AFFECT MATURITY IN A SAMPLE OF CHILDREN WITH LANGUAGE AND ATTENTION SYMPTOMATOLOGY

BY

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Abstract

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The present study examines the phenomenological affective (or emotional) worlds of children co-diagnosed with ADHD and Language Impairment. Children (n = 64) were grouped into four diagnostic categories: "ADHD + Language Impairment," "ADHD only," "Language Impairment only," and "Non-Clinical." Children were assessed with the Child Behavior Checklist (CBCL) and the Thompson Scale of Affect Maturity on the Thematic Apperception Test (TAT) across diagnostic classifications. The results of this investigation indicate that there are important differences between diagnostic classifications on the CBCL. Children with ADHD + Language Impairment and ADHD only diagnoses demonstrated more behaviorally based symptomatology when compared the Language only and Non-Clinical groups. Additionally, children co-diagnosed with ADHD and Language Impairment had the lowest levels of affect maturity. The clinical implications of these findings are discussed. Additionally, children codiagnosed with Language Impairment and ADHD, and the ADHD only group, exhibit a specific pattern of affect maturity when presented with aggressive

and depressive content on the TAT that children with Language Impairment only did not demonstrate.

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CHAPTER 1

INTRODUCTION AND BACKGROUND

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a diagnosis that has become utterly recognizable while remaining equally elusive. Conservatively, ADHD has been estimated to be prevalent in 3-7% of the child population (APA, 2000), though rates ranging from 7-21% have also been reported among community samples (Baumgaertel, et al., 1995; Wolraich et al., 1996; DuPaul et al., 1997). ADHD-related difficulties have proven to be so seriously pervasive that estimates of referrals to child mental health practitioners for ADHD-related cases have been noted between 30-40% (Barkley, 1998). In addition, children who are diagnosed with ADHD tend to have other pressing difficulties. For example, ADHD is reportedly the most frequently diagnosed psychiatric disorder among children with language impairments (Cohen et al., 2000).

Given the variable nature of ADHD, most child health care professionals, teachers, and parents would agree about the potential negative impact ADHD can have for a child across various settings. Diagnostically there is an identifiable behavioral core that underlies ADHD symptomatology: hyperactivity, impulsivity and inattention. However, ADHD cannot be reduced to a cluster of symptoms; children who are diagnosed as having ADHD experience a

multitude of social and emotional difficulties that have a marked impact on their internal experience. Thus, the present study is an attempt to examine the phenomenological affective (or emotional) worlds of children co-diagnosed with ADHD and language impairments.

The review of the literature will first discuss emotional development, specifically affect regulation and affect maturity. An overarching background to ADHD will be discussed, followed by a discussion of attention and language. The effect of ADHD and language impairment on affect regulation will also be addressed.

Background

The purpose of this study is to investigate affect maturity in children with language and attention issues. An association between language impairment and psychiatric disorders has been recognized in numerous samples including children presenting to psychiatric and speech/language clinics, as well as children identified as language impaired in community epidemiological studies (see Cohen et al, 2000; Beitchman, Nair, Clegg, Ferguson, & Patel, 1986; Camarata, Highes & Ruhl, 1988; Cohen, Davine, Horodesky, Lipsett & Isaacson, 1993; Cantwell & Baker, 1991). Although a range of psychiatric disorders is evidenced in language impaired samples the most frequent psychiatric diagnosis is Attention Deficit Hyperactive Disorder (Cohen et al, 2000).

Despite its extensive use and application for clinical child populations, the ADHD diagnosis continues to be accompanied by a multitude of dilemmas regarding its conceptualization, assessment and treatment. This is especially due to the many comorbid diagnoses that often accompany ADHD, including language impairment. The present study is being undertaken in an attempt to help differentiate language impairment and ADHD in the context of affect regulation in hope that some of these clinical dilemmas will be ameliorated.

Emotional Development

Clinicians agree that emotion plays an essential role in the understanding of the individual and the treatment of psychopathology. However, emotion is a very general term involving the incorporation of many different theoretical and empirical perspectives. A working definition of emotion regulation (or referred to in other literature bases as affect regulation) as described by Thompson (1994), conceptualizes emotion regulation as a process including both intrinsic and extrinsic qualities that recognize and control emotional reactions, including the intensity and duration of the emotion in order to accomplish personal goals. Thompson (1994) argues for various domains of emotion regulation including, "neurophysiological responses, attention processes, control of emotionally arousing events, encoding of internal emotion cues, access to coping

resources, regulating the demands of familiar settings and selecting adaptive alternatives" (pg. 27). Within the psychology literature base, the process of emotion regulation is conceptualized as conscious or unconscious, as well as automatic or controlled.

An attempt to understand the process and complexity of emotional development in the context of emotional (or affect) regulation and maturity will be discussed. The following section will address affect with regard to basic ideas of regulation in the context of brain development and object relations theory, as it gives way to the theory of affect maturity that occurs in the context of cognitive development.

A later discussion will address language in the context of affect regulation. Overall, there is a complex and inherent engagement between physiological maturational forces and psychological development that will be described.

Affect Regulation in the Context of Brain Development

The dynamic interplay between systems in the brain, the exchanges with emotional development, and responses to internal and external milieu is vital to our understanding of the individual's experience. The context of emotional development and specifically affect regulation from a brain-based perspective is important to consider in the context of the ADHD diagnosis. The diagnosis is made based on the

child's behavior, however many neurophysiological studies have attempted to address regions of the brain implicated in ADHD. In the last two decades many strides have been made in brain based ADHD research. Neuroimaging and electroencephalography (EEG) studies are beyond the scope of the present study, yet are important to acknowledge. Such studies have implicated (largely yet inconclusively), frontal and prefrontal regions of the brain, as well as have suggested increased activity in the right midbrain of ADHD children (see McGough & McCracken, 2000; Bresnahan, Anderson, & Barry, 1999; Zametkin, Nordhal, Gross et al., 1990; Gaffnew, Preseton, et al., 1995; Ernst, Zametkin, Matochik, et al., 1999).

In spite of the brain studies being inconclusive, the results do link the major areas of neurocognitive weakness for children with ADHD primarily to the regions involved in executive function and working memory. Moreover, the brain structures that have been implicated are relevant to the discussion of affect regulation and affect maturity. Damasio (1994) proposes the integration of neurobiology with the processes of mind and emotion. He argues that the physiological and psychological conceptions of emotion are of great import. Damasio (1994) incorporates the physical brain, the body proper, and the mind in a discussion of emotion that identifies physical changes in body structures that react or respond to thoughts, experiences or feelings

experienced in the mind. His idea of these systems with regard to emotion is that they work in an agreement:

> …the combination of a *mental evaluative process*, simple or complex, with *dispositional responses to that process*, mostly *toward the body proper* resulting in an emotional body state, but also *toward the brain itself* (neurotransmitter nuclei in the brain stem) resulting in additional mental changes (p.139, emphasis in original).

Damasio importantly describes the interplay between the neurophysiological processes and subjective intrapsychic experience, speaking directly to the connection of physiological changes caused by emotional processes. His integrative ideas of body, mind, emotion, and brain help structure the concept of emotion regulation and the interplay between biology and experience.

Schore (1994) adds another dimension with regard to development and the human brain's critical period of accelerated growth from late gestation through the second year of life. Schore (1994) places the development of emotion regulation in the context of the maturing right brain. The brain is thought to develop in stages and this process is not linear in fashion, rather it is reflective of neuronal maturation that lends itself to growth from one stage to the next (Schore, 1994). A model used to describe this phase in development is "transactional" and from this perspective the brain's organization is seen as "a process

of transaction between (a) genetically coded programs for the formation of structures and connections among structures and (b) environmental influence" (see Schore, 2001b; Calkins & Fox, 1992; Fox & Bell, 1990). Interestingly for our discussion, during the period of pre-verbal to verbal development from ten to twelve months until approximately two years of age, the focus of growth is on right-brain maturation and its connection to emotion.

The right brain is acutely connected to both the sympathetic and parasympathetic nervous systems, which control our most vital functions including that of survival, mechanisms of coping with stress, and the limbic structure, which includes the hippocampus and amygdala (Schore, 2001a). The limbic structure is the brain's seat of emotion and the hippocampus and amygdala are directly linked to memory and the regulation of emotions (Schore, 2002). The human cerebral cortex is expanding significantly after birth and is directly influenced by its environment, thus creating interplay between our biological and social worlds (Cicchetti & Tucker, 1994).

The emerging picture of brain development is influenced by the infant-mother dyad, either working to promote optimal brain development, or in the face of stress and trauma, impinging on brain development (Schore, 2001a; 2002). Despite being born with the capacity for feeling emotion, as infants we are not able to regulate states of emotion. Infants are unable to keep themselves in a state of balance,

lacking the expertise to regulate both the intensity and the duration of emotional states (Schore, 2002). Without the assistance of another, infants can become very overwhelmed by their emotional states, including those of fear, excitement, and sadness (Spangler, 1994). One of the many tasks of the primary caregiver that is essential in the baby's first year of life is the creation of emotional regulation.

The mother-baby dyad (or father-baby dyad) is emblematic of a synchronized system of mutual exchange (Feldman, 1996). Early in development, the baby utilizes the mother (or father) as an external source to attain nourishment and regulate affective experiences. When baby's wants, needs, desires and internal states, are regarded with enough sensitivity, the mother's responsiveness will engender a symbolic representation of "mother" in the baby's mind that is associated with expanding affective experiences. Based upon the developing representation, the baby begins to connect mother, the consistent and reliable source of comfort, to various feeling states and this in turn further fuels their rhythmic system (Schore, 2002).

Taken simply, mother and baby are in a dance if mother is "good enough" in the Winnicottian sense of following baby's cues and paying attention to her varied emotional states, mother communicates to baby that she understands her inner world, her doings, feelings, and thoughts (Carroll, 2001). This assists brain development and creates a

foundation for the negotiation of all other interactions and relationships. The mother provides external regulation to the infant's internal changes in emotional feeling states. If out of synchrony, the baby will show signs of stress, such as crying, to indicate the need for re-attunement (Schore, 2001a).

However, there is play in the system, not every single interaction baby and mom share will be in attunement and the stress response of the infant, if she is properly attended to, provides for "stress recovery and coping" (Schore, 2002). The sense of arousal for an infant can range from the extremes of lows and highs, to moderate arousal. Positive affect and focused attention has been found to be related to moderate arousal, whereas both ends of the continuum are associated with negative emotion and distracted attention (see Schore, 1994).

The capacity for the modulation and regulation of feelings is intrinsically related to mother and baby exchanges. It is vital for mother to be able to process her own emotions in order to be available, attentive and sensitive to her baby's feeling states (Bowlby, 1969). Mother is in essence passing along her aptitude of understanding and responding to emotional states as associated to the inner world of her child. Done in accordance with the infants feeling state, the baby experiences an internal connection to mother (or father). Done outside of the baby's feeling state and the child is

left up to her own nascent devices, which inevitably at young stages of infancy, will fail to regulate her unwanted emotional state. Schore argues that the mother-child pair situation creates the self-regulation that babies do not inherently possess. When babies are in distress, their brains are at the mercy of these states, meaning that all of their regulatory resources must be devoted to trying to reorganize and regain equilibrium (Schore, 2001a).

The neural circuitry involving stress and regulatory systems is located in the maturing right brain (Schore, 2002). The right brain's relationship to the autonomic and limbic system allows for the modulation of "primary emotions and the adaptive capacity for the regulation of affect" (Schore, 2002). Schore (2002) refers to the locale of the brain's right orbitofrontal system as being related to Bowlby's (1969) accounts of a neurophysiological control system that is essential for the regulation of instinctive behavior. This blend of brain and regulatory functioning is fundamental to the mother and infant relationship, and is explored further by Schore (2002), "...the orbitofrontal cortex also represents the apex of the hierarchy of control of autonomic functions. Due to its direct connections into the hypothalamus, it functions as a cortical control center of involuntary bodily functions that represent the somatic components of all emotional states, and acts to control autonomic responses associated with emotional events...the right hemisphere is dominant for the processing and

regulation of self-related information and the corporeal self" (p.14).

Not only is orbitofrontal activity vital to understanding one's own emotional state it is also critical in the perception of other's emotional state (Schore, 2000). The mother's face, for example, provides the infant with highly influential visual stimulus. If there are chronic and repetitive expressions of negative affective states by the mother, which is being cast via her face to the infant, the baby then encodes the mother's perceptible affect into storage in the visuospacial right hemisphere. These percepts can be overwhelming maternal expressions of negative emotion that become part of the baby's understanding of mother (Schore, 2002).

Babies are not born with the innate capacity to decode and decipher meanings and emotions independent of their caregivers and in turn rely on the action of another to meet their needs. Inevitably, the baby relies on mother to help navigate both his internal and external world. This relationship allows for the formation of "internal working models," which function as templates that the baby can utilize for gauging their own emotions and the emotions of others (Bowlby 1969). By the end of the second month of life, there is an outstanding progression in social and emotional capacities, as well as a rapid advancement of the primary visual cortex (see Schore, 2001b). The visual experience with mother is essential to the emotional world

of the infant. The infant's social environment is defined by the mother's gaze and emotional reciprocity, which develops into rhythmic synchrony between mother and baby.

The robust expansion of the right frontal system increases the capacity for the infant to relate to others and be successful in the social world. The right hemisphere is dominant in preverbal life and contains, "...the cerebral representation of one's own past and the substrate of affectively laden autobiographical memory" (Schore, 2000). As the infant approaches 10-12 to 16-18 months, self-regulatory and social contact become extremely pertinent to how the growing brain is influenced by these events (see Schore, 2003). The relationship between poorly attuned mother-baby dyad and the disruption to the brain is hypothesized by Schore (2002) to occur in the right cortical areas. Schore understands this area as "descending projections from the prefrontal cortex to subcortical regions" that mature during infancy and provoke severe and widespread pruning in the orbitofrontal, anterior cingulate and amygdala (pg. 20), potentially impacting later executive and affective functioning.

In addition, and clearly of great import, it is not just misattunement and dysregulation that matter, it is of much consequence how such disruptions are repaired. The recovery factor is very important in the infant's development of self-regulatory behavior and subsequent emotional growth. Again with regard to repair, the mother's

capacity to recognize and regulate her own emotional states, especially negative affect, becomes very important. From Schore (2001b), "...It is now thought that the process of reexperiencing positive affect following negative experience may teach a child that negativity can be endured and conquered...resilience in the face of stress is an ultimate indicator of attachment capacity and therefore adaptive mental health" (pg.21). Over time, the baby begins to recognize patterned behavior and with a consistent and regulated patterning of mothering, the baby begins to construct coherent coping responses to stressors. In turn, the baby can use what has become familiar to approach, tolerate, and integrate novelty (Schore, 2001b). The infant is constantly processing information taken from his experiences with mother and then formulating expectations for future behavior. The outgrowth for the baby is a sense of confidence in the world, burgeoning identity and nascent aspects or groundwork for self-regulation.

Affect Regulation in the Context of Theory

What Schore (2000; 2001) explains from a brain based perspective on emotional development and burgeoning affect regulatory systems, Winnicott describes by specifically directing our attention to the import of early infancy concerning the "good enough" mother and the environmental factors of the mother-baby dyad that organizes the baby's

emerging sense of selfness. Winnicott thinks of early relationships and the ways that the mother-infant interaction creates the potential for healthy or maladaptive ego development, object relations, and affect regulation. The maternal care allows the baby to develop and the enduring holding environment continues to provide the space for the baby to flourish:

> During the holding phase other processes are initiated: the most important is the dawn of intelligence and the beginning of a mind as something distinct from the psyche. From this follows the whole story of the secondary process and of symbolic functioning, and the organization of a personal psychic content, which forms a basis for dreaming and for living relationships (Winnicott, 1960, p. 45).

It seems that Schore (2000; 2002) directly speaks to Winnicott's (1945) established notion that early emotional development cannot be separated from the environment in which the infant is nurtured. In Winnicott's view, there is no baby without a mother due to the infant's dependency on maternal care. The period of development involving mother as ego-support enables the infant to "go-on-being." Winnicott describes that baby's experience of baby-mother is inherent in his discovery and movement towards integration and eventual individuation. Winnicott refers to this phase as "holding" and the action is in the progress of the ego

"from an unintegrated state to a structured integration" (pg.44, 1960a). Winnicott's holding is that of physical and psychic, the crucial notion of holding is that mother does so in a way that is comforting and inherently regulating.

Both Schore and Winnicott, and presumably many theorists and practitioners would argue that *affect* is organized from the first moments of being in the world as an infant. Affect continues to be organized around cognition and experience as babies grow into toddlers and older children, then into adolescents and adults. Affect is communicative from the beginnings of life; parents would certainly argue that a hungry infant, crying to be satiated is a communication. His distress communicates to his caregiver ("FEED ME") and being fed is the initial contact with organizing distress in the context of comfort, warmth and satiation. At this limited pre-verbal stage, the infant is subject to overwhelming affects that are in essence total and are experienced wholly by the infant. The caregiver is understood as the operator of regulation, an outside source and support for baby's bourgeoning ego.

Over time, in a 'good enough environment', the shift from Other—Affect—Self where 'Oth*er*' dominates as the organizer of '*Affect*' due to '*Self*' being far too young to regulate is fostered. In time, '*Self*' (or aspects of ego in some theoretical realms) becomes the organizer and regulator of '*Affect*' and the balance moves to a representation of: *Self—Affect—Other*' that typifies object relatedness.

