TEMPERAMENT AND THE DISPOSITION TO PLAY:

SOURCES OF SHARED VARIANCE

by

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(ABSTRACT)

The possible relationship between parental perceptions of playfulness and temperament was examined. Parents completed the Behavioral Style Questionnaire and the Child Behaviors Inventory. Children were tested using the Weschsler Preschool and Primary Scale of Intelligence to examine the effect of IQ on perceived playfulness. Fathers' ratings of playfulness were correlated with paternal ratings of approachability and maternal ratings of persistence. Mothers' ratings of playfulness were correlated with maternal ratings of persistence and adaptability and paternal ratings of persistence. Distractibility, intensity, and threshold were correlated with parental ratings of externalty. No correlations were found between parental ratings of playfulness or externality.

IQ scores were found to have no significant relationship to parental ratings of playfulness and temperament. Playfulness is a construct distinct from temperament but which can be explained, in part, by temperamental traits which, like externality, detract from the child's propensity to enter into a playful dispositional state. Externality seems to overlap with certain temperament traits which describe the child's propensity to react in particular ways to the context. Future experimental research is needed to assess the contextual influences on playful dispositions. Observational and interview data are also needed to assess whether parental differences in playfulness ratings are attributable to differential perceptions or to contextual variables or to an interaction between the two.

Acknowledgements

The work that is required to complete a graduate program of studies is immense under the best of circumstances. During my tenure as a graduate student, I have had the priviledge to be "tested by fire" by virtue of my personal, professional, and graduate responsibilities. To have reached this stage in my career, I am indebted to many special people. Friends who have provided continued support and understanding include and and . My dearest colleague and personal advisor continues to be . I have also been most fortunate in having an understanding and challenging committee chairperson, Cosby Rogers.

My children have provided inspiration to study the relationship between playfulness and temperament. , , and have survived personal upheaval and remained my staunchest supporters. and are proof that the playful spirit can continue in the midst of long days and longer nights that characterize the pursuit of academic excellence. But it is to my husband, , who taught me to be playful through the both the best and the worst of times, that I lovingly dedicate this volume.

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CHAPTER 1

Introduction

> ... man is never more human than when he plays. But what must he do and be, and in what context, to be both adult and playful? ... I would postulate that, in order to be truly adult, he must on each level renew some of the sportiveness of the young. So must the adult, beyond playful and sportive activities specified as such, remain playful in the centre of his concerns and concerned with opportunities to renew and increase the leeway and scope of his and his fellowman's activities. Whatever the precursors of a specifically adult playfulness, it must grow with and through the adult stages even as these stages can come about only by such renewal. (Erikson, 1972, p. 701-702)

Playfulness, the quality of being alive (Erikson, 1977), has important implications thoughout the life cycle. It is a disposition which can be considered as one dimension of play, the other dimensions being context and behavior (Rubin, Fein, & Vandenberg, 1983). It can also be expressed in nonplay contexts. The

predisposition to play may be seen in the earliest interactions between a mother and child. Later the playfulness of childhood is most readily seen in the child at play, the pranks of the adolescent, and the games and hobbies of adults.

Playfulness has been viewed as a unitary personality trait in young children (Lieberman, 1965) suggesting that the quality of playfulness may be expressed in other areas of development such as cognitive functioning and divergent thinking. The playfulness of adolescents appears to be more multidimensional, possessing both positive and negative qualities that may enhance or inhibit development (Lieberman, 1977). The playful adult may appear to be playful in work or play but as the adult is a more differentiated being than is the child, so the way playfulness may be manifested is more differentiated. Erikson (1972) underscores the importance of playfulness throughout the life cycle by suggesting that it is playfulness that allows an individual the flexibility necessary to adapt to an ever-changing world of expectations and possibilities.

The study of children's play provides information

on factors that are related to the human capacity to play and to remain playful in all concerns throughout the life cycle in ever-expanding contexts. Children approach play in a variety of ways. Some play alone while others interact with other children or adults. Some children insist on realistic props while others utilize whatever materials are available to represent an object (Shotwell, Wolf, & Grollman, 1982). Individual differences in play have been observed in playfulness or the disposition toward play (Rogers, 1988). To fully understand this human capacity, more information is needed on which variables are related to the disposition to be playful.

Playfulness as it appears in the literature has different meanings for different researchers. Its relationship to creativity (Bishop & Chase, 1970; Chapman, 1978; Lieberman, 1967; Singer & Rummo, 1973; Truhon, 1983), attachment (Beckwith, 1985), child-rearing (Sutton-Smith, 1971), mental health (Pellegrini & Yawkey, 1984), behavioral adjustment (Thomas & Chess, 1977, 1980), and parent-child interaction (Dunn, 1985; Melizzi, 1984) serve to underline the significance of the construct. Work by Lieberman (1967, 1977), Singer

and Rummo (1973), and Singer, Singer, and Sherrod (1980) suggested that playfulness may be a unitary personality trait in young children. However, in spite of the theoretical link between personality and temperament, little research has been conducted on the link between playfulness and temperament.

Temperament is a psychological construct which serves as a rubric for phenomena such as iritability, activity level, and fearfulness (Goldsmith et al., 1987). Research on temperament has been focused on the prediction of later traits (Pettit & Bates, 1984), correlates (Dunst & Lingerfelt, 1985; Trudel & Jacques, 1987), and etiology (Goldsmith, 1983; Sameroff, Seifer, & Elias, 1982). Research focused on particular constructs labeled as temperament include the difficulty construct (Bates, 1980) and the concept of behavioral inhibition (Kagan, Reznick, Clarke, Smidman, & Garcia-Coll, 1984). Lerner and Lerner (1983) employed measures of temperament as components in testing contextual models of development.

Research examining the relationship between temperament and the predisposition to play has been virtually nonexistent with the exception of two studies

(Blevins, 1987; Earls & Cook, 1983). In the study conducted by Blevins (1987), the author found a relationship between playfulness and temperament with a small sample of preschool-age children. Four dimensions of temperament were found to be related to playfulness. Persistence and quality of mood were correlated with maternal ratings of playfulness (r = -.41, p < .002 and r = -.23, p <.05 respectively) while persistence, approachability, and adaptability were correlated with paternal ratings of playfulness (r = -.44, p < .004, r = -.45, p < .003, and r = -.49, p < .001 respectively). In scoring the temperament scales, high scores indicated negative expression of the trait and low scores indicated positive expression of the trait. The Earls and Cook study (1983) examined the relationship between observed play behavior and maternal reports of behavior problems and temperament characteristics. Poor coping responses in the play situation were positively associated with behavior difficulties, but not with temperament characteristics. The present study focused on the extent of the relationship between playfulness and temperament and investigated the possible mediating effect of I.Q.

Playfulness was defined by the dispositions of play described by Rubin, Fein, and Vandenberg (1983). These included intrinsic motivation, process domination, organism domination, nonliterality, flexibility, and active involvement. In this study, temperament was based on the Thomas and Chess (1977) definition which focused on behavioral style and was composed of nine dimensions: activity level, rhythmicity, approachability, adaptability, intensity, threshold of responsivity, quality of mood, distractibility, and attention span/persistence.

The theoretical and empirical relationships between play and temperament can be expected to vary based on the approach to defining play and the theoretical view of temperament. This study was designed to answer the following research questions:

1. For each of the nine dimensions of temperament, what is the strength of association between (a) maternal ratings of playfulness and temperament? (b) paternal ratings of playfulness and temperament? (c) maternal ratings of externality and temperament? and (d) paternal ratings of externality and temperament?

2. Controlling for IQ, what is the strength of the

relationship for each of the above questions?

3. What is the factor structure underlying IQ, the demographic variables (sex of child, birth order of child, marital status of the parents, education of mothers and fathers, family income, and employment status), dimensions of temperament (activity level, rhythmicity, persistence, approachability, adaptability, threshold, distractibility, mood, and intensity), playfulness, and externality?

4. Are the dimensions of temperament, playfulness, and externality unique and distinct constructs or do they share some common variance?

5. What demographic variables help to explain the relationship between parental ratings of temperament, playfulness, and externality?

CHAPTER 2

Review of the Literature

Play and Playfulness

For many years theorists and researchers have attempted to develop a satisfactory definition of play. The characteristics that defined play for the early theorists included the exuberant energy with which children played (Schiller, 1954), the restoration that escape from reality could bring (Lazarus, (1883), the adaptive purpose play served in preparing the young of the species for adulthood (Groos, 1901), and the cathartic role play served in development (Hall, 1920). Based on their review of the play literature, Rubin et al. (1983) defined play as

> a behavioral disposition that occurs in describable and reproduceable contexts and is manifest in a variety of observable behaviors. (p. 698)

Behavioral typologies have been defined by Piaget (1951/1962), Parten (1932), Smilansky (1968), and Rubin (1985). The various typologies focused on cognitive levels (Piaget, 1951/1962; Smilansky. 1968), level of social involvement (Parten, 1932) and combinations of the two (Rubin, 1985).

The context for play exists in the presence of an

array of familiar peers, toys, or other materials; freedom to choose from the array whatever they wish to do within limits; minimally intrusive or directive adult behavior; a friendly atmosphere; and scheduling that minimizes the likelihood of stress (Rubin et al., 1983).

Dispositions of Play

What are the dispositions that set play apart from any other activity? How does a researcher distinguish play from nonplay? According to Rubin et al. (1983) there are six dispositions of play: intrinsic motivation, process orientation, organism domination, nonliterality, freedom from externally imposed rules, and active involvement. Intrinsic motivation points to the child's inner state and locus of desire for play. White (1959) referred to intrinsic motivation as "the positive affect associated with mastery" (p. 320), whereas Berlyne (1966) defined intrinsic motivation as an internally pleasant motivational state that acted as a reinforcer of play. The source of pleasure, according to Berlyne, is the reduction of tension associated with resolution of cognitive discrepancy.

The process of play rather than the product of

play is the second characteristic of play (Rubin et al., 1983). Goals of the play activity change according to what is of interest or importance to the player. Because the risks involved in attempting new behaviors or using new materials are minimized during play, new combinations of behavior can be created and tried as the player chooses. Each component of the new behavior can be dismanteled and reassembled in different ways under the direction of the child to produce new combinations which are initially performed in a "gallumphing" (Millar, 1973) or awkward fashion (Garvey, 1977). Process-dominated activity, not present during exploration, occurs after mastery of a skill or a means-end relation (Bruner, 1972; Garvey, 1977).

According to Hutt (1979), exploration involves the acquisition of information and knowledge. While exploring an object or gaining information about a skill, the child attempts to discover all that he/she can about that object of skill. The stimulus acts as the guide to behavior. However, it is in play that the child guides the behavior by engaging in playful activities which utilize past experiences and dominates

what can and will be done. Organism, rather than stimulus domination, is then the third characteristic of play (Garvey, 1977; Hutt, 1979).

A fourth distinguishing characteristic of play is the "as if" or pretense behaviors exhibited by the child (Rubin et al., 1983). This nonliterality allows the child to dispense with the instrumental meanings of objects and behaviors to explore and create new meanings (Fein, 1981, 1985).

Play's freedom from externally imposed rules is a fifth characteristic (Rubin et al, 1983). This particular criterion of play places emphasis on the flexibility of play rather than the structure that defines and confines games-with-rules. Garvey (1977), in differentiating between play and games, pointed out that while play is often orderly, internally consistent, and subject to regulation and participant corrections, it lacks certain game-like characteristics. She described games as structured, rule-dominated events whose infractions carried sanctions or penalities. In contrast to formalized, conventional games, play is characterized as more spontaneous, possessing rules which were under the

child's control rather than having rules to control the child (Garvey, 1977).

The sixth characteristic of play is active involvement (Rubin et al., 1983). While this distinction may be a useful one in defining the play of young children, it must be recognized that it may also be related to the "playing" with ideas that can occur in the daydreaming of older children (Freud, 1959; Klinger, 1971). Garvey (1977) suggested that the demise of overt make-believe play might signal the onset or increase in fantasy or daydreaming.

Playfulness

Playfulness is a psychological construct which refers to the disposition or attitude with which behaviors occur. The term "playfulness" has also appeared in the literature to describe a quality of the player. Playfulness, used as early as 1902 in Sully's (1902) Essay on Laughter, refers to a play-mood or playful attitude in which one throws off restraint and in which enjoyment and pleasure are essential. The playful mood, often signaled and accompanied by laughter, signals play rather than attack, much like the playful acts described by Bateson (1955) in which

"the playful nip denotes the bite but does not denote what might be denoted by the bite." That is, the participants are informed, by the playful mood or attitude of which laughter is a part, that no serious harm is intended (Millar, 1974).

Levine pointed to humor as an integral part of playfulness (Levine, 1967). In discussing the humor involved in play and sports, Levine cited the playful, humorous attitude as the indicator that one's performance was not being taken too seriously. While children were seen seriously involved and absorbed in their play, laughter and fun were viewed as inseparable from their playing. "It can safely be said that one cannot be truly playful without laughter, nor can one be humorous without being playful" (Levine, 1967, p. 56).

Singer and Singer (1977), in discussing imaginative or make-believe play for young children referred to playful invention as the "sense of wonder, exploration, and subtle power over the humdrum world" (p. 16). The playful capacities the Singers (1977) referred to were seen as those capacities which were developed during the child's experiences with fantasy

play and which allowed the child to anticipate practical consequences.

Garvey (1977) identified one characteristic of playfulness as the exuberance referred to in Schiller's (1954) surplus energy theory of play in which the superfluous energy remaining after the primary needs were met was expended in play. Garvey (1977) went on to state that it was the nonliterality involved in a situation that enabled observers and participants to identify actions as playful. For example, from a literal orientation observers might assume when watching two runners that one runner was being pursued by another runner. However, if observers were to hear laughter and noted smiling, their nonliteral orientation would lead to the nonliteral interpretation, "This is play" (Garvey,1977).

Sutton-Smith and Kelly-Byrne (1984) has referred to playfulness as the zest to the novelties in frame-making behavior, the experience of joyfulness, and the quality that makes life worth living (1971). He has also suggested that playfulness involved a special emphasis on the novelty of one's responses and its acompanying feeling of "euphoria arising from the

voluntariness of the proceeding" (p. 21), a reaction to mastery that leads to diversification of action or behavior. After the child has explored what the object can do and repeated the actions in order to master or understand them , the child may diversify his/her actions or behaviors to be playful (Sutton-Smith, 1971).

Lieberman (1965) defined playfulness in young children in terms of five traits: physical, social, and cognitive spontaneity, manifest joy, and sense of humor. Based on her study of playfulness and divergent thinking in kindergarten children (1965), Lieberman further posited that these traits formed a unitary behavioral dimension. Subjects for that study were 93 middle-class kindergarten children (52 boys, 41 girls) from five private kindergarten classes. The mean age of the children was 5.5 years (SD = 4 months). The rating scales, especially constructed for the study, employed a five-point scale. Children were rated by two of their teachers on the quality and quantity of cognitive, social, and physical spontaneity, manifest joy and humor they possessed. Descriptive labels and sample behavior items for the points on the scale were

provided for each trait being rated to ensure greater reliabilty. Corrected reliability coefficients, obtained from correlating the ratings of the two teachers, ranged from .66 to .83 with a mean of .70. It was found through factor analysis of the playfulness traits, intelligence ratings, physical attractiveness ratings, mental age, and chronological age that a single centroid factor accounted for most of the common variance among the five playfulness traits. Four of the five playfulness traits had loadings in the mid .80's on the first centroid factor; physical spontaneity had a loading in the high .70's. Lieberman concluded that based on the centroid factor analysis, playfulness was a unitary behavioral dimension. She also proposed that this playfulness factor was a precursor of adult creativity. Because ratings were only done by teachers and because only behaviors defined as playful were rated, it was possible that the results reflected a halo effect rather than a personality trait.

Work on playfulness as it appears in adolescents was conducted by Lieberman (1977). To develop the adolescent scale for playfulness, 115 junior and senior

high school teachers completed an open-ended questionnaire designed to assess their conceptualization of (a) playfulness and nonplayfulness in general; (b) playfulness and nonplayfulness in teenagers; and (c) behavioral traits or incidents by which playfulness and nonplayfulness could be observed in the classroom. Although there were no negative elements in playfulness or postive mentions for nonplayfulness in the formulation of the kindergarten scale, both were present in the development of the adolescent scale. Based on the items generated by the teachers, 10 playfulness-nonplayfulness scales were developed. Five behavioral dimensions, each subdivided into quantity and quality, emerged: physical, social, cognitive, emotional spontaneity and sense of humor. In addition to the profiles labeling each end of the scale, descriptive traits referring to the most characteristic behavior of the profiles were also provided. The sample of 610 junior and senior high school students (ages 13.1 to 19.3 years) was drawn from grades 9 through 12 in seven New York City schools and two suburban schools. The major correlation matrix for the 610 subjects was a 35 x 35

table and consisted of the 10 playfulness-nonplayfulness scores on the test, two ringer scores (academic achievement and physical appearance), sums of odd-numbered and even-numbered scales and total scale score, the retest scores on these 15 variables, age and sex of student, grade level, normalized ranking of playfulness-nonplayfulness by teacher and sex of teacher.

Intercorrelations between quantity and quality scales were in the .80's at the kindergarten level in Lieberman's study (1965), suggesting that playfulness was a unidimensional trait. However, the pattern at the adolescent level was much different (Lieberman, 1977). Intercorrelations among individual quantity and quality scales ranged from .53 to -.13. In view of the intercorrelations, no pooling of quantity and quality dimensions was carried out. Instead, the individual correlations served as the basis of the factor analysis. Four factors emerged based on the results of the principal components factor analysis and the subsequent varimax rotation to best fit. The first two factors suggested that two different kinds of playfulness-nonplayfulness were

observable at the adolescent level and that the dimensions comprising one type were not major components of the other. The "social-emotional" factor, composed of physical mobility-physical rigidity, spontaneous joy-tenseness, humor-lack of humor, group orientation versus self-orientation, friendliness-rejection, play-conscientiousness, appeared to be a broad, situation-spanning behavior characteristic. The "academic" factor, composed of physical alertness (energy) - physical apathy, enthusiasm-discouragement, intellectual curiosity-intellectual stagnation, and the ringer question assessing ambition (achievement orientation), appeared more readily in the school situation (Lieberman, 1977).

Adult Playfulness and Flow

While it has appeared that play may disappear in adulthood, Csikszentmihalyi (1979) pointed out the lack of longitudinal studies on play has made it difficult to determine what actually happens to play in adulthood. In studying playfulness in adults, Mihaly Csikszentmihalyi (1979) noted the differences between adult play and children's play. The decrease or apparent absence of adult play may suggest that the

form of adult play may be disguised so that it is difficult to recognize or define.

Deciding whether children's play behaviors should serve as the criteria for adult play behaviors has also been problematic. Csikszentmihalyi (1979) contended that the use of children's behaviors was a limited and distorted understanding of what play is to adults and a more appropriate alternative was to view the work-play dichotomy as a continuum. He found in interviewing both assemblyline and clerical workers that those who loved their work described their jobs in ludic terms - work was not real and had no personal consequences while problems at home were real and difficult to handle.

A third problem in defining play was found in the difference in attention for adults and children. While variations in attention for children at play have been noted (Hutt, 1979), Csikszentmihalyi (1979) pointed out the enormous concentration of attention present when adults play.

