and that is often by language		
2059		usually busy when she needs to be busy and sometimes when she is not			
1060	well modulated, she's a sensible kid				
2060		usually unless she's got kind of extra beans that day and kind of needs to get out, which is normal for kindergarten			

1061	if he's not actually appropriate, then you can tell him, he can change them if he wants to				
2061		we're having a special event like a birthday party or a field trip, he gets a little bit more excited, so he's jumping up and down and running around			
1062	no example				
2062		has a hard time bringing himself down, only time he can really bring himself down is rest time, and it takes a little while			
1063		controls her behavior because people live below, listens at the library, is disciplined			
2063	no example				
1064		likes reading book and watch tv, depending on situation, level changes			
2064		he can control it, during group time, able to sit down and listen to the story, participate in the discussion			

Question #3

CODE	1	2	3	4	5
1001		there are many times where he'll say I really want to , really want some quiet or if there is something particualrly, he'll express his opinion about what he wants to do			
2001		if after a play, if he wants to play aggressively, he will, always again (except for) the tiredness, I don't think it's a conscious or a choice of cotnrol, it's a more physical kind of lack of control			
1002	he's dexterous and he's focused on activities, able to sit and look at books, turn the pages, notice things carefully, he controls it pretty, wrestling, chasing, sword type games, a little battle type things, lego, looking at books				
2002	it will only appeal to him if these issues aren't well sometimes things are really attractive to him, a lot of tactile activities are really attractive because of tlhe sensory integration things, he knows what he wants to do and he'll definitely do that				
2003		maybe how he's feeling or whatever he's intersted in at that moment, able to direct self, does have some amount of self-control but its just that he has so much energy			
2004		no example			

1005			getting ready to go to someplace, he really goes into it, for getting ready, if we don't get ready at the same time, he starts questioning us, he's in the car and he asks "Why are we, why it is taking so long, why are we not arriving," kinda fresh		
			sometimes, he expresses himself verbally, talks like about anything, he's insistent, just keeps repeating		
2005	very, very focused, loves to chat and talk about things, can sustain a conversation for 15 min,				
1006	most of the time in control except for dancing, then she just gets off on that				
2006	if she's overly excited and bouncing off the walls, I just remind her "calm it down a little bit," she can do that				
1007		if he's doing one activity that he knows he has to, he knows he has something else todo, he has to go somewhere, like go to school or he has to take a bath, for themost part he can stop, put it down, will make protests at first, he's so high strung, it's			
		hard to bring him down			
2007		doing a journal activity and he really likes journal time and he'll really get concentrated in it, he'll really work hard on his picture, so then he will control it, a little bit sporadic			

1010	listening to a book or we are at a movie, if there's some activity that he's interested in watching or sometimes he and his Dad will build airplanes and they tend not to be active during that time				
2010	can almost always control it				
1011		if he's interested there's no problem, if he's not, you have to tell him several times			
2011		any type of drawing, he'llsit and do that type of thing or creative, any type of scotch tape, he'll make a plane, he'll also do a lot of things with little toys, like farm animals, little toys that he brings from home, dramatic play kind of thing, playdo			
1012	a very independent person and really controls that, very dominant with her surroundings, the playground, if there are a few kids already playing there before she came, she would come and would redirect their play, become the center so she has control of				
	the work she would do and what she is doing				
2012	off the chart, very independent, when here is something that she wants she focuses in on it, very articulate and does anything that she can to meet, own self-control is very strong				

1013	likes to draw and paint, if she's seeking that out she will go get it and sit for long periods of time,also does lots of pretend play, something will catch her imagination and she'll set it up and make a sign				
2013		she's noticed that we're going to have some special event, like to visit another classroom, she knows that morning, she really has to participate and just work as a team together and know that as long as we get all the things we need to get done together			
		as a team in the morning, we'll go to this classroom, she's able			
1014		depends on who he is having the conflict w/. if he's with his freinds he's a very take charge kind of person, let's do this, I'll show you how to do this, let's learn this, he's pretty much a leader and very independent			
2014		really loves active ball games, frisbee, cooking, anything really active, blocks			
1015	no example				
2015		does enjoy stories and group time activities, if I say I'm going to call on somebody show me you are ready, she will sit b/c she wants her turn and she'll look at you with those big eyes, she's able to control her behavior with effort			