Other theorists such as Fonagy and Target (1998) integrate the concepts that early relationships between infant and caregiver influence the baby specifically in terms of systems of information processing and control. From this theoretical perspective, three processes are highly involved: (1) stress response, (2) regulation of attention (3) reflective functioning (Fonagy & Target, 1998). The authors argue that the maternal interactions early in life prime and modulate the physiological responses of the baby that arouse stress, such as, hunger, pain and discomfort. If the baby is too aroused, the result is excessive hormone levels that bathe the brain and negatively impact brain structure and ongoing processing between infant and environment.

Fonagy and Target (1998), much like Schore (2000) from our previous discussion, argue that the hypo or hyper-arousal primed by these physiological changes in the child can result in persistent orientation to threat and activation of stress responses, dysregulation and impulsivity, poor anxiety tolerance and poor modulation of aggression (Fonagy & Target, 1998; Schore, 2000). In turn, the negative impact on the infant's developing sense of appropriate social responsiveness, empathy, ability to follow directions and self-monitor emotions is shaped. Moreover, Fonagy & Target (1998), indicate the role of the caregiver is to move the infant from a place of distress to a soothed and regulated state. This process involves the

caregiver diverting the child's attention away from his distress. The role of the caregiver is to facilitate the child's developing capacity for self-soothing, as well as to learn to focus behavior and inhibit behavior. This promotes the child's capacity to self-regulate. Pertinent to the proposed study, self-regulation has been described in the ADHD literature (Barkley, 1997) to address how children have difficulty assessing their past behavior in an effort to modify current or future behaviors and change their patterning of responses. The idea that Barkley (1998) puts forth relies on feedback as a cue or indicator to the child to systematically self-assess and self-evaluate their behavior (Pintrich, 2000; Zimmerman, 2000).

In addition, Fonagy and Target (1998) introduce their concept of "reflective functioning" as being an outgrowth of the capacity to self-regulate. The authors argue that the mindfulness and attentiveness of the caregiver to hold the infant's state in mind while appropriately responding to the mood of the infant promotes the infant's ability to regulate himself later in life. To the contrary, caregivers who are depressed, preoccupied or misread the mood of the infant will compromise the child's ability to represent his own psychological states. From our previous discussion, this would relate to Winnicott's notion of "good enough mothering" as compared to "not good enough mothering," which describes a caregiver who is unable to provide an adequate holding environment or to mirror back appropriately to the

infant. In sum, the interactions that the authors describe using various theories and language relate to the developing capacity for the infant to ultimately self-regulate and modulate his experience.

Self-regulation, and more specifically emotional regulation, is of great import as the child develops and is more involved in the social world. Social functioning is a large part of human experience and becoming acclimated to the social world begins very early in development. Researchers have tried to understand the implication of affect or emotion regulation on the developing child's social experience.

This is an important discussion for children with ADHD who tend to have some difficulty with their peers in a social context. Eisenberg et al. (1997) launched a study of 3rd graders to understand over time the correlates of positive social functioning and address the role of emotion regulation, emotionality and resilience or functional ego strength. The study looked at both parent and teacher ratings and children were observed while working on stressful puzzle tasks. Teachers rated the child's behavior, attention and social popularity. Eisenberg et al. (1997) concluded that emotional and behavioral regulation are in fact different constructs and interact with social functioning in a myriad of ways. The authors note that children who were described or observed as having attentional difficulties faired well socially if they had

stronger ego resiliency (Eisenberg et al., 1997). Eisenberg et al., (1997) argue that ego resiliency, as defined by an ability to delay gratification, follow appropriate rules and understand the social milieu, mediated the child's experience.

Pertinent for the present study, attentional control was a significant intermediary of social competency, regardless of the child's proneness to negative emotions. After a two-year follow-up, attentional control was the main dimension that predicted behavior problems for children, specifically for children who experienced intense negative emotions (Eisenberg et al., 2000). Eisenberg's (2000) findings relate to Gilmore's (2000) assertion that a core disturbance in ego integration creates the known triad (inattention, impulsivity, and hyperactivity) characteristic of the ADHD diagnosis.

Solyon (1987) described the affective system as an incorporation of an ego system with three domains: 1. somatic 2. behavior and 3. psychological. The author focuses on the newborn that functions initially within the somatic and behavioral domains. Solyon (1987) proposes that the initial affective states function to signal caregivers' behaviors and later exchange with the behaviors of the infant to produce complex social and intrapsychic signals (pg. 333). The author argues for the nascent development of affect regulation within the prerepresentational and preverbal world of the infant. From his perspective, the

infant who is functioning from the somatic and behavioral domains is laying the groundwork for psychological defense mechanisms that the author suggests includes the precursors for sophisticated cognition and language functions (Solyon, 1987). The author suggests that with "increasing levels of psychological development via the progression of cognitive functions, mental representations, identifications, internalizations etc. these mechanisms will probably play a major role in the minute-to-minute affect regulation" of the child (Solyon, 1987, pg. 333), which moves the present discussion to the implications of the child's expansion of cognition.

Thompson Theory of Affect Maturity

Along with the ongoing maturation of the brain and the interplay between the brain's growth and the environmental milieu is the organization of affect. Another exchange that is taking place is between affect regulation and affect organization, which happens in the context of cognitive development.

It is important to turn the discussion from the regulation of affect to the cognitive organization of affect. Thompson (1981) posits that affective life develops along developmental lines and may be manifested at different levels of maturity, from the most primitive to the most mature. Affect maturity can be understood as the relative

capacities one has in experiencing and expressing feeling-states.

Thompson (1981) conceptualized the development of affect and affect maturity using two views: (1) cognitive view of affects drawing on Piaget and theoretical concepts of cognition as "intrinsic components, that is, one in which affects are, in part, cognitive structures and (2) an intentional view of affects, such that, "emotions are intrinsically directed to objects. If one is angry, one is angry at someone or something" (Thompson, 1981). Thompson (1981) argues that the maturation of emotion occurs along a developmental line that is not specific to any one emotion. She writes, "...thus the same affect, anger for example, may be manifested at an earlier or later developmental level, but its organization and structure would differ at the two levels. That is, the same emotion may be manifested at different levels of affect maturity, from the most primitive to the most mature" (Thompson, pg. 208, 1981).

In developmental theory, it is commonly accepted that affects are "global" and move towards differentiation (see Thompson, 1981; Sroufe, 1979). For example, when an infant is crying due to hunger, his entire body experiences the hunger. His feeling state and desire to have his hunger satiated is bodily and is a global experience. Thompson (1981) translates Werner (1948), who theorized about primitive thought, into her concept of primitive affect. Werner (1948) argued that not only are primitive experiences

undifferentiated and take on a "global" feeling, but the elements have yet to be organized and remain in an "unintegrated" state. Furthermore, from a systems theory perspective, Thompson (1981) notes that such elements are highly segregated and are thought of as independent or loosely connected (see Thompson, 1981; Bertalanffy, 1968; Hall & Fagen, 1968). These similar notions of primitive thought were layered onto the idea of affect maturity as Thompson posited that, "elements of primitive affect experience are unintegrated and segregated rather than systematized" (Thompson, 1981).

Thompson's (1981) model proposes that "thing-of-affect" represents the earliest affect experience of a total affect-event. More specifically, that the affect is embedded in the event and the affect ceases to exist only when the event ceases to exist. The affect-event is "rigid" and "ephemeral" (Werner, 1948; Thompson, 1981) so that no changes can occur and no modifications of the affect-event are possible. A change would be to modify the entirety of the affect state, as it would be replaced by an entirely different affective state. Affect maturity is thought of in a developmental context and using the previous example, the global bodily experience of the baby crying when hungry is understood as there and then gone once the baby is satiated.

Thompson (1981) writes, "when the subject is 'in the event' all experience of self and reality takes on a dynamic coloring of the affect-event and is dynamically dependent on

it: when the affect-event changes, it takes with it the cognitive representations of reality, self and object that are associated with it" (Thompson, pg. 210, 1981).

This affect-event experience is occurring during an important period of development and the cognition of the infant, from birth to two years, and is influenced heavily by the Piagetian sensorimotor period. Thompson contrasts the notion of "sensory-affective" with Piaget's idea of "sensorimotor," so that the context for the child is embedded in the burgeoning notion of object constancy. From this period and moving into the preoperational period from the ages of 2 years to 7 years, children still make sense out of the world from an egocentric perspective and rely heavily on "centration" or seeing one element in an event that accounts for the entire event.

As well, children in this period rely on "irreversibility" so that their thoughts cannot change or transform. Thompson (1981) notes that all of these cognitive features of preoperational life impact the nature of affect states and affective experiences. For example, she quotes Cowan's (1978) idea that the "preconceptual child will say 'I hate you,' but is really just conveying 'hateful feeling now' without any implication of the enduring feelings state and evaluation of the object that adult hatred implies" (pg. 210). Moreover, the hateful feeling that the child directs at the object cannot be evaluated independently from his feeling. The concepts that Thompson

(1981) outlines through a developmental context of cognition works into her theory of affect maturity in so far as the lines of affect maturity are developing alongside cognition. She writes that the child's affect maturity is fundamentally related to her capacity to tolerate and cope with affect and feelings. Thus, as the child matures and develops her system of affect maturity does as well. Thompson's (1981) argument for a system of affect maturity that is tied to cognitive development brings us to the discussion of the scale she developed to measure affect maturity via the Thematic Apperception Test (TAT).

Thompson Scale of Affect Maturity and the Thematic Apperception Test

Thompson goes on to describe that internal representations of self and other are experienced within the context of an affective experience and her argument is that "the extent to which these representations are individuated form an important aspect of the ability to experience emotion in its mature form" (Thompson, pg. 208). As a caveat to the current study, to date there has not been a known published study using Thompson's scale of affect maturity with children, rather Thompson (1981) created and reified her scale on adults using the Thematic Apperception Test (TAT).

Thematic Apperception Test (TAT)

Before describing the affect maturity scale, first a discussion about the Thematic Apperception Test (TAT; Morgan & Murray, 1935) is necessary. The TAT is one of the most commonly used projective tests for both children and adults. The TAT consists of a series of picture cards, each card representing various evocative circumstances with a certain element of ambiguity. The images are in black-and-white and given the action of the card, the expressions of the characters or the mood of the card, a wide variety of different feelings and thoughts can be stirred in the respondent. The TAT presents the respondent with the basic requirements to tell a story, created from five questions: (1) what is happening currently (2) what led up to the current situation (3) what will happen in the future (4) what are the characters thinking and (5) what are they feeling. The story that is created by the participant is ideally considered both from the perspective of content, the 'what' of the story and from the 'structure' or the organization of the story (Rapaport, Gill & Schafer, 1968).

As the implementation of the TAT grew over time, interpretation of the stories, either based on any given respondent or taken across many different groups of respondents, intrigued examiners as it provided access to imagination and private fantasies. As Rapaport et al., (1968) write, " …the organization of sufficiently large segments of communication ideational content always bears

some traces of the organization of motivating forces—that is, of the personality. But as segments of communicated ideational content range from the commonplace to the idiosyncratic, the testing of ideational content can be efficacious only if it differentiates between conscious and unconscious ideational contents, motivations and attitudes" (pg. 469).

With this in mind, clinicians, especially psychodynamically-informed clinicians, became interested in the narratives of the TAT from the vantage point of how an individual unconsciously protects against arousing material and moves away from this content, how an individual internally forms and then engages in relationships with others and how an individual integrates and processes different emotions.

While the TAT has perhaps been used most commonly as an idiographic measure of health and pathology, there has been a good deal of nomothetic research specifically aimed at studying defensive organization and the use of affect among particular populations. Cramer and her colleagues have been at the forefront of research examining the use of defenses reflected in the TAT among children, adolescents and adults, as well as the implications of defenses among particular pathologies such as Conduct Disorder, Adjustment Reaction and Adjustment Disorder (Sandstrom & Cramer, 2003; 2004). Cramer et al., (1990) have used her Defense Scale to measure the change of defenses such as, 'Denial', 'Projection' and

'Identification' following intensive psychotherapy (Cramer & Blatt, 1990).

Many researchers have also used the content of TAT narratives to better understand clinical phenomena and explore psychopathological syndromes. More specifically, the TAT has been used to determine if differences in story content could be noted amongst different diagnostic groups. Bellak (1950), in a chapter devoted to the clinical use of the TAT, outlines commonly told themes for each card that may be stirred within the subject and created in their story, as a window into their experience. McGrew & Teglasi (1990) looked specifically at the structure and the content of TAT responses in the evaluation of emotionally disturbed boys in comparison to boys who were considered well-adjusted. The authors indicate that the boys who were considered emotionally disturbed had a more difficult time in telling a complete and logically consistent story. In addition, the authors found that general characteristics, such as inadequate judgment in relation to cause and effect relations, inappropriate verbal expressions and difficulty in the modulation of affective expression, as indicated by extremely violent or morbid content, were more often attributed to the emotionally disturbed group (McGrew & Teglasi, 1990).

In a similar design, researchers analyzed data from the TAT to explore whether aspects of object relations could identify differences between abused and non-abused groups

(Ornduff et al., 1996; Rosenberg et al., 1994). These authors (see also Westen et al., 1990), found significant group differences in overall object relations assessing the TAT protocols with the Social Cognition and Object Relations Scales (SCORS; Westen et al., 1985). To examine character pathology, more specifically narcissistic character pathology among children, Weise & Tuber (2004) used TAT protocols of elementary school-aged children and assessed the stories with the SCORS. With the TAT and SCORS, these authors found that the children struggling with narcissistic issues were also lacking in empathy, grappling with self-esteem regulation, and in poor control of their impulses and aggression. Often in the literature, the TAT is paired with the SCORS to explore the connection between internal representations and level of functioning.

Niec and Russ (2002) applied the SCORS-Q (Westen, 1995) to TAT responses from children between the ages of 8 and 10 years to better understand the relationship among internal representation, empathy and affective and cognitive processes in fantasy play. The authors' findings supported a relationship between internal representations as related to empathy, helpfulness, and quality of fantasy play (Niec & Russ, 2002).

With a similar projective measure, Constantino et al., (1991) looked at children and adolescent outpatients diagnosed with Attention Deficit-Hyperactivity Disorder (ADHD) with the Tell Me A Story test (TEMAS; 1988) to

understand children's responses to perceptual details and to evaluate if children with ADHD omit more details of the stimuli presented. The TEMAS, like the TAT, is a task where the respondent is asked to create a story from visual stimuli. There are 23 cards and scores were based on tallying omissions related to the main character, secondary character, event and setting. The relationship between omission and diagnostic group was understood by the authors to be specific to the ADHD group.

Thompson Scale of Affect Maturity

Specific to the current study, Thompson (1981) created a scale to better understand the overlap between cognition and affect. She structured the scale to fit with the TAT and responses were rated on a one to five scale. The Thompson Affect Maturity Scale will be discussed in detail in the methods section. In addition, a specific outline of the Thompson Scale of Affect Maturity is found in the appendices. However, briefly the five points on the scale break down as follows: a score of one depicts responses where affects are experienced as separate, fragmented events. A score of two is still predominantly event-like but there is a rudimentary attribution of emotion to self and others, a three is applied to a narrative describing stories that reveal unintegrated, yet simultaneous, mixed emotions. A score of four indicates that affects are attributed to psychological states to individual persons,

and a score of five portraying fully "reversible," enduring inner dispositions that reflect integrated emotional responsiveness.

The present study intends to apply the Thompson Scale of Affect Maturity to the Thematic Apperception Test to identify potential differences among children with language impairments and ADHD, as compared to ADHD and language impairments alone.

Attention Deficit Hyperactivity Disorder

Attention deficit hyperactivity disorder (ADHD) is by far the most common of the diagnosed behavioral disorders of childhood. Currently, diagnosis is based on criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; Diagnostic Statistical Manual - Fourth Edition, American Psychiatric Association, 2000). In the last two decades, there has been a tremendous expansion of the literature regarding the neurobiology and developmental process of ADHD. However, despite the ongoing research and development of treatments for ADHD the elusiveness and complexity of this disorder remains at the forefront of its clinical picture.

In the DSM-IV, ADHD is conceptualized as falling into one of three categories: predominantly inattentive, predominantly hyperactive or impulsive, or combined. There is a continuing debate as to whether the diagnosis should be

categorical versus dimensional. However, the DSM-IV lists nine behavioral characteristics for the inattentive type and nine behavioral characteristics for the hyperactive-impulsive type. To be diagnosed with ADHD, at least six of the nine inattentive and/or hyperactive/impulsive criteria must be observed. In addition, the DSM-IV notes that to meet the diagnostic criteria, the symptoms should be present for at least 6 months and some of the described symptoms should be apparent before age 7, significantly impair the child's performance, and be inconsistent with the child's developmental level (APA, 2000). However, determining whether a child meets a specific behavioral criterion (i.e. "often has difficulty organizing tasks and activities") heavily depends on the observer's interpretation of terms such as "often," "difficulty," and "organizing." In addition, some children with ADHD seem under aroused and have difficulty initiating attentiveness (Voeller, 2004).

Based on a considerable body of research, the DSM-IV subtypes have been shown to differ in terms of age at onset, ratio of boys to girls, pattern of comorbid psychiatric conditions, and learning disability profiles (McGough & McCracken, 2000; APA, 2000). Based on the DSM-IV field trials, the symptoms of ADHD are apparent before the age of 7 years in most cases. It has been noted that the hyperactive or impulsive type emerges earlier than the combined type and significantly earlier than the inattentive type (Voeller, 2004; APA 2000).