Because adulthood was a different developmental stage, Csikszentmihalyi chose to examine play and playfulness from a phenomenological approach focusing

on the experience of playfulness rather than play itself. In studying playfulness, Csikszentimihalyi (1975) conducted 175 in-depth (two to four hours) interviews with groups of people who spent large quantities of time and energy on activities that provided few or no extrinsic rewards. These people, chess masters, rock climbers, dancers, and basketball players were apparently intrinsically motivated to act, rewarded by the activities in which they were engaged. The descriptions of how the people felt when their particular experience was going well were found to be remarkably similar. The same kinds of dimensions were replicated when 30 surgeons, teachers, mathematicians, secretaries and workers from assemblyline to management were interviewed.

The first subjective dimension described by those interviewed was concentration or involvement. Concentration was described as the merging of action and awareness so that the player was completely involved in the activity at hand, filtering out extraneous stimuli such as alternatives to the activity or other problems. Because of the intense involvement in the activity, the player's sense of time also became

distorted so that time either disappeared or expanded dramatically. Memory became short-term and was focused on the involvement in the activity. In all these situations the person perceived a clear, noncontradictory goal and clear means-end relationships. The player received constant and immediate feedback so that, for example, the rock climber knew if he or she was on or off of the rock and the tennis player knew if the ball was in or out of the court. Players also described a feeling of possessing influence over whatever was happening (Csikszentmihalyi, 1979), coupled with a loss of personal caring about the end results. Because action and awareness merged there was little self-evaluation of performance. The combination of concentration, immediate feedback, noncontradictory goals, time distortion, personal influence, and loss of personal caring was labeled the "flow" state (Csikszentmihalyi, 1979). When players were in a state of flow, the level of skill they possessed was comensurate with the level of challenge the particular activity presented. When a player's skill exceeded the level of challenge, the player tended to become bored or anxious. However,

when the challenge of the activity exceeded the skill of the player, the player usually became worried or anxious.

Play, then, was defined by Csikszentmihalyi (1979) as the experience of flow in a setting or frame of action in which the activity was perceived to be voluntary and the goal was in the activity itself. Play provided the setting in which flow might occur although the flow state was not dependent on the play frame and could occur in real life, involuntary situations, and extrinsically rewarding contexts as well.

Flow and Playfulness

Flow was similar to playfulness in children in that both constructs included dimensions of intrinsic motivation, process orientation, organism domination, and active involvement. Both adults and children engaged in activites they considered to be play because they chose to do so and not because of any outside demands or requests to play. Both adults and children focused on the process of the activity rather than the product. The process of play for children allowed them the opportunity to take apart skills

already mastered and reassemble them in new and different ways (Bruner, 1972; Garvey, 1977) whereas for the adult, the process of the flow-inducing activity provided an optimal level of challenge, an opportunity to test self against self (Csikszentmihalyi, 1979). In both the Rubin et al. (1983) and Csikszentmihalyi (1979) definitions of playfulness, players were characterized as being actively engaged in the activity considered play, and both definitions referred to the control of the player over the stimulus object of skill.

The nonliterality of childhood, exhibited in children's make-believe play, might be manifested in other ways in adult play. Adult players often play "as if" the consequences were as real as those in real life and in some adult fantasy play, nonliterality might be displayed. This particular dimension, however, would not necessarily be present in Csikszentmihalyi's flow state. Not all dimensions must be present for an experience to be playful. However, Krasnor and Pepler (1980) proposed that the more dimensions of playfulness present, the more likely the behavior would be identified as playful.

Freedom from externally imposed rules serves to differentiate play from organized games. Piaget (1951/1962) believed that games with rules constituted a higher level of play occurring after the stage of symbolic play. According to Csikszentmihalyi (1979) games were one kind of situation that might produce flow for adults because through the rituals, equipment, and rules of the activity, the player was able to screen out that which was irrelevant, focus attention on the activity, possess goals, receive feedback, and possess a feeling of control. However, according to Garvey (1977), for young children the rules of the game are under their control; and therefore, subject to change. This freedom from externally imposed rules and the resulting flexibility to be in control of the play situation serves to differentiate the play of the child from that of the adult. In the present study freedom from externally imposed rules was included to reflect a dimension of rule flexiblity.

Life-Span Playfulness

Erikson wrote about playfulness throughout the life cycle as a leeway of mastery, the "give" or flexiblity that must accompany the factual structure he

called reality (Erikson, 1972). He suggested that playfulness was free movement within limits (Erikson, 1972) and wherever playfulness prevailed, there was always a surprising element, "surpassing mere repetition or habituation, and at its best, suggest(ed) some virgin chance conquered, some divine leeway shared" (Erikson, 1977, p. 17). Erikson believed that playfulness throughout the life cycle was, in fact, liveliness and its loss led to certain stagnation and deadliness (1977).

According to Erikson (1972) the function of playfulness was the creation and restoration of a leeway of mastery in a set of developments or circumstances. He suggested that a certain playfulness was inherent in the infant's earliest visual scanning and rescanning of the mother's face, which lead to significant interplay when it was responded to by the mother with playful encouragement. This interplay aided in the confirmation of a sense of mutuality for both mother and infant. The restorative function of such a leeway was also confirmed in the earliest mother-infant interactions of mutuality when the mother responded playfully to her infant's enraged or angry

bids for attention. When the mother responded in such a manner, the infant was often appeased, suggesting that the infant was, in fact, bidding for some form of interaction and the mother was responding in a way that restored the flexibility of responses available to the child.

The growing child's play, seen as the training ground for the experience of a variety of imaginative choices within an existence governed and guided by rules (Erikson, 1977), served to orient the child within the boundaries of what was imaginable and possible, and then to what was most effective and most permissable in a cultural setting (Erikson, 1972). Not only did playfulness suggest free movement within the limits imposed by the setting for the young child, but here, too, it served a creative and restorative function. If, through play children were working through some traumatic experience, playfulness was the factor that transformed the play event into an act of renewal. If the play acts served as the vehicle for communication or confession, it was playfulness that added the joy of self-expression (Erikson, 1977).

For the adolescent the return to childish and childlike behavior in the midst of an increasing anticipation and participation in adulthood led to actions which were irreversible - actions which might endanger safety, violate legality, and possibly forfeit the actor's own future (Erikson, 1979). The paramount question of adolescents was "Will they then have learned to be playful and to anticpate some leeway of personal and social development?" (Erikson, 1972). It was at this stage that the boundaries within which one could exlore and imagine were tested to their limits - and whose limits might even be exceeded. The child, whose actions were rarely irreversible, moved freely within the boundaries set up in the context of play. However, it was possible for the adolescent, in searching for identity and fidelity (Erikson, 1972) to exceed the culturally sanctioned boundaries in which playfulnes was truly possible. Youthful rebellion has always attempted to create new leeway for new and potential roles in the assumed realities of the parent generation (Erikson, 1972).

And what form does playfulness take in adulthood? The soul of adult play is found in the realization that

it is in adulthood that an individual gains leeway for himself while creating it for others (Erikson, 1972). According to Erikson, in order to be truly adult, humans "Must on each level renew some of the playfulness of childhood and some of the sportiveness of the young" (Erikson, 1972, p.701). So adults must remain playful amid their concerns and be concerned with opportunities to renew and increase the leeway and scope of their own and others' activities (Erikson, 1972).

Empirical Studies of Playfulness: Methodological Considerations

Studies of playfulness have been limited by two main methodological problems, (a) lack of a clear and commonly agreed upon definition of playfulness, and/or (b) the extensive training and time commitment required to use the existing instruments (Rogers, 1988).

Based on recent definitions of play, more specific criteria for defining playfulness have been proposed. Krasnor and Pepler (1980) have suggested that flexibility, positive affect, nonliterality, and intrinsic motivation serve as markers to identify play behavior to observers. As the number of these

qualities present in observed play increases, behavior is more likely to identified as play.

Smith and Vollstedt (1985) evaluated both the Krasnor and Pepler (1980) criteria and the Rubin et al. (1983) criteria and selected five dimensions for study: (a) intrinsic motivation, (b) positive affect, (c) nonliterality, (d) means/ends, and (e) flexibility. Although no single dimension predicted play with certainty, untrained observers were able to agree on which behaviors were play using the five dimensions. Nonliterality provided the most confident judgement of play behavior and when any combination of two of the characteristics of nonliterality, postive affect, and flexibility occurred simultaneously, play was judged to occur for over half the play episodes.

Teacher rating scales have also been difficult to use, in part because they were designed to measure a variety of behaviors (Singer & Rummo, 1973) or the extensive time required to collect and analyze the data was extensive (Singer, Singer, & Sherrod, 1980).

Utilizing a teacher rating scale of a variety of behaviors, D. L. Singer and Rummo (1973) were able to identify a playfulness dimension in their study of the

possible relationships between ideational creativity and behavioral style. The subjects for that study were 79 white, middle-class children (27 boys, 52 girls). Their ages were 52 to 77 months (mean age = 66.0, SD = 6.4). Behavioral style was assessed using a teacher rating scale developed for the study. The researchers attempted to make the measure conceptually comparable to that of Wallach and Kogan (1965) because such measures had been found independent of IQ in kindergarten children (D. L. Singer & Rummo, 1973).

To create the scales, Singer and Rummo (1973) compiled 75 descriptive statements. For each class independent ratings were obtained from the two teachers. Statements were presented one at a time and teachers were instructed to rate each child from 0 (statement was not at all descriptive of the child) to 40 (child was extremely high on the attribute) on each of the statements. All children were rated on each attribute before moving to the next attribute. Face valid rankings and numerical ratings were obtained and possible contaminating scale shift effects which might result from rating the class or each child individually on the whole list of attributes were thereby avoided.

The 15 resulting scales were composed of from one to five items each. Each child was given a score on each scale by summing across items. A factor analysis with varimax rotations yielded a pattern of three multiscale factors. Factor A: Work Orientation accounted for 41% of the trace; Factor B: Playfulness and Openness to Experience, 23% of the trace; and Factor C: Ego Strength, 6% of the trace. Factor B, Playfulness and Openness to Experience, was composed of four scales: Openness and Communicativeness; Curiosity, Novelty-Seeking, and Imagination; Humorous, Playful Attitude; and Emotional Expressiveness.

A factor labeled Physical Coordination, Grace and Rhythm had a loading of only .16, suggesting that for this sample, this variable did not belong in the Playfulness factor. However due to the small number of boys in the study, the physical coordination factor may have been misleading. Because boys are generally reinforced for more physical behavior, the physical factor might have been higher if there had been more boys in the Singer and Rummo (1973) study.

Singer, Singer, and Sherrod (1980) identified a playfulness factor from behavioral data collected

during free-play observations of 3- and 4-year-old children in nursery schools or daycare centers over a one year period. During each of eight bimonthly observations two observers each wrote down what individual children did and said during a 10-minute period. From these verbal descriptions, the two observers independently rated each child on a number of behavioral, affective, and social scales. The ratings of the two observers for each child were averaged to give one rating per child per observation. These average per child ratings were also averaged for the month, resulting in four probe periods of observation per child (Singer, Singer, & Sherrod, 1980).

Eleven variables were rated on a 5-point scale. Variables were defined as mutually exclusive categories. The variables included: imaginativeness of play, positive emotionality, persistence at a specific task or perseverance in an activity or game, overt physical aggression toward another child, cooperation with another child, and a series of specific mood states.

Repeated measures were averaged over the four probe periods to generate year-end averages. In order

to examine the interrelationships of the variables and to explore the common underlying structure of this set, a principal components factor analysis with iterations was done on the means of the variables. This analysis yielded three factors with eigen values above 1.0; these three factors were then subjected to varimax orthogonal rotation. The resulting factor structure accounted for 36.0% of the total variance (Singer, Singer, & Sherrod, 1980).

The first factor, explaining 48% of the common variance, consisted of variables reflecting the general playfulness of the preschooler and indexed the imaginative, gregarious, enthusiastic, and active nature of the daily play routine. Variables represented in this first factor included high positive loadings on positive affect, observed imaginative play, activity level, social interaction, and frequency of words and utterances; high negative loadings on fearfulness, sadness, and fatigue (Singer, Singer, & Sherrod, 1980).

Temperament

Although there is no clear-cut consensus regarding

the nature of temperament, there does appear to be some consensus as to what temperament is. In a roundtable discussion, temperament researchers Goldsmith, Buss, Plomin, Rothbart, Thomas, Chess, Hinde, and McCall (1987) agreed that temperament was a rubric for a group of related traits which encompassed phenomenon such as irritability, activity level, and fearfulness. Which particular phenomenon delineated a coherent package remained unresolved. Researchers in the area of temperament tended to agree that dimensions reflected behavioral tendencies rather than discrete acts and emphasized biological bases and continuity. Their focus on infancy reflected their asumption that the link between temperament and behavior became more complex with maturation. Temperament, it was agreed, referred to individual differences rather than species-general characteristics, and their dimensions were viewed as having a dynamic nature in and of themselves.

Disagreement among researchers of temperament focused on four areas (Goldsmith et al., 1987). First, each approach suggested a different boundary for temperament, designating varying degrees of infant

behavior as temperament. Second, the dimensions considered to be temperamental varied among researchers, with activity level and emotionality as the only consensus choices. Third, disagreement on the boundaries between temperament and personality and, fourth, retention of the term "difficult child" were the final points of divergence among people studying temperament (Goldsmith et al., 1987). Points of comparison among the Goldsmith, Rothbart, Buss and Plomin, and Thomas and Chess theories are presented in Table 1.

After examining these four theoretical positions, the Thomas and Chess model was selected as the one most appropriate for use in this study. This model focused on the interaction of personality with context to provide a goodness of fit (Thomas & Chess, 1977). In examining the construct of playfulness and temperament in young children it appears that there may be some conceptual overlap between the two constructs. The dispositions of play defined by Rubin et al. (1983) are behavioral in nature and serve to describe the how, why, and what of play.

Table 1: Comparison of Four Theoretical Models of Temperament

Buss & Plomin	Thomas & Chess	Rothbart	Goldsmith
"set of inherited personality traits that appear early in life" traits are genetic in origin traits appear during the first year of life	"Stylistic component of behavior; that is, the how of behavior as differentiated from motivation (the why of behavior) and abilities (the what of behavior).	"Relatively stable, primarily biologically based individual differences in reactivity and self-regulation . . Behaviorally, temperament can be observed at all ages as individual differences in patterns of emotionality, activity, and attention. Phenomenologic ally it is experienced as feelings of energy, interest and affect.	Temperament is defined as "individual differences in their probability of experiencing and expressing the primary emotions and arousal. Differences are confined to the behavioral level because it is the most meaningful in social contexts and it facilitates immediate empirical investigation."

BOUNDARIES

Buss & Plomin	Thomas & Chess	Rothbart	Goldsmith
Excludes individual differences that are not personality traits (e.g. IQ and rhythmicity) Focuses on personality traits that appear in infancy and provide the foundation for later personality. Excludes personality traits that originate solely in environmental events.	Viewed as an independent psychological attribute that may and does interact with attributes such as cognition, arousal, motivation, or emotionality in a mutually influential sequential interactional system. Always expressed as a response to external stimulus, opportunity, expectation, or demand. Mediator and shaper of environmental influence on the individual's psychological structure. Must be rated in terms of social context within which it occurs.	Individual differences exceed behavioral style to specify an individual's predispositions to particular reactions; includes differences in phenomenological experiences and psychopsysiological functioning as well as behavior. Not seen as limited to Goldsmith's emotionality or Buss & Plomin's negative emotions. Only one factor influencing behavior and experiences. (Others include cyclic state influences, current motivational conditions, knowledge	Emotional in nature Pertains to individual differences. Refers to behavioral tendencies rather than occurrences of emotional behavior. Indexed by expressive aspects of emotion. Does not include cognitive or perceptual factors; extends beyond transitory states. Forms the emotional substrate of some later personality characteristics.

BOUNDARIES

Buss & Plomin	Thomas & Chess	Rothbart	Goldsmith
	Bidirectional influences of temperament and context such that the effect of a given environmental influence will be affected by the child's temperament while at the same time, the child's temperament will affect judgements, attitudes, and behavior of significant individuals in his/her environment. View temperament as a component of personality (Other components include motivations and abilities, standards and values, and defense mechanisms).	structures, and expectations. Temperament and personality are broadly overlapping the biological base for the developing personality.	

ELEMENTS OF TEMPERAMENT

Buss & Plomin	Thomas & Chess	Rothbart	Goldsmith
Traits: 1. Emotionality - equivalent to distress; involves emotional arousal and to a lesser extent, behavioral arousal 2. Activity - composed of tempo and vigor, involves behavioral arousal 3. Sociability - preference for being with others rather than being alone	Traits: 1. Rhythmicity of biological functions 2. Activity level 3. Approaches to/withdrawal from new stimuli 4. Adaptability 5. Sensory threshold 6. Predominant quality of mood 7. Intensity of mood expression 8. Distractibility 9. Attention span/ persistence Clusters: 1. Easy 2. Difficult 3. Slow to Warm up	Traits/Dimensions: 1. Negative reactivity - reflected in expressed and felt distress and in behavioral and attention aversion 2. Positive reactivity - relfected in expressed and felt positive affect and in behavioral and attitudinal approach 3. Behavioral inhibition to novel or intense stimuli 4. (Potential dimension) - Capacity to focus and shift attention	Traits: 1. Primary emotions of anger, sadness, fear, joy and pleasure, disgust, interest and surprise - examined in terms of stability, cross-situational coherence, relationship to parental characteristics and relational variables, physiological correlates, genetic influences, and a variety of measurement issues 2. Expression of emotions and emotional arousability that is identified with temperament

HOW DOES TEMPERAMENT DEVELOP?

Buss & Plomin	Thomas & Chess	Rothbart	Goldsmith
Temperament, especially emotionality, seen to differentiate over time. Temperament is expected to change in mean level over course of childhood. Temperament expected to be relatively stable during development with allowances for temporary spurts, plateaus, or drops that occur in childhood. Genetic origin of traits does not render them immutable, should make them more stable.	Concept does not require genetic base; however, once child is born, temperament traits enter a constantly evolving interactional process with other psychological attributes, and with intra- and extra-familial environments which may serve to reinforce, modify or change temperament characteristics. Temperament is relatively stable, but not absolutely, depending on environmental influences.	Although there are periods of temperamental instability, there are also long periods of relative stability of basic temperament characteristics. Temperament can be seen as relatively stable while undergoing change in connection with maturational transitions. Currently views organized emotions (e.g. fear) as consisting of components that mature at different times.	Proposes a basic set of emotions present in rudimentary form from very early infancy. Temperamental characteristics do not become stable in the sense of some degree of preservation of rank order among individual's until the various facets of feeling states, action tendencies and response systems become integrated into a functional system; <u>when</u> the system begins to function in an integrated manner may also depend on the eliciting stimuli as well as other factors.

PERSONOLOGICAL VS. RELATIONAL/INTERACTIVE CONSTRUCT

Buss & Plomin	Thomas & Chess	and Rothbart	Goldsmith
Personological - acknowledges the environment as a causal agent but suggests it has received more attention than evidence warrants necessary. Emphasized role of people as causal agents, selecting environments to suit own temperament. Concept of matches and mismatches between people and their environments.	Basically personological, but not a fixed immutable entity. Uses "goodness of fit" to describe developmental dynamics involved in psychological development. Goodness of fit results when opportunities, expectations, and demands of environment are in accord with child's temperament, resulting in optimal development in a positive direction. Poorness of fit involves discrepancies between environmental opportunities, expectations, and demands the child's temperament resulting in distorted development and maladaptive functioning.	Temperament is within the individual to the extent that temperament is manifested within some environment; the behavioral expression and phenominological experience of temperament is also influenced by the degree of stimulation and regulation provided by that environment.	Towards the personological pole but does not preclude social interactive influences on their development or their influence on the course of later social interaction. Temperament never expressed in a vacuum. Evoking stimuli are part of the context. Sees weaknesses in goodness of fit concept.