1016	like at her birthday party she know it was improtant to get it going, or to slow it down for gift time, she did it really well				
1017		no example			
2017	does the self-talk to get herself calmed down if she needs to, keeps herself together				
1018	situations at home where my older daughter tends to always want to do something and Sarah has always been able to say no, at this time, I want to do this and this is what you will stay with				
2018	her pace is just real slow and easy going and very thoughtful, will move faster to some degree, but her natural style is a slower pace, so you probably would give her a heads up, conscientious effort though, you can see her thinking about moving when she				
	to				
1019		she knows what she wants, tells you verbally, if she knows there's something that's going to be happening contingent upon her behavior, she's very good at controlling the AL, when things don't work you give her a little incentive			
2019		likes to use our small, plastic animals to do kind of dramatic play, cans sit for long periods of time just doing that, very quiet but has dramatic quality to it, also drawing			
1020		she'd rather control herself			

2020	was not used to taking turns, typical three year old, getting up and not realizing that she's taking over the whole group, learned to do that				
1021	color something, color a little workbook on the way to school, was very controlled about that, stuck to it for half-hour drive				
2021	I said your body is really out of control today, you really need to get it in control, she was able to calm herself down, she looked at me, said "I don't think I'm all over the place, I don't feel I'm all over the place, do I feel I'm all over the place?"				
	I said yes.				
1022	no example				
2022				if its something that he's interested in, an activity like blocks he can work in blocks forecver, he'll be sustained for a good 30 min.	
1023		he himself wouldn't like to be quiet,			
2023			he never sits, even during journal time, he doesn't sit during lunch, he stands all the time		
1024	when we went shopping to buy something for her birthday dress, she decided what she wants and she just do it, even if I go about buying something else, she wouldn't wear it, even if I forced her to wear it, she'll just spillsomething and ask me to change				

2024			even if she would want something, she often breaks down, and she isn't able to cotnrol it, tends to perseverate on things so that even though verbally she's been told, now what she's been doing is verbalizing as she's doing, "I'm not supposed to do this		
			now," she has a hard time, is trying to work it through and get what she needs at her level rather than what's expected in the classroom		
1025	depends if he's in a group situation, will he be the leader, he's not, absolutely could be in control to behave, with the exception of being too tired				
2025		when he's working on something and it is exciting to him, when he was building something the other day, he was all by himself, and totally focused and into it, something that he had planned, and had really wanted to do			
1026	likes writing and drawing, it's not too active				
2026	really knows how to choose children who will play with her, knows that certain children will not play with her, she'll say "I'm not going to play with them b/c they are not nice to me, and so I'm going to find another friend," and she does it beautifully				

1027	likes to lay out things, has some privileges, doesn't want you to take off those, you say if you don't control yourself, you have to go to bed early, he's able to adjust				
2027	see it in the range of activity that he's involved in, from being quiet and engaged in sedentary things in the classroom to running nonstop				
1028	drawing, she loves to draw and she will not do it on demand, she'll do it when she wnats to, at her pace, and she has to finish it				
2028		it's control control, I'm slow b/c I really don't want to go outside, it's not my choice right now and I'll be with you when I'm ready, we see some zippiness, I guess she can control it			
1029	if he wnts to watch a movie, then he can get motivated to pick up his toys or settle down and sit quietly, if I want him to do something I have to somehow translate that into something that he wants				
2029			if he is building he will focus in on what he's doing, or if he wants to play an active game outside he'll usually do it if its important to him		
1030		going on an airplane, needs to be under the seat and up and down, he understands that he can't bother the other people around him, that he can play in the aisle or under the seat, just my being on top of him,			