In a large longitudinal, population-based community survey of children and adolescents living North Carolina (Great Smoky Mountains Study), 25% of the children with inattentive symptoms reporting onset after age 7 years, in contrast to 13% of the combined subtype, and 8% of the hyperactive or impulsive subtype (Willoughby, Curran, & Costello, 2000). Most children with the hyperactive or impulsive and combined types of ADHD (98% and 82%, respectively) were considered impaired before 7 years of age. The inattentive type followed a different trajectory; the mean age at onset did not occur until 6.13 years, and only 57% became symptomatic before age 7 years (Willoughby, Curran, & Costello, 2000). Some researchers have suggested that ADHD follows a developmental pathway in which the earliest manifestations are hyperactivity or impulsivity, and there is a shift into ADHD of the combined type during elementary school. Furthermore, this picture again evolves and moves into the inattentive type of ADHD. This was noted by the authors as occurring after the hyperactivity or impulsivity symptoms fade and academic and social demands for autonomous functioning increase (Voeller, 2004).

The DSM-IV notes that often there are more boys than girls diagnosed with ADHD (APA, 2000). In surveys dealing with children referred to clinics, the ratio of boys to girls varies from 2:1 to 9:1 (Biederman et al. 1991; Jensen et al. 1997; Voeller, 2004). Girls tend to not evidence disruptive behaviors to the extent observed in boys; girls

with ADHD have half of the rates of conduct disorder and oppositional defiant disorder, however girls are much more likely to have significant social problems. Compared with boys with ADHD, girls tend to experience more emotional distress, have higher rates of depression and anxiety, are highly vulnerable to stress, and have poor self-esteem and a limited sense of control (Biederman et al. 1991; Jensen et al. 1997; Biederman, Faraone, Mick, et al, 1999).

The extant literature base points to difficult peer relationships and social issues as another well characterized concern for children with ADHD. Children with ADHD typically differ from their peers along the dimension of demonstrating higher rates of intensified unmodulated behaviors, such as yelling, running around, aggressive behavior, and talking out of turn or at inappropriate times, which contributes to difficulties with social discourse (Mrug, 2001; Whalen and Henker, 1985, 1992).

Mrug (2001) describes that their peers often reject children with ADHD readily, within one play session or by the day's end of first contact (pg. 54). Differences in peer rejection have been noted across gender (boys experiencing a higher frequency as compared to girls), but children with ADHD of both genders experience more rejection than their non-ADHD contemporaries (Hindshaw, 1995). Mrug (2000) posits that children who are isolated and rejected by their peers struggle to develop friendships and experience mutuality within their peer groups. The author establishes

that children who are able to experience friendships will mature into well-adjusted young adults and argues for the relevance of developing skills to create friendships for children with ADHD. Perhaps Mrug's (2000) argument for developing interventions to expand skills addressing children with ADHD's limitations with reciprocity and mutuality touches on the idea that disruptions in the affect regulation of children with ADHD is also connected to a more nascent affect maturity that may prevent children with ADHD from being on par emotionally and in turn socially with their contemporaries.

In addition, studies investigating the neuropsychology of children with ADHD have revealed a pattern of cognitive deficits consistent with prefrontal executive function deficits: inattention, difficulty with self-regulation, response inhibition deficits (impulsivity), restlessness or hyperactivity (Barkley, 1997, 2003; Pennington & Ozonoff, 1996; Willcutt, et al., 2005). Other emotional and/or behavioral problems have been associated with ADHD: conduct disorder, oppositional defiant disorder, major affective disorder (depression or bipolar disorder), anxiety disorder, including obsessive-compulsive disorder, and Tourette syndrome are all discussed as comorbidities (Barkley, 1997, 2003; Pennington & Ozonoff, 1996; Willcutt, et al., 2005).

Moreover and very pertinent to the present study, language disorders are frequently associated with ADHD. One research group notes the importance of identifying language

impairments to better understand the relationship between neurocognitive functioning (specifically executive function) and ADHD (Jonsdottir et al., 2006). In one report, 45% of children with ADHD had at least one element of language impairment, and children with both specific language impairment and ADHD appeared to have greater difficulty with verbal short-term memory (Sundheim & Voeller, 2004). Language impairment in ADHD has been considered by some to reflect a common underlying prefrontal executive function deficit (Bradshaw & Sheppard, 2000, Jonsdottir et al., 2006).

Additionally, learning disabilities (dyslexia and dyscalculia in particular) are frequently associated with ADHD. In the Remediation of Dyslexia study, the authors, Sundheim & Voeller (2004), observed that of the 60 children selected because of severe phonologic awareness deficits, 80% met the criteria for ADHD. Boys with ADHD and learning disability tended to have more serious executive function deficits than boys who were not learning disabled (Sundheim & Voeller, 2004).

Specific to the present study, Jonsdottir et al., (2006) discuss the idea that among children who are most often referred for psychiatric services, children who have language impairments are shown to be the most dysfunctional regardless of the diagnosis (see Jonsdottir et al., 2006; Cohen et al., 2000). In addition, studies that focus on executive function and in particular working memory, (an

identified core problem in ADHD; Cohen et al., 2000) working memory is shown to be more closely related to language impairments than ADHD alone (Cohen et al., 2000; Jonsdottir et al., 2005). Furthermore, Denckla (2003) notes that the characteristics of ADHD that are externally observable, particularly among the inattentive subtype, are linked to language processing difficulties.

Attention and Language

The next section will focus on the very pertinent concepts of attention and language to further the discussion of our understanding of how attention and language play a role in affect regulation.

Attention

The constructs of attention will be outlined below and discussed in the context of affect regulation, particularly concerning the relationship between arousal and emotion regulation.

Halperin (1994) notes that there are essentially four main components to attention: arousal, orienting response, selective attention, sustained attention. Arousal, involves the body being physiologically ready to perceive a stimulus in the environment. The orienting response is either voluntary, or involuntary—as is likely more often the case with ADHD children. The orienting response involves directing attention towards an interesting stimulus.

Selective attention is understood as the ability to focus on relevant stimuli while ignoring non-relevant information. Sustained attention is the ability to sustain focus on a particular stimulus for an extended period of time (Halperin, McKay, Matier & Sharma, 1994).

Like Halperin (1994), Mirksy (1996) argues that five distinct elements compose attention: Focus/execute, shift, sustain, encode and stability. Focus/execute refers to the ability to identify and successfully focus on a particular stimuli. Shift, refers to the ability to switch focused attention from stimuli to stimuli. Sustained attention is the capacity to sustain focus for a period of time. Encode, refers to the ability to use information attended to in working memory. Stability, refers to the relative level of attentional effort over time (Mirksy, 1996).

While Halperin (1994) and Mirsky (1996) help to identify the elements of attention, Ruff & Rothbart (1996) conceptualize attention in a developmental frame. The authors argue that there are three aspects of attention: selectivity, state of engagement, and higher-level control. They write that the development of attention takes place within a social context, and that it varies greatly among individuals. This social context is often occurring from the beginnings of life within the mother-infant dyad. When infants gaze at their mother, and when toddlers check in with their mothers while going through the separation-individuation phase (Mahler, Pine & Bergman, 1975), in some

ways they are learning both how and to what to attend. This is often referred to in the developmental literature as "joint attention."

Joint attention occurs when a child and another person attend to the same object or event, and they both are aware that this attention is shared (Moore & Dunham, 1995). This can be understood as looking at each other or a common object. The capacity for joint attention has been proposed as an important precursor to language and social cognition. It is also noted that the processes involved in joint attention provide the child with opportunities for social learning (Mundy & Sigman, 2006; Tomasello, 1995) and lay the foundation for more complex understanding of the social world (Fonagy, Gergely, & Target, 2007). The ability for joint attention probably serves different functions through life and is important both on an instrumental and a developmental cognitive level as well as for social motivation:

> …periods of joint attention provide an important context for the mutual regulation of affect and of problem solving, for the negotiation of communicative intentions, and for the sharing of cultural meaning (Adamson et al., 2004, p. 1180).

The earliest sign of the emergence of joint attention capacity is seen when infants start to follow another person's eye-gaze or point to objects in the surrounding. A

later joint attention behavior has developed when infants start to direct others' attention to objects they find interesting or try to modify another persons' behavior with gestures, for example reaching for an object outside their own reach (Morales, Mundy, & Rojas, 1998; Desrochers, Morissette, & Ricard, 1995). Along developmental lines, from 6 months of age, infants follow another person's gaze to objects in the surrounding environment (Corkum & Moore, 1998; Morales et al., 1998). Before one year of age, infants develop from only being able to locate targets within their own visual field (Butterworth, 1995), to also being able to locate targets outside their visual field (Butterworth, 2004; Deák, Flom, & Pick, 2000). This change indicates that the same underlying social skill (gaze- or point following in this case) manifests itself differently along the developmental continuum.

Luria (1973) posits that orienting one's attention voluntarily is a developmental process that occurs between child and caregiver and this is the burgeoning of internal self-regulation for the child. Luria (1973) writes, "From an external socially organized attention [e.g. where an adult directs an infant's attention in some way] develops the child's *voluntary attention,* which…is an internal self-regulation process" (Luria, 1973, p. 262,; cited in Halperin, 1996, p. 129, emphasis in original). Other authors suggest that within an environmental context, including the child's temperament, there is an expansion

within the attentional system (Ruff & Rothbart, 1996). Within this expansion of the system, there is a shift between the dependence on the external control for regulation of attention, the mother, to an internal control developing within the child, the self (Ruff & Rothbart, 1996).

Much like the ideas of emotion regulation, the attentional system takes on a similar progression from the mother being the outside source of regulation because the world is too overwhelming to the child, to moving towards the child being able to regulate his self. Imagining the more severe case of a child who comes into the world predisposed to attentional difficulties, the parents' role of regulating the child's arousal and creating a template for the child to develop the capacity to self regulate is imperative. Gilmore (2000; 2002) integrates the concept of emotional regulation with physiological arousal in attention and cognition.

Gilmore (2000) integrates the ideas of psychoanalytic theory and practice with the diagnosis of ADHD focusing primarily on the proposed disturbance in "synthetic, organizing and integrative function of the ego" (pg. 1260). Gilmore (2000) argues that the behavioral aspects of ADHD fail to address the intrapsychic disturbances that accompany the disorder. She posits that "poor modulation of stimuli, the inability to regulate affect, and the intrusion of drive derivatives" are at the core of ADHD and need to be

addressed. Gilmore (2000) uses the TAT narrative of an 11-year-old boy with ADHD to create a picture of disruptions in his narrative that are related to the behavioral correlates of ADHD, but in her view are manifestations of a larger dysfunction or disturbances in basic ego function (Gilmore, 2000). An important tenet of Gilmore's (2000) argument relates to the ego's capacity to regulate, modulate and balance internal and external stimuli "including drive derivatives and affect" (pg. 1265). The ego is understood to be a synthesizer and organizer of internal and external stimuli. Pertinent to this discussion, Gilmore (2000) writes:

> With a higher threshold for inner and outer stimuli comes a dawning capacity for concentration—this is, for alert attention free of distractibility—which in turn facilitates the developing capacity for neutralization. Subsequent attentional capacities are thus a crucial outgrowth of the synthetic function of the ego (Rapaport, 1959); it is this attentional component, a highly visible aspect of the disturbance, that is currently emphasized in the diagnosis (pg. 1265).

The main idea of Gilmore's (2000) perspective suggests that deficits in ego function, namely "synthetic, organizing and integrative," are inextricably connected to the modulation of self-affect-other principles. Subsequently, the disruption of the ego's functioning and its limited capacity

to modulate influences the regulation, adaptation and internalization of object relations creating an untenable feedback system (Gilmore, 2002). This view of ADHD pulls together the ideas and import of neurobiology and the dynamic interplay of brain-body-mind connections that were discussed in previous sections.

Language

One of the more pertinent organizing principles of affect and behavior is language. Language is not only relevant to the development of communication overall, but it represents an internal structuring of affect for the self. Developmentally, words start as indicators of need and exploration, and move towards conveying and constructing narratives that describe experiences, to this end language importantly organizes one's psychic experience. Much like the discussion of affect regulation in the context of mother being an auxiliary ego, Slade (2000) describes Main's (1995) adult attachment research, which focused on maternal attachment and the role of language and specifically organization of maternal narratives. Main's (1995) findings revealed that the "capacity to acknowledge, access, and evaluate openly and coherently her own affects in relation to attachment allows a mother to respond to her child's attachment needs in a sensitive and nurturing way" (Slade, 2000, pg. 1153).

Moreover, mothers who were capable of binding, organizing and creating meaning of their own feelings were better equipped to bind, organize and make meaning of their child's experiences. In striking contrast, Main (1995) suggests that mother's who demonstrated an inability to form narratives that were coherent and organized and rather were, distorted, forgotten, repressed or were overrun by strong affects from her own childhood experiences often found their child's needs and feelings to be painful and intolerable (Slade, 2000; Main, 1995).

The relationship between maternal regulation of affect and child is beyond the scope of the present study, however Main (1995) and Slade (2000) point to the import of language as a supportive structure that helps to organize mother, the auxiliary ego of the baby, and ultimately the child himself as he acquires language for self-regulation.

Crucial to the present study is the concept of language as a construct or organizer and contributor of affect regulation and maturity. Thus, it is important to understand when language acquisition does not follow typical developmental advancement. In the literature, Specific Language Impairment (SLI) is defined as characterized by either or both expressive and receptive language problems that are not the result of frank neurological damage. Rather, SLI is understood to be a neurodevelopmental language disorder that affects language production, including vocabulary, semantics and/or syntax and

comprehension. The term SLI encompasses the DSM-IV categories of Expressive Language Disorder and Mixed Receptive-Expressive Language Disorder (APA, 2000).

Currently, there is not a unified theory of SLI and this is attributed in the literature to several factors that have complicated attempts to provide such a theory. SLI as a classification tends to be quite heterogeneous and many issues cloud the cohesiveness of SLI. Of the different complicating factors, it remains that the linguistic impairments co-occur with a number of non-linguistic deficits, such as motor skills and working memory impairments, and with other disorders, and specific to this discussion, Attention Deficit Hyperactivity Disorder (Hill, 2001; Leonard, 1998; Tirosh & Cohen, 1998). Additionally, SLI is thought of as being related to or a consequence of some sort of brain based dysfunction, however the neural correlates of the disorder have been largely ignored due to the difficulty in isolating specific brain regions (Leonard, 1998; Stromswold, 2000).

Mainly, there are two broad competing theoretical perspectives that have attempted to explain SLI in the extant literature. One perspective posits that subgroups of individuals with SLI suffer from a deficit or delay that is specific to the domain of language, specifically to grammar i.e. the capacity that underlies the rule-governed combination of words into complex structures. This viewpoint is seen as controversial in the literature (Rice & Oetting,

1993). Alternatively, within this view it has been posited that those with developmental language impairments may be missing linguistic features (Gopnik & Crago, 1991). The other major view notes the normal course of language development, indicating that children without SLI pass through a period in the development of language during which they fail to consistently mark tense in main clauses that require such markings (Wexler, 1994).

According to this perspective, children with SLI remain in this stage for a much longer period than normal children, with their language deficits reflecting a prolonging of obligatory tense markings that are normally represented in grammar (Rice et al., 1995). In addition, impaired early processing limits the timely development of the language system, which may be due to the short, high frequency grammatical markers that may not be processed efficiently by an impaired system.

Although it seems that among current research the explanation or cause of SLI remains controversial, it is clear and undisputed that SLI is accompanied by a multitude of issues for children. It has been noted in the literature that children with SLI have difficulty socially and emotionally. Much like ADHD, SLI is often associated with behavioral problems that are referred to in the context of externalizing and internalizing problems (see van Daal et al, 2007). Speech and language pathologists report that delinquency and aggression among children with SLI is

evidenced (Sanger et al., 2004), while other authors report that anxiety, emotion regulation and low self-esteem are commonly shown in children with SLI (Fujiki et al., 2002).

In addition, Fujiki et al., (1999) found that teachers typically rate children with SLI as being more withdrawn than peers without language problems (see Fujiki, Brinton & Clarke, 2002). Recently research on SLI has moved in the direction of understanding social issues that arise in children with SLI as potentially linked to the relationship between emotion regulation and language development (Fujiki, Brinton & Clarke, 2002). The authors suggest that a combination of language impairment and deficits in emotion regulation results in poor social outcomes for this population of children.

It is not surprising that language would be an extremely pertinent factor in the discussion of affect regulation. The previous discussion of affect regulation addressed the non-verbal progression from early mother-infant interactions and brain development and importantly a "holding environment" as conducive to the development of self-object-affect relationships. Thompson's (1981) theory of affect maturity linked the burgeoning development of cognition and maturation of the affect system to address different levels of affect experience. Discussing first the pre-verbal stages of development and the progression to the verbal is important in the understanding of the role language plays in affect regulation. Linking internal

feeling states to a child's experience externally or behaviorally in the world typifies most events in the child's young life. Gallagher (1999) wrote, "language is an important tool in self reflection, verbal mediation, response inhibition, and behavioral direction (pg.5)." Ruff & Rothbart (1996) argue that private speech or the child's own vocalization to do something emerges as a self-regulatory tool in normal development (p. 150). As private speech is used more frequently and flexibly, children are more able to self-regulate.

As the child develops, language becomes a link to categorize internal experiences and over time as language becomes more sophisticated and nuanced it elaborates both the internal experiences while making sense of the external environment. Saarni (1999) argued that language is simply basic to emotional development due to it providing a means of representation of one's emotional experience. Specifically Saarni (1999) writes, "...by having access to representations of our emotional experiences, we can further elaborate on them, integrate them across contexts, and compare them with others' representations about emotional experience" (pg.131). Unfortunately, the interaction between language and emotion regulation, like many complicated constructs, is difficult to untangle due to the influence that each has on the other. Stansbury & Zimmerman (1999), report that mothers of children with lower language skills provide their children with less

sophisticated emotional regulation strategies, as compared to mothers of children with stronger language skills.