Temperament: The Thomas and Chess Model

Thomas and Chess (1977) viewed temperament as a general term referring to the how of behavior. In contrast to ability, which is concerned with the what and how well of behaving, and from motivation, which accounts for why a person does what he does, temperament concerns the way in which an individual behaves (Thomas & Chess, 1977). While temperament may and does interact with other attributes such as cognition, arousal, motivation, or emotionality in a mutually influential, sequential interactional system, temperament was viewed as an independent psychological attribute that must always be differentiated from motivations, abilities, and personality (Goldsmith et al., 1987). Thomas and Chess believed that temperament was expressed as a response to external stimulus, opportunity, expectation, or demand, acting as a dynamic factor that served to mediate and shape the influence of the environment on the individual's psychological structure. Rated in terms of the social context within which it occurred, temperament was an attribute of the child that mediated the influence of the environment.

The New York Longitudinal Study, the first group study by Thomas and Chess, was composed of 141 children of middle- or upper-middle-class background (Thomas & Chess, 1977). The first 80 of these children were predominantly Jewish and all were residents of the greater New York area. At the time of the child's birth, half of the mothers were less than 31 years old and the median age of the fathers was 33.6 years. The length of marriage at the child's birth was 5.3 years for half of the group. Seventy-five percent of the mothers and 82% of the fathers had a college education and held postgraduate degrees. Only about 10% had no college at all. Thirty-five per cent of the children were the first born, and thirteen children remained the only child throughout at least their second year. Sixteen per cent of the children had two or more older siblings, and seven of the children resided in households that included children of previous marriages of one or both parents (Thomas, Chess, Birch, Hertzig, & Korn, 1963).

The initial contacts with the families to arrange for their participation in the study were made before the birth of the child or within the

first weeks after birth in all but 14% of the 80 children. Subsequent histories were taken at approximately three-month intervals for a year, then at six-month intervals. Before being interviewed, the parents were told that the purpose of the project was to study the individual behavior of normal children in normal homes and that they should not deviate in any way from their usual procedure of handling the child nor keep any special records. The first interview occurred when the child was approximately three months old, and a general outline was used in order to obtain both background and behavioral information. In the later interviews items of behavior recorded in earlier histories that were still pertinent to present functioning were again recorded, together with detailed descriptions of any changes that had occurred. New items were added as they appeared in the child's functioning. The interviews were structured but flexible, and each interview lasted from one to two hours during the first year and from two to four hours during the second year of life. The responses were recorded during the interview and transcribed immediately thereafter.

A content analysis was performed on the interview protocols of the first twenty-two children studied. In the course of this analysis the protocol data were distributed against a wide variety of formal behavioral attributes. It was found that nine categories of functioning could be scored continuously throughout the protocols. The distributions of scores in each of these categories were sufficiently wide to permit differentiation among individuals within each category. The content analysis resulted in the adoption of the following nine categories for the assessment of individuality in behavioral functioning:

1. Activity level: the motor component present in a given child's functioning and the diurnal proportion of active and inactive periods.

2. Rhythmicity: the predictability and/or unpredictability in time of any function.

3. Approach or Withdrawal: the nature of the initial response to a new stimulus. Approach responses were considered positive: withdrawal responses were considered negative.

4. Adaptability: the responses to new or altered situations. Concern was not with the nature of initial response but with the ease with which they were modified in the desired directions.

5. Threshold of Responsiveness: the intensity level of stimulation necessary to evoke a discernible response, irrespective of the specific form that the response may take or the sensory modality affected.

6. Intensity of Reaction: the energy level of the response.

7. Quality of Mood: the amount of pleasant, joyful and friendly behavior as contrasted with unpleasant, crying, and unfriendly behavior.

8. Distractibility: the effectiveness of extraneous environmental stimuli in interfering with or in altering the direction of the ongoing behavior.

9. Attention Span and Persistence: the length of time a particular activity was pursued by

the child: the continuation of an activity in the face of obstacles to the maintenance of the activity direction. (Thomas et al., 1963. pp. 40-41)

Once these nine categories were established, a scoring procedure based on a five-point scale was developed. Because the initial reliability studies indicated low reliability for the middle-category positions, a three-point scale was adopted for each category of behavioral functioning utilizing the polar extremes and a middle level. Every behavioral record was scored for each of the nine categories on a three-point scale resulting in a specific item sum for each category of reactivity.

Each protocol was analyzed for each category independently. No succesive interviews of a given child were scored continuously to avoid contamination by halo effects. In scoring the data, as well as in its acquisition, use was made of objective descriptive items; interpretation of behavior was avoided (Thomas et al., 1963).

Psychometric Studies of the NYLS Parent Interviews

To determine the validity of the parental report the scored interview protocol was compared with a scored direct behavioral observation protocol for the same age period. To maximize the objectivity of scoring the nine categories of reactivity, each of the categories was clearly defined: the criteria were specified and illustrative examples were provided. Each protocol, analyzed for each category, was independently analyzed to minimize intercategory halo effects (Thomas et al., 1963).

To test the reliability of the scoring procedure, the results obtained by two independent judges was compared in the scoring of a series of twenty-two consecutively obtained cases. Interscorer reliability was 90% for the 198 comparisons made. This high level of interscorer reliability was also achieved when a comparison was made of the results obtained by two additional scorers who were trained in this work at a later point in the study. Intrascorer reliability, examined by resubmitting interview protocols to their original scorers after a period of three months, was at the same high level as interscorer reliability (Thomas

et al., 1963).

Additional longitudinal studies included (a) a group of 95 children of mostly intact, lower-income (working-class) Puerto Rican parents; (b) 68 children born prematurely with clinical evidence of neurological impairment at age 5 (55% of boys and 36% of girls); (c) 52 children with mildly retarded intellectual levels without gross evidence of motoric dysfunction or body stigmata; and (d) a special population of 243 children with congenital rubella which was studied cross-sectionally at two to four years of age, and during a follow-up four years later (Thomas & Chess, 1977).

Three constellations of functional significance were defined by qualitative analysis of the data and factor analysis. The Easy Child, accounting for about 40% of the NYLS sample, was characterized by regularity, positive approach responses to new stimuli, high adaptability to change and mild or moderately intense mood which was predominantly positive. The Difficult Child, comprising about 10% of the NYLS sample, possessed irregularity in biological functions, negative withdrawal reponses to new stimuli, nonadaptability or slow adaptability to change, and

intense mood expressions which were frequently negative. The Slow-To-Warm-Up Child, found in about 15% of the NYLS sample, was marked by a combination of negative responses of mild intensity to new stimuli with slow adaptability after repeated contact. Unlike the difficult children, this group of children was characterized by mild intensity of reactions, whether positive or negative, and by less tendency to show irregularity of biological functions (Thomas & Chess, 1977).

Not all of the children fit into one of these three temperamental groups because of the varying and different combinations of temperamental traits which were manifested by individual children. Among those children who did fit one of the three patterns, there was a wide range in the degree of manifestation. However, these variations within the constellations represented variations within normal limits, indicating the wide range of behavioral styles exhibited by normal children (Thomas & Chess, 1977).

It was possible to identify each of the nine categories of temperament in each child at different age-periods in the preschool and early school years in

all of the study populations (NYLS, the Puerto Rican working-class children, the mentally retarded group, the premature sample with high incidence of neurological damage, and the children with congenital rubella).

Problems associated with the Thomas and Chess method for determining the nine categories of temperament by inductive content analysis of the parent interview protocols were outlined by Campos, Barrett, Lamb, Goldsmith, and Sternberg (1983). These included: (a) no guidelines for replication in other research projects, (b) unknown presence or stability of the identified categories at later ages, (c) seemingly disparate levels of analysis required by the nine dimensions, (d) lack of discriminant validity among the proposed categories, and (e) unsuccessful, independent attempts to operationalize some of the nine dimensions using caretaker-report questionnaires (Campos et al., 1983).

Conclusion

It appears that both playfulness and temperament are valid and measurable constructs possessing conceptually similar elements. However, with the exception of the Blevins (1987) study, no study had

been undertaken to examine the extent to which these constructs are related. In order to build on the previous work, the present study was conducted to examine the relationship between playfulness and temperament using a larger sample (N = 128) of four-year-old children. It was hypothesized that the playful child would be perceived as a physically active child with a positive mood, eagerly approaching new situations and objects and readily adapting to new or altered situations by utilizing pretense, imagination, and a process orientation towards stimulus objects or situations to his/her advantage. While intensity of the stimulation needed to evoke a response was hypothesized to be moderate as was the energy level of the response, the playful child was perceived as being persistent because he/she was intrinsically motivated to engage in the activity at hand. According to Csikszentmihayli (1979), play was a context for flow in which the player had control over the challenges. Research conducted by Rogers and Ponish (1987) found that when children determined the level of challenge within the play situation, they were more likely to persist because both the activity itself and the level

of success was under their control.

It was the purpose of the present study to explore the elements common to both playfulness and temperament as perceived by both mothers and fathers and to determine the degree to which these two constructs were related. This study also examined the differences in parental perceptions of playfulness and temperament. It was hypothesized that, given the differential experiences of parents with their children and the possible interaction between the sex of the child and the sex of the parent, that the temperamental dimensions relating to playfulness would be different for mothers and fathers.

CHAPTER 3

Methodology

Population and Sample

Parents (122 mothers, 62 fathers) of 128 4-year-old children (72 boys and 56 girls) enrolled in 15 private nursery schools and day care centers in southwest Virginia participated in this study. Parents were predominantly middle class, two-parent dual earner families. Of the 122 mothers (*M* age = 31.2 years, *SD* = 5.25) completing the Child Behaviors Inventory (CBI) and Behavioral Style Questionnaire (BSQ), 87 were married, 87 were employed 40 hours per week or more, and 62 had college educations. Of the 62 fathers (*M* age = 34.6 years, *SD* = 6.63) 56 were married, 58 were employed 40 hours or more, and 39 had college educations). Fifty-five children were only children, 33 were oldest and 33 were youngest. The IQ scores ranged from 79 - 131 (*M* IQ = 107, *SD* = 11.83).

Directors of participating programs were contacted (Appendix A) to request participation in the Virginia Tech Child Development Project. After receiving permission from the directors to contact parents of children in their respective centers, parents received an explanatory letter requesting their participation in

this study and seeking their permission to individually administer a screening test to assess school related behaviors (Appendix B). Parents who agreed to participate were given a copy of the Child Behaviors Inventory, The Behavioral Style Questionnaire, and a letter containing the directions for completing each instrument (Appendix C). The instruments were returned to the center directors one week after distribution to the parents. Appointment times were arranged at the convenience of parents and center directors for the individual administration of the Information and Block Design subtests of the Weschler Preschool and Primary Scale of Intelligence (WPPSI) (Weschler, 1967). Because the initial response rate for the centers was low (less than 50%), all parents who had not previously completed permission to participate forms were contacted by letter. This second letter, and an accompanying set of the instruments, explained that those classes with a response rate of at least 90% would receive a new teaching aid. Posters to remind parents to complete and return their forms were posted outside the classrooms. The final response rate remained low (less that 48%) at the participating centers. Directors

explained that many families were involved with vacations or summer activities or felt that the forms were too long. Fathers were most reluctant to complete the BSQ, citing its length as a deterrent for completion.

Instruments

Based on the Rubin et al. (1983) definition of the dispositions of play, the Child Behaviors Inventory (CBI) is a 31-item questionnaire currently being developed to assess playfulness in children. The instrument is designed to be used by parents or teachers to rate children at home or in their respective classrooms. Statements of traits describing playful or externally-oriented behaviors are rated from 1 (almost never displayed) to 6 (almost always displayed). High scores indicate playful behaviors: low scores indicate externally-oriented behaviors.

Psychometric Properties of the Child Behaviors Inventory

Parents and teachers of 892 children in grades preschool through four, provided data that were used for the construction and validation of the Child

Behaviors Inventory (CBI) (Rogers, 1988). The 892 children comprised five samples: Sample 1, 47 university laboratory preschoolers rated by their teachers; Sample 2, 36 university laboratory preschoolers rated by their teachers, mothers, and fathers; Sample 3, 48 non-university preschool children rated by both mothers and fathers; Sample 4, 382 school-age children in kindergarten through fourth grade, rated by their mothers and teachers; Sample 5, 296 children in kindergarten through fourth grade, rated by their student teacher and supervising teacher, both of whom observed the children in the same context on a daily basis; Sample 6, 83 kindergarten through fourth grade children rated by their teachers (Rogers, 1988).

Item Construction and Revision

Items for the CBI were solicited from sixteen scholars in the of area play. The 63 items which formed the original pool were submitted by five of the scholars who provided items for each of the six criteria outlined by Rubin et al. (1983). To assess content validity, sixteen other well-known scholars

were asked to rate each item for its conceptual relationship to the criterion it was intended to measure; eight scholars responded. Any item receiving a mean rating of two or below was discarded and several items were eliminated on the basis of qualitative comments by the scholars. Items were then randomly ordered and repinted with instructions for rating children on each behavioral trait on a scale from "1" (very uncharacteristic) to "5" (very charactaeristic) (Rogers, 1988).

To determine the structure of the CBI scale, factor analysis was conducted. Principal components factor analysis followed by varimax rotation based on maternal ratings of 467 children, all samples combined, resulted in two principal factors. Factor 1, Playfulness, was comprised of 21 of the 28 original items and Factor 2, Externality, consisted of seven items which tended to be affected by environmental factors (e.g., a dependency on other people for direction and on non-flexible uses of objects in the environment). A second varimax rotation factor analysis, based on teacher ratings in all samples combined (N = 844), resulted in a similar factor

structure with the exception of a few items that loaded on both scales (Rogers, 1988).

Internal Consistency

Across the five samples, Cronbach alpha coefficients were high, ranging from .81 to .94, for Factor 1: Playfulness. Alphas were acceptable for Factor 2: Externality and ranged from .62 to .72.

Item and Subscale Means and Standard Deviations

Means for individual items on Factor 1: Playfulness ranged from 3.44 (*SD* = 1.07) to 4.49 (*SD* = .72) when mothers were raters, indicating that most children were considered by mothers to be generally playful. Item means on Factor 2: Externality ranged from 2.65 (*SD* = 1.20) to 3.65 (*SD* = 1.14) when mothers were raters and from 2.83 (*SD* = 1.20) to 3.26 (*SD* = .97) when teachers were raters, indicating that children were also affected by their environment. Standard deviations indicated that there was moderate variability, supporting the construct of individual differences in the disposition to play as perceived by the raters. Subscale means and standard deviations

were positively skewed, reflecting that children were generally considered to be both playful and externally responsive. This reflected a presence of both dispositional and contextual dimensions of play. Subscale means for Factor 1: Playfulness were higher than for Factor 2: Externality regardless of which adult made the rating. Teachers' ratings of playfulness were lower than those made by parents, possibly indicating contextual effects. Ratings of externality were lowest when made by fathers, slightly higher when from teachers, and highest on mothers' data, suggesting that the externally dependent behaviors were more likely to be displayed in the presence of persons with whom the child had the most contact (Rogers, 1988).

Interrater Reliability

Interrater reliability was studied in five samples. With all samples combined, correlations between 316 pairs of teachers, some of which saw the child in different settings, were $r = .60$ ($p < .001$) for playfulness and $r = .42$ ($p < .001$) for Externality. Interparent correlations (71 pairs of mothers and fathers), all parents of preschoolers, were lower than

the interteacher correlations for Factor 1: Playfulness (r = .33 for interparent ratings, r = .60 for interteacher ratings) but higher for Factor 2: Externality (r = .57 for interparent ratings, r = .11 for interteacher ratings). Correlations between ratings by 418 mothers versus those by teachers were substantially lower, r = .12 ($p < .05$) for Playfulness and r = .11 ($p < .05$) for Externality (Rogers, 1988). Since mothers and teachers observed children in different settings, contextual input on disposition may have contributed to low interrater reliability between parent and teacher ratings.

Interscale Correlations

Correlations between the two subscales were moderately low when mothers and fathers were raters. All interscale correlations were negative, i.e., chidren rated as more playful were less dependent on external factors, i.e. their disposition was less constrained by contextual factors. The higher interscale correlations generated by teachers was most likely due to items that could have been placed on either scale (Rogers, 1988).

Relationship to Other Variables

In order to determine whether behavioral ratings could be attributable to developmental or sex differences rather than individual differences, additional analyses were carried out in the Rogers (1988) analysis. All correlations between sex, age, grade, and the two subscale scores were negligible with two exceptions. First, a low but significant correlation between age and playfulness (r = .10) was indicative of a tendency for older children to be rated as more playful by their mothers. A moderately low but significant negative correlation was found between age and Factor 2: Externality when teachers were the raters (r = -.35). The direction of the correlation indicted that, with increasing age, children were less externally dependent on objects and/or people (Rogers, 1988).

Construct-Related Validity

A subsample of Sample 1, comprised of 28 4-year-olds (mean age = 55.86 months, SD = 4.89), enrolled in a university laboratory school participated in an observational study of construct-related validity

(Hawkins, 1987). Children were invited, individually, to particpate in a semi-structured pretense scenario called "The Birthday Party." A trained student prompted and supported pretense episodes which were aided by some realistic and some ambiguous props.

Fourteen behaviors corresponding to items on the CBI subscales were coded; the five behaviors which achieved interrater reliability of .90 or above were retained for comparison with the CBI. Reliably observable behaviors were categorized into Dependent behaviors and Pretense behaviors. The rate of occurrence of specific behaviors (frequency/time) was used in the analyses. Dependent behaviors were moderately and negatively correlated with Factor 1: Playfulness but moderately postively correlated with Factor 2: Externality. Three of the four Pretense behaviors were significantly and positively correlated with Factor 1: Playfulness but none was significantly related to Factor 2: Externality (Hawkins, 1987). These data were interpreted as supporting construct-related validity for the Child Behavior Inventory of Playfulness.

Concurrent Relationship to Other Trait Variables

Parents in Sample 3 (N = 48 mothers, 36 fathers) completed the Behavioral Style Questionnaire (McDevitt & Carey, 1978) on temperament. Results indicated that maternal ratings on the Playfulness scale of the CBI were negatively correlated with Mood and Persistence while ratings on the Externality scale correlated positively with Intensity and Mood. Low temperament scores represented easier temperament traits. Based on maternal ratings, then, a positive mood and increased attention span were associated with playfulness (Blevins, 1987).

Paternal ratings on the Factor 1: Playfulness of the CBI were negatively correlated with fathers' ratings of their children's approachability, adaptability, and persistence, while ratings on Factor 2: Externality were not significantly correlated with any of the temperament dimensions (Blevins, 1987).

The common association among the subscales of the Matthews Youth Test for Health (Matthews & Angulo, 1980) measure of Type A behavior in children and the CBI factors were studied with Sample 6 (N = 83), a predominantly white, middle-class group of school age

children. Playfulness was not related to the Impatience-Aggression subscale on the MYTH but, contrary to expectations, Factor 1: Playfulness was positively and significantly correlated with the Type A subscale measuring competitiveness. CBI Factor 2: Externality had a low but significant relationship to Impatience -Aggression but was not significantly related to competiveness (Rogers, 1988).

In summary, the CBI appears to be a reliable and valid instrument for measuring playfulness and it offers the advantage of being easy to administer.