		keeping my energy level where his is			
2030	play in a circle table with toys, he doesn't get distracted from the other kids who come in, who are kind of rowdy and are running around, able to focus, when someone tries to grab something, able to control that				
1031		times that she gets so excited that she can't, loves to watch her programs on tv, loves to go places, if we are going to go out to McDonald's or something like that and if her going to that place requires her to do certain activity like putting on her			
		shoes or it requires that she behave in a certain way she can do it, most of the time she can do it, sometimes has trouble if she is tired or whatever, but if we say going to Z requires cooperating, that's the term we use, she can do it			
2031	loves creative play and if you'd rather her do something more constructive than she wants to be doing, she'll tell you that "I don't want to be doing that, I want to be doing this," I say we are all going to be doing this so its time for all of us to do				

	this, she's making a chioce, and she'll finally go "fine" and come and do it but it's not of her own initiative				
1032	if she wants to she can but she often doesn't want to, usually when she's just hanging around people and trying to get attention, she's sucking on her food and trying to play with us, we tell her could you please stop it, and she just doesn't want to stop				
	it, so we get really irritated with it, and tell her if you don't stop it, we, when she wants to she can.				
2032			if she encounters any kind of obstacle, misunderstanding then she can't move beyond that, there's not a kind of pushing thorugh, maybe moreso if she's alone, if it involves peers, and actually sometimes she does it better with peers when it involves		
			interaction with adults		
1033		stops his motor activity when he's playing with his plastic animals, or if he wants to do puzzles or read a book			
2033		sometimes I don't know if he can control it he's so impulsive, but he will try very hard			
1034			no example		

2034			recently been choosing quiet activities, when in the beginning of the year it was just blocks, blocks, blocks and dramatic play, while he will usually choose more active, we've noticed he's recently choosing pen and pencil tasks		
1035		circle time and he knows he cannot sit still, he will seek help, will go to the teacher or student aid and sit on her lap, wants to control			
2035		usually, like when he's playing with the sand table, that's a very tactile thing, he's tactile and can focus on that, he can control that and focus on that and control the situation like if someone grabs a toy from him			
1036		doesn't have trouble quieting down to listen to us or in school, one of the children who listens better to the teacher, does not have to be told to settle down			
2036		play card games for half a hour which is unusual at this age			
1037	totally in control when its important to her				
2037	she's big on snack , have a little courtyard and the kids will be playing and she'll be really happy and its last call for snack and she's right in there and settled				

1038		if she's with some other kids and they want to play quiet and she wants to play rough she'll try to get everybody to play rough, if she wants to be left alone she'll let everybody know, she's not like the leader but if she feels a certain way she'll let			
		everybody know			
2038	likes to direct other kids in pretend play				
1039		to a level yes but sometimes she has trouble like going to a mall, rest of time she can control herself but in mall she wants everything			
2039	across the board, always				
1040	if it is important to him yes, if it is important to me no				
2040	no example				
1041		very good at saying what she does not want to do or what she does want to do, usually for the most part she's reacting to what she wants to do, pretty good at vocalizing whether she wants to do it or doesn't			
2041	if not important to her doesn't control it at all, if it is an activity she doesn't want to do, she just sits there, when she wants to do it, she'll come over and do it, painting, computer				
1042	no example				

2042		if it's interesting to him he'll be focused at it for as long as its interesting and then he'll move to something else, like block area he can stay there and not need to jump around, it's very rare he would stay in the block area the entire time, 45 min			
1043	no example				
2043	blocks, he has great control b/c he likes to play with blocks				
1044		play, he's focused and interested			
2044				follower of children, blocks if he's able to control that activity if he's involved	
1045	good at matching what he needs to do				
2045	I've never seen him lose control, if he's in blocks and the other kids are like real real wound up, he doesn't get that wound up, concentrates on reading pirate ships, always sitting calm as can be				
2046		art work, when she's got an art work, open-ended science exploration, she'll spend long periods of time just kind of playing and exploring			
1047			when I want him to do something that he absolutely refuses to do, I take away things that he likes to do, like watching Nickelodeon, he will absolutely do it then		