In addition to language impairments playing a role in disrupting the progression of emotion regulation, poor emotion regulation may also affect a child's ability to process language in social interactions (Fujiki et al., 2004). It is noted that children with SLI experience "lower levels of acceptance, fewer peer friendships, and higher rates of bullying" as compared to their peers (see Brinton et al., 2007). However, only within the last decade has research been focused on the role of emotion regulation within the population of children that have SLI. One of the leading researchers, Fujiki et al., (2004) describes that children with SLI may have difficulty with social competence due to limitations in emotion regulation. The author asserts that, "...a child's ability to experience, regulate, express and understand emotion appropriately makes and important contribution to social competence," (pg. 639).

Researchers investigating "emotion understanding" among children with SLI found that there was no difference between typically developing children and children with SLI with regard to identifying such facial expressions as, happy, sad, mad or fear. However, like the findings of Holder & Kirkpatrick, (1991) studying children with learning disabilities, typically developing children as compared to children with SLI performed significantly better on identifying facial expressions of surprise and disgust

(Spackman et al, 2006). Brinton et al., (2007) argue that children with SLI may have more trouble than their peers in understanding social discourse due to having trouble determining the appropriateness of displaying emotion or dissembling (hiding emotion). Suggesting further that children with SLI do not understand the impact of displaying an emotion on the given relationship or social situation. The Brinton et al., (2007) findings suggest that emotional immaturity and poor emotional understanding (see Fujiki et al., 2008) may be linked to the poor social outcomes experienced for some children with SLI.

ADHD and Language Impairment

Now that the various elements of attention and language have been discussed, it is important to turn to the literature on language impairments among children with ADHD. It has been noted that children with ADHD experience difficulties functioning in the emotional and social worlds, similarly children with language impairments alone suffer in the emotional and social worlds. An important question to ask and to review for the present study is the impact that language has within the larger context of the ADHD child and then to understand more fully how affect regulation may be disrupted.

A considerable literature base reflects the relationship between ADHD and language impairments. However, given the spectrum of language disorders described

in the literature, as it stands currently studies have not implicated clinically relevant ways to address language among ADHD populations (Mathers, 2006). Oram (1999) investigated if children with ADHD performed differently than aged matched children with language impairments and ADHD, as well as a normal control group, on a formal test of language (i.e Clinical Evaluation of Language Fundamentals-Revised: CELF-R). The findings revealed that children with ADHD only scored significantly lower than non-ADHD peers on the Formulated Sentences subtest of the CELF-R. In addition, the ADHD group did not attempt to correct their linguistic errors, suggesting that the children with ADHD tended to respond quickly and impulsively to the task (Oram et al., 1999). Earlier Ludlow et al., (1978) established that children with ADHD between the ages of 6 and 12 performed poorly overall on formal language tests as compared to a normal control group. Not surprisingly, children diagnosed with ADHD have been observed to be more talkative, have shorter utterances and demonstrate an overall inability to effectively modify language to accommodate task demands as compared to typically developing peers (Barkley, Cunningham & Karlsson, 1983; Kim & Kaiser, 2000; Whalen et al., 1979; Zentall, 1988).

Researchers have also focused on executive function as a possible link between observed language impairments among children diagnosed with ADHD. Difficulties with executive functioning may impact the pragmatic difficulties that

language impaired children evidence, as well as contribute to the neurocognitive difficulties that children with ADHD demonstrate (Tannock & Schacher, 1996). More specifically, verbal working memory has been implicated as a root of language disorders (see Baddeley & Wilson, 1993; Gathercole & Baddeley, 1989; Swank, 1999). Working memory is controversially marked (see Cohen et al., 2000) as one of four executive functions identified as deficient among ADHD children (Barkley, 1997, 2003; Tannock, 1998). The contention among investigators regarding working memory in children with ADHD is related to the parsing of verbal working memory from spatial working memory. Cohen (2000) found that measures of both verbal and spatial working memory were more closely associated to language disorders than ADHD, concluding that caution should be exercised when discussing 'working memory' as a core issue for ADHD children, given the relationship to language disorders (Cohen, 2003).

However, it would not be a controversy without other research pointing in the opposite direction. McInnes et al., (2003) concluded that both verbal and spatial working memory were impaired among children with ADHD irrespective of language impairment. To the contrary, Jonsdottir et al., (2005) found that among a group of ADHD children with comorbid language impairments, as compared to children with ADHD alone and normal controls, the comorbid group performed significantly lower on verbal working memory tasks only.

The authors concluded that working memory deficits are not specific to ADHD, but are related to language impairments (Jonsdottir et al., 2005).

Clearly, a considerable literature base notes the relationship between ADHD and language impairment and vice versa (language impairment to ADHD) among children. Additionally, studies address emotion or affect regulation in both literatures, ADHD and SLI, however current research does not address language specifically within the ADHD population as a co-occurring problem that impinges on the social and emotional world of the child. The present study intends to contribute to the current literature base by investigating specific language impairments among an ADHD population to understand more fully the role of affect regulation and maturity.

Summary and Study Hypotheses

The present study investigates hypothesized differences across diagnosis, Child Behavior Checklist (CBCL) and Thematic Apperception Test (TAT) measures.

Hypothesis 1: Children with ADHD and comorbid language impairments will demonstrate different behavioral patterns from children with ADHD and no language impairments and children with only language impairments on the CBCL. Specifically, children with ADHD and comorbid language impairments will demonstrate higher scores on the Anxious/Depressed, Withdrawn/Depressed and Somatic Complaints subscales as compared to ADHD with no language impairments or children with language impairments alone.

Hypothesis 2: Children with ADHD and comorbid language impairments will differ along the dimension of affect maturity from children with ADHD and no language impairments and children with only language impairments on the TAT. Specifically, children who have comorbid ADHD and language impairments will have lower scores on the Thompson Scale of Affect Maturity, as compared to children who are ADHD and do not demonstrate language impairments or children with language impairments alone.

CHAPTER 2

Methods

This study has built upon the NIDCD funded project at City College examining attention and language in children (Gomes et al, 2001). The study data is pre-existing and was collected on a sample of 7 to 10 year old children diagnosed with language impairments and/or ADHD (Gomes et al., 2001). The current study focused on participants' responses on the Thematic Apperception Test (TAT) and their parent's responses on the Child Behavior Checklist (CBCL) to assess their affective experience and behavior.

The DSM-IV ADHD rating scale and Clinical Evaluation of Language Fundamentals (CELF) were used independently to parse the children diagnostically.

The current study addresses the hypothesis that children with ADHD and comorbid language impairments will elicit a different quality of emotional or affective maturity (as measured by the Thompson Scale with the TAT) and will demonstrate different behavioral profiles as compared to ADHD without comorbid language impairments or children with language impairments alone (as measured by the CBCL). Using these preexisting TAT and CBCL data, this study has attempted to demonstrate an empirically viable and clinically relevant way of understanding childhood ADHD.

Participants

The participants for this study are 64 children (22 females and 42 males) between the ages of 7.0 and 10.0 years (*M* = 100.27 months; SD = 9.99 months). All children were culled from a National Institute on Deafness and Other Communication Disorders (NIDCD) funded project at the City College of New York examining attention and language in community children. Most children were originally referred for either behavioral or reading problems in school. All of the children were fluent English speakers enrolled in English only classrooms, but 14 of the children came from bilingual households.

Children were excluded from the larger NIDCD as well as the present study if they had a chronic medical or neurological illness, a history of neurological problems, if they were taking systemic medication, if they received a diagnosis of schizophrenia, major affective disorder, autism, pervasive developmental disorder, or a chronic tic disorder, or if they were not attending school. Further, children had to achieve either a score of 80 or better on the Test of Nonverbal Intelligence-Third Edition (TONI) (Brown, Sherbenou & Johnsen; 1990) or a Performance IQ score of 80 or better on the Wechsler Abbreviated Scale of Intelligence (WASI, Psychological Corporation, 1999), report normal hearing and normal or corrected to normal vision, and pass a hearing screen.

Attention Deficit Disorder Classification

Children were categorized as ADHD using a procedure in which information from multiple sources were integrated (Schaughency & Rothlind, 1991). In the present study, if any of the three informants (parent, teacher, and examiner) endorsed ADHD symptomatology on the Attention Deficit/Hyperactivity Disorder Checklist (DSM-IV, APA, 1994) the child was assessed for the ADHD group.

Specifically, children were then categorized in the ADHD group if they met at least six of the nine criteria specified on the DSM-IV checklist in either the inattentive and/or hyperactive categories, and these behaviors were present before the age of seven. For the current study in particular, if two of the three informants endorsed ADHD symptomatology then the child was considered ADHD proper, if one of the three informants endorsed ADHD symptomatology then the child was included in the ADHD group as "at risk" for ADHD, or showing clinically significant signs of ADHD, rather than carrying the diagnosis proper. Using this grouping procedure, out of the entire sample, 39 children met criteria for ADHD proper and "at risk" (15 "at risk" and 24 ADHD proper). Of the children who met criteria for ADHD, 22 children (17 boys and 5 girls) met criteria for ADHD alone, without a language disorder.

Language Impairment Classification

Children were assessed and categorized in the language-impaired group proper if they scored 1.5 SD or more below the mean on Total Language of the CELF. The Total Language score includes subtests from both the receptive and expressive language categories. A sub-clinical range of language impairment was also assessed for the current investigation. Children were considered part of a sub-clinical group of language-impaired children if they scored 1.0 SD below the mean on the Total Language of the CELF. For the current study, children were included in the Language Impaired group if they met criteria for either the sub-clinical language-impairment or language-impairment proper. 27 children met criteria for Language Impairment and were included in the study (17: 1.5 SD and 10: 1 SD).

ADHD and Language Impairment Classification

Children were then grouped if they carried both the ADHD and language-impaired diagnosis to create the diagnostic categories of ADHD without language impairment and language impairment alone. Of the total 64 children, 48 children met criteria to be included in the study based on diagnostic criteria: 15 children met criteria for both ADHD and Language impairment, 22 children met criteria for ADHD alone and 11 children met criteria for Language impairment

alone. Of the remaining children in the sample, 16 children were included in a non-diagnostic or non-clinical comparison group.

Measures

Parents were asked to complete the following rating scales with regard to their child's behavior: the DSM-IV ADHD rating scale (DuPaul et al., 1997), and the Child Behavior Checklist (Achenbach, 1991). In addition, the examiner and the child's teacher were asked to complete the DSM-IV attention deficit hyperactivity disorder (ADHD) rating scale. Children were also given projective tests, language and intelligence tests as part of the overall neuropsychological battery of tests.

Only the pertinent measures specific to this study will be discussed in detail: the Child Behavior Checklist (CBLC), Thematic Apperception Test (TAT), Clinical Evaluation of Language Fundamentals (CELF) and Wechsler Abbreviated Scale of Intelligence (WASI).

The Child Behavior Checklist (CBCL)

The CBCL was developed by Thomas M. Achenbach (1991) and was designed to address the problem of defining child behavior problems empirically. It is based on a review of the literature and carefully conducted empirical studies. It is designed to assess in a standardized format the

behavioral problems and social competencies of children from the ages of 4 to 18 years. The CBCL can be self-administered or administered by an interviewer. It consists of self-report items related to behavior problems that are scored on a 3-point scale ranging from not true to often true of the child.

There are also 20 social competency items used to obtain parents' reports of the amount and quality of their child's participation in sports, hobbies, games, activities, organizations, jobs and chores, friendships, how well the child gets along with others and plays and works by him/herself, and school functioning. Individual item intraclass correlations (ICC) of greater than .90 were obtained "between item scores obtained from mothers filling out the CBCL at 1-week intervals, mothers and fathers filling out the CBCL on their clinically-referred children, and three different interviewers obtaining CBCLs from parents of demographically matched triads of children." Stability of ICCs over a 3-month period were .84 for behavior problems and .97 for social competencies. Test-retest reliability of mothers' ratings were .89. Some differences were found between mothers' and fathers' individual ratings. Several studies have supported the construct validity of the instrument. Tests of criterion-related validity using clinical status as the criterion (referred/non-referred) also support the validity of the instrument.

Importantly, demographic variables such as race and socioeconomic status (SES) accounted for a relatively small proportion of score variance. Normative data, obtained from parents of 1,300 children, were heterogeneous with respect to race and socioeconomic status and were proportionate to the composition of the general U.S. population (Achenbach & Edelbrock, 1991; 2001).

The CBCL scoring profile provides raw scores, T-scores and percentiles for eight syndrome scales and three competency scales. The eight syndrome scales are: Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behavior and Aggressive Behavior. There are also broadband scores for Internalizing, Externalizing and Total problems.

The Thematic Apperception Test (TAT; Morgan & Murray, 1935)

The TAT has been one of the most commonly used projective tests for both children and adults. The TAT consists of a series of picture cards, each card representing various evocative circumstances with a certain element of ambiguity. The images are in black-and-white and given the action of the card, the expressions of the characters or the mood of the card, a wide variety of different feelings and thoughts can be stirred in the respondent. The eight TAT cards that were presented to all

participants in this study were Cards 1, 2, 3BM, 4, 7GF, 8BM, 12M and 13B.

The TAT presents the respondent with the basic requirements to tell a story, created from five questions (1) what is happening currently (2) what led up to the current situation (3) what will happen in the future (4) what the characters are thinking and (5) what they are feeling. The story that is created by the participant is ideally considered both from the perspective of content, the 'what' of the story and from the 'structure' or the organization of the story.

The Affect Maturity Scale – (Thompson, 1981)

Thompson (1981) created a scale for the overlap between cognition and affect. She structured the scale to fit with the TAT and responses were rated on a one to five scale. See Appendix A for the scale points and descriptions within each of the five scale points. Each of the Thematic Apperception Test transcribed narratives was scored using the Thompson scale. The TAT narratives were scored blind to diagnostic grouping by two expert raters. Inter-rater reliability was established at a kappa coefficients of 0.78, (95% CI: 0.74 to 0.83) on TAT protocols (Cohen, 1988).

Clinical Evaluation of Language Fundamentals – (CELF)

The Clinical Evaluation of Language Fundamentals-Fourth Edition (CELF) was developed by Eleanor Semel, Ed.D.; Elisabeth H. Wiig, Ph.D.; and Wayne A. Secord, Ph.D.

Administration of the 4 core subtests provides a Total Language Score to determine if a problem exists and whether the student qualifies for services. The domains tested include: Receptive Language and Expressive Language Scores; Language Structure, Language Content, Language Content and Memory, and Working Memory Scores. Further subtests provide even richer information on underlying skills such as Phonological Awareness, Rapid Automatic Naming, Digit Span, Sequences, Word Associations and the Memory Composites.

Pertinent to the current study, The Total Language score is a measure of general language ability that quantifies the child's overall language performance and is used to make decisions about the presence or absence of a language disorder (see Semel et al 1995). This score is derived by summing the scaled scores from the subtests that discriminate typical language performance from disordered language performance.

The Total Language score carries the following sensitivity and specificity scores for the following standard deviations below the mean. For -1, -1.5 and -2 SD below the mean, the sensitivity or percentage of children

classified as having a language disorder will test positive for the language disorder is 1.0, 1.0 and .87 respectively. The sensitivity of students without a language disorder will test negative are as follows, .82, .89 and .96 respectively.

Wechsler Abbreviated Scale of Intelligence (WASI)

Wechsler Abbreviated is nationally standardized, yields the three traditional Verbal, Performance, Full Scale IQ scores, and is linked to the Wechsler Intelligence Scale for Children®—Third Edition (WISC–III®), and the Wechsler Adult Intelligence Scale®—Third Edition (WAIS®–III). Wechsler Abbreviated consists of four subtests: Vocabulary, Similarities, Block Design, and Matrix Reasoning.

The four-subtest form can be administered in just 30 minutes and results in FSIQ, VIQ, and PIQ scores. The PIQ score includes two different types of performance measures for richer information—Matrix Reasoning, for measuring nonverbal fluid abilities, and Block Design, for measuring visuomotor/coordination skills. The Vocabulary and Similarities subtests compose the Verbal Scale and yield the Verbal IQ, which is a measure of crystallized abilities.

Average reliability coefficient: FSIQ-4 0.98, FSIQ-2 0.96, Test-retest reliability: FSIQ-4 0.92, FSIQ-2 0.88, Inter-rater reliability: 0.98 (Vocabulary), 0.99 (Similarities). An estimate of general intellectual ability can be obtained from the two-subtest form, which can be given in about 15 minutes.

Procedures

As a part of the larger NIDCD funded project, children took part in a two-day neuropsychological test battery examining language, attention, reading and intelligence. A parent completes a history, the Child Behavior Checklist (CBCL; Achenbach, 1991), and the Attention Deficit/Hyperactivity Disorder Checklist (DSM-IV, APA, 1994). Teacher of the participating child was asked to complete the Attention Deficit/Hyperactivity Disorder Checklist. The data is compiled and the child's test examiner provides the family with a written clinical report and feedback.

Testing was performed in a small, quiet testing room. Each child was administered the TAT as part of a two day battery of language, attention, and intelligence testing. The TAT was usually administered toward the end of testing on the second day. Responses were transcribed as well as tape recorded for confirmation of written transcription.

Hypotheses

The main hypotheses and focus of the study is to understand the emotional and behavioral functioning, as measured by affect maturity (see Thompson, 1981) and behavioral inventory (see CBCL), among children codiagnosed with ADHD and Language Impairment. This group will be

compared to children who are diagnosed as ADHD only or Language Impaired only, as well as Non-Clinical children.