The Behavioral Style Questionnaire

The Behavioral Style Questionnaire (BSQ) is a 100-item questionnaire based on the conceptualization of Thomas et al. (1963) in the New York Longitudinal Study and assesses nine dimensions of temperament: Activity, Rhythmicity, Approachability, Adaptability, Intensity, Mood, Persistence, Distractibility, and Threshold. The instrument was standardized on 350 children selected from the pediatric practice of William Carey (McDevitt & Carey, 1978). It can be completed by the parent in about 25 minutes and scored in about 15 minutes.

Behavioral statements are rated from 1 (almost never) to 6 (almost always). High scores on each scale indicate negative expression of the tempereament trait nad low scores on each sacale indicate positive expression of the trait (See Appendix D). Test/retest relability has been estimated at .89 (McDevitt & Carey, 1978). The internal consistency coefficient has been estimated to be .84 (McDevitt & Carey, 1978). To determine criterion validity, a study of five- to seven-year-olds (N = 51) was conducted (McDevitt & Carey, 1978). As was hypothesized, low scores in the adaptability category of this questionnaire correlated significantly (r = .31, p < .05) with difficulty in problem-solving tasks on the Matching Familiar Figures Test. Adaptability also correlated significantly (r = .35, p < .01) with teacher judgements of scholastic adjustment as measured by the Bommarito Socialization Scale. BSQ nonpersistence was related to the number of errors on the Matching Familiar Figures Test (r = .29, p < .05) (McDevitt & Carey, 1978).

The test/retest reliability of .89 was of high order and compared well with Carey's Infant Temperament Questionnaire and the .82 of Buss and Plomin's EASI-II

(1975) with more than twice as many subjects (McDevitt & Carey, 1978).

The internal consistency of .60 or more for seven of the nine categories was considered generally acceptable. Item homogeneity provided statistical evidence that items within a category were measuring the same trait. The low homogeneity for rhythmicity and threshold were explained as follows: (a) the variety of functions included in these two categories may have been more diverse and unrelated than in others or (b) biological rhythmicity and sensory threshold might have been more unevenly affected by environmental interaction or cognitive suppression (McDevitt & Carey, 1978).

Results of cluster analysis supported the construct validity of the BSQ in measuring the same temperament traits described by Thomas et al. (1963) in the New York Longitudinal Study. Profile scores which corresponded to easy, slow-to-warm-up, and difficult temperament types were observed with about the same frequency as the NYLS. The only minor exception to the original profile clusters was the high rating in activity for difficult children as opposed to an

inconsistent pattern for activity in the NYLS. As in the NYLS, no sex differences were found in the number of children identified as members of each temperament type (McDevitt & Carey, 1978).

The Wechsler Preschool and Primary Scale of Intelligence

The Wechsler Preschool and Primary Scale of Intelligence (WPPSI) (Wechsler, 1967), designed for use with children of ages four through six and one half, consists of a battery of subtests, each of which when treated separately may be considered as measuring a different ability, and when combined into a composite score, as a measure of overall intellectual capacity. The division of the test battery into Verbal and Performance test groups, has proved diagnostically useful, highlighting the possible differences of maturation or endowment and alerting the examiner to the manner or degree to which a subject's assets and liabilities may influence overall functioning (Wechsler, 1967).

The WPPSI retained the Intelligence Quotient (IQ) as the most effective measure of way of expressing a

child's mental endowment relative to children of the same age. The WPPSI IQ's are deviation IQ's, measuring the relative position calculated in terms of the degree to which a child's score differs from the mean of the age groups. The mean IQ and standard deviation are 100 and 15, respectively, at each age.

The standardization sample consisting of 1200 children, was stratified according to the 1960 United States Census. For each child in the standardization sample, three sums of scaled scores were obtained: for the five Verbal tests, for the five Performance tests, and for the total of these ten tests. It was predetermined that the IQs should have a mean of 100 and a standard deviation of 15. The mean Verbal score for a child in the four- to five-year age range ranged from 49.56 (SD = 12.20) at 4.0 years to 50.43 (SD = 11.14) at 5.0 years. The mean performance scores ranged from 49.65 (SD= 10.88) at 4.0 years to 50.20 (SD = 11.37) at 5.0 years. The mean total score ranged from 99.20 (SD = 21.16) at 4.0 years to 100.63 (SD = 20.33) at 5.0 years.

The reliability coefficients for the Verbal, Performance, and Full Scale IQs were calculated by

computing correlations between the raw scores on odd and even items. The correlations were corrected using the Spearman-Brown formula. Reliability coefficients ranged from .91 on the Performance IQ at age 4 to .97 on the Full Scale IQ for ages 5.5 and 6.

Scores for each of the WPPSI subtests were intercorrelated with the Verbal, Performance and Full Scale Scores. When the single test was correlated with the composite of which it was also a contributing member, the coefficient was corrected for contamination using the formula recommended by McNemar (cited in Weschler, 1967). Based on the average intercorrelations of the subtests for the six age groups, the Verbal subtest having the highest intercorrelation with the Full Scale Score was Information (.70) and the Performance subtest having the highest intercorrelation with the Full Scale Score was Block Design (.61). However, the performance subtest with the highest intercorrelation with the Full Scale Score was Picture Completion at both age 4 (r = .63) and age 4.5 (r = .62).

To determine the construct validity of the instrument, the WPPSI was compared to the Stanford-

Binet Intelligence Scale. Form L-M; the Peabody Picture Vocabulary Test. Form A; and the Pictorial Test of Intelligence. The coefficients of correlation between the Stanford-Binet and WPPSI Full Scale IQs were in the range usually found between the Stanford-Binet and the WISC (r = .75). The correlations of the IQs on the other two scales. the Peabody Picture Vocabulary Test (r = .58) and the Pictorial Test of Intelligence (r = .64), with the WPPSI Full Scale IQ were lower than the corresponding coefficients with the Stanford-Binet. Although the correlations between the WPPSI and the three other scales indicated positive relationships among them, these coefficients were not so high as to suggest that the scales were interchangeable.

CHAPTER 4

Results

The purpose of this study was to examine the relationships between maternal and paternal ratings of playfulness, temperament, externality, IQ, and selected demographic/familial variables. More specifically, the purpose was to determine the extent to which playfulness and externality overlapped with other temperament traits or clusters of traits as opposed to being separate and unique constructs.

Mothers (n = 122) and fathers (n = 62) completed the Behavioral Style Questionnaire (BSQ), a 100-item, Likert-style instrument assessing perceptions of nine dimensions of temperament: activity level, rhythmicity, adaptability, approachability, persistence, intensity, mood, threshold, and distractibility. Statements on the BSQ were behavioral in nature, describing specific behaviors parents are likely to observe in their children. High scores on a trait indicated negative expression of a temperament trait and low scores indicated positive expression of a temperament trait. Parents also completed the Child Behaviors Inventory (CBI), a 31-item trait-rating scale assessing parental

perceptions of their children's playfulness and external orientation to the environment (externality). Statements on this six-point Likert scale were more general than those on the BSQ and called for more subjective responses. The Information and Picture Completion subscales of the Weschler Preschool and Primary Scale of Intelligence (WPPSI) were administered to 50 children to obtain extrapolated IQ scores. Finally, demographic data were collected:

1. sex of child
2. birth order of child
3. marital status of parents
4. employment status of parents
5. income of family
6. education of parents

The participants were informed that their responses would be held in confidence and that their participation in the study was voluntary.

The variables of the study were tested for psychometric adequacy. Internal consistency reliability estimates (coefficient alpha) were computed for all scales and were found to range from .40 to .83 (See Table 2). Inspection of the frequency

Table 2

Reliability Analysis of the BSQ and CBI Scales

Scale	Mothers' Ratings		Fathers' Ratings	
	n	Alpha	n	Alpha
Activity Level	113	.72	60	.64
Rhythmicity	118	.47	55	.53
Approachability	111	.80	57	.58
Adaptability	108	.77	59	.76
Intensity	114	.66	60	.73
Mood	113	.75	60	.72
Persistence	111	.67	58	.40
Distractibility	113	.57	58	.70
Threshold	112	.43	58	.55
Playfulness	115	.83	62	.75
Externality	117	.65	60	.55

distributions for the demographic variables and IQ showed them to have reasonable variances and approximately symmetric distributions.

Bivariate correlations were calculated to examine the relationships among the variables (Table 3). Factor analysis was used to establish the existence of a smaller number of constructs underlying the temperament, playfulness, and externality variables. IQ and the demographic variables were also included in the factor analysis. The matrix of intercorrelations among all variables was subjected to a principal components extraction of roots, which yielded nine eigenvalues greater than unity. The nine corresponding factors accounted for 65% of the total variance. A varimax rotation was performed on the nine columns of the factor matrix.

Bivariate Correlations

The correlations between maternal and paternal ratings of playfulness and externality are presented in Table 3. The first sequence of entries reported the correlations between maternal and paternal ratings of temperament while the latter entries represented the demographic variables and IQ. Persistence was the

Table 3

Pearson Correlations Between Maternal and Paternal Ratings on the BSQ and the CBI

Scale	Playfulness		Externality	
	Mothers	Fathers	Mothers	Fathers
Activity Level F	-.08	-.17	-.01	-.02
Activity Level M	-.06	-.02	-.02	-.10
Rhythmicity F	-.10	-.18	.09	-.30*
Rhythmicity M	.04	.01	.12	-.22
Approachability F	-.10	-.26*	.16	.24
Approachability M	-.14	.11	.10	.19
Adaptability F	.15	-.16	-.08	-.04
Adaptability M	-.24*	.03	.05	.03
Intensity F	.19	.22	.25	.28*
Intensity M	.14	.02	.24*	.08
Mood F	.25	-.00	-.08	.18
Mood M	-.05	.08	.22*	.07
Persistence F	-.29*	-.22	.04	.12
Persistence M	-.27*	-.29*	.24	.07
DistractibilityF	-.25	-.19	.45*	.13
Distractibility M	-.13	.03	.26*	.32*
Threshold F	-.07	.04	.23	.36*
Threshold M	.00	-.04	.38*	.30*
Age	-.02	.06	-.03	-.08
Sex	.05	.11	-.01	.02
Conventional Family	-.08	-.18	.02	-.03
Oldest Child	-.18*	-.05	-.11	-.11
Youngest Child	-.01	-.01	-.06	-.10
Middle Child	.12	.03	.05	.12
Only Child	.12	.02	.13	.15
Age M	.02	-.14	-.01	-.04
Age F	.14	-.06	-.16	-.10
Employment M	.03	.01	.11	-.08
Employment F	.09	.12	-.10	-.01
Income	.05	-.09	-.12	.17
Education M	-.00	.05	-.04	.14
Education F	.17	.07	-.04	.09
IQ	.02	-.02	.11	-.18

*$p < .05$

only temperament variable that characterized playfulness for both parents. Not only were parental ratings of persistence and playfulness correlated, but maternal and paternal ratings of persistence were also significantly intercorrelated ($p < .05$) (Figure 1). The temperament trait persistence and the playfulness component active involvement were the most similar conceptually. Both traits referred to the child's continuing with an activity in spite of distracting stimuli. It appears that this persistence and active involvement are perceived by parents in similar ways, regardless of the contexts or ways in which parents interact with their children.

Parents differed on other correlates of playfulness. Approachability helped to describe playfulness for fathers while adaptability helped to characterize playfulness for mothers. These differing correlates of playfulness may reflect not only the different contexts in which parents interact with their children but also the different styles of parental interactions. Fathers' interactions tend to serve a socializing role which may have explained why approachability, the initial response of the child to a

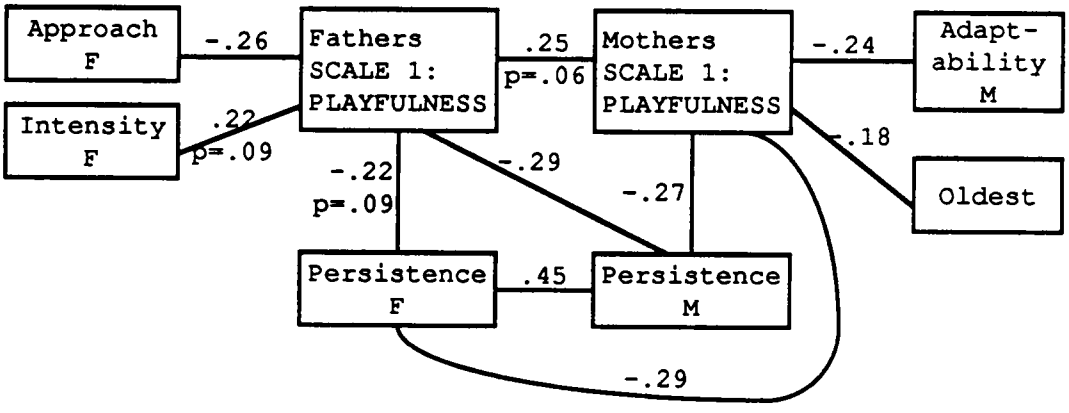

Figure 1. Pearson Correlations between Scale 1: Playfulness and Temperament Variables

new situation, was more indicative of a playful child for fathers. Mothers' styles tend to be more didactic, suggesting that mothers, as they play with their children, look to the ease to which the child can adjust to the demands of a new situation.

Externality ratings between parents were not significantly correlated (r = .19, p > .05), suggesting that for parents the degree to which their child was affected by external stimuli was context-bound or that mothers and fathers interpreted the items differently. Although parental ratings of threshold were not significantly correlated (r = .20, p > .05) with each other, mothers' and fathers' ratings of threshold were both significantly correlated with the respective parents' ratings of externality. The level of stimulation needed to distract a child, therefore, appeared to be a key characteristic of external orientation. Maternal and paternal ratings of distractibility, in contrast, were significantly correlated (r = .45, p < .05); however, it was only maternal ratings of distractibility that were significantly (p < .05) correlated with both maternal and paternal ratings of externality (See Figure 2). It

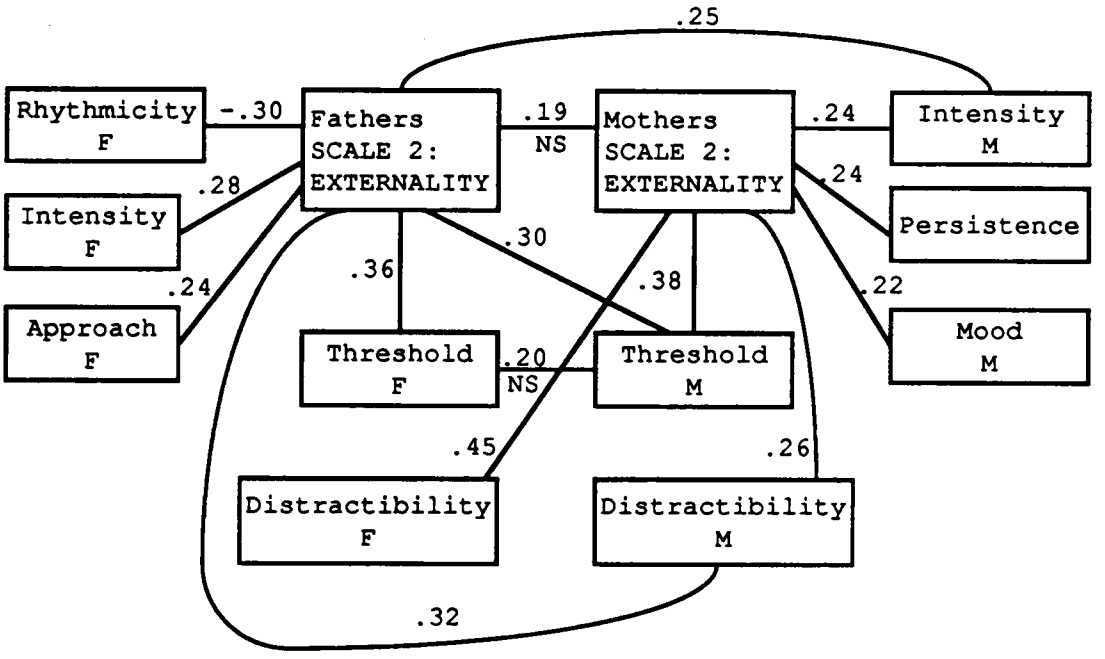

Figure 2. Pearson Correlations between Scale 2: Externality and Temperament Variables

appears that parents agree that their children are distracted but the extent to which their distractibility characterizes externality is different for mothers and fathers. Parents also differed in their perceptions of other temperament traits that described the externally-dependent child (Figure 2).

Factor Analysis

Table 4 shows the varimax-rotated matrix for the first nine factors. Inspection of this matrix reveals that Factors 1, 7, and 9 have substantial loadings (correlations with factor scores) only for the demographic variables. Factor 2 has substantial loadings only for maternal ratings of temperament variables; Factor 3 has loadings with externality; and Factor 4 has loadings with playfulness. The absence of a relationship between demographic variables and temperament and playfulness variables for Factors 1 and 9 seems noteworthy. Since the dimension underlying Factors 1, 7, and 9 correlated most strongly with the demographic variables it must be interpreted that temperament and playfulness are not dependent on socioeconomic status or intelligence for expression. This finding merely confirms the absence of

Table 4

Varimax Rotated Factor Matrix

Variable	Factor 1	2	3	4	5	6	7	8	9
Demographics *									
IQ	.14	-.12	.10	-.07	.29	-.38*	.31	.40*	-.05
Sex	.24	.02	-.06	.00	-.06	-.04	-.09	.01	.66*
Conventional Family	.36*	-.16	-.11	.06	.38*	-.03	.56*	-.01	-.03-
Oldest Child	-.18	.09	-.04	.02	.07	.02	.83*	.10	.19
Youngest Child	.34	.10	-.17	.01	-.23	-.03	-.11	.11	-.62*
Only Child	-.17	-.18	.20	.03	.16	-.01	-.66*	-.16	.40*
Maternal Age	.82*	-.06	-.06	.03	-.08	.02	-.10	.10	-.05
Paternal Age	.76*	-.07	.12	.07	-.08	.16	-.09	.09	.16
Income	.65*	-.07	-.10	.01	.26	-.19	.31	-.16	-.01
Maternal Employment	-.19	-.12	.24	-.08	.11	.14	-.36*	.34	-.06
Paternal Employment	.20	.14	.05	-.25	.15	-.09	.27	.26	.47*
Maternal Education	.42*	-.13	-.01	.05	.15	-.41*	.25	-.23	-.11
Paternal Education	.71*	.10	.18	-.17	.08	-.12	.15	-.18	.11
Behavior Style Questionnaire1									
ActiveF	.03	.03	.23	.08	.19	.80*	.17	.10	-.14
ActiveM	-.07	.20	-.08	.23	.00	.80*	-.06	.03	.01
RhythmF	-.02	.07	.03	.27	.20	.09	.23	.78*	.15
RhythmM	-.05	.45*	-.01	.09	-.08	.11	-.18	.62*	-.08
ApproachF	-.15	.14	.09	.30	.67*	-.30	-.06	-.12	.09
ApproachM	-.02	.44*	-.01	.24	.13	-.52*	.33	-.09	-.00
AdaptF	.02	.15	-.12	.02	.79*	.03	-.04	.15	.04
AdaptM	-.30	.60*	-.16	.27	.17	.08	.17	.07	-.06
IntenseF	.07	.11	.35*	-.57*	.30	.36*	.05	-.14	-.24
IntenseM	.09	.71*	.19	-.27	.11	.12	-.07	-.25	-.12
MoodF	.09	.15	-.01	-.23	.73*	.26	.24	-.02	.06
MoodM	-.10	.82*	-.02	.12	.18	.13	.11	.08	.04
PersistF	.09	.26	.05	.71*	.26	.05	-.08	.02	.06
PersistM	-.01	.24	.09	.68*	-.15	.29	.03	.13	-.01
DistractF	-.04	-.17	.83*	.17	.00	.13	-.03	.04	-.02
DistractM	-.09	.14	.56*	.13	-.02	-.04	-.08	-.09	.27
ThreshF	.05	-.02	.67*	-.21	-.05	.24	.13	-.28	.01
ThreshM	.12	.62*	.47*	.05	-.01	-.08	-.01	.08	.27

Variable	Factor 1	2	3	4	5	6	7	8	9
Scale 1: Playfulness									
Father	-.11	.22	-.16	-.53*	-.24	-.06	.04	-.11	.21
Mother	.16	.07	-.21	-.59*	.20	.01	-.30	.06	.10
Scale 2: Externality									
Father	.04	.25	.35*	.03	.14	-.08	-.08	-.62*	.06
Mother	-.05	.23	.65*	.15	-.02	-.19	-.14	.14	-.16

* Factor loadings > .35
1 High scores reflect negative traits

significant correlations reported in Table 3.