2047		something that he's looking at or if he's talking to his friends, he wants to get somebody's attention, there are other situations when he's angry or doesn't want to, tends to shut down and doesn't control much			
1048	very in control, I have to remind her sometimes how she needs to act, before we get somewhere I'll say "remember keep your body under control, keep your hands under control," can do it				
2048	she can almost always control the activity, doesn't have any difficulties when she's focusing				
1049	entirely, you're the child, you're the baby, I'm the teacher				
2049		circle time she's usually sitting down and listening to a book being read or she's engaged to the flannel board, once in a while does veer off a little b/c of her attn			
1050		she does fairly well, not 100%			
2050		has a toy, like a doll, and she's playing with it for long period of time and someone tries to get it from her, she can say no and ask for the teacher's help			
1051	building his trains, it's an active thing but it's a calm thing too				

2051	in the very beginning he was different from now, really matured, he used to always get frustrated with things, stencils, if it doesn't come out the way he thinks it should be, he'd get tense and curl up his fists and get angry, now he's much better				
1052		no example			
2052		pretend are, she controls it she knows when she wants to stay there and when she wants to play with something else			
1053		no example			
2053			sometimes he can but he does stutter and that slows it down again and you do see the increase from the slowness, he does perk up a little		
1054	when its important to her she has no problem				
2054	almost always does				
1055		if he is over tired and he wants something and you say no, he will lose his temper			
2055		if there's a specific task he needs to get done in order to go outside or if there's certain things that he enjoys he'll do it			
1056	likes water, and when his playing with small objects in he water, he's very calm, when he's outside and he has a little more opportunity to throw water, that's possible, but if those little creatures were in that bucket while he was outside, he wouldn't				
	throw water				

2056			some of the Play Doh, so there are times when he may be mainupulating a bit		
1057		if there's something special, a movies, or going to do something outside			
2057		clean up time and he has something to share, he'll clean up faster			
1058	even in the classroom when they go back to their seats, when she's working with her toys she's able to leave that activity and go to another one				
2058	even high motor type activities she can sit there quietly				
1059		getting better at it, language is mediating it			
2059	good at verbally commuinicating it to other kids who are kind of out of control, when it is important to her she lets them know that				
1060	she could say "I don't feel like playing right now,:" she controls her environment in a sense, she has a clear sense of her environment and what she wants to do				
2060	when she's playing a game, she love to play board games, and they require sustained attn and following the rules and things like that, a lot of teacher made games she's good at				
1061	he's very stubborn, he can almost always if he wants to				

2061		even-keeled, level kid, not a leader, if I say "you need to calm yourself down, so you can get yourself together to go outside" if he's running around the room, he can usually get himself together pretty quickly			
1062	No example				
2062			in block area and he's working on a project, he's usually pretty into that, can work for a pretty sustained amount of time		
1063	generally as a child she's pretty amenable to reasonable thinking and argument, pretty mature				
2063	No example				
1064		no example			
2064		a center that he rally wants to try something new such as going outside, something that takes place outside, he'll really sit there and want his name to be called			

Question #4

CODE	1	2	3	4	5
1001		no example			
2001			well-balanced, quiet things he really enjoys, active things that are available, there there are quiet things that are available that appeal to him, tactile, things that in mY opinion are more age-appropriate, sedentary things are more markers, drawings		
			things like that , excluding tactile, then he would more likely choose something more active		
1002		he's pick something active even if something like lego, he'd still do something active with it, build something and then move around and talk it through and stuff			
2002			really likes to build things so that would be a quiet thing, some really active things like running around, randomly if there's a kind of aggressive game he might really like it, it is with children that he's comfortable, if its not, he may really not		
			want to be outside at all, he'll avoid it if he doesn't think he can do it like a ball game, if it's random running around without the ball involved he'll be right in there going wild, he's really affected by his skills and his awareness and his interests		
			and comfort level		