Hypothesis 1. Children with ADHD and comorbid language impairments will demonstrate different behavioral patterns from children with ADHD and no language impairments and children with only language impairments on the Child Behavior Checklist (CBCL). Specifically, children with ADHD and comorbid language impairments will demonstrate higher raw scores on the Anxious/Depressed, Withdrawn/Depressed and Somatic complaints subscales, and Total Score as compared to ADHD with no language impairments or children with language impairments alone.

Hypothesis 2. Children with ADHD and comorbid language impairments will differ along the dimension of affect maturity from children with ADHD and no language impairments and children with only language impairments on the Thematic Apperception Test (TAT). Specifically, children who have comorbid ADHD and language impairments will have lower scores on the Thompson Scale of Affect Maturity, as compared to children who are ADHD and do not demonstrate language impairments or children with language impairments alone.

Data Analysis

Scoring Procedures

The instruments administered to children, parents and teachers, including the WASI, CELF, and CBCL were scored using standard procedures. The TAT was scored using the Thompson Scale for Affect maturity and scale points of this measure are detailed in Appendix A. Children were grouped diagnostically (ADHD + Language Impairment, ADHD only, or Language Impairment only) independent of the CBCL and TAT.

CHAPTER 3

Results

The main hypotheses and foci of this study were to address the behavioral and emotional functioning of children co-diagnosed with ADHD and Language Impairment as compared to children with ADHD alone, and Language Impairment alone. A non-clinical group of children was also included in the initial behavioral analyses as a comparison group.

The results section begins with a comparison of the behavioral findings, as measured by the Child Behavior Checklist (CBCL) across diagnostic classifications: ADHD + Language Impairment, ADHD only, Language Impairment only, and Non-Clinical. The behavioral findings are followed by a review of the analyses of the Thompson Scale of Affect Maturity across diagnostic classifications. Post hoc analyses exploring the relationship between behavior and affect maturity were also conducted following the findings from the two main hypotheses.

The means and standard deviations for the Clinical Evaluation of Language Fundamentals (CELF) Receptive Language, Expressive Language, and Total Language Scores are presented in Table 1. As expected, there were significant differences between the diagnostic groups on the CELF. Table 1.2 reports the significant differences found between diagnostic groups. In addition, the means and standard deviations are reported for the Wechsler Abbreviated Scale

of Intelligence (WASI) Verbal IQ, Performance IQ, and Full Scale IQ in Table 2 and Table 2.1 reports the significant differences between diagnostic groups. The demographic information of all participants are summarized in Tables 3 through 5.

Table 3 and 4 describe the gender and race of the sample of children by diagnostic classification. Self-reported ethnicity by diagnostic classification is presented in Table 5.

Demographics

There were 64 children in the total sample. Children were grouped by diagnostic classification as follows: 15 children grouped in the ADHD + Language Impairment category, 22 children[1] grouped in the ADHD alone category, 11 children grouped in the Language Impairment only category, and 16 in the Non-Clinical category.

There was not a significant association between race or ethnicity and diagnostic classification (Race: x^2 = 7.7591, p = .457, Fisher's exact = .731; Ethnicity: x^2 = 2.2336, p = .327). Additionally, there were no significant associations between age and diagnostic group (F = .281, p = .839).

Likewise, there was not a significant association between gender and diagnosis (x^2 = 2.1409, p = .343, Fisher's exact = .357).

[1] In analyses using the Child Behavior Checklist (CBCL), n=20 was used for the ADHD only group due to excluding missing CBCL variables.

There were significant differences between the diagnostic groups on the CELF, as seen in Appendix C, Table 1.2. As expected, children carrying a language impairment diagnosis had significantly lower Receptive, Expressive and Total Language CELF scores as compared to children in the ADHD only and Non-Clinical groups. There were also significant differences on the WASI Verbal (VIQ) and Performance IQ (PIQ) as seen in Appendix C, Table 2.1. ADHD + Language differed significantly from the ADHD only and Non-Clinical groups and in both comparisons ADHD + Language had the lower PIQ. ADHD only differed from Language Impairment only on both VIQ and PIQ and ADHD only carried the higher VIQ and PIQ scores. In the last comparison, Language Impairment only significantly differed from the Non-Clinical group and the Non-Clinical group carried higher VIQ and PIQ scores.

Behavioral findings among the Diagnostic Classifications

Child Behavior Checklist by Diagnostic Classification

Hypothesis 1 of the study proposed that children's behavioral ratings (CBCL syndrome scales) would differ significantly across diagnostic classifications. More specifically, that children with the ADHD + Language Impairment diagnosis would endorse more symptoms on the

CBCL, and in particular within the "Internalizing" grouping. The overall sample's mean raw and T-scores, as well as median scores are presented in Table 6.

Children were first looked at on each of the eight CBCL syndrome scales and the broader "Internalizing," "Externalizing," groupings, and Total scores using the Kruskal-Wallis Test. Children differed significantly on 4 of the 8 syndrome scales ("Social Problems," "Thought Problems," "Attention Problems," and "Rule Breaking Behavior") and on the broader "Externalizing" grouping, and Total CBCL score, as seen in Table 7. Children did not, as hypothesized, differ significantly on the broader "Internalizing" grouping or its three subgroups ("Anxious/Depressed," "Withdrawn/Depressed," or "Somatic Complaints").

Children were then separately compared across median values with the Wilcoxon-Mann-Whitney. In all CBCL comparisons presented in Table 7, children with Language Impairment only did not differ significantly from the Non-Clinical children. Similarly, children co-diagnosed with ADHD and Language Impairment did not differ from ADHD only children on any CBCL comparisons, with the exception of "Rule Breaking Behavior," where ADHD only children endorsed significantly more symptoms.

As seen in Table 7, when ADHD + Language Impairment and Language Impairment only were compared, there were significant differences on 4 of the 11 comparisons ("Social

Problems," "Thought Problems," "Attention Problems," "Rule Break Behavior," "Externalizing," and "Total Score"). In all comparisons, children with ADHD + Language Impairment endorsed more symptoms than Language Impairment only children. Additionally, children with ADHD + Language Impairment differed significantly from the Non-Clinical children on "Attention Problems," and "Rule Breaking." Again, the ADHD + Language Impairment group endorsed more symptoms than the Non-Clinical group.

Children with ADHD endorsed significantly more symptoms on "Thought Problems," "Attention Problems," "Rule Breaking," "Externalizing," and "Total Score," as compared to Language Impairment only children. Similarly, children with ADHD differed significantly from the Non-Clinical group on "Thought Problems," "Attention," and "Rule Breaking," as seen in Table 7.

Overall, children in the Non-Clinical and Language Impairment only groupings endorsed the fewest symptoms, where as children in the ADHD only or ADHD + Language Impairment endorsed the most symptoms on the CBCL. Following the initial analyses, it was hypothesized that children would differ significantly on the CBCL syndrome scales and broader CBCL groupings when compared based on diagnosis alone. The Kruskal-Wallis[2] test was then performed to determine if there were differences across diagnostic classifications, excluding the Non-Clinical group

[2] The Kruskal-Wallis test, a non-parametric test that assesses between group differences using medians

to understand more fully the relationship between pathology and behavior.

The results indicate that there were significant diagnostic group differences (ADHD + Language Impairment versus ADHD only versus Language only) found on the CBCL syndrome scales, see Table 8. It was important to look at the groups without the non-clinical comparison, as the children from the non-clinical group endorsed more symptoms on the CBCL than the Language only children. Thus, the non-clinical group could not be considered "normal" or a "normal comparison group" behaviorally.

Across diagnostic classifications children differed significantly, below a level of $p < .05$, on all of the CBCL syndrome scales, with the exception of "Withdrawn/Depressed," and "Somatic Complaints" syndrome scales. Both the ADHD + Language and ADHD only groups endorsed more symptoms on the CBCL across all syndrome scales as compared to the Language only group, as shown in Table 8.

Next, each diagnostic classification was separately compared across median values with the Wilcoxon-Mann-Whitney[3]. When children with ADHD were compared to children with Language Impairment on the CBCL, significant differences ($p < .05$) were found between these two groups on the "Anxious/Depressed," "Thought Problems," "Attention," "Rule Breaking," and "Aggressive Behavior," syndrome scales,

[3] 2-independent sample non-parametric test

see Table 8. The children with ADHD demonstrated higher levels of symptomatology on all CBCL syndrome scales when compared to children with Language Impairment.

Similarly, when children diagnosed with ADHD + Language Impairment were compared to children with Language Impairment only, significant differences ($p < .05$) were found on 7 of the 11 comparisons ("Anxious/Depressed," "Somatic," "Social Problems," "Thought Problems," "Attention," "Rule Breaking," and "Aggressive Behavior," syndrome scales), see Table 8. The children with Language Impairment + ADHD demonstrated higher levels of symptomatology on all CBCL syndrome scales when compared to Language Impairment alone.

The significant findings detailed in Table 8, indicate that there are important differences between the three diagnostic groups (ADHD + Language, ADHD only, Language only). The findings, which include an ADHD diagnosis, either with language impairment or without language impairment, are consistent with previous research using the CBCL.

CBCL Syndrome Scales, T-score categories and Diagnostic Classifications

Following the findings from the previous analysis, in the next set of analyses, the relationship between symptom severity and diagnostic classification was explored. It was hypothesized that children with the ADHD + Language

Impairment diagnosis would fall in the borderline to clinical range of functioning on the CBCL syndrome scales, as compared to ADHD alone, and Language Impairment alone. These between diagnostic classification differences were looked at using an ordinal regression of CBCL T-score categories[4] of "Normal," "Borderline," and "Clinical." The number of children in the CBCL T-score categories by diagnostic classification and syndrome scales is listed in Table 9 (See Appendix C for Tables 9.1 through 9.3).

As hypothesized, a greater number of children from the ADHD + Language Impairment group evidenced T-scores in the "Borderline" and "Clinical" ranges as compared to children from the other two diagnostic groups within the broader "Internalizing" grouping, (composed of the three subgroups: Anxious/Depressed, Withdrawn/Depressed, and Somatic Complaints).

The significant findings from the ordinal regression demonstrate that children who were in the ADHD + Language group were more likely to have more symptoms on the "Anxious/Depressed" syndrome scale than children from the other two diagnostic groups. The direction of this finding also holds true for the "Withdrawn/Depressed" syndrome scale. The ordinal regression was significant at the $p <$

[4] The eight-syndrome scale T-scores were grouped based on the CBCL standardized categories of "Normal" (T < 50), "Borderline" (T = 65-69) and "Clinical" (T = 70+). For the Broadband or Grouping scores: T-scores= 55 or less are considered typical of normal children. T-scores of 60 or greater are considered to be in the clinical range of impairment, with scores of 60 to 63 in the borderline clinical range (Achenbach, 1991).

.05 level with the exception of "Somatic Complaints," which did not reach statistical significance, (see Table 10 and Appendix C for Tables 10.1 to 10.3.) Overall, children with the ADHD + Language Impairment diagnosis were more likely to have endorsed more anxious, depressed, or withdrawn symptoms on the CBCL.

However, it is important to note that the significant differences between diagnostic classifications were found when ADHD + Language was compared to Language only or when ADHD only was compared to Language only. These findings indicate that carrying the diagnosis of ADHD significantly affects CBCL ratings more so than having a diagnosis that includes language impairment.

Affect Maturity among the Diagnostic Classifications

In the next set of analyses, the Thompson Scale of Affect Maturity was used to determine the level of affect maturity for each child and each of their TAT cards. An overall Thompson Affect Maturity score for all TAT cards, as well as means and standard deviations for each TAT card by diagnostic classification are presented in Tables 11 and 12.

As expected, the range of scores for the Thompson Scale of Affect Maturity was between 0 and 3 or 0 and 4 for all TAT cards. This scale is a developmentally derived measure with five scale points, however it has not been used to date in a sample of children[5]. There was neither a significant correlation between age and overall Thompson score, nor between age and each TAT card. The reported means and standard deviations for the overall affect maturity scores (range: M = 1.5 to 2.5 and SD = .5 to 1.0), indicate that for this sample with an age range of 7 to 10 years, the Thompson scale points are appropriate estimates of affect maturity. Reaching a mean scale point above 3 would be atypical for this aged sample. Scale points are described in detail in Appendix A.

[5] Thompson Scale of Affect Maturity (1981) is a 5-scale point measure (1-5). Due to the measure being used in this study with children, a 0-point score was used to indicate that there was non-affective production and it importantly was not a missing score.

Affect Maturity by Diagnostic Classification

This next section addresses the second hypothesis that children with the ADHD + Language diagnosis will have the lowest levels of affect maturity, when compared to children with ADHD only, and Language Impairment only on the TAT. Children were first compared on their overall Thompson Affect Maturity scores and WASI VIQ was controlled for in this analysis; Table 11 presents the overall affect maturity score means and standard deviations for all participants. There were not significant findings when TAT cards and associated affect maturity scores were looked at overall among the diagnostic groups[6], see Appendix C, Table 11.1.

However, due to the affect maturity scores being very similar, TAT cards were then looked at individually and compared among the diagnostic classifications. The means and standard deviations for each TAT card by diagnostic classification are presented in Table 12. An ordinal logistic regression was conducted for each card of the TAT and the related Thompson scores.

As seen in Tables 13 and 14, out of the eight given TAT cards, 3BM and 7GF were the only two cards with significant findings. As hypothesized, children in the ADHD + Language Impairment group had the lowest affect maturity score on Cards 3BM and 7GF, followed by the ADHD only group and the Language Impairment only group.

[6] Of note, the findings between diagnostic groups and overall affect maturity did not change when VIQ was controlled (Thompson: $z = 1.71$, $p = 0.088$; VIQ: $z = 0.77$, $p = 0.441$).

Of note, although the other TAT cards did not reach a level of statistical significance the direction of the findings were the same (i.e. the highest affect maturity scores were associated with the Language only diagnosis followed by ADHD only and ADHD + Language). The direction of the finding held for all cards with the exception of 13B, indicating that a larger sample may result in significant findings.

The affect maturity results support the hypothesis that lower affect maturity is associated with the most severe diagnostic classification, ADHD + Language, on Card 3BM[7] and Card 7GF, (see Tables 13 and 14).

[7] This finding indicates, for every 1 unit increase in the Thompson score of affect maturity on Card 3BM, the odds of having the highest diagnosis of language only increases by 1.961 as compared to the two lower diagnoses -- so that language only children have higher Thompson scores on Card 3BM as compared to ADHD and ADHD + Language.

Post Hoc Analyses

The next section presents the post hoc analyses that were conducted. This section is a follow up to the main hypotheses studied to understand more fully the relationship among diagnostic classifications, behavior, and affect maturity.

Attention Deficit Hyperactivity Disorder versus all other children

The first analysis presented in this section addresses the question: If the sample was grouped along the diagnostic dimension of ADHD, regardless of language impairment, how is affect maturity impacted?

In the following analyses, all participants were assessed (n=64) to determine if there would be a more notable difference in affect maturity when grouping children along the dimension of an ADHD diagnosis.

Comparisons were made between children with ADHD, regardless of language impairment, and children in the Non-Clinical, and Language Impairment only groups. Children were assessed based on their overall affect maturity score and the findings from the Wilcoxon Mann-Whitney[8] indicate that there were not significant differences on overall affect maturity scores ($z = -.425$, $p = .6709$).

[8] Two-sample Wilcoxon rank-sum Mann-Whitney

Then, a logistic regression of each TAT card and the associated Thompson score of affect maturity was conducted for ADHD vs. Non-Clinical and Language Impairment only. As seen in Tables 15 and 15.1 (see Appendix C), Cards 4 and 7GF were found to have significant differences. The children with ADHD demonstrated lower levels of affect maturity on Cards 4 and 7GF. This finding indicates that there were significant affect maturity score differences between the groups when ADHD was separated from the Non-Clinical and Language Impairment groups.

From the logistic regression, on Card 4 the odds of being in the Non-Clinical + Language Impairment group and having an affect maturity score of 3 was significant as compared to membership in the ADHD group. Similarly, on Card 7GF the odds of being in the Non-Clinical + Language impaired group and having an affect maturity score of 2 was significant as compared to membership in the ADHD group. Tables 15 and 15.1 (see Appendix C) present the logistic regression of the diagnostic classifications grouped by ADHD diagnosis for Cards 4 and 7GF.

Figures 1 and 2 show the distribution of Thompson affect maturity scores among the diagnostic classifications for Cards 4 and 7GF. Figure 1 presents the number of children within each diagnostic group that had an affect maturity score between 0 and 4 on Card 4. Figure 2 presents the number of children in each diagnostic classification and

their associated affect score, between 0 and 3, for Card 7GF.

All Diagnostic Classifications versus Non-Clinical Group

The second post hoc analysis was conducted to explore whether levels of affect maturity would differ among children with a diagnoses of ADHD and/or Language Impairment versus children without a diagnosis[9]. The following analysis addresses the question: Does having a diagnosis of ADHD and/or Language Impairment impact a child's level of affect maturity?

First, children were looked at based on their overall affect maturity score. The findings from the Wilcoxon Mann-Whitney[10] indicate that there were not significant differences on overall affect maturity scores when children were grouped based on membership in the clinical (ADHD + Language, ADHD only and Language only) groupings versus the Non-Clinical group ($z = .957$, $p = .3384$).

Next, children were grouped based on membership in the diagnostic groups alone versus the Non-Clinical group and compared across each TAT card. The findings from the ordinal logistic regression indicate that there were significant affect maturity differences among children with a diagnosis (ADHD + Language Impairment, ADHD and/or

[9] Note. Children from the Non-Clinical group may not be purely "non-clinical" as they were referred for testing based on behavioral and/or language issues.