Factor 2 is composed of maternal ratings on temperament variables. Mood appears to be the underlying dimension for this factor, being significantly correlated with rhythmicity, approachability, adaptability, and intensity, the other variables which loaded on this factor. The diagnostic cluster "difficult child" (Thomas & Chess, 1977) is characterized by these traits. Therefore, it appears that Factor 2 is a reduction of the temperament scales which describe the diagnostic cluster "difficult child" and this type of child is not perceived to be playful. In addition to the scales which define the "difficult" cluster, threshold also loaded on Factor 2. The fact that threshold loads on this factor suggests that it plays a role in maternal perceptions of difficult child syndrome, but further research is needed to determine the extent to which it describes the difficult child.

The degree to which the child responds to the environment (externality) appears to be the focus of Factor 3. Variables loading on this factor included externality, intensity, distractibility, and threshold. Threshold appears to be the underlying dimension for

this factor. The smaller loading on intensity suggests its relationship to the factor but not a strong role in defining it. Given the loadings of externality, threshold, distractibility, and intensity on this factor, it would appear that further research is in order to determine if externality and these temperament variables are representing the same construct.

The consistent bivariate correlation between playfulness and persistence was reflected in the factor analysis (see Factor 4 of Table 4). It appears that persistence acts to characterize playfulness for both mothers and fathers. This supports the theoretical frameworks described in the literature in which the playful child is actively involved in play and is not easily distracted because he or she is intrinsically motivated to act and is in control of the activity. Fathers' ratings of intensity also loaded on this factor, although the actual correlation between this variable and fathers' ratings of playfulness was not significant (see Figure 1). Thus, it appears that intensity may also play a role in defining this factor.

The sociability of the child as perceived by the father defines Factor 5. Adaptability, mood, and

approachability load strongly on this factor, suggesting that for fathers, the adaptable and approachable child possesses a positive mood that facilitates socialization. The variable, conventional family, also loads on this factor reflecting the fact that most of the fathers participating in this study were members of two-parent families.

The activity level of the child appears to define Factor 6. Mothers' ratings of approachability and fathers' ratings of intensity help to define this factor suggesting that while parents agree on the activity level of their child, their perceptions may be context-bound. Mothers tend to view their active children as more approachable, whereas, fathers tend to view them as more intense. The child's IQ and maternal level of education loaded negatively on this factor, supporting the notion that less educated mothers tended to view their children as more active.

Factor 7 was composed mainly of demographic variables which were significantly intercorrelated. The underlying dimension focused on family composition; however, the factor explained only a small amount of variance and may be taken to be indicative of

contextual factors affecting the disposition to play (e.g. the amount of money to provide toys, adequate space for play, family stress).

Factor 8 points to the "goodness of fit" (Thomas & Chess, 1977) between the child and the environment. Variables loading on this factor included maternal and paternal ratings of rhythmicity, paternal ratings of externality, and the child's IQ. Fathers' ratings of externality loaded only marginally on Factor 3 which was previously described as representing externality in its most general context. However, for Factor 8, fathers' ratings of externality loaded much more strongly. Thus it would appear that it is the fathers' perception that the arrhythmic child's actions are independent of external approval or guidance. It would also be plausible that the more intelligent child would be less dependent on the approval of others. However, the role of IQ in defining externality is questionable in that IQ is not significantly correlated with any of the other variables loading on this factor. Further research is needed to discover the extent of the relationship between IQ and externality.

Step-wise Multiple Regression

The demographic variables of conventional family, maternal education, family income, maternal employment, maternal age, child's birth order, and child's sex and the nine variables for temperament (rhythmicity, intensity, distractibility, approachability, adaptability, perisistence, mood, activity level, and threshold) were entered into stepwise multiple regression equations with maternal ratings of playfulness and externality as the dependent variables. IQ was not entered into the regression equation because so few scores (n = 35) were available. To obtain a more accurate picture of the relationship between the predictor variables and playfulness and externality, half of the sample could have been randomly assigned to half of the variables and the remaining half could have been assigned to the remaining variables. However, with the small number of mothers in this sample, this split-half analysis would not have provided more reliable information. Regression analyses were not calculated for paternal ratings because of inadequate sample size.

In the stepwise regression equation in which the

dependent variable was maternal ratings of playfulness. three variables were entered before nonsignificant ($p > .05$) b weights were encountered. These were persistence, adaptability, and rhythmicity. A multiple R of .162 was attained. The third step added the variable rhythmicity which was essentially unrelated to playfulness in both the analysis of the bivariate correlation and in the factor analysis. However, this variable added an additional 4% to the variance accounted for, a substantial proportion of the total. Thus it must be concluded that rhythmicity serves as some sort of moderator variable, possibly "partialing out" extraneous factors in the relationships between persistence, adaptability, and playfulness as perceived by the mothers. Further research is necessary to explain the role of rhythmicity in predicting maternal perceptions of playfulness, given that there was no correlational evidence to support its presence.

The demographic variables and temperament variables were then entered into a stepwise multiple regression equation with maternal ratings of externality as the dependent variable. Again, three variables were entered before nonsignificant ($p > .05$)

b weights were encountered. These variables were persistence, threshold, and only child status. A multiple *R* of .202 was attained. The third step added the variable only child, which was essentially unrelated to externality in both the analysis of the bivariate correlation and in the factor analysis. However, this variable added an additional 4% to the variance accounted for. Thus it must be concluded that only-child serves as some sort of moderator variable when examining externality as perceived by mothers. For mothers, then, an externally dependent child was nonpersistent and possessed a low threshold for stimulation. There is no research to support the notion that only children are more likely to be influenced by their environment. Further research would be needed to explain this particular relationship.

CHAPTER 5

Discussion

The purpose of this study was to examine the relationship between parental perceptions of children's temperament and playfulness and to examine the strength of those relationships when IQ was held constant. Demographic data and IQ scores were not significantly correlated with the dimensions of temperament or with the playfulness of the child. It would appear that both temperament and playfulness are qualities inherent in the child and are expressed in varying degrees regardless of the socioeconomic situation of the family or the expressed intelligence of the child. However, due to the relatively small number of IQ scores (n = 35) obtained in this sample and the limited number of fathers (n = 65) participating in this study, these conclusions are tentative and might have been different if the sample had been larger.

The correlations between maternal and paternal ratings of temperament suggest that parents agree on the basic dimensions of temperament as measured by the Behavioral Style Questionnaire (BSQ) but may differ in their perceptions of the degree to which the child displays the particular traits. These

moderate correlational patterns are similar to the interrater reliability ratings found in other temperament research (Goldsmith et al., 1987) and suggest the hypothesis that individual differences in the disposition to play interact with contextual factors to produce intra-individual variation.

Parents have been shown to interact differently with their children (Porrata-Doria, 1984). In this study, those differences were reflected in their different ratings of temperament. Factor analysis revealed that mothers focused on the group of temperament traits that defined the "difficult child" syndrome. The correlates that loaded on Factor 2 included mood, intensity, threshold, rhythmicity, and adaptability. Although mothers are involved in children's play, they typically interact with their children in didactic ways (Dunn, 1985). In acting as a teacher, mothers may be sensitive to those behaviors that either support or interfere with play. Also, as mothers play with their children, they talk with them about their own feelings, and the feelings of others (Dunn, 1985) which also might explain why mood loaded so strongly on this factor. Fathers focused on the

temperament traits that characterized the sociability of the child. Since fathers' primary way of socializing their children is through play (Porrata-Doria, 1984), it might be expected that for fathers, the most salient temperament traits are those of adaptability' approachability, and mood.

The strongest correlations between parents' ratings of temperament were the dimensions activity level and rhythmicity. Statements composing these two scales described observable behaviors. The 14 statements composing the activity level scale focused on behaviors that both parents were likely to experience with their children (e.g. "The child runs ahead when walking with the parent." "The child leaves or wants to leave the table during meals." "The child prefers active outdoor play to quiet play inside.") The statements composing the rhythmicity scale pertained to the regularity of the child's behavior, particularly at times that both parents were directly involved in child care (e.g. "The child falls asleep as soon as he/she is put to bed." "The child is hungry at dinner time." " The child is sleepy at his/her bed-time.") When behaviors are more observable, as in

these scales, the ratings tend to be more reliable and higher correlations are expected.

Correlations of parental ratings on Mood and Adaptability were weaker. Both the more subjective nature of the statements comprising these two scales and the differing experiences parents may have had with their children might have accounted for the smaller correlations. Differences in ratings of mood might have been explained by the different reactions children displayed in the presence of one parent rather than the other. Children most frequently "cry when frustrated", "complain when ill," act "moody or cranky" in the presence of the mother. Adaptability referred to adjustment to new situations, changes in routine, and response to parental discipline. These behaviors would be expected to occur most frequently in the presence of the mother; therefore, the parents' ratings of these types of behaviors would be expected to be different.

Correlations between parents' ratings of Threshold were not significant. This dimension of temperament referred to the strength of the stimulus necessary to evoke a response in the child. Items composing this scale drew attention to reactions of the

child to mild approval, differences in the consistency of food, and sensitivity to nuances of parental explanations. The behaviors called for in this scale were not as observable as behaviors in the other scales and called for more subjective judgement by the parents, making interparental ratings less reliable and subsequently smaller in correlation.

For this study playfulness was defined mainly by parental perceptions of persistence. This relationship supports the theoretical framework of Rubin et al. (1983) and Csikszentmihalyi (1979). The items comprising the persistence scale were most similar to those CBI items describing active involvement and intrinsic motivation. A child actively involved in play may be viewed as one persisting with an activity and not easily distracted. Likewise, a child who is intrinsically motivated to play is also more likely to persist in play. As Ponish (1987) noted, when the child chooses to play and the level of challenge is under the child's control, the child is more likely to persist.

Hutt (1979) noted variations in attention for children at play, but the findings of this study

suggest that children perceived as playful by their parents were more likely to persist and have a greater attention span. In contrast to playful children, Csikszentmihalyi (1979) pointed out the enormous concentration of attention present when adults played. Based on this study, it appears that the precursors of intense concentration and involvement which characterize adult playfulness may appear in childhood as the active involvement and persistence of the playful child.

Although parents agreed that persistence was related to playfulness, they differed in their perceptions of other temperament variables that were associated with play. In this study, mothers also characterized the playful child as adaptable while for fathers the playful child was also perceived as approachable. These temperament dimensions differed somewhat from the 1987 Blevins study of temperament and playfulness among 3-year-olds in which mood was the dimension of temperament associated with maternal ratings of playfulness while approachability and adaptabilty characterized the playful child for fathers. Researchers have suggested that mothers and

fathers may make separate and unique contributions to the child-rearing process (e.g. Maccoby & Martin, 1983; Rubin et al., 1983). Perhaps these different contributions and expectations are reflected in the different parental ratings of children's temperament. Johnson (1975) suggested that the paternal role in sex-typing is to bring some of the norms and expectations of the outside world to the child while the maternal role consists of nurturing, caretaking, and elements of expressiveness. Factor 5: Sociability would support that notion in that the dimensions of temperament which loaded on that factor included adaptability, mood, and approachability.

It is also possible that mothers and fathers have different concepts of play and temperament. Fathers are more likely to play with their children (Clarke-Stewart, 1973; Lamb, 1977; Power & Parke, 1980) and when they play fathers tend to be involved in more social play while mothers engage in more watching or didactic, conventional kinds of play (Dunn, 1985; Power & Parke, 1980).

The nonsignificant correlation between parental ratings of externality suggest that mothers and fathers

tended to view the external dependency of their children differently. In this study mothers viewed externally-oriented children as distractible, intense, nonpersistent children who possessed negative moods and required little stimulation to evoke a response. For fathers externally-oriented children were characterized as arrhythmic, intense children who possessed low thresholds of stimulation. In rating children on the way that they were oriented to their environments, both parents appeared to be sensitive to the stimuli that interrupted their children's activity; however, further research is warranted to determine the reason for the lack of agreement regarding the external orientation of the child. It may be that the different style with which the parents interact with their children or the different contexts in which the interactions occur affects parental perceptions or the child's actual behavior.

In identifying children as readily affected by the environment, both parents identified intraindividual as well as extraindividual stimuli that might diminish the playfulness of the child. Both parents identified the intensity of stimulation that impeded the child's

disposition to play. However, mothers also focused on the tendency of the child to be distracted by stimuli. This may be a result of the different ways parents respond to their children. Because mothers tend to be more didactic in the way they play with their children (Dunn, 1985; Power & Parke, 1980), they may be more sensitive to the environmental stimuli that distract their children. It may also be that mothers are more frequently interrupted when they are playing with their children and these interruptions are generalized into their ratings. Fathers, on the other hand, tend to be more playful with their children, participating in more physical, rough-and-tumble play (Clarke-Stewart, 1973; Lamb, 1977; Power & Parke, 1980). It may be that as fathers play and rough-house with their children, they respond to their children's need to reduce the level of stimulation before they, as adult partners in play, would like; therefore, fathers rate their children as having a lower threshold level. The relationship between rhythmicity and externality as perceived by fathers requires futher study. Both the analysis of bivariate correlations and the factor analysis reveal that rhythmicity helps to characterize externality for

fathers. However, it is unclear as to whether fathers see their rhythmic children as people-oriented, seeking approval by adapting to family routines, or if rhythmic children are object-oriented, using objects in typical ways.

Conclusion

It appears from this study that playfulness is a construct distinct from temperament but which can be explained, in part, by certain temperamental traits which, like externality, detract from the child's propensity to enter into a playful dispositional state. The factor structure resulting from the varimax rotation provided evidence for the existence of playfulness as a construct which exists independent of demographic variables and overlaps with persistence; whereas, externality seems to overlap with certain temperament traits which describe the child's propensity to react in particular ways to the context. Indeed the externality scale may be measuring the same factors as measured by the temperament subscales of threshold and distractibility. The degree to which the disposition to play is dependent on environment requires further study. It may be that the etiological

basis of temperamental variation may be a central factor which contributes to multiple dimensions of temperament and the predisposition to play. The overlap of the constructs may come in the disposition to play and the nonoverlap may be attributable to the interaction with context. Factor analysis of the BSQ using a larger sample may indicate that there are fewer than nine dimensions of temperament. Further research in this area is warranted based on the high intercorrelation and the factor loadings present in this study.

Playfulness has been suggested to appear in emotionally and physically safe environments which contain familiar toys and peers, and at times when the child is free from illness or stress (Rubin et al., 1983). It is assumed that such an environmental context could occur in the home. Further experimental study is needed to determine the degree to which the disposition to play is contextually determined and to ascertain if it is displayed in different ways as a result of the context. Observational and interview data to assess whether parental differences in playfulness ratings are attributed to differentiated

perceptions or to contextual variables or to an interaction between the two is needed.

Longitudinal study to ascertain the stability of playfulness as a personality disposition is also needed. Lieberman (1977) has noted that playfulness appeared to change and become a more multidimensional trait as children grew older. Csikzenymihayli (1979) also suggested that playfulness became more differentiated with age. Further research to identify contextual variables, interaction styles of parents, and developmental changes in the expression of playfulness are needed so that the goodness of fit between child and family that serves to support the development of the child can be maximized.

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APPENDIX A

Letter to Directors

VIRGINIA TECH

Department of Family and Child Development
College of Human Resources

Wallace Annex
Blacksburg, Virginia 24061-8299
(703) 961-4794 or 4795

May 29, 1988

Dear Director:

Parents are among the most influential factors in a child's life. Yet, children seem to be born with some temperament traits which determine much of their behaviors. The Child Development Project at Virginia Tech is examining this topic. We are asking that you allow us to invite the parents of four-year-old children enrolled in your program to participate in this study.

As a director, you will be asked to distribute letters explaining the project and requesting permission to allow children to be individually tested on a measure of children's thinking. Once these permission slips are returned to you at your center, we will begin scheduling times for the children to be tested at a time that is convenient for you. The test takes about 20 minutes to administer and we will need a small quiet place in which to work.

Upon receipt of the permission slips, you will also be asked to distribute to the participating parents the Child Development Project packet. This packet contains an explanatory letter, permission to participate form, temperament rating form, and a child behaviors form. Directions for completing each form are included in the packets along with the telephone numbers of the Project Director, Cosby Rogers and the Project Coordinator, Teresa Blevins. If parents should have any questions regarding the forms, their distribution and return, and final report, they are encouraged to contact either Dr. Rogers or Mrs. Blevins.

VIRGINIA TECH

Department of Family and Child Development
College of Human Resources

Wallace Annex
Blacksburg, Virginia 24061-8299
(703) 961-4794 or 4795

All information will be treated confidentially and can be identified only by a code number. When the project is over, we will share with you the results of the total project.

Virginia Tech's Human Subjects Review Committee has approved this project; however, your participation is strictly voluntary.

Please feel free to contact us if you have any questions regarding this project. Thank you for your cooperation and assistance.

Sincerely,

Cosby S. Rogers
Project Director
or

Teresa T. Blevins
Project Coordinator
or

enclosures

APPENDIX B

Letter to parents

Permission to Participate Form

VIRGINIA TECH

Department of Family and Child Development
College of Human Resources

Wallace Annex
Blacksburg, Virginia 24061-8299
(703) 961-4794 or 4795

Dear Parents:

Parents are among the most influential factors in a child's life. Yet, children seem to be born with some temperament traits which determine much of their behaviors. The Child Development Project at Virginia Tech is examining this topic. We invite you to participate. This is a useful project and you are important to the success of the study.

As a parent, you will be asked to complete a temperament rating form and a child behaviors form. This takes about half an hour. We hope that if possible both mothers and fathers will participate. Also, your child will complete an individually administered measure of children's thinking at his or her center.

All information will be treated confidentially and can be identified only by a code number. When the project is over, we will share with you the results of the total project.

Virginia Tech's Human Subjects Review Committee has approved this project; however, your paricipation is strictly voluntary.

Please complete the attached form and return it in the same envelope to your child's teacher so that you may participate. If you have any questions, feel free to call us.

Thank you.

Sincerely,

Teresa T. Blevins
Project Coordinator
or t

VIRGINIA TECH

Department of Family and Child Development
College of Human Resources

Wallace Annex
Blacksburg, Virginia 24061-8299
(703) 961-4794 or 4795

I am willing to participate in the Child Development Project and give my permission for my child, _____, to participate in the assessment of children's thinking.