1003			the computer, to read a book, legos, clay, collect rocks, any sports or just run around and wrestle		
2003		no example			
1004					dressing dolls or putting dolls in bed, she likes dresses and dressing herself up, it really bothers me on the playground she'll be watching the other kids play basketball and I'll say offer her a turn to play and she goes "no I'd prefer to watch," she
					doesn't want to play
2004				she's a very active and she likes to run a lot and it is hard to harness her attention but she'll sit there quiet passively sometime, during group she's totally not interested, usually bails out and won't listen, passive in writing or reading, usually	
				chooses to read during center time	
1005		manage pretty well the quiet games and he's very good at them, sits in the computer, quiet, very patient, makes comments, wants to learn a lot , I was able to teach him chess, given the choice he would prefer the active game			
2005		blocks, sensorimotor things where he's manipulating objects like little toys, putting together a scene with sea animals, dramatic play, housekeeping			
1006		likes to draw so there are times that she is happy doing that			

2006			some days she comes in and all she wants to do is painting, lots of painting and drawing, other days she'll come in and be dancing away		
1007				drawing, writing, board games due to a new environment, physical activities, sports, phsyical more than board games but not that much	
2007		sometimes will come in and be an observer, watch everybody, monitor of the classroom, walks around all morning and he'll give other children demands like you can't play with blocks, you play in housekeeping, you can't do that, gets very frustrated very			
		easily, some mornings he'll come in and won't talk to anybody, go over to the book area and just kind of sit down and watch everybody, usually he'll come in and choose blocks or water table, something active			
1010		jumping, running, wrestling throwing balls, swinging, riding bicycle, enjoys outdoors			
2010		painting, things like that as opposed to dramatic play, he'd be in dramatic play acting something out			
1011		active in most instances except for reading, but that's at the end of the day, loves the outside and to run around			

2011			there are times he enjoys time away		
1012				reading, puzzles, computer games, writing, drawing, pretend playing in library	
2012			real balanced, enjoys any kind of fine motor task, cutting, stories, sitting in somebody's lap doing stories, dramatic play and outside she's moving around, not one to sit there		
1013		likes to play cards, likes to play Candy Land, but would rather go outside and ride her bike, bowling			
2013			in the morning do puzzles, write, draw, apint, prone to choose more active activities, pretend, dress up, crawl on all fours, act silly		
1014	interactive team things, ball, t-ball, soccer, not so much the child who will swing on the swing by himself, rather be playing with other kids, incorporating other kids				
2014	blocks is the one exception, enjoys building things				
1015			when I'm studying she'll want to study with me by coloring her letters or a puzzle or read her books, other times she just loves to ride the tricycle around the park, play on the jungle gym or run in the house, depends upon her mood and energy level		
2015		pretend, paints or writes			
1016		right now an active game, a few months ago it was crafts and more quiet stuff, now it is more			

		running around and going outdoors			
2016			no example		
1017				arts and crafts, game playing, reading, singing, playing a piano	
2017				depends on her mood but tends to go toward the writing to look at a book, play in dramtic center	
1018			puzzles, legos, playing with other children		
2018				listening to books, writing, drawing, dramatic play	
1019			if I said "do you want to ride your bike or do you want to watch one of your sing-a-longs which is more quiet, depending upon her mood and what she's been doing, she can go either way, has to be cognitively engaged, as long as it's going to stimulate her		
			then it doesn't matter whether its boisterous and climbing a tree or sitting inside and coloring		
2019			when she has free choice in the afternoon, she'll do dramatic play some of the times, or drawing, small manipulative, it's mostly when there's an acting out component where she can tell stories		
1020		likes competitve games even like a board game, when she's running outside, she wants to be racing and stuff like that			