[10] Two-sample Wilcoxon rank-sum Mann-Whitney

Language only) as compared to children without a diagnosis on Cards 3BM, 4, 7GF. Children in the Non-Clinical group maintained higher affect maturity scores when compared to children in the three diagnostic categories.

As seen in Tables 16, 17, and 18, the significant affect maturity differences found on cards 3BM, 4, and 7GF give credence to the original hypothesis that affect maturity is influenced when children carry ADHD + Language, ADHD only or Language only diagnoses as compared to a Non-Clinical group of children. Tables 16 through 18 present the significant findings from the ordinal logistic regression for affect maturity scores on Cards 3BM, 4 and 7GF. Figure 3, indicates the number of children within each diagnostic classification and their associated affect maturity score for Card 3BM.

Assessing the relationship between CBCL T-score categories and the Thompson Scale of Affect Maturity

The next post hoc analyses were conducted after finding that children differ on CBCL syndrome scales and levels of affect maturity across diagnostic classifications per TAT card.

It was hypothesized that children who were grouped by CBCL T-scores categories for the eight syndrome scales (Normal: T< 50, Borderline: T = 65-69, Clinical: T = 70+) would have a level of affect maturity that would differ significantly per TAT card. More specifically, children in

the "Normal" range on the CBCL for each syndrome scale would have higher affect maturity scores as compared to the "Borderline" and "Clinical" ranges.

For these analyses, all children were grouped based on membership in the "Normal," "Borderline," or "Clinical" ranges on the CBCL. Then their associated affect maturity scores per TAT card were assessed with an ordinal logistic regression.

The results support the finding that higher affect maturity scores are associated with being in the "Normal" range on the CBCL, followed by the "Borderline" and "Clinical" ranges[11] across 8 of the 11 comparisons ("Anxious/Depressed," "Withdrawn/Depressed," "Social Problems," "Thought Problems," "Rule Breaking," and "Aggressive Behavior," "Internalizing," and "Externalizing" groupings). The TAT cards that were associated with these significant findings were cards 3BM, 4, 7GF, and 12M. Tables 19 through 26 present the significant findings for each CBCL syndrome scale and the associated TAT card.

More specifically, see Appendix C for Tables 19 through 26 for the distribution of children within each diagnostic classification and the associated CBCL T-score category for

[11] For example, from the Card 3BM output, as categorized by CBCL "Anxious/Depressed" where the baseline is normal, for every 1 unit increase in the Thompson score of affect maturity, the odds of having the next higher CBCL category decreases by 0.60. Thus, as the Thompson affect maturity score increased for Card 3BM, the odds of having "Borderline" CBCL category in the Anxious/Depressed decreases as compared to "Normal", and the odds of having "Clinical" level of Anxious/Depressed on CBCL decreases as compared to "Borderline."

each syndrome scale. The distribution of affect maturity scores for each CBCL T-score category for each syndrome scale is also presented. Additionally, the ordinal logistic regression that was conducted within each significant CBCL syndrome scale, Internalizing and Externalizing grouping, and the associated Thompson affect maturity score are presented.

Affect Maturity and the content of the TAT cards

The last set of post hoc analyses was conducted to further explore the finding that affect maturity differed across diagnostic classifications. It was hypothesized that there would be diagnostic classification differences on affect maturity when TAT cards were clustered based on content.

As seen in Table 27 the eight TAT cards were grouped based on a common feeling typically elicited from the respondent. Inclusion in a cluster was based on cards being, "Non-aggressive" (Cluster 1), "Aggressive" (Cluster 2), "Depressive" (Cluster 3), "Longing" (Cluster 4), and "Depressive + Longing" (Cluster 5). TAT clusters were compared across diagnostic classifications (ADHD + Language Impairment, ADHD alone, and Language Impairment Alone). The Wilcoxon signed-rank test was performed to determine if there were significant diagnostic classification differences when the TAT cards were assessed by content.

As shown in Table 28, there were significant findings below a level of $p < .05$ by diagnostic classifications when the type of TAT card and level of affect maturity was assessed. Table 28 presents the cluster comparisons for each diagnostic classification and Table 29 summarizes the direction of the cluster comparisons.

The TAT cluster comparisons and direction of the associated findings provides a framework for understanding the differences for each diagnosis. For all diagnostic classifications, "Non-aggressive" TAT cards elicited higher levels of affect maturity when compared to all other content types. In addition, for all diagnostic classifications, there were no significant findings when comparing the "Aggressive" cluster to the "Longing" cluster.

Within the ADHD + Language Impairment group, when presented with "Depressive" content, affect maturity diminishes as compared to all other clusters. More specifically, non-aggressive, aggressive, and longing pictures allow for a narrative with higher affect maturity than depressive pictures.

The ADHD alone diagnostic group has a similar pattern to the ADHD + Language group. When aggressive content was presented versus depressive content, both groups maintained higher levels of affect maturity. By contrast, the Language Impairment children maintain the highest affect maturity when aggressive content is not introduced. For the Language only group, when aggressive pictures were presented, there

were no significant differences found between aggressive versus depressive, or aggressive versus longing content (Clusters: 2 versus 3 or 2 versus 4). For children with Language Impairment only, affect maturity scores did not change based on the content of the TAT cards.

Between group differences: ADHD + Language versus ADHD only versus Language only for each TAT cluster

After looking at each of the diagnostic classifications to determine if affect maturity changes based on the content of the TAT card, the next analysis explores if there are between diagnostic classification differences. The Kruskal-Wallis test was used to determine if there were differences between the diagnostic classifications for each content cluster. The results indicate that there were some significant differences between diagnostic classifications. The findings are presented for each cluster beginning with Cluster 1 "Non-Aggressive."

In the first cluster grouping "Non-aggressive," there were no differences between diagnostic classifications, likewise, there were not significant differences when diagnostic groups were compared on the second cluster "Aggressive".

However, in the third cluster "Depressive" there were significant group differences among all three groups, ADHD + Language, ADHD only, and Language only (x^2 = 5.579, df = 2, p = .0318). When comparing each diagnosis to one other, the

significant findings were between ADHD + Language vs. ADHD only (z = -2.159, p = .0308), as well as between ADHD + Language vs. Language only (z = -2.283, p = .0224). In both comparisons, children in the ADHD + Language Impairment group had lower scores of affect maturity. There was not a significant difference for the "Depressive" cluster between ADHD only and Language only.

For the fourth cluster, "Longing," there were significant diagnostic group differences when comparing the three groups (x^2 = 6.439, df = 2, p = .040). Among the diagnostic groups, ADHD + Language vs. Language only and ADHD + Language vs. ADHD only there were not significant differences. However, ADHD only vs. Language only differed significantly (z = -2.628, p = .0086) and Language only had the higher affect maturity score.

Behavioral Differences and the TAT content clusters

The previous finding between affect maturity and TAT content clusters indicates that children's performance on a measure of affect maturity is impacted depending on diagnostic group membership and the type of the TAT card presented. Following these findings, the next series of analyses addresses the relationship between behavior and affect maturity. Children were grouped by membership in the "Normal," "Borderline," or "Clinical" ranges on the CBCL syndrome scales and their associated levels of affect maturity were assessed.

These post hoc analyses were conducted between the broader CBCL "Internalizing" and "Externalizing" groups and the TAT content clusters[12]. It was hypothesized that children, grouped based on CBCL T-score categories of "Normal," "Borderline," and "Clinical," would demonstrate different levels of affect maturity. More specifically, that children who endorsed more pathology and were in the "Clinical" range, as compared to "Borderline" or "Normal" would have the lower affect maturity scores.

As hypothesized, affect maturity differed significantly when children were grouped by symptom severity on the CBCL and types of TAT cards were compared. The next section describes these differences for each CBCL syndrome scale. First, the findings from each of the TAT content cluster

[12] The Wilcoxon Signed-Rank Test was performed within CBCL Internalizing and Externalizing groupings and between all TAT clusters.

comparisons and the broader "Internalizing" grouping and its three subgroups, "Anxious/Depressed," "Withdrawn/Depressed," and "Somatic Complaints" are presented, see Table 30. Then, each TAT content cluster comparison by the broader "Externalizing" grouping and its two subgroups, "Rule Breaking Behavior," and "Aggressive Behavior" are presented, see Table 31. Additionally, the results from the remaining three CBCL syndrome scales, "Social Problems," "Thought Problems," and "Attention Problems," and TAT cluster comparisons are presented.

Internalizing Grouping: Anxious/Depressed, Withdrawn/Depressed and Somatic Complaints

Anxious/Depressed

Among the significant findings, for children who were considered to demonstrate "Normal" to "Borderline" ranges of anxiety and depression, the "Non-Aggressive" cluster of TAT cards carried the higher affect maturity score in all significant comparisons.

When "Aggressive" TAT content was compared to "Depressive," content children in both the "Normal" and "Borderline" categories of anxiety and depression had higher affect maturity on the aggressive cards. Whereas, the "Depressive + Longing" cluster maintained the higher affect maturity score when being compared to "Aggressive" for both "Normal" and "Borderline" categories. In addition, the "Longing" cluster maintained the higher affect maturity

score when compared to "Depressive" for both children grouped in the "Normal" and "Borderline" ranges.

These findings indicate, among all children, regardless of severity of anxiety and depression, affect maturity remains highest when non-aggressive pictures are presented. In addition, regardless of endorsing anxious or depressed symptoms, affect maturity remains higher when aggressive pictures are compared to depressive pictures. However, aggressive pictures do not carry the higher levels of affect maturity when compared to depressive and longing pictures combined.

Withdrawn/Depressed

Similar to the "Anxious/Depressed" findings, the "Non-aggressive" cluster carried the highest affect maturity score in all significant comparisons for children demonstrating "Normal" to "Borderline" ranges of withdrawn and/or depressed symptoms.

The "Aggressive" cluster carried the higher affect maturity score for children in the "Normal" grouping when compared to "Depressive". In addition, for children within the "Normal" and "Borderline" ranges, the "Depressive + Longing" cluster maintained the higher affect maturity score when being compared to the "Aggressive" cluster. The "Longing" cluster carried the higher affect maturity score when compared to the "Depressive" cluster for the children in the "Normal."

Overall, children in the normal to borderline range of withdrawn and depressed functioning maintain the highest levels of affect maturity when shown non-aggressive pictures. Only children in the normal range of functioning maintained significantly higher levels of affect maturity for aggressive pictures versus depressive pictures. Additionally, for children in the normal range when depressive pictures were presented versus longing pictures, children maintained higher affect maturity when longing content was presented.

Somatic Complaints

For children in both "Normal" and "Borderline" ranges of somatic complaints, the "Non-Aggressive" cluster carried the highest levels of affect maturity in all significant comparisons.

The "Aggressive" cluster carried the higher affect maturity score when compared to "Depressive" for the children in the "Normal" range. Contrasted to the "Depressive + Longing" cluster, which maintained the higher level of affect maturity when being compared to "Aggressive". The "Longing" cluster had the higher affect maturity score when compared to "Depressive" for children grouped in the "Normal" and "Borderline" range.

Overall, regardless of symptoms on the somatic complaints scale, children maintain highest levels of affect maturity when non-aggressive pictures are presented. Only

children in the normal range of functioning on somatic complaints maintain a significantly higher level of affect maturity for aggressive pictures when compared to depressive pictures.

Externalizing Grouping: Rule Breaking and Aggressive Behavior

Children's affect maturity differed significantly when symptom severity was compared within "Rule Breaking" and "Aggressive Behavior." Table 31 summarizes the findings for the Externalizing grouping and the CBCL T-score categories of "Normal," "Borderline," and "Clinical."

Rule Breaking

Similar to the previous findings, for children in the "Normal" and "Clinical" ranges of rule breaking, the "Non-Aggressive" content cluster carried the highest levels of affect maturity in all significant comparisons.
Within the "Normal" range of functioning, the "Aggressive" content cluster carried the higher affect maturity score when compared to "Depressive" for children. Whereas "Depressive + Longing" content cluster had the higher affect maturity score when being compared to the "Aggressive" cluster.

In addition, the "Longing" cluster had the higher affect maturity score when compared to "Depressive" cluster for children in the "Normal" range of functioning. Of note,

there were not significant differences between clusters for the "Borderline" range in the Rule Breaking syndrome scale.

All children, regardless of level of symptomatology in the Rule Breaking category, maintained the highest levels of affect maturity for non-aggressive pictures. Of note, there were no significant findings among children in the borderline range for rule breaking. In addition, only children in the normal range for rule breaking had significant differences of affect maturity when aggressive pictures were contrasted to depressive and longing pictures or when depressive pictures were contrasted to longing pictures.

Aggressive Behavior

The findings for the "Non-Aggressive" content cluster comparison were slightly different for children on the "Aggressive Behavior" syndrome scale. The "Non-Aggressive" content cluster carried the highest affect maturity score for children in the "Normal" and "Borderline" ranges of aggressive behavior for all cluster comparisons with the exception of "Non-Aggressive" cluster versus "Depressive + Longing" cluster. Where the "Depressive + Longing" content cluster maintained the higher affect maturity score.

The "Aggressive" cluster carried the higher affect maturity score when compared to "Depressive" cluster for children in the "Normal" range, where as "Depressive + Longing" cluster had the higher affect maturity score when

being compared to "Aggressive" cluster. The "Longing" cluster had the higher affect maturity score when compared to "Depressive" cluster for children in the "Normal" range.

Other syndrome scales of the CBCL: Social, Thought and Attention Problems

For the remaining CBCL syndrome scales, Social Problems, Thought Problems, and Attention Problems, the pattern of significant findings were similar to the previous CBCL syndrome findings.

Social Problems

The "Non-Aggressive" cluster significantly differed from all other clusters for children in the "Normal" range of Social Problems and maintained the highest level of affect maturity in all comparisons. This is with the exception of "Non-Aggressive" verse "Depressive + Longing," which did not reach statistical significance.

The "Aggressive" cluster significantly differed from "Depressive" cluster and carried the higher affect maturity score ($z = 4.162$, $p = .0000$) among children in the "Normal" range of Social Problems. When "Aggressive" cluster was compared to "Depressive + Longing" cluster within the "Normal" range of Social Problems, "Depressive + Longing" cluster carried the higher affect maturity score ($z = -5.047$, $p = .0000$).

Likewise, “Depressive” and “Longing” differed significantly among children in the “Normal” range of Social Problems and “Longing” carried the higher affect maturity score ($z = -5.268$, $p = .0000$).

Within the “Borderline” range of Social Problems, the “Non-Aggressive” cluster only differed significantly from “Depressive” cluster ($z = 2.114$, $p = 0.0345$). This is in contrast to most of the other syndrome scales in which significant differences were found between “Non-Aggressive” cluster and all other clusters.

In addition, the “Aggressive” cluster differed significantly from “Depression” and “Longing” clusters and in both comparisons the “Aggressive” cluster carried the higher affect maturity score (2 v 3: $z = 2.251$, $p = 0.0244$; 2 v 4: $z = 2.120$, $p = 0.0340$). There were no other significant comparisons for the “Borderline” range of Social Problems. As well, there were no significant differences between clusters within the “Clinical” range of Social Problems.

Thought Problems

Looking at the cluster comparisons within the “Normal” range of Thought Problems revealed a similar pattern as the previously discussed among the other syndrome scales. The “Non-Aggressive” cluster differed significantly from all other clusters, except for “Depressive + Longing,” which did not reach statistical significance.

For the significant findings, the “Non-Aggressive” cluster maintained the higher affect maturity score as compared to all other Clusters (1 v 2: z = 4.620, p = .0000; 1 v 3: z = 6.110, p = .0000; 1 v 4: z = 4.155, p = .0000) among children in the normal range of thought problems.

In addition, within the “Normal” range of Thought Problems, the “Aggressive” cluster differed significantly from the “Depressive” cluster (z = 4.005, p = .0001) and the “Aggressive” cluster carried the higher affect maturity score.

In a comparison between the “Aggressive” cluster and the “Depressive + Longing” cluster, there were significant findings and “Depressive + Longing” cluster maintained the higher affect maturity score (z = -5.018, p = .0000). When the “Depressive” cluster was compared to the “Longing” cluster, the findings indicated that “Longing” carried the higher affect maturity score (z = -5.563, p = .0000).

Within the “Borderline” range of Thought Problems, the “Non-Aggressive” cluster differed significantly from all other clusters and carried the higher affect maturity score (1 v 2: z = 2.552, p = .0107; 1 v 3: z = 2.555, p = .0106; 1 v 4: z = 2.527, p = .0115; 1 v 5: z = 2.345, p = .0190).

In addition, the “Aggressive” cluster differed significantly from the “Depressive” cluster and the “Aggressive” cluster carried the higher affect maturity score (z = 2.189, p = .0286). There were no other significant findings between clusters for this category.

Attention Problems

Within the "Normal" range of Attention Problems There were significant differences between the "Non-Aggressive" cluster and all other clusters. The "Non-Aggressive" cluster carried the higher affect maturity score and differed significantly from "Aggressive," "Depressive," and "Longing" (1 v 2: $z = 4.525$, $p = .0000$; 1 v 3: $z = 5.552$, $p = .0000$; 1 v 4: $z = 3.892$, $p = .0001$). In addition, the "Aggressive" cluster differed significantly from the "Depressive" and "Depressive + Longing" clusters. The "Aggressive" cluster carried the higher affect maturity score when compared to "Depressive" cluster. When "Aggressive" was compared to "Depressive + Longing" cluster, "Depressive + Longing" cluster carried the higher affect maturity score (2 v 3: $z = 3.710$, $p = .0002$; 2 v 5: $z = 4.384$, $p = .0000$).

Additionally, the "Depressive" and "Longing" clusters differed significantly within the normal range of attention, and "Longing" maintained the higher affect maturity score ($z = -5.274$, $p = .0000$).