_____ _____

mother's signature father's signature

_____ _____

date date

APPENDIX C

Child Behaviors Inventory

Behavioral Style Questionnaire

Directions for Completing Instruments

Child Behaviors Inventory Child # _____

Below are some statements describing some child behaviors. Please rate each item by circling a number on the continuum, with "1" occurring "almost never" and "6" ocurring "almost always" as it pertains to _____.

1. Always has ideas of things to do. .	almost never	1	2	3	4	5	6	almost always
2. Uses props in typical rather than unusual ways.	almost never	1	2	3	4	5	6	almost always
3. Once goal is achieved, stops playing with the object/material. . . .	almost never	1	2	3	4	5	6	almost always
4. Explores different ways to accomplish the same end.	almost never	1	2	3	4	5	6	almost always
5. Needs reinforcement to continue activities.	almost never	1	2	3	4	5	6	almost always
6. Invents new games.	almost never	1	2	3	4	5	6	almost always
7. Asks many questions about what to do.	almost never	1	2	3	4	5	6	almost always
8. Seeks approval frequently.	almost never	1	2	3	4	5	6	almost always
9. Uses things his/her own way.	almost never	1	2	3	4	5	6	almost always
10. Looks to others to tell him/her what to do.	almost never	1	2	3	4	5	6	almost always
11. Enjoys learning new skills.	almost never	1	2	3	4	5	6	almost always
12. Works well on his/her own.	almost never	1	2	3	4	5	6	almost always
13. Enjoys doing things even when there's no purpose.	almost never	1	2	3	4	5	6	almost always
14. Has fun doing things without worrying how well they turn out. . .	almost never	1	2	3	4	5	6	almost always
15. Gets so involved in activity that it is hard to get him/her to quit. .	almost never	1	2	3	4	5	6	almost always
16. Starts activities for his/her own enjoyment.	almost never	1	2	3	4	5	6	almost always

17. Pretends a lot.	almost never	1	2	3	4	5	6	almost always
18. Uses toys/objects only in the way they were designed to be used. . . .	almost never	1	2	3	4	5	6	almost always
19. Plays eagerly.	almost never	1	2	3	4	5	6	almost always
20. Plays intently.	almost never	1	2	3	4	5	6	almost always
21. Invents variations on stories such as different endings or new characters.	almost never	1	2	3	4	5	6	almost always
22. Displays exuberance much of the time.	almost never	1	2	3	4	5	6	almost always
23. Rearranges situations to come up with novel ones.	almost never	1	2	3	4	5	6	almost always
24. Once the child has been shown how to do something, he/she creates his/her own way.	almost never	1	2	3	4	5	6	almost always
25. Has a sense of humor.	almost never	1	2	3	4	5	6	almost always
26. Is imaginative.	almost never	1	2	3	4	5	6	almost always
27. Uses toys/objects in unusual ways. .	almost never	1	2	3	4	5	6	almost always
28. Finds unusual things to do with common objects.	almost never	1	2	3	4	5	6	almost always
29. Identifies with many characters instead of playing the same role over again.	almost never	1	2	3	4	5	6	almost always
30. Gets so ivolved in an activity that he/she forgets what is going on in the room.	almost never	1	2	3	4	5	6	almost always
31. Is a playful child.	almost never	1	2	3	4	5	6	almost always

Child's age (in months) _____ Boy ___ Girl ___

Person completing this form: Mother ___ Father ___

BEHAVIORAL STYLE QUESTIONNAIRE

by
Sean C. McDevitt, Ph.D. and William B. Carey, M.D.

DATA SHEET

Child's Name _____ Sex _____

Date of Child's Birth _____ Present Age _____
month day year

Rater's Name _____

Relationship to Child _____

Date of Rating _____
month day year

RATING INFORMATION

1. Please base your rating on the child's recent and current behavior (the last four to six weeks).

2. Consider only your own impressions and observations of the child.

3. Rate each question independently. Do not purposely attempt to present a consistent picture of the child.

4. Use extreme ratings where appropriate. Avoid rating only near the middle of the scale.

5. Rate each item quickly. If you cannot decide, skip the item and come back to it later.

6. Rate every item. Circle the number of any item that you are unable to answer due to lack of information or any item that does not apply to your child.

USING THE SCALE SHOWN BELOW, PLEASE MARK AN "X" IN THE SPACE THAT TELLS HOW OFTEN THE CHILD'S RECENT AND CURRENT BEHAVIOR HAS BEEN LIKE THE BEHAVIOR DESCRIBED BY EACH ITEM.

Almost never	Rarely	Usually does not	Usually does	Frequently	Almost always
1	2	3	4	5	6

1. The child is moody for more than a few minutes when corrected or disciplined.	almost never	1	2	3	4	5	6	almost always
2. The child seems not to hear when involved in a favorite activity.	almost never	1	2	3	4	5	6	almost always
3. The child can be coaxed out of a forbidden activity.	almost never	1	2	3	4	5	6	almost always
4. The child runs ahead when walking with the parent.	almost never	1	2	3	4	5	6	almost always
5. The child laughs or smiles while playing.	almost never	1	2	3	4	5	6	almost always
6. The child moves slowly when working on a project or activity.	almost never	1	2	3	4	5	6	almost always
7. The child responds intensely to disapproval.	almost never	1	2	3	4	5	6	almost always
8. The child needs a period of adjustment to get used to changes in school or at home.	almost never	1	2	3	4	5	6	almost always
9. The child enjoys games that involve running or jumping.	almost never	1	2	3	4	5	6	almost always
10. The child is slow to adjust to changes in household rules.	almost never	1	2	3	4	5	6	almost always
11. The child has bowel movements at about the same time each day.	almost never	1	2	3	4	5	6	almost always
12. The child is willing to try new things.	almost never	1	2	3	4	5	6	almost always
13. The child sits calmly while watching TV or listening to music.	almost never	1	2	3	4	5	6	almost always
14. The child leaves or wants to leave the table during meals.	almost never	1	2	3	4	5	6	almost always

Almost never	Rarely	Usually does not	Usually does	Frequently	Almost always
1	2	3	4	5	6

15. Changes in plans bother the child.	almost never	1	2	3	4	5	6	almost always
16. The child notices minor changes in mother's dress or appearance (clothing, hairstyle, etc.).	almost never	1	2	3	4	5	6	almost always
17. The child does not acknowledge a call to come in if involved in something.	almost never	1	2	3	4	5	6	almost always
18. The child responds to mild disapproval by the parent (a frown or shake of the head)	almost never	1	2	3	4	5	6	almost always
19. The child settles arguments with playmates within a few minutes.	almost never	1	2	3	4	5	6	almost always
20. The child shows strong reaction to things, both positive and negative.	almost never	1	2	3	4	5	6	almost always
21. The child had trouble leaving the mother the first three days when he/she entered school.	almost never	1	2	3	4	5	6	almost always
22. The child picks up the nuances or subtleties of parental explanations (example: implied meanings).	almost never	1	2	3	4	5	6	almost always
23. The child falls asleep as soon as he/she is put to bed.	almost never	1	2	3	4	5	6	almost always
24. The child moves about actively when he/she explores new places.	almost never	1	2	3	4	5	6	almost always
25. The child likes to go to new places rather than familiar ones.	almost never	1	2	3	4	5	6	almost always
26. The child sits quietly while waiting.	almost never	1	2	3	4	5	6	almost always
27. The child spends over an hour reading a book or looking at the pictures.	almost never	1	2	3	4	5	6	almost always
28. The child learns new things at his/her level quickly and easily.	almost never	1	2	3	4	5	6	almost always

Almost never	Rarely	Usually does not	Usually does	Frequently	Almost always
1	2	3	4	5	6

29. The child smiles or laughs when he/she meets new visitors at home.	almost never	1	2	3	4	5	6	almost always
30. The child is easily excited by praise.	almost never	1	2	3	4	5	6	almost always
31. The child is outgoing with strangers.	almost never	1	2	3	4	5	6	almost always
32. The child fidgets when he/she has to stay still.	almost never	1	2	3	4	5	6	almost always
33. The child says that he/she is "bored" with his/her toys and games.	almost never	1	2	3	4	5	6	almost always
34. The child is annoyed at interupting play to comply with a parental request.	almost never	1	2	3	4	5	6	almost always
35. The child practices an activity until he/she masters it.	almost never	1	2	3	4	5	6	almost always
36. The child eats about the same amount at supper from day to day.	almost never	1	2	3	4	5	6	almost always
37. Unusual noises (sirens, thunder, etc.) interrupt the child's behavior.	almost never	1	2	3	4	5	6	almost always
38. The child complains when tired.	almost never	1	2	3	4	5	6	almost always
39. The child loses interest in a new toy or game the same day.	almost never	1	2	3	4	5	6	almost always
40. The child becomes engrossed in an interesting activity for one half hour or more.	almost never	1	2	3	4	5	6	almost always
41. The child cries intensely when hurt.	almost never	1	2	3	4	5	6	almost always
42. The child reacts strongly to kidding or light-hearted commments.	almost never	1	2	3	4	5	6	almost always
43. The child approaches children his/her age that he/she doesn't know.	almost never	1	2	3	4	5	6	almost always

Almost never	Rarely	Usually does not	Usually does	Frequently	Almost always
1	2	3	4	5	6

44. The child plays quietly with his/her toys and games	almost never	1	2	3	4	5	6	almost always
45. The child is outwardly expressive of his/her emotions.	almost never	1	2	3	4	5	6	almost always
46. The child is enthusiastic when he/she masters an activity and wants to show everyone.	almost never	1	2	3	4	5	6	almost always
47. The child is sleepy at his/her bed-time.	almost never	1	2	3	4	5	6	almost always
48. The child stops an activity because something else catches his/her attention.	almost never	1	2	3	4	5	6	almost always
49. The child is hungry at dinner time.	almost never	1	2	3	4	5	6	almost always
50. The child holds back until sure of himself/herself.	almost never	1	2	3	4	5	6	almost always
51. The child looks up when someone walks past the door-way.	almost never	1	2	3	4	5	6	almost always
52. The child becomes upset if he/she misses a regular television program.	almost never	1	2	3	4	5	6	almost always
53. The child reacts strongly (cries or complains) to a disappointment or failure.	almost never	1	2	3	4	5	6	almost always
54. The child accepts new foods within one or two tries.	almost never	1	2	3	4	5	6	almost always
55. The child has difficulty getting used to new situations.	almost never	1	2	3	4	5	6	almost always
56. The child will avoid misbehavior if punished firmly once or twice.	almost never	1	2	3	4	5	6	almost always
57. The child is sensitive to noises (telephone, doorbell) and looks up right away.	almost never	1	2	3	4	5	6	almost always
58. The child prefers active outdoor play to quiet play inside.	almost never	1	2	3	4	5	6	almost always

Almost never	Rarely	Usually does not	Usually does	Frequently	Almost always
1	2	3	4	5	6

59. The child dislikes milk or other drinks if not ice-cold.	almost never	1	2	3	4	5	6	almost always
60. The child notices differences or changes in the consistency of food.	almost never	1	2	3	4	5	6	almost always
61. The child adjusts easily to changes in his/her routine.	almost never	1	2	3	4	5	6	almost always
62. The child eats about the same amount at breakfast from day to day.	almost never	1	2	3	4	5	6	almost always
63. The child seems to take setbacks in stride.	almost never	1	2	3	4	5	6	almost always
64. The child cries or whines when frustrated.	almost never	1	2	3	4	5	6	almost always
65. The child repeats behavior for which he/she has previously been punished.	almost never	1	2	3	4	5	6	almost always
66. The child looks up from playing when the telephone rings.	almost never	1	2	3	4	5	6	almost always
67. The child is willing to try new foods.	almost never	1	2	3	4	5	6	almost always
68. The child needs encouragement before he/she will try new things.	almost never	1	2	3	4	5	6	almost always
69. The child cries or whines when ill with a cold or upset stomach.	almost never	1	2	3	4	5	6	almost always
70. The child runs to get where he/she wants to go.	almost never	1	2	3	4	5	6	almost always
71. The child's attention drifts away or lapses when listening to parental instructions.	almost never	1	2	3	4	5	6	almost always
72. The child becomes angry with one of his/her playmates.	almost never	1	2	3	4	5	6	almost always
73. The child is reluctant to give up when trying to do a difficult task.	almost never	1	2	3	4	5	6	almost always
74. The child reacts to mild approval from the parent (a nod or smile).	almost never	1	2	3	4	5	6	almost always

Almost never	Rarely	Usually does not	Usually does	Frequently	Almost always
1	2	3	4	5	6

75. The child requests "something to eat" between meals and regular snacks.	almost never	1	2	3	4	5	6	almost always
76. The child rushes to greet the parent or greets loudly after absence during the day.	almost never	1	2	3	4	5	6	almost always
77. The child looks up when he/she hears voices in the next room.	almost never	1	2	3	4	5	6	almost always
78. The child protests when denied a request by the parent.	almost never	1	2	3	4	5	6	almost always
79. The child ignores loud noises when reading or looking at pictures in a book.	almost never	1	2	3	4	5	6	almost always
80. The child dislikes a food that he/she had previously seemed to accept.	almost never	1	2	3	4	5	6	almost always
81. The child stops what he/she is doing and looks up when the parent enters the room.	almost never	1	2	3	4	5	6	almost always
82. The child cries for more than a few minutes when hurt.	almost never	1	2	3	4	5	6	almost always
83. The child watches a long (1 hour or more) TV program without getting up to do something else.	almost never	1	2	3	4	5	6	almost always
84. The child spontaneously wakes up at the usual time on weekends and holidays.	almost never	1	2	3	4	5	6	almost always
85. The child responds to sounds or noises unrelated to his/her activity.	almost never	1	2	3	4	5	6	almost always
86. The child avoids new guests or visitors.	almost never	1	2	3	4	5	6	almost always
87. The child fidgets when a story is being read to him/her.	almost never	1	2	3	4	5	6	almost always
88. The child becomes upset or cries over minor falls or bumps.	almost never	1	2	3	4	5	6	almost always

Almost never	Rarely	Usually does not	Usually does	Frequently	Almost always
1	2	3	4	5	6

89. The child interrupts an activity to listen to conversation around him/her.	almost never	1	2	3	4	5	6	almost always
90. The child is unwilling to leave a play activity that he/she has not completed.	almost never	1	2	3	4	5	6	almost always
91. The child is able to fall asleep when there is conversation in a nearby room.	almost never	1	2	3	4	5	6	almost always
92. The child becomes highly excited when presented with a new toy or game.	almost never	1	2	3	4	5	6	almost always
93. The child pays attention from start to finish when the parent tries to explain something to him/her.	almost never	1	2	3	4	5	6	almost always
94. The child speaks so quickly that it is sometimes difficult to understand him/her.	almost never	1	2	3	4	5	6	almost always
95. The child wants to leave the table during meals to answer the doorbell or phone.	almost never	1	2	3	4	5	6	almost always
96. The child complains of events in school or with playmates that day.	almost never	1	2	3	4	5	6	almost always
97. The child frowns when asked to do a chore by the parent.	almost never	1	2	3	4	5	6	almost always
98. The child tends to hold back in new situations.	almost never	1	2	3	4	5	6	almost always
99. The child laughs hard while watching television cartoons or comedy.	almost never	1	2	3	4	5	6	almost always
100. The child has "off" days when he/she is moody or cranky.	almost never	1	2	3	4	5	6	almost always

Finally, we would like to ask some questions about yourself to help interpret the results.

1. What is your present marital status? (circle number)

1 NEVER MARRIED
2 MARRIED
3 DIVORCED
4 SEPARATED
5 WIDOWED

2. How many children do you have? _____
(number)

3. What are their exact ages?

BOYS _____, _____, _____,
(age) (age) (age)

GIRLS _____, _____, _____
(age) (age) (age)

4. What is your present age? _____
(years)

* IF YOU ARE NOT EMPLOYED OUTSIDE THE HOME, SKIP TO QUESTION 7.

5. How many hours per week do you work outside the home?

_____
(hours)

6. Please describe your occupation.

TITLE _____

KIND OF WORK YOU DO _____

KIND OF COMPANY OR BUSINESS_____

7. What was your approximate net family income from all sources, before taxes in 1987? (Circle number)

1 UNDER $10,000
2 $10,000 TO $14,999
3 $15,000 TO $19,999
4 $20,000 TO $24,999
5 $25,000 TO $29,999
6 $30,000 TO $34,999
7 $35,000 TO $39,999
8 $40,000 TO $44,999
9 $45,000 TO $50,000

8. What is the highest level of education that you have completed? (Circle number)

1 COMPLETED HIGH SCHOOL
2 SOME COLLEGE
3 COMPLETED COLLEGE
4 COMPLETED COLLEGE
5 SOME GRADUATE WORK
6 GRADUATE DEGREE

Is there anything else you would like to tell us about your child's play behavior? If so, please use this space for that purpose.

Also, any comments you wish to make that you think may be of further help to us on the project will be appreciated, either here or in a separate letter.

VIRGINIA TECH

Department of Family and Child Development
College of Human Resources

Wallace Annex
Blacksburg, Virginia 24061-8299
(703) 961-4794 or 4795

Dear Parents,

Thank you for agreeing to participate in Virginia Tech's Child Development Project. The Child Behavior Inventory (CBI) and Behavioral Style Questionnaire (BSQ) are included in this packet. If both parents agreed to complete the scales, two sets of forms are enclosed. Directions for completing the CBI are printed at the top of the form; directions for the BSQ are on the first page of the form. When you have completed the scales, please return them to your center's director.

If you have any questions regarding the questionnaires or the project, please feel free to call. Your help with this project is appreciated.

Sincerely yours,

Teresa T. Blevins
Project Coordinator
or

APPENDIX D

Behavioral Style Questionnaire Profile Sheet

BEHAVIORAL STYLE QUESTIONNAIRE - Profile Sheet

for 3 to 7 year old children

Developed (1975) by Sean C. McDevitt, Ph.D. & William B. Carey, M.D.

Child's Name _____ Date of Rating _____

Age at rating: ____years, _____months. Sex _____

Category score from Scoring Sheet:

Profile: Place mark in appropriate box below:

	Activity	Rhythm.	App/With	Adapt.	Intens.	Mood	Persist.	Distract	Thresh.
6	high	arrhyth	withdr.	slowly	intense	negative	nonpers	distrac	low
.D	4.31	3.43	3.93	3.27	5.17	3.99	3.56	4.70	4.58
n	3.56	2.75	2.99	2.55	4.52	3.31	2.87	3.89	3.98
.D	2.81	2.07	2.05	1.83	3.87	2.63	2.18	3.08	3.38
1	low	very rhyth.	app.	very adapt.	mild	positive	high per	non-distrac	high

Diagnostic Clusters

sy		rhthm.	app.	adapt.	mild	positive
ff		arrythm.	withdr.	slowly adapt.	intense	negative
SU	low		withdr.	slowly adapt.	mild	negative

Definition of diagnostic clusters used for individual scoring:

Easy- Scores greater than mean in no more than two of difficult/easy categories (rhythmicity, approach, adaptability, intensity & mood) and neither greater than one standard deviation.

Difficult- 4 or 5 scores greater than mean in difficult/easy categories (as above) This must include intensity and two scores greater than one standard deviation

Slow to warm up- as defined above, but if either withdrawal or slow adaptability is greater than one standard deviation, activity may vary up to 3.93 and mood may vary down to 2.97.

Intermediate- all others. Intermediate high- 4 or 5 diff/easy categories above mean with one >1 standard deviation, or 2 or 3 above mean with 2 or 3 >1 standard deviation. Intermediate low- all other intermediates.