2020			playing with playdo vs. going through a tunnel or something, depends upon what she's interested in doing or how new the activity is		
1021			puzzles, playground, running around, dressing up, collecting		
2021				pattern blocks in a quieter activity, game, she would go there with a friend, something that's more hands on	
1022		depend upon the time of day and mood, would not automatically gravitate to one, run outside, do something physical, when we come home in the afternoon, wants to be building something or doing something, tying ropes or cutting out things, swinging			
2022	select blocks, water table, usualy is going, pow, pow, shooch, schooch				
1023		playing ball, riding bike			
2023	blocks, water, rubber stamps, money stamps is his big thing right now, but he doesn't do it quietly, he stands, jumping on the stamp on the floor using his feet to stamp it, cutting real quickly and rushing around to get the tape to him, even pattern				
	blocks, he doesn't make a pattern, he flings them				
1024	in school, I think she loves doing tasks for he teachers, so she does clean the board every day				

2024			interested in motor, do hopscotch game, rocking the boat, fishing game, loves to write and do fine motor tasks		
1025			he's happy, legos, models, likes to build, likes to run, be out		
2025		beginning of the year was all active, usually choose block building, starting now to make other choices, block play sometimes very quiet and it involves some fantasy play and things like that, acting out stories within the blocks, likes to create dramatic			
		play, like his milieu that he's doing his thing in			
1026				no example	
2026				persists in drawing, writing, does do blocks, not like a real rambunctious block player, more tedious block player where she really looks at the structures she's going to make, loves pattern blocks, makes beautiful patterns	
1027			likes you to read him stories, more quiet than just playing		
2027			good balance, depend almost, any child this age will, if they have the choice of going outside, go outside, he would, depending on the particular attractiveness of the task, compring to most children, he would be more average, outside he would be active		
1028				drawing, stories, reading	

2028				would choose quiet but has these little spurts where she'll join up with one of the other little girls, got to let it out and relax, lovely lady, sedate	
1029				loves playing with dolls, reading, listening to tapes, puzzles	
2029			blocks, but he'll be very intent on his block building so his block building is very organized and precise, though it is an active activity, type of activity he doesn't necessarily mean that his activity level is higher during the time, but he would		
			choose that over a book and reading		
1030		prefers active but loves to read books, avid reader which is so counter to what he does most of the time, sports or books			
2030			when outside, likes to get involved with the balls, picking up balls, throwing balls, inside prefers library, hands on toys, not a lot of kids around		
1031			depends on her time of day, activity level, if it is something doing by herself or with a friend, sometimes she'll sit down and play a quiet game and other times she'll run around outside and shout and scream her head off		

2031			determined by the game that you offered her, if you were giving her the choice of an active game or sitting down and doing the puzzle but if you were offering her running through the sprinkler or sitting to do the puzzle she would run through the		
			sprinkler, choices are not driven by active or sedate, but by what the offer is		
1032				watching other children, she's a loner, she just doesn't participate, but copies, sometimes she just comes to us and says, Mommy, can I please play this or that, we play board games, cards, drawing	
2032				computer, drawing, does not play in blocks, very good artist, lot of painting	
1033			depending upon if it something he's interested in, has high energy, gets excited easily, watching tv or movies is a really big thing for him, plays a lot of imagine situations with plastic animals, makes them fight, outside likes the swing, sandbox, but		
			its always interrupted by moments of running or transition time		
2033		walks, bowling, any large motor activity, only small motor activity he likes is cutting, taping, and gluing paper in art, usually picks the loudest activity			