In contrast, for children in the "Borderline" range of Attention Problems the only significant differences were found between the "Non-Aggressive" cluster and "Depressive" cluster (1 v 3: $z = 2.120$, $p = .0340$).

There were significant differences within the "Clinical" range of Attention Problems. The "Non-

Aggressive" cluster differed significantly from the "Aggressive, "Depressive" and "Longing" clusters (1 v 2: z = 2.174, p = 0.0297; 1 v 3: z = 2.981, p = .0029; 1 v 4: z = 2.269, p = .0233).

The other significant findings for children within the "Clinical" range of Attention Problems were between the "Aggressive" and "Depressive" clusters, and "Aggressive" and "Depressive + Longing" clusters. The "Aggressive" cluster carried the higher affect score when compared to "Depressive" cluster, but carried the lower affect maturity score when compared to "Depressive + Longing" cluster (2 v 3: z = 1.952, p = .050; z = -2.091, p = .0365).

Table 1

CELF Standard Scores of Participants by Diagnostic Classification

	ADHD + Language n=15	ADHD only n=22	Language Only n=11	Non-Clinical n=16
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Receptive Language	80.80 (12.891)	100.64 (14.053)	76.00 (10.498)	101.47 (15.207)
Expressive Language	75.93 (11.348)	99.05 (7.834)	73.91 (10.904)	95.36 (12.163)
Total Language	74.67 (9.416)	98.59 (9.659)	71.64 (8.201)	97.86 (15.007)

Table 2

WASI Means and Standard Deviations for Diagnostic Classifications

	ADHD + Language n = 15	ADHD n = 20[a]	Language n = 11	Non-Clinical n = 15[a]
		Mean (SD)		
Verbal IQ	89.87 (8.967)	101.80 (18.057)	86.64 (12.855)	99.33 (11.037)
Performance IQ	91.67 (12.579)	101.10 (13.006)	88.64 (10.405)	102.93 (10.389)
Full IQ	89.30 (10.531)	101.50 (14.537)	86.30 (10.531)	101.27 (8.697)

Note. a = Two children from the ADHD group and one child from the Non-Clinical group did not have data for the WASI

Table 3

Gender by Diagnostic Grouping

	ADHD + Language n=15	ADHD n=22	Language n=11	Non-Clinical n=16
Boys	9 (60%)	17 (77.2%)	6 (54.5%)	10 (62.5%)
Girls	6 (40%)	5 (22.8%)	5 (45.5%)	6 (37.5%)

Table 4
Race by Diagnostic Grouping

	ADHD + Language n=14[a]	ADHD n=22	Language n=11	Non-Clinical n=16
African-American	8 (57.2%)	10 (45.5%)	5 (45.5%)	10 (62.5%)
White	4 (28.6%)	7 (31.8%)	3 (27.3%)	5 (31.2%)
Asian	1 (7.1%)	2 (9.1%)	0	0
American Indian	1 (7.1%)	2 (9.1%)	1 (9%)	0
Unknown	0	1 (4.5%)	2 (18.2%)	1 (6.3%)

Note. a= 1 child did not have reported race

Table 5
Ethnicity by Diagnostic Grouping

	ADHD + Language n=14[a]	ADHD n=22	Language n=11	Non-Clinical n=16
Hispanic	8 (57.1%)	10 (45.5%)	8 (72.7%)	4 (25%)
Non-Hispanic	6 (42.9%)	12 (54.5%)	3 (27.3%)	11 (68.8%)
Unknown	0	0	0	1 (6.2%)

Note. a = 1 child did not have reported ethnicity

Table 6

CBCL Mean Raw and T-Scores of Participants by Diagnostic Classification

	ADHD + Language n=15		ADHD n=20[a]		Language n=11		Non-Clinical n=16	
CBCL Syndrome Scales	Raw Score	T-Score	Raw Score	T-Score	Raw Score	T-Score	Raw Score	T-Score
	Mean, (SD), Median							
Internalizing		56.33 (12.193) 60.00		57.70 (7.961) 60.00		48.00 (7.280) 48.00		55.13 (12.826) 56.60
Anxious/ Depressed	4.29 (3.872) 3.50	57.27 (7.923) 54.00	4.45 (2.929) 4.00	57.55 (6.541) 57.00	1.55 (1.508) 1.00	51.09 (1.446) 50.00	4.13 (3.845) 3.50	56.62 (7.667) 53.50
Withdrawn/ Depressed	2.40 (2.324) 2.00	58.20 (7.993) 58.00	2.25 (1.860) 2.00	58.05 (5.960) 58.00	1.36 (1.433) 1.00	54.73 (4.839) 54.00	2.38 (2.306) 2.50	57.56 (7.312) 57.50
Somatic Complaints	2.53 (2.031) 2.00	58.07 (6.508) 56.00	2.05 (2.481) 1.50	56.55 (7.193) 54.50	1.18 (2.040) 1.00	53.09 (5.924) 51.00	2.38 (2.306) 2.50	57.56 (7.312) 57.50
Externalizing		58.27 (8.413) 59.00		58.75 (10.492) 63.00		47.73 (7.976) 50.00		51.88 (11.331) 50.50
Rule Breaking	4.20 (2.274) 5.00	61.53 (6.501) 64.00	4.95 (3.410) 5.00	62.55 (8.300) 64.00	1.27 (1.272) 1.00	52.36 (3.009) 52.00	1.81 (1.797) 1.00	54.37 (5.414) 51.00

	ADHD + Language n=15		ADHD n=20[a]		Language n=11		Non-Clinical n=16	
CBCL Syndrome Scales	Raw Score	T-Score	Raw Score	T-Score	Raw Score	T-Score	Raw Score	T-Score
				Mean, (SD), Median				
Aggressive Behavior	7.27 (5.189) 6.00	57.27 (7.086) 55.00	7.65 (5.102) 10.00	58.55 (6.977) 62.00	2.91 (2.256) 2.00	51.55 (2.207) 50.00	5.81 (6.555) 4.00	56.06 (8.790) 52.50
Additional subscales								
Social Problems	5.40 (2.720) 5.00	60.47 (6.105) 60.00	3.95 (2.946) 3.50	57.60 (6.700) 56.50	2.09 (1.514) 2.00	53.18 (3.188) 52.00	3.63 (3.612) 3.00	57.13 (7.736) 56.00
Thought Problems	3.00 (2.646) 2.00	57.53 (7.855) 54.00	4.35 (3.964) 3.00	60.30 (9.603) 58.00	.82 (1.079) .00	51.64 (2.618) 50.00	1.38 (1.586) 1.00	53.00 (4.336) 51.00
Attention Problems	9.93 (2.344) 9.00	66.53 (5.330) 66.00	9.00 (4.078) 8.00	64.40 (9.144) 61.50	4.09 (2.914) 4.00	55.09 (4.614) 55.00	5.56 (4.179) 5.50	58.06 (7.987) 56.00

Note. a = Two children with ADHD did not have all CBCL scores

Table 7

Kruskal-Wallis Test and Wilcoxon-Mann-Whitney of CBCL Syndrome Scale and All Diagnostic Group Comparisons

CBCL Syndrome Scale	Diagnostic Group Comparison	x^2	df	p	z	P
Anxious/ Depressed	ADHD + Language vs. ADHD only vs. Language only vs. Non-Clinical	7.304	3	.0667		
Withdrawn/ Depressed	ADHD + Language vs. ADHD only vs. Language only vs. Non-Clinical	2.001	3	.5723		
Somatic Complaints	ADHD + Language vs. ADHD only vs. Language only vs. Non-Clinical	3.695	3	.2963		
Social Problems	All Groups[a]	8.685*	3	.0338		
	ADHD + Language vs. ADHD only				1.546	.1220
	ADHD + Language vs. Language only				3.061**	.0022
	ADHD + Language vs. Non-Clinical				1.588	.1124
	ADHD vs. Language				1.692	.0907
	ADHD vs. Non-Clinical				.198	.8429
	Language vs. Non-Clinical				-1.347	.1781
Thought Problems	All Groups	12.252**	3	.0066		
	ADHD + Language vs. ADHD only				-.958	.3380
	ADHD + Language vs. Language only				2.417*	.0156
	ADHD + Language vs. Non-Clinical				1.341	.1798
	ADHD vs. Language				3.059**	.0022
	ADHD vs. Non-Clinical				2.266*	.0235
	Language vs. Non-Clinical				-1.366	.1816

CBCL Syndrome Scale	Diagnostic Group Comparison	x^2	df	p	z	P
Attention Problems	All Groups	19.40***	3	.0002		
	ADHD + Language vs. ADHD only				.721	.4706
	ADHD + Language vs. Language only				3.959***	.0001
	ADHD + Language vs. Non-Clinical				3.121**	.0018
	ADHD vs. Language				2.993**	.0028
	ADHD vs. Non-Clinical				2.221**	.0263
	Language vs. Non-Clinical				-.974	.3301
Rule Breaking Behavior	All Groups	20.17***	3	.0002		
	ADHD + Language vs. ADHD only				3.274**	.0011
	ADHD + Language vs. Language only				3.015**	.0026
	ADHD + Language vs. Non-Clinical				3.125**	.0018
	ADHD vs. Language				3.179**	.0015
	ADHD vs. Non-Clinical				3.179**	.0015
	Language vs. Non-Clinical				-.685	.4931
Aggressive Behavior	All Groups	7.484	3	.0567		
				.		
Internalizing	All Groups	6.583	3	.0865		
Externalizing	All Groups	10.814*	3	.0128		
	ADHD + Language vs. ADHD only				-.417	.6765
	ADHD + Language Vs. Language only				2.836**	.0046

CBCL Syndrome Scale	Diagnostic Group Comparison	X^2	df	p	z	P
	ADHD + Language vs. Non-Clinical				1.649	.0991
	ADHD vs. Language				2.629**	.0086
	ADHD vs. Non-Clinical				1.857	.0633
	Language vs. Non-Clinical				-1.186	.2355
Total	All Groups	14.666**	3	.0022		
	ADHD + Language vs. ADHD only				-.150	.8804
	ADHD + Language vs. Language only				3.846***	.0001
	ADHD + Language vs. Non-Clinical				1.477	.1398
	ADHD vs. Language				3.143**	.0017
	ADHD vs. Non-Clinical				1.814	.0696
	Language vs. Non-Clinical				-1.444	.1488

Note. a = "All Groups" includes ADHD + Language Impairment, ADHD, Language, Non-Clinical.
* p < .05
** p < .01
*** p < .001

Table 8

Kruskal-Wallis Test and Wilcoxon-Mann-Whitney of CBCL Syndrome Scale and Diagnostic Classification Comparisons

CBCL Syndrome Scale	Diagnostic Group Comparison	x^2	df	p	z	P
Anxious/ Depressed	ADHD + Lang vs. ADHD vs. Language	7.185*	2	.0275		
	ADHD + Lang vs. ADHD				-.247	.8049
	ADHD + Lang vs. Language				1.921*	.0548
	ADHD vs. Language				2.713**	.0067
Withdrawn/ Depressed	ADHD + Lang vs. ADHD vs. Language	2.138	2	.3434		
	ADHD + Lang vs. ADHD				-.170	.8649
	ADHD + Lang vs. Language				1.062	.2882
	ADHD vs. Language				1.484	.1377
Somatic Complaints	ADHD + Lang vs. ADHD vs. Language	3.774	2	.1515		
	ADHD + Lang vs. ADHD				1.039	.2990
	ADHD + Lang vs. Language				1.969*	.0489
	ADHD vs. Language				1.035	.3005
Social Problems	ADHD + Lang vs. ADHD vs. Language	9.153**	2	.0103		
	ADHD + Lang vs. ADHD				1.546	.1222
	ADHD + Lang vs. Language				3.061**	.0022
	ADHD vs. Language				1.692	.0907

CBCL Syndrome Scale	Diagnostic Group Comparison	x^2	df	p	z	P
Thought Problems	ADHD + Lang vs. ADHD vs. Language	10.052**	2	.0058		
	ADHD + Lang vs. ADHD				-.958	.3380
	ADHD + Lang vs. Language				2.147*	.0156
	ADHD vs. Language				3.059**	.0022
Attention Problems	ADHD + Lang vs. ADHD vs. Language	15.295***	2	.0005		
	ADHD + Lang vs. ADHD				.721	.4706
	ADHD + Lang vs. Language				3.959**	.0001
	ADHD vs. Language				2.992**	.0028
Rule Breaking Behavior	ADHD + Lang vs. ADHD vs. Language	12.754**	2	.0017		
	ADHD + Lang vs. ADHD				-.438	.6613
	ADHD + Lang vs. Language				3.274**	.0011
	ADHD vs. Language				3.125**	.0018
Aggressive Behavior	ADHD + Lang vs. ADHD vs. Language	6.867*	2	.0323		
	ADHD + Lang vs. ADHD				-.335	.7380
	ADHD + Lang vs. Language				2.381**	.0173
	ADHD vs. Language				2.305*	.0212
Internalizing	ADHD + Lang vs. ADHD vs. Language	7.114*	2	.0285		
	ADHD + Lang vs. ADHD				-.067	.9467
	ADHD + Lang vs. Language				1.925	.0543
	ADHD vs. Language				2.731**	.0063

CBCL Syndrome Scale	Diagnostic Group Comparison	x^2	df	P	z	p
Externalizing						
	ADHD + Lang vs. ADHD vs. Language	9.314**	2	.0095		
	ADHD + Lang vs. ADHD				-.417	.6765
	ADHD + Lang vs. Language				2.836**	.0046
	ADHD vs. Language				2.629**	.0086
Total						
	ADHD + Lang vs. ADHD vs. Language	14.987***	2	.0006		
	ADHD + Lang vs. ADHD				-.150	.8804
	ADHD + Lang vs. Language				3.846**	.0001
	ADHD vs. Language				3.143**	.0017

* p < .05
** p < .01
*** p <.001

Table 9
CBCL Syndrome Scales based on T-score categories and Diagnostic Classifications

Anxious/ Depressed	ADHD + Lang n=15	ADHD only n=20[a]	Language only n=11
Normal	10 (66.7%)	16 (80%)	11 (100%)
Borderline	4 (26.7%)	4 (20%)	0
Clinical	1 (6.6%)	0	0

Note. a= 2 children in the ADHD diagnostic group did not have CBCL T-scores for the following analyses.

Table 10
Ordinal Regression: CBCL Anxious/Depressed T-scores and Diagnostic Categories

Anxious/ Depressed	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Finaldx	.28345	.17609	-2.03*	.042	.08388	.95785
/cut1	.50330	.51748			-.51095	1.5175
/cut2	3.0101	1.0550			.942429	5.0779

* p < .05

Table 11
Overall Thompson Affect Maturity Mean Scores by Diagnostic Classification

	Overall Thompson Affect Maturity Score	
Diagnostic Classification	Mean	SD
ADHD + Language n=15	1.805	.804
ADHD n=22[a]	2.032	.770
Language n=11	2.329	.628
Non-Clinical n=16	2.197	.851
All Participants n=64	2.071	.781

Note. a = The size of this group is larger, as compared to other analyses due to all participants having TAT data.

Table 12
Thompson Affect Maturity Mean Scores by Diagnostic Classification

	All Participants n=64	ADHD + Language n=15	ADHD n=22[a]	Language n=11	Non-Clinical n=16
			Mean (SD)		
Card 1	2.33 (1.189)	2.14 (1.406)	2.09 (1.377)	2.45 (1.293)	2.63 (1.088)
Card 2	1.88 (1.473)	1.43 (1.505)	2.09 (1.509)	2.18 (1.471)	1.75 (1.438)
Card 3BM	2.15 (1.209)	1.40 (1.404)	2.32 (1.086)	2.55 (.934)	2.25 (1.238)
Card 4	2.03 (1.301)	1.93 (1.387)	1.29 (1.309)	2.36 (1.206)	2.69 (.873)
Card 7GF	2.12 (1.354)	1.60 (1.549)	1.86 (1.457)	2.73 (.467)	2.38 (1.36)
Card 8BM	2.12 (1.319)	2.07 (1.269)	2.23 (1.232)	2.09 (1.375)	2.31 (1.448)
Card 12M	1.65 (1.430)	1.50 (1.557)	1.82 (1.332)	1.91 (1.578)	1.20 (1.474)
Card 13B	2.23 (1.205)	2.62 (.87)	2.00 (1.309)	2.36 (1.206)	2.25 (1.238)
Modal Score	2.41 (1.081)	2.14 (1.406)	2.36 (1.049)	2.64 (.924)	2.44 (1.031)

Note. a = The size of this group is larger, as compared to other analyses due to all participants having TAT data.