This child's diagnostic cluster _____ Date of scoring _____

Comments: Scored by _____

APPENDIX E

Pearson Correlations Among All Variables

	Age	IQ	Sex	ConvFam	Oldest	Youngest	Middle	Only
Age	1	-0.15	-0.08	-0.17	-0.01	0.059	0.11	-0.1
	0	0.3	0.4	0.06	0.96	0.51	0.21	0.27
	128	50	128	128	128	128	128	128
IQ	-0.15	1	-0.03	0.28	0.16	-0.01	-0.02	-0.13
	0.29	0	0.82	0.05	0.28	0.95	0.91	0.35
	50	50	50	50	50	50	50	50
Sex	-0.08	-0.03	1	-0.01	-0.05	-0.09	-0.07	0.16
	0.4	0.82	0	0.95	0.56	0.32	0.41	0.08
	128	50	128	128	128	128	128	128
ConvFamily	-0.17	0.28	-0.01	1	0.34	-0.02	-0.06	-0.25
	0.06	0.05	0.95	0	0.01	0.79	0.48	0.01
	128	50	128	128	128	128	128	128
Oldest Child	-0.01	0.16	-0.05	0.34	1	-0.35	-0.14	-0.51
	0.95	0.28	0.56	0.01	0	0.01	0.11	0.01
	128	50	128	128	128	128	128	128
Youngest Child	0.06	-0.01	-0.09	-0.02	-0.35	1	-0.14	-0.51
	0.51	0.95	0.32	0.79	0.01	0	0.11	0.01
	128	50	128	128	128	128	128	128
Middle Child	0.11	-0.02	-0.07	-0.06	-0.14	-0.14	1	-0.21
	0.21	0.91	0.41	0.48	0.11	0.11	0	0.02
	128	50	128	128	128	128	128	128
Only Child	-0.1	-0.13	0.16	-0.25	-0.51	-0.51	-0.21	1
	0.27	0.35	0.08	0.01	0.01	0.01	0.02	0
	128	50	128	128	128	128	128	128
AgeM	0.09	-0.03	0.13	0.18	-0.15	0.3	-0.04	-0.1
	0.32	0.85	0.15	0.05	0.09	0.01	0.67	0.24
	122	48	122	122	122	122	122	122
AgeF	-0.02	0.06	0.19	0.17	-0.11	0.18	0.05	-0.08
	0.89	0.8	0.14	0.19	0.42	0.17	0.71	0.54
	61	23	61	61	61	61	61	61
EmploymentM	-0.08	-0.01	-0.07	-0.19	-0.17	-0.01	-0.16	0.23
	0.37	0.97	0.42	0.04	0.06	0.91	0.09	0.01
	120	48	120	120	120	120	120	120
EmploymentF	0.15	0.2	0.2	0.24	0.19	-0.15	0.06	-0.09
	0.23	0.36	0.12	0.06	0.13	0.26	0.65	0.49
	62	23	62	62	62	62	62	62
Income	-0.17	0.15	0.08	0.47	0.13	0.1	0.08	-0.25
	0.07	0.3	0.41	0.01	0.15	0.27	0.41	0.01
	119	47	119	119	119	119	119	119
EducationM	-0.03	0.41	0.01	0.33	0.1	0	-0.05	-0.07
	0.71	0.01	0.9	0.01	0.25	0.99	0.59	0.42
	122	48	122	122	122	122	122	122
EducationF	-0.14	0.27	0.22	0.37	-0.02	0.12	-0.1	-0.04
	0.3	0.26	0.08	0.01	0.89	0.37	0.45	0.74
	60	20	60	60	60	60	60	60
ActivityF	0.06	-0.04	-0.14	0.13	0.11	0.02	0.02	-0.14
	0.63	0.85	0.3	0.32	0.4	0.86	0.89	0.29
	61	23	61	61	61	61	61	61
ActivityM	0.04	-0.2	-0.03	-0.07	-0.03	-0.01	-0.03	0.05
	0.63	0.18	0.73	0.42	0.77	0.88	0.75	0.59
	121	47	121	121	121	121	121	121
RhythmicityF	0.02	0.33	0.15	0.18	0.33	-0.11	-0.13	-0.18
	0.9	0.13	0.26	0.16	0.01	0.4	0.33	0.16
	61	23	61	61	61	61	61	61
RhythmicityM	0.09	-0.09	-0.08	-0.21	-0.07	0.1	-0.03	-0.01
	0.31	0.54	0.36	0.02	0.45	0.3	0.72	0.95
	121	47	121	121	121	121	121	121
ApproachF	-0.11	0.09	0.08	0.15	0.06	-0.14	-0.14	0.12
	0.4	0.69	0.56	0.25	0.62	0.28	0.29	0.35
	61	23	61	61	61	61	61	61

	Age	IQ	Sex	ConvFam	Oldest	Youngest	Middle	Only
ApproachM	0.03	0.18	-0.01	0.21	0.24	-0.03	0.07	-0.21
	0.77	0.22	0.87	0.02	0.01	0.71	0.47	0.02
	121	47	121	121	121	121	121	121
AdaptF	0.01	0.16	0.03	0.16	0.09	-0.06	-0.08	0.01
	0.96	0.45	0.85	0.23	0.5	0.63	0.52	0.96
	61	23	61	61	61	61	61	61
AdaptM	0.01	-0.02	-0.07	-0.02	0.17	-0.05	0.04	-0.13
	0.94	0.9	0.42	0.86	0.07	0.59	0.63	0.16
	121	47	121	121	121	121	121	121
IntenseF	0.18	-0.07	-0.17	0.12	-0.01	-0.03	0.12	-0.01
	0.16	0.76	0.19	0.35	0.92	0.81	0.37	0.92
	61	23	61	61	61	61	61	61
IntenseM	0.01	-0.15	-0.04	0	0	-0.03	0.05	0.01
	0.95	0.32	0.69	0.97	0.97	0.71	0.6	0.95
	121	47	121	121	121	121	121	121
MoodF	0.01	0.23	0.02	0.4	0.24	-0.16	0.04	-0.11
	0.93	0.29	0.88	0.01	0.07	0.21	0.77	0.4
	61	23	61	61	61	61	61	61
MoodM	0.06	0.06	0.05	-0.03	0.24	-0.07	-0.11	-0.11
	0.52	0.66	0.59	0.73	0.01	0.41	0.25	0.24
	121	47	121	121	121	121	121	0.121
PersistF	0.01	-0.03	-0.07	0.09	0	-0.01	-0.14	0.07
	0.93	0.88	0.6	0.49	0.98	0.95	0.28	0.6
	61	23	61	61	61	61	61	61
PersistM	0.06	-0.1	-0.04	-0.08	0	0.01	0.03	-0.03
	0.52	0.51	0.67	0.39	0.96	0.87	0.76	0.75
	121	47	121	121	121	121	121	121
DistractF	0.01	0.01	-0.07	0.06	-0.09	-0.16	-0.06	0.25
	0.93	0.97	0.61	0.64	0.51	0.23	0.62	0.05
	61	23	61	61	61	61	61	61
DistractM	0.01	0	0.08	-0.01	0.03	-0.12	-0.11	0.13
	0.89	0.98	0.38	0.92	0.78	0.19	0.22	0.16
	121	47	121	121	121	121	121	121
ThresholdF	0.04	-0.16	0.03	0.06	-0.02	-0.07	0.04	0.06
	0.76	0.46	0.84	0.64	0.89	0.59	0.77	0.64
	61	23	61	61	61	61	61	61
ThresholdM	0.01	0.02	0.05	-0.06	0.13	-0.1	-0.02	-0.03
	0.85	0.88	0.62	0.5	0.14	0.3	0.84	0.75
	121	0.47	121	121	121	121	121	121
PlayfulnessF	0.06	-0.02	0.11	-0.18	-0.02	-0.01	0.03	0.02
	0.64	0.92	0.4	0.15	0.9	0.91	0.83	0.89
	65	25	65	65	65	65	65	65
PlayfulnessM	-0.02	0.02	0.05	-0.08	-0.18	-0.01	0.12	0.12
	0.8	0.91	0.58	0.4	0.05	0.88	0.19	0.19
	121	47	121	121	121	121	121	121
ExternalityF	-0.08	-0.18	0.02	-0.03	-0.11	0.1	0.12	0.15
	0.55	0.38	0.85	0.79	0.39	0.45	0.35	0.25
	64	25	64	64	64	64	64	64
ExternalityM	-0.03	0.11	-0.01	0.02	-0.11	-0.06	0.05	0.13
	0.72	0.45	0.88	0.83	0.24	0.51	0.6	0.16
	121	47	121	121	121	121	121	121

	AgeM	AgeF	EmployM	EmployF	Income	EducationM	EducationF	ActivityF
Age	0.09	-0.02	-0.08	0.15	-0.17	-0.03	-0.13	0.06
	0.32	0.89	0.37	0.23	0.07	0.71	0.3	0.63
	122	61	120	62	119	122	60	61
IQ	-0.03	0.06	-0.01	0.2	0.15	0.41	0.27	-0.04
	0.85	0.8	0.97	0.36	0.3	0	0.26	0.85
	48	23	48	23	47	48	20	23
Sex	0.13	0.19	-0.07	20	0.08	0.01	0.22	-0.14
	0.14	0.14	0.42	0.12	0.41	0.9	0.09	0.3
	122	61	120	62	119	122	60	61
ConvFamily	0.18	0.17	-0.19	0.24	0.47	0.33	0.37	0.13
	0.05	0.18	0.04	0.06	0.01	0.01	0.01	0.32
	122	61	120	62	119	122	60	61
Oldest Child	-0.15	-0.11	-0.17	0.19	0.13	0.1	-0.02	0.11
	0.09	0.42	0.06	0.13	0.15	0.25	0.89	0.4
	122	61	120	62	119	122	60	61
Youngest Child	0.3	0.18	-0.01	-0.15	0.1	0	0.12	0.02
	0.01	0.17	0.91	0.26	0.27	0.99	0.37	0.86
	122	61	120	62	119	122	60	61
Middle Child	-0.04	0.05	-0.16	0.06	0.08	-0.05	-0.1	0.02
	0.67	0.71	0.09	0.65	0.41	0.59	0.45	0.89
	122	61	120	62	119	122	60	61
Only Child	-0.11	-0.08	0.23	-0.1	-0.25	-0.07	-0.04	-0.14
	0.24	0.53	0.01	0.49	0.01	0.42	0.74	0.29
	122	61	120	62	119	122	60	61
AgeM	1	0.64	-0.08	0.17	0.43	0.26	0.46	-0.02
	0	0.01	0.4	0.2	0.01	0.01	0.01	0.89
	122	55	120	56	113	122	54	55
AgeF	0.64	1	-0.04	0.07	0.41	0.16	0.32	0.05
	0.01	0	0.77	0.57	0.01	0.25	0.02	0.73
	55	61	55	61	60	55	58	59
EmploymentM	-0.08	-0.04	1	-0.01	-0.14	-0.23	-0.28	0.13
	0.4	0.77	0	0.95	0.15	0.01	0.04	0.34
	120	55	120	56	113	120	54	55
EmploymentF	0.17	0.07	-0.01	1	0.32	-0.07	0.13	-0.05
	0.19	0.57	0.95	0	0.01	0.6	0.32	0.7
	56	61	56	62	61	56	59	60
Income	0.43	0.41	-0.14	0.32	1	0.5	0.48	-0.08
	0.01	0.01	0.15	0.01	0	0.01	0.01	0.56
	113	60	113	61	119	113	60	60
EducationM	0.26	0.16	-0.23	-0.07	0.5	1	0.39	-0.3
	0	0.25	0.01	0.6	0	0	0	0.02
	122	55	120	56	113	122	54	55
EducationF	0.46	0.32	-0.28	0.13	0.48	0.39	1	-0.02
	0.01	0.02	0.04	0.32	0.01	0.01	0	0.88
	54	58	54	59	60	54	60	57
ActivityF	-0.02	0.05	0.13	-0.15	-0.08	-0.3	-0.02	1
	0.89	0.73	0.34	0.27	0.56	0.02	0.88	0
	55	59	55	56	60	55	57	61
ActivityM	-0.12	0.13	0.14	0.16	0.26	-0.25	-0.1	0.61
	0.19	0.34	0.12	0.21	0.01	0.01	0.46	0.01
	121	55	119	60	112	121	54	54
RhythmicityF	0	0.04	0.13	0.09	0.01	-0.14	-0.14	0.25
	0.99	0.76	0.35	0.51	0.93	0.32	0.31	0.05
	55	59	55	56	60	55	57	61
RhythmicityM	0.07	-0.07	0.09	0.09	-0.23	-0.21	-0.19	0.06
	0.46	0.63	0.34	0.48	0.01	0.02	0.17	0.67
	121	55	119	60	112	121	54	54
ApproachF	-0.17	-0.19	-0.02	0.13	0.1	-0.02	-0.04	-0.08
	0.21	0.14	0.88	0.35	0.46	0.91	0.78	0.55
	55	59	55	56	60	55	57	61

	AgeM	AgeF	EmployM	EmployF	Income	EducationM	EducationF	ActivityF
ApproachM	-0.11	-0.08	-0.19	0.14	0.22	0.24	0.17	-0.26
	0.23	0.54	0.04	0.27	0.02	0.01	0.22	0.06
	121	55	119	60	112	121	54	54
AdaptF	-0.01	0.05	0.11	0.04	0.12	-0.01	0.11	0.19
	0.93	0.72	0.42	0.77	0.37	0.97	0.4	0.15
	55	59	55	56	60	55	57	61
AdaptM	-0.2	-0.22	0.03	0.05	-0.05	-0.16	-0.25	0.09
	0.02	0.1	0.74	0.69	0.58	0.07	0.07	0.5
	121	55	119	60	112	121	54	54
IntenseF	0.02	-0.03	0.11	-0.01	0.09	0.04	0.11	0.35
	0.87	0.82	0.42	0.97	0.5	0.77	0.41	0.01
	55	59	55	56	60	55	57	61
IntenseM	-0.04	-0.06	-0.04	0.31	0.03	-0.04	0.26	0.15
	0.68	0.65	0.69	0.02	0.73	0.67	0.05	0.27
	121	55	119	60	112	121	54	54
MoodF	0	-0.06	-0.11	0.07	0.2	0.11	0.13	0.26
	0.97	0.67	0.42	0.6	0.13	0.41	0.33	0.04
	55	59	55	56	60	55	57	61
MoodM	-0.11	-0.13	-0.03	-0.06	-0.12	-0.11	0.06	0.15
	0.23	0.35	0.73	0.64	0.2	0.23	0.67	0.27
	121	55	119	60	112	121	54	54
PersistF	0.02	0.08	-0.02	-0.08	0.04	0.1	-0.06	0.21
	0.87	0.57	0.88	0.55	0.78	0.45	0.68	0.11
	55	0.59	55	56	60	55	57	61
PersistM	-0.01	0	0.01	-0.08	-0.07	-0.07	-0.13	0.22
	0.88	0.98	0.91	0.55	0.44	0.42	0.36	0.1
	121	55	119	60	112	121	54	54
DistractF	-0.05	-0.1	0.23	0.03	-0.15	0.01	0.13	0.27
	0.7	0.48	0.1	0.84	0.25	0.96	0.34	0.04
	55	59	55	56	60	55	57	61
DistractM	-0.19	-0.06	0.14	0.1	-0.16	-0.07	0.08	0.03
	0.04	0.66	0.12	0.46	0.08	0.47	0.56	0.83
	121	55	119	60	112	121	54	54
ThresholdF	-0.02	-0.04	0.06	0.31	-0.02	-0.09	0.23	0.3
	0.91	0.78	0.67	0.02	0.9	0.51	0.09	0.02
	55	59	55	56	60	55	57	61
ThresholdM	-0.04	0.12	0	0.12	-0.09	-0.12	0.2	0.12
	0.66	0.39	0.99	0.36	0.34	0.21	0.15	0.39
	121	55	119	62	112	121	54	54
PlayfulnessF	-0.14	-0.06	0.01	0.09	-0.09	0.05	0.07	-0.17
	0.27	0.67	0.93	0.49	0.46	0.69	0.6	0.18
	59	61	59	56	64	59	59	61
PlayfulnessM	0.02	0.14	0.03	-0.01	0.05	0	0.17	-0.08
	0.81	0.32	0.71	0.94	0.59	0.98	0.23	0.56
	121	55	119	62	112	121	54	54
ExternalityF	-0.04	-0.1	-0.08	-0.1	0.17	0.14	0.09	-0.02
	0.77	0.42	0.56	0.46	0.19	0.28	0.49	0.85
	58	61	58	56	63	58	59	61
ExternalityM	-0.01	0.16	0.11	-0.07	-0.12	-0.04	-0.04	-0.01
	0.92	0.24	0.24	0.64	0.2	0.63	0.76	0.95
	121	55	119	44	112	121	54	54

	ActivityM	RhythmicityF	RhythmicityM	ApproachF	ApproachM	AdaptF	AdaptM	IntenseF
Age	0.04	0.02	0.09	-0.11	0.03	0.01	0.01	0.18
	0.63	0.89	0.31	0.4	0.77	0.96	0.94	0.16
	121	61	121	61	121	61	121	61
IQ	-0.2	0.33	-0.09	0.09	0.18	0.16	0.9	-0.07
	0.18	0.13	0.54	0.69	0.22	0.45	90	0.76
	47	23	47	23	47	23	47	23
Sex	-0.03	0.15	-0.08	0.08	-0.01	0.03	-0.07	-0.17
	0.73	0.26	0.36	0.56	0.87	0.84	0.42	0.19
	121	61	121	61	121	61	121	61
ConvFamily	-0.07	0.18	-0.21	0.15	0.21	0.16	-0.02	0.12
	0.42	0.16	0.02	0.25	0.02	0.23	0.86	0.35
	121	61	121	61	121	61	121	61
Oldest Child	-0.27	0.33	-0.07	0.06	0.24	0.09	0.17	-0.01
	0.77	0.01	0.45	0.63	0.01	0.5	0.07	0.92
	121	61	121	61	121	61	121	61
Youngest Child	-0.01	-0.11	0.1	-0.14	-0.03	-0.06	-0.05	-0.03
	0.88	0.4	0.3	0.28	0.71	0.63	0.59	0.81
	121	61	121	61	12121	61	121	61
Middle Child	-0.03	-0.13	-0.03	-0.14	0.07	-0.08	0.04	0.12
	0.75	0.33	0.72	0.29	0.47	0.52	0.63	0.37
	121	61	121	61	121	61	121	61
Only Child	0.05	-0.18	-0.01	0.12	-0.21	0.01	-0.13	-0.01
	0.59	0.16	0.95	0.35	0.02	0.96	0.16	0.92
	121	61	121	61	121	61	121	61
AgeM	-0.12	0	0.07	-0.17	-0.11	-0.01	-0.2	0.02
	0.19	0.99	0.46	0.21	0.23	0.93	0.02	0.87
	121	55	121	55	121	55	121	55
AgeF	0.13	0.04	-0.07	-0.19	-0.08	0.05	-0.22	-0.03
	0.34	0.76	0.63	0.14	0.54	0.72	0.1	0.82
	55	59	55	59	55	59	55	59
EmploymentM	0.14	0.13	0.09	-0.02	-0.19	0.11	0.03	0.11
	0.12	0.35	0.34	0.88	0.04	0.42	0.74	0.42
	119	55	119	55	119	55	119	55
EmploymentF	-0.15	0.16	0.09	0.09	0.13	0.14	0.04	0.05
	0.27	0.21	0.51	0.48	0.35	0.27	0.77	0.69
	56	60	56	60	56	60	56	60
Income	-0.26	0.01	-0.23	0.1	0.22	0.12	-0.05	0.09
	0.01	0.93	0.01	0.46	0.02	0.37	0.58	0.5
	112	60	112	60	112	60	112	60
EducationM	-0.25	-0.14	-0.21	-0.02	0.24	-0.01	-0.16	0.04
	0.01	0.32	0.02	0.9	0.01	0.97	0.07	0.77
	121	55	121	55	121	55	121	55
EducationF	-0.1	-0.14	-0.19	-0.04	0.17	0.11	-0.25	0.11
	0.46	0.31	0.17	0.78	0.22	0.4	0.07	0.41
	54	57	54	57	54	57	54	57
ActivityF	0.61	0.25	0.06	-0.08	-0.26	0.19	0.09	0.35
	0.01	0.05	0.67	0.55	0.06	0.15	0.5	0.01
	54	61	54	61	54	61	54	61
ActivityM	1	0.07	0.21	-0.18	-0.23	0.06	0.3	0.12
	0	0.61	0.02	0.2	0.01	0.66	0.01	0.4
	121	54	121	54	121	54	121	54
RhythmicityF	0.07	1	0.57	0.11	0.1	0.31	0.19	-0.04
	0.61	0	0.01	0.4	0.45	0.02	0.16	0.75
	54	61	54	61	0.54	61	54	61
RhythmicityM	0.21	0.57	1	-0.03	0.07	-0.02	0.28	0.02
	0.02	0.01	0	0.81	0.47	0.86	0.01	0.91
	121	54	121	54	121	54	121	54
ApproachF	-0.18	0.11	-0.03	1	0.4	0.46	0.11	-0.02
	0.2	0.4	0.81	0	0.01	0.01	0.41	0.91
	54	61	54	61	54	61	54	61