1034			tv, got to have noise, loves his physical activity but he loves tv		
2034		beginning of the year it was just blocks and dramatic play, will usually choose more active games but lately choosing pen and paper tsks			
1035			build the train tracks and play legos for a long time, watch tv, bicycle riding, running around		
2035	active games, bicycles, when we're doing movements, outside, prefers to be outside actively, than circle time or quiet reading				
1036			no example		
2036			no example		
1037				would rather play inside, sitting in a corner with her friends outside, book	
2037			rough and tumble games, sitting with a book		
1038			no example		
2038			half of her time in pretend, quiet books in reading center		
1039	rather to out and have a nice time				
2039				drawing	
1040		the exception would be if there is something new that is more passive, like a computer game that is new			
2040			no example		
1041			gets in a mood where she wants to run around the house, puzzles, play with her teddy bear, look at a book, computer		
2041				she just plays with one other boy most of the time and they do quiet things	

1042	computer				
2042		no example			
2043		blocks, if he's comfortable that morning with his friends, his friends are there he'll chose the active, prefers to be with himself, but not isolated or withdrawn			
1044	running, playing with the bike, running this room to the other room				
2044	running just to get from lunch, lunch transitions, just to get to his cubby, there's times when he does walk the activity asks him to do that, consistently active				
1045			legos, figures, stories, go outside		
2045				more quiet in the morning, blocks, table games, plays by himself	
2046			active on the playground, inside, in the morning, plays like dogs on the floor		
1047		rather run around, build cars, make car sounds, than have me read a book			
2047		note a risk taker, running			
1048		board games, Junior Trivial Pursuit, wants the attention on her, quiet games, you can keep her under control, she's much more, easier to talk to her, get her response, when she's active she's too busy thinking about other things, wants to get in the			
		center, and then she realizes that the center is not any fun, and then after awhile, she'll get tired of being in the outside, and			

		want back in the center again			
2048			eager to do large muscle as well as quiet dramatic play, involved in all the activities in the classroom		
1049			depends on what she's into at that time, has leaned how to manipulate scissors very well so she can sit down quietly with a magaizine and cut out things for an awful long time, likes the park, sit and read, play quietly with her dollhouse		
2049				reading quietly, hands on toys by herself when she first comes in then she'll engage into something with her friends	
1050			watching the videos, sitting and playing with her balls, motivated by her interest at that moment		
2050		not the type of activeness that's physical, she's engaged and she almost looks like she has a lot to question because she's very social			
1051		playing with trains			
2051	block areas are very active, pretend area, outside, he's the first one to want to walk out the door				
1052				coloring, drawing	
2052			half in pretend, outside play, versatile		
1053			active, sword fights, puppets, really interested in reading a book, into sword thing right now but has his moments he wants to be quiet		

2053				enjoys active games, enjoys the motor activity, usually you see him tending to be more into slow, usually see him with a quiet activity	
1054			sit and cut things out or watch tv or color or other times be swung around the room		
2054			depends on her mood		
1055				likes to make up games, riding his bike, he has to make a game out of it	
2055		gross motor situations			
1056			enjoys solitary play, coloring, running, jumping		
2056	block building, running up and down, jumping				
1057			reading a book, sitting and playing outside		
2057			games, sensory motor activities		
1058			if she's with a group at school she will do the active but at home she will do the quiet		
2058			no example		
1059		more often an active situation but does value quiet stuff like reading a book for 40 min			
2059		rarely go into something quiet like reading a book, very interactive when children are around			
1060				half and half, into movies, likes to sing, so if a tape is on and she's got a book, she'll sit there for hours listening, colors and draws a lot, makes things a lot, she's a mental kid, lot of art and reading, games, cards enjoys chasing and	

				running too	
2060			on playground, usually running or playing chasing game		
1061		loves to go utside to play, doing legos, at nighttime will pick quiet activities			
2061			depends on mood in morning, usually choose building and blocks, loves dramatic play, kind of follows other kids around, depends on what certain leaders in the room are doing		
1062	no example				
2062		block area, water table, housekeeping			
1063			varies it according ot her moods, read, play game, copying, drawing, pasting		
2063				drawing, would do that all the time	
1064			half and half, like to play with other children, like to read and see pictures		
2064			blocks, that can be quiet or more active, sits there and he's constructing, thinking about what he wants to build, then he'll get up and hop a bit		

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