	ActivityM	RhythmicityF	RhythmicityM	ApproachF	ApproachM	AdaptF	AdaptM	IntenseF
ApproachM	-0.23	0.1	0.07	0.4	1	0.2	0.44	-0.19
	0.01	0.45	0.47	0.01	0	0.15	0.01	0.18
	121	54	121	54	121	54	121	54
AdaptF	0.06	0.31	-0.02	0.46	0.2	1	0.36	0.15
	0.66	0.02	0.86	0.01	0.15	0	0.01	0.26
	54	61	54	61	54	61	54	61
AdaptM	0.3	0.19	0.28	0.11	0.44	0.36	1	-0.09
	0.01	0.16	0.01	0.41	0.01	0.01	0	0.51
	121	54	121	54	121	54	121	54
IntenseF	0.12	-0.04	0.02	-0.02	-0.19	0.15	-0.09	1
	0.4	0.75	0.91	0.91	0.18	0.26	0.51	0
	54	61	54	61	54	61	54	61
IntenseM	0.08	-0.25	0.12	0.01	0.1	0.09	0.26	0.45
	0.36	0.07	0.17	0.97	0.27	0.53	0.01	0.01
	121	54	121	54	121	54	121	54
MoodF	0.16	0.12	0.05	0.34	-0.07	0.51	0.15	0.41
	0.24	0.37	0.73	0.01	0.61	0.01	0.28	0.01
	54	61	54	61	54	61	54	61
MoodM	0.34	0.2	0.35	0.26	0.3	0.21	0.58	0.08
	0.01	0.14	0.01	0.06	0.01	0.13	0.01	0.55
	121	54	121	54	121	54	121	54
PersistF	0.19	0.28	0.24	0.39	0.2	0.18	0.21	-0.24
	0.18	0.03	0.08	0.01	0.14	0.16	0.13	0.06
	54	61	54	61	54	61	54	61
PersistM	0.45	0.39	0.28	0.01	0.11	-0.15	0.3	-0.25
	0.01	0.01	0.01	0.93	0.22	0.28	0.01	0.07
	121	54	121	54	121	54	121	54
DistractF	0.08	0.05	0.06	0.02	-0.05	-0.07	-0.03	0.2
	0.59	0.69	0.68	0.89	0.74	0.57	0.84	0.12
	54	61	54	61	54	61	54	61
DistractM	0.03	-0.03	-0.08	0.12	-0.03	0.11	0.03	0.05
	0.73	0.85	0.41	0.39	0.78	0.42	0.72	0.72
	121	54	121	54	121	54	121	54
ThresholdF	0	-0.2	-0.14	0.02	0.03	-0.15	-0.13	0.46
	0.98	0.13	0.3	0.87	0.82	0.26	0.35	0.01
	54	661	54	61	54	61	54	61
ThresholdM	-0.02	0.13	0.21	0.16	0.23	0.08	0.16	0.01
	0.82	0.36	0.02	0.24	0.01	0.57	0.08	0.92
	121	54	121	54	121	54	121	54
PlayfulnessF	-0.02	-0.18	0.01	-0.26	0.11	-0.16	0.03	0.22
	0.88	0.16	0.94	0.04	0.43	0.21	0.81	0.09
	58	61	58	61	58	61	58	61
PlayfulnessM	-0.06	-0.1	0.04	-0.1	-0.14	0.15	-0.24	0.19
	0.53	0.46	0.67	0.48	0.13	0.28	0.01	0.17
	121	54	121	54	121	54	121	54
ExternalityF	-0.1	-0.3	-0.22	0.24	0.2	-0.04	0.03	0.28
	0.45	0.02	0.1	0.06	0.15	0.76	0.83	0.03
	57	61	57	61	57	61	57	61
ExternalityM	-0.02	0.09	0.13	0.16	0.1	-0.08	0.05	0.08
	0.87	0.51	0.16	0.24	0.3	0.58	0.58	0.55
	121	54	121	54	121	54	121	54

	IntenseM	MoodF	MoodM	PersistF	PersistM	DistractF	DistractM	ThreshF
Age	0.01	0.01	0.06	0.01	0.01	0.01	0.01	0.04
	0.95	0.93	0.52	0.93	0.89	0.93	0.92	0.76
	121	61	121	61	121	61	121	61
IQ	-0.15	0.22	0.06	-0.03	-0.1	0.01	0	-0.16
	0.31	0.29	0.67	0.88	0.51	0.97	0.98	0.46
	47	23	47	23	47	23	47	23
Sex	-0.04	0.02	0.05	-0.07	-0.04	-0.07	0.08	0.03
	0.69	0.88	0.59	0.6	0.67	0.61	0.38	0.84
	121	61	121	61	121	61	121	61
ConvFamily	0	0.4	-0.03	0.09	-0.08	0.06	-0.01	0.06
	0.97	0.01	0.73	0.49	0.39	0.64	0.92	0.64
	121	61	121	61	121	61	121	61
Oldest Child	0	0.24	0.24	0	0	-0.09	0.03	-0.02
	0.97	0.07	0.01	0.98	0.96	0.51	0.78	0.89
	121	61	121	61	121	61	121	61
Youngest Child	-0.03	-0.16	-0.07	-0.01	0.01	-0.16	-0.12	-0.07
	0.71	0.21	0.41	0.95	0.87	0.23	0.19	0.59
	121	61	121	61	121	61	121	61
Middle Child	0.05	0.04	-0.11	-0.14	0.03	-0.06	-0.11	0.04
	0.6	0.77	0.25	0.28	0.76	0.62	0.22	0.77
	121	61	121	61	121	61	121	61
Only Child	0.01	-0.11	-0.11	0.07	-0.03	0.25	0.13	0.006
	0.95	0.4	0.24	0.6	0.75	0.05	0.16	0.64
	121	61	121	61	121	61	121	61
AgeM	-0.04	0	-0.11	0.02	-0.01	-0.05	-0.19	-0.02
	0.68	0.97	0.23	0.87	0.88	0.7	0.04	0.9
	121	55	121	55	121	55	121	55
AgeF	-0.06	-0.06	-0.13	0.08	0	-0.09	-0.06	-0.04
	0.65	0.67	0.35	0.57	0.98	0.48	0.66	0.78
	55	59	55	59	55	59	55	59
EmploymentM	-0.04	-0.11	-0.03	-0.02	0.01	0.23	0.14	0.06
	0.69	0.42	0.73	0.88	0.91	0.1	0.12	0.67
	119	55	119	55	119	55	119	55
EmploymentF	-0.01	0.31	0.07	-0.06	-0.08	-0.08	0.03	0.1
	0.97	0.02	0.6	0.64	0.55	0.55	0.84	0.46
	56	60	56	60	56	60	56	60
Income	0.03	0.2	-0.12	0.04	-0.07	-0.15	-0.16	-0.02
	0.73	0.13	0.2	0.78	0.44	0.25	0.08	0.9
	112	60	112	60	112	60	112	60
EducationM	-0.04	0.11	-0.11	0.1	-0.07	0.01	-0.07	-0.09
	0.67	0.41	0.23	0.45	0.42	0.96	0.47	0.51
	121	55	121	55	121	55	121	55
EducationF	0.26	0.13	0.06	-0.06	-0.13	0.13	0.08	0.23
	0.05	0.33	0.67	0.68	0.36	0.34	0.56	0.09
	54	57	54	57	54	57	54	57
ActivityF	0.15	0.26	0.15	0.21	0.22	0.27	0.03	0.3
	0.27	0.04	0.27	0.11	0.1	0.04	0.84	0.02
	54	61	54	61	54	61	54	61
ActivityM	0.08	0.16	0.34	0.19	0.45	0.08	0.03	0
	0.36	0.24	0.01	0.18	0.01	0.59	0.73	0.98
	121	54	121	54	121	54	121	54
RhythmicityF	-0.25	0.12	0.2	0.28	0.39	0.05	-0.03	-0.2
	0.07	0.37	0.14	0.03	0.01	0.69	0.85	0.13
	54	61	54	51	54	61	54	61
RhythmicityM	0.12	0.05	0.35	0.24	0.28	0.06	-0.08	-0.14
	0.17	0.73	0.01	0.08	0.01	0.68	0.41	0.3
	121	54	121	54	121	54	121	54
ApproachF	0.01	0.34	0.26	0.39	0.01	0.02	0.12	0.02
	0.97	0.01	0.06	0.01	0.93	0.89	0.39	0.87
	54	61	54	61	54	61	54	61

	IntenseM	MoodF	MoodM	PersistF	PersistM	DistractF	DistractM	ThreshF
ApproachM	0.1	-0.07	0.3	0.2	0.11	-0.05	-0.03	0.03
	0.27	0.61	0.01	0.14	0.22	0.74	0.78	0.82
	121	54	121	54	121	54	121	54
AdaptF	0.09	0.51	0.21	0.18	-0.15	-0.07	0.11	-0.15
	0.53	0.01	0.13	0.16	0.28	0.57	0.42	0.26
	54	61	54	61	54	61	54	61
AdaptM	0.26	0.15	0.58	0.21	0.3	-0.03	0.03	-0.13
	0.01	0.28	0.01	0.12	0.01	0.84	0.72	0.35
	121	54	121	54	121	54	121	54
IntenseF	0.45	0.41	0.08	-0.24	-0.25	0.2	0.05	0.46
	0.01	0.01	0.55	0.06	0.07	0.12	0.71	0.01
	54	61	54	61	54	61	54	61
IntenseM	1	0.22	0.55	0.01	-0.04	-0.06	0.14	0.12
	0	0.11	0.01	0.96	0.64	0.68	0.13	0.38
	121	54	121	54	121	54	121	54
MoodF	0.22	1	0.28	0.11	-0.07	-0.01	-0.11	0.13
	0.11	0	0.04	0.4	0.61	0.94	0.44	0.32
	54	61	54	61	54	61	54	61
MoodM	0.55	0.28	1	0.29	0.32	-0.1	0.06	-0.02
	0.01	0.04	0	0.03	0.01	0.45	0.5	0.87
	121	54	121	54	121	54	121	54
PersistF	0.01	0.11	0.29	1	0.45	0.14	0.2	-0.16
	0.96	0.4	0.03	0	0.01	0.28	0.15	0.2
	54	61	54	61	54	61	54	61
PersistM	-0.04	-0.07	0.32	0.45	1	0.16	0.1	-0.01
	0.64	0.61	0.01	0.01	0	0.24	0.27	0.96
	121	54	121	54	121	54	121	54
DistractF	-0.06	-0.01	-0.1	0.14	0.16	1	0.43	0.56
	0.68	0.94	0.45	0.28	0.24	0	0.01	0.01
	54	61	54	61	54	61	54	61
DistractM	0.14	-0.11	0.06	0.2	0.1	0.43	1	0.16
	0.13	0.44	0.5	0.15	0.27	0.01	0	0.25
	121	54	121	54	121	54	121	54
ThresholdF	0.12	0.13	-0.02	-0.16	-0.01	0.56	0.16	1
	0.38	0.32	0.87	0.2	0.96	0.01	0.25	0
	54	61	54	61	54	61	54	61
ThresholdM	0.49	0.07	0.4	0.37	0.07	0.2	0.45	0.2
	0.01	0.63	0.01	0.01	0.47	0.16	0.01	0.14
	121	54	121	54	121	54	121	54
PlayfulnessF	0.02	0	0.08	-0.22	-0.29	-0.19	0.03	0.04
	0.88	0.1	0.54	0.09	0.03	0.14	0.01	0.77
	58	61	58	61	58	61	121	61
PlayfulnessM	0.14	0.25	-0.05	-0.29	-0.27	-0.25	0.03	-0.07
	0.13	0.07	0.6	0.04	0.01	0.06	0.83	0.63
	121	54	121	54	121	54	58	54
ExternalityF	0.25	0.18	0.07	0.12	0.07	0.13	-0.13	0.36
	0.07	0.18	0.72	0.35	0.59	0.33	0.15	0.01
	57	61	57	61	57	61	121	61
ExternalityM	0.24	-0.08	0.22	0.04	0.24	0.45	0.32	0.23
	0.01	0.59	0.02	0.75	0.01	0.01	0.02	0.1
	121	54	121	54	121	54	57	54

	ThreshM	PlayfulF	PlayfulM	ExternalF	ExternalM
Age	0.02	0.06	-0.02	-0.08	-0.03
	0.85	0.64	0.8	0.55	0.71
	121	65	121	64	121
IQ	0.02	-0.02	0.02	-0.18	0.11
	0.88	0.92	0.91	0.38	0.45
	47	25	47	25	47
Sex	0.05	0.11	0.05	0.02	-0.01
	0.62	0.4	0.58	0.85	0.88
	121	65	121	64	121
ConvFamily	-0.06	-0.18	-0.08	-0.03	0.02
	0.5	0.15	0.4	0.79	0.83
	121	65	121	64	121
Oldest Child	0.13	-0.01	-0.01	-0.09	-0.11
	0.14	0.91	0.88	0.45	0.24
	121	65	121	64	0.06
Youngest Child	-0.1	-0.01	-0.01	-0.1	-0.06
	0.3	0.91	0.88	0.45	0.51
	121	65	121	64	121
Middle Child	-0.02	0.03	0.12	0.12	0.05
	0.84	0.83	0.19	0.35	0.6
	121	65	121	64	121
Only Child	-0.03	0.02	0.12	0.15	0.13
	0.75	0.89	0.19	0.25	0.16
	121	65	121	64	121
AgeM	-0.04	-0.14	0.02	-0.04	-0.01
	0.66	0.27	0.81	0.77	0.92
	121	59	121	58	121
AgeF	0.12	-0.06	0.14	-0.1	-0.16
	0.39	0.67	0.32	0.42	0.24
	55	61	55	61	55
EmploymentM	0	0.01	0.03	-0.08	0.11
	0.99	0.93	0.71	0.56	0.24
	119	59	119	58	119
EmploymentF	0.31	0.12	0.09	-0.01	-0.1
	0.02	0.36	0.49	0.94	0.46
	56	62	56	62	56
Income	-0.09	-0.09	0.05	0.17	-0.12
	0.34	0.46	0.59	0.19	0.2
	112	64	112	63	112
EducationM	0.12	0.05	0	0.14	-0.04
	0.21	0.69	0.98	0.28	0.63
	121	59	121	58	121
EducationF	0.2	0.07	0.17	0.09	-0.04
	0.15	0.6	0.23	0.49	0.76
	54	59	54	59	54
ActivityF	0.12	-0.17	-0.08	-0.02	-0.01
	0.39	0.18	0.56	0.85	0.95
	54	61	54	61	54
ActivityM	-0.02	-0.02	-0.06	-0.1	-0.02
	0.82	0.88	0.53	0.45	0.87
	121	58	121	57	121
RhythmicityF	0.13	-0.18	-0.1	-0.3	0.09
	0.36	0.16	0.46	0.01	0.51
	54	61	54	61	54
RhythmicityM	0.21	0.01	0.04	-0.22	0.13
	0.02	0.94	0.67	0.1	0.16
	121	58	121	57	121
ApproachF	0.16	-0.26	-0.1	0.24	0.16
	0.24	0.04	0.48	0.06	0.24
	54	61	54	61	54

	ThreshM	PlayfulF	PlayfulM	ExternalF	ExternalM
ApproachM	0.23	0.11	-0.14	0.2	0.1
	0.01	0.43	0.13	0.15	0.3
	121	58	121	57	121
AdaptF	0.08	-0.16	0.15	-0.04	-0.08
	0.57	0.21	0.28	0.76	0.58
	54	61	54	61	54
AdaptM	0.16	0.03	-0.24	0.03	0.05
	0.08	0.81	0.01	0.83	0.58
	121	58	121	57	121
IntenseF	0.01	0.22	0.19	0.28	0.08
	0.92	0.09	0.17	0.03	0.55
	54	61	54	61	54
IntenseM	0.49	0.02	0.14	0.25	0.24
	0.01	0.88	0.13	0.06	0.01
	121	58	121	57	121
MoodF	0.07	0	0.25	0.18	-0.08
	0.63	1	0.07	0.17	0.59
	54	61	54	61	54
MoodM	0.4	0.08	-0.05	0.07	0.22
	0.01	0.54	0.6	0.62	0.02
	121	58	121	57	121
PersistF	0.37	-0.22	-0.29	0.12	0.04
	0.01	0.09	0.04	0.35	0.75
	54	61	54	61	54
PersistM	0.07	-0.29	-0.27	0.07	0.24
	0.47	0.03	0.01	0.59	0.01
	121	58	121	57	121
DistractF	0.2	-0.19	-0.25	0.13	0.45
	0.16	0.14	0.06	0.33	0.14
	54	61	54	61	54
DistractM	0.45	0.03	-0.13	0.32	0.26
	0.01	0.83	0.15	0.02	0.01
	121	58	121	57	121
ThresholdF	0.2	0.04	-0.07	0.36	0.23
	0.14	0.77	0.63	0.001	0.1
	54	61	54	61	54
ThresholdM	1	0.04	0	0.3	0.38
	0	0.79	0.99	0.03	0.01
	121	58	121	57	121
PlayfulnessF	-0.04	1	0.25	0.07	-0.21
	0.79	0	0.06	0.57	0.11
	58	65	58	64	58
PlayfulnessM	0	0.25	1	-0.01	-0.13
	0.99	0.07	0	0.96	0.15
	121	58	121	57	121
ExternalityF	0.3	0.07	-0.01	1	0.19
	0.03	0.57	0.96	0	0.16
	57	64	57	64	57
ExternalityM	0.38	-0.21	-0.13	0.19	1
	0.01	0.11	0.15	0.16	0
	121	58	121	57	121

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