Table 13
Ordinal logistic regression of TAT cards and Diagnostic Classifications for Card 3BM

Card 3BM	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
finaldx	1.9618	.495648	2.67**	.008	1.19566	3.21895
/cut1	.37035	.577591			-.76170	1.5024
/cut2	2.6923	.709053			1.30265	4.0820

** p < .01

Table 14
Ordinal logistic regression of TAT cards and Diagnostic Classifications for Card 7GF

Card 7GF	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
finaldx	1.6153	.342558	2.26*	.024	1.06594	2.44775
/cut1	-.11111	.473597			-1.0393	.817097
/cut2	2.12650	.584202			.981491	3.27152

* p < .05

Figure 1
Number of children by Affect Maturity Score and Diagnostic Classification for Card 4

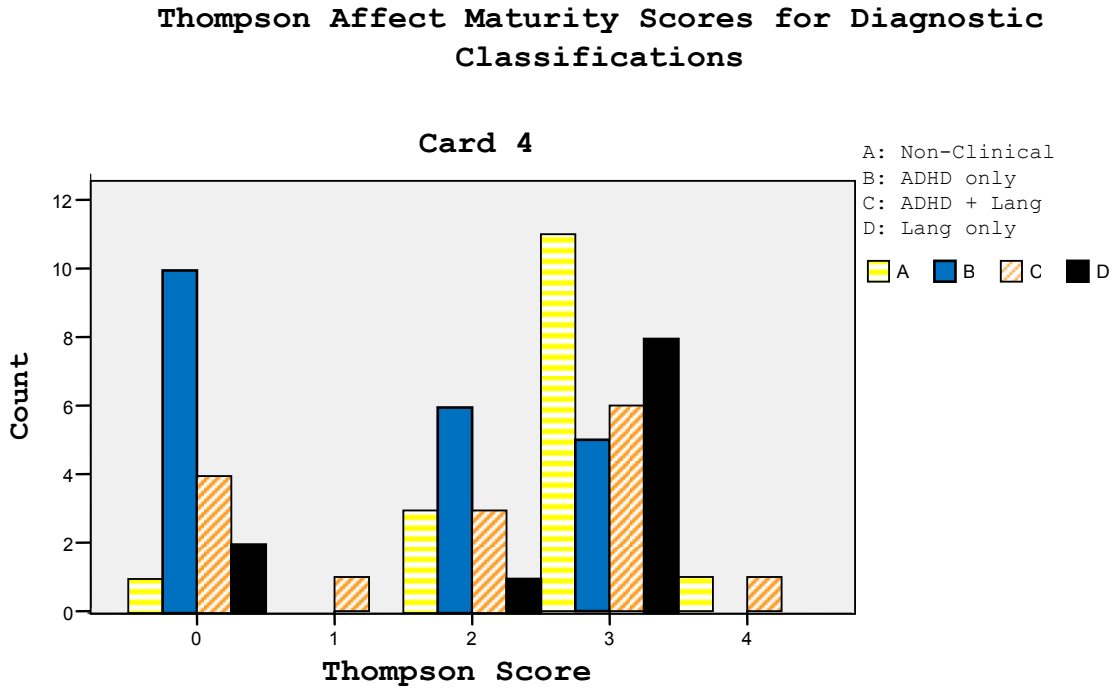

Figure 2

Number of children by Affect Maturity Score and Diagnostic Classification for Card 7GF

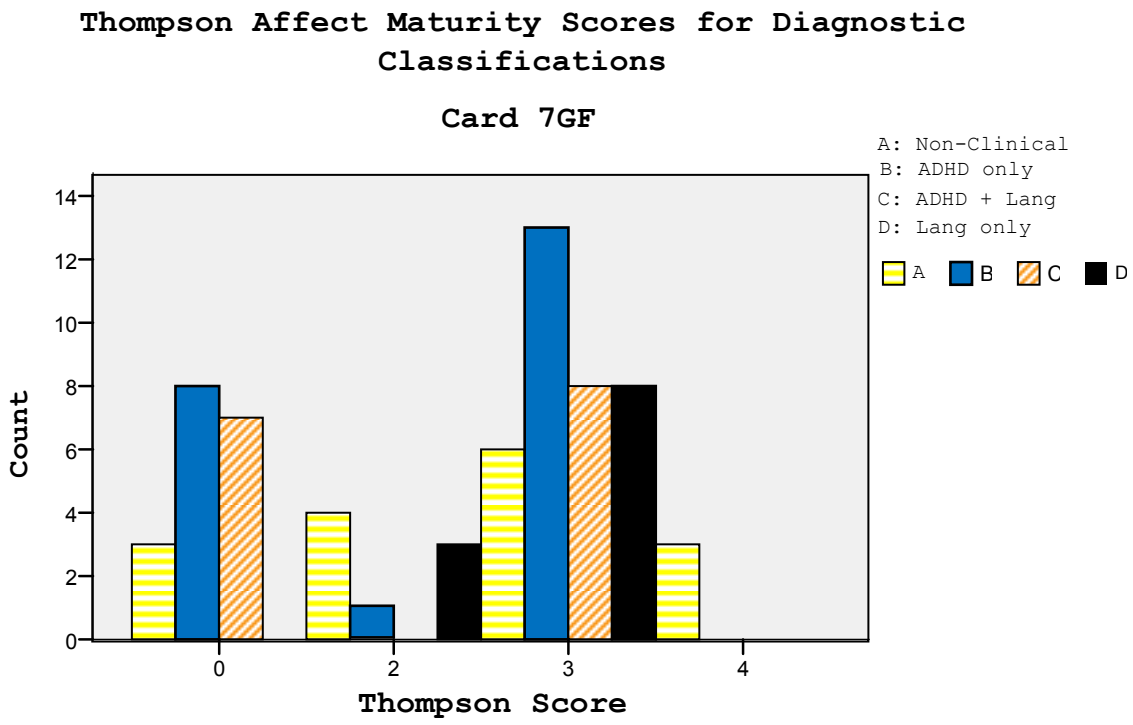

Table 15

Logistic Regression of TAT Card 4 among ADHD vs. Non-Clinical and Language Impairment

Card 4	Odds Ratio	Std. Error	P>|z|	95% Confidence Interval	
Thompson Score					
0	1				
2	2.167	1.920	.383	0.382	12.305
3	7.485**	5.570	.007	1.741	32.183

** p < .01

Table 16

Ordinal Logistic Regression, Card 3BM and Thompson scores for all Diagnostic Classifications and Non-Clinical group

Log likelihood = -67.299
X^2 = 3.84
Prob > x^2 = .050

Card 3BM	Odds Ratio	Std. Error	Z	P>|z|	95% Confidence Interval	
All participants	1.5720	.37073	1.92*	.05	.99016	2.4957
/cut1	-.60090	.43620			-1.455	.25404
/cut2	-.50499	.43375			-1.355	.34514
/cut3	.421639	.42975			-.4206	1.2639
/cut4	4.8960	1.0992			2.7416	7.0504

* p < .05

Table 17

Ordinal Logistic Regression, Card 4 and Thompson scores for all Diagnostic Classifications and Non-Clinical group

Log likelihood = -68.317
x^2 = 4.96
Prob > x^2 = .0259

Card 4	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
All participants	1.648	.3796	2.17*	.030	1.0495	2.5889
/cut1	-.36211	.42518			-1.195	.47122
/cut2	-.27392	.42347			-1.103	.55606
/cut3	.642184	.43460			-.2096	1.4939
/cut4	5.04105	1.1113			2.8628	7.2193

* p < .05

Table 18

Ordinal Logistic Regression, Card 7GF and Thompson scores for all Diagnostic Classifications and Non-Clinical group

Log likelihood = -66.375
x^2 = 4.33
Prob > x^2 = .0375

Card 7GF	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
All participants	1.61556	.38111	2.03*	.042	1.0174	2.5652
/cut1	-.18730	.43826			-1.046	.67167
/cut2	.404935	.43581			-.4492	1.2591
/cut3	3.7994	.73451			2.3598	5.2390

* p < .05

Figure 3

Number of children by Affect Maturity Score and Diagnostic Classification for Card 3BM

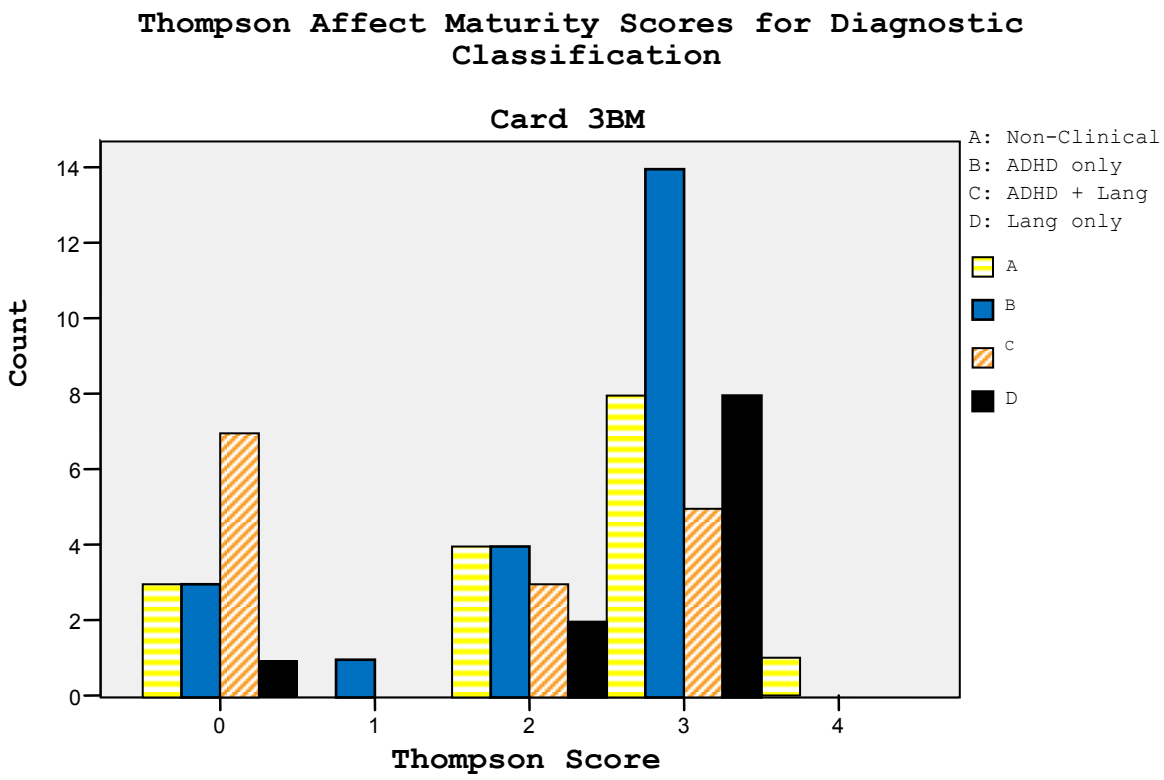

Table 27

Clusters of TAT cards and Content Description

	TAT Cards	Card Description	Content Description
Cluster 1	1, 2, 13B	1: boy w/violin 2: farm scene 13B: boy in doorway	Non-aggressive
Cluster 2	8BM, 12M	8BM: surgery scene 12M: man w/hand reaching towards person laying down	Aggressive
Cluster 3	3BM	3BM: person slumped over couch	Depressive
Cluster 4	4, 7GF	4: woman holding and looking towards man 7GF: girl w/baby doll	Longing
Cluster 5	3BM, 4, 7GF		Depressive + Longing

Table 28

TAT Clusters and Diagnostic Classifications

Cluster Comparisons	ADHD + Language n=15	ADHD n=20	Language n=11
	z (Prob >|z|)		
1 v 2	2.451* (.0142)	2.531* (.0114)	2.288* (.0222)
1 v 3	3.155** (.0016)	3.738** (.0002)	2.929** (.0034)
1 v 4	3.001** (.0027)	2.937** (.0033)	2.205* (.0275)
1 v 5	1.969* (.0490)	1.060 (.2891)	-1.266 (.2054)
2 v 3	3.105** (.0019)	2.477* (.0133)	1.727 (.0842)
2 v 4	0.812 (.4166)	1.569 (.1166)	-.827 (.4081)
2 v 5	-.774 (.4391)	-2.263* (.0236)	-2.723** (.0065)
3 v 4	-3.003** (.0027)	-1.746* (.0809)	-3.022** (.0025)

* p < .05
** p < .01

Table 29

Direction of Affect Maturity for TAT Clusters and Diagnostic Classification

Cluster Comparisons	ADHD + Language n=15	ADHD n=20	Language n=11
1 v 2	**Non-aggressive** > aggressive	**Non-aggressive** > aggressive	**Non-aggressive** > aggressive
1 v 3	**Non-aggressive >** depressive	**Non-aggressive >** depressive	**Non-aggressive >** depressive
1 v 4	**Non-aggressive >** longing	**Non-aggressive >** longing	**Non-aggressive >** longing
1 v 5	**Non-aggressive >** depressive + longing	Not Significant	Not Significant
2 v 3	**Aggressive >** depressive	**Aggressive >** depressive	Not Significant
2 v 4	Not significant	Not Significant	Not Significant
2 v 5	Not significant	**Depressive + Longing >** aggressive	**Depressive + Longing >** aggressive
3 v 4	**Longing >** depressive	Not significant	**Longing >** depressive

Table 30

CBCL T-score Categories and TAT Clusters for Internalizing grouping

	Anxious/ Depressed		Withdrawn/ Depressed		Somatic Complaints	
Cluster	Normal	Borderline	Normal	Borderline	Normal	Borderline
			z (Prob>|z|)			
1 v 2	4.622** (.0000)	2.456* (.0141)	4.406** (.0000)	2.521* (.0117)	4.699** (.0000)	2.206* (.0274)
1 v 3	5.898** (.0000)	2.872** (.0041)	5.846** (.0000)	2.675** (.0075)	5.993** (.0000)	2.524* (.0116)
1 v 4	4.720** (.0000)	1.463 (.1436)	4.035** (.0001)	2.514* (.0119)	4.275** (.0000)	2.178* (.0294)
1 v 5	0.730 (.4655)	-0.358 (.7206)	-0.388 (.6980)	1.204 (.2286)	0.054 (.9572)	1.137 (.2555)
2 v 3	3.719** (.0002)	2.804** (.0050)	4.467** (.0000)	0.427 (.6692)	3.879 ** (.0001)	1.697 (.0897)
2 v 4	-0.382 (.7024)	-1.029 (.3035)	-0.430 (.6670)	-1.280 (.2004)	-1.363 (.1727)	0.357 (.7213)
2 v 5	-4.320** (.0000)	-2.407* (.0161)	-4.515** (.0000)	-2.205* (.0274)	-4.697** (.0000)	-1.556 (.1198)
3 v 4	-4.725** (.0000)	-2.977** (.0029)	-5.357** (.0000)	-1.582 (.1136)	-5.131** (.0000)	-2.345* (.0190)

Note: There were not enough observations to compare within the "Clinical" groupings.

* p < .05

** p < .01

Table 31

CBCL T-score Categories and TAT Clusters for Externalizing grouping

	Rule Breaking			Aggressive Behavior	
Cluster	Normal	Borderline	Clinical	Normal	Borderline
			z (Prob>|z|)		
1 v 2	4.596** (.0000)	0.557 (.5775)	2.539* (.0111)	4.707** (.0000)	1.914 (.0556)
1 v 3	5.918** (.0000)	1.461 (.1441)	2.559* (.0106)	6.107** (.0000)	2.032* (.0422)
1 v 4	4.343** (.0000)	0.187 (.8514)	2.469* (.0136)	4.193** (.0000)	2.032* (.0422)
1 v 5	-0.186 (.8525)	-0.749 (.4537)	2.182* (.0291)	-0.372 (.7097)	2.032* (.0422)
2 v 3	3.868** (.0001)	1.841 (.0656)	1.571 (.1161)	4.494** (.0000)	0.828 (.4076)
2 v 4	-1.604 .1087	-0.552 (.5807)	1.337 (.1813)	-1.323 (.1857)	1.905 (.0568)
2 v 5	-4.906* (.0000)	-1.105 (.2693)	-0.424 (.6718)	-5.108** (.0000)	0.816 (.4142)
3 v 4	-5.627* (.0000)	-1.686 (.0918)	-0.291 (.7714)	-5.869** (.0000)	0.853 (.3938)

Note: There were not enough observations to compare within the "Clinical" grouping of Aggressive Behavior

* p < .05

** p < .01

CHAPTER 4

Discussion

This study investigated behavioral and affect maturity differences among children diagnosed with either ADHD + Language Impairment, ADHD alone or Language Impairment alone. Given the extant literature for each of these diagnostic groups, the current study hypothesized that the most severe diagnostic classification, ADHD + Language Impairment, would endorse the most behavioral symptomatology and the lowest level of affect maturity.

The results of the study indicate that there are significant behavioral differences between the three diagnostic groups. Additionally, the results demonstrate that levels of affect maturity associated with diagnostic classification sometimes differ significantly. For both of the main hypotheses, the direction of the findings support that the ADHD + Language Impairment group had the most significant behavioral issues, and the lowest level of affect maturity, as compared to ADHD alone and Language Impairment alone groups. Additionally, ADHD + Language Impairment shared a pattern of affect maturity with ADHD only children when presented with aggressive and depressive content on the TAT that Language Impairment only children did not share.

The discussion section will address the implications of the significant findings and the relationship to current

research. In addition, post hoc findings, future research, and limitations of this study will be discussed.

Behavioral Findings

The Child Behavior Checklist (CBCL) was used in this study to determine if children based on diagnostic classification (ADHD + Language Impairment, ADHD alone, Language Impairment alone) demonstrated differences along behavioral dimensions.

The current literature describes that children with ADHD, and children with Language Impairment have notable difficulties in the emotional and social domains of functioning (Mrug, 2001; Whalen and Henker, 1985, 1992; Brinton et al., 2007; Fujiki et al., 2008). In addition, children with ADHD demonstrate problematic behaviors that have been extensively described in the research and are fundamental to carrying the diagnosis of ADHD (APA, 2000). Moreover, there is an important connection identified between ADHD and Language Impairment (Oram, 1999; Jonsdottir et al., 2005; Mathers, 2006). It has been reported that 45% of children with ADHD had at least one element of language impairment, and children with both specific language impairment and ADHD appeared to have greater difficulty with verbal short-term memory (Sundheim & Voeller, 2004).

All Participants and the CBCL

Children were first looked at across all diagnostic classifications, including a non-clinical group. When children from the non-clinical category were included in the CBCL comparisons, there were no significant differences between children in the Language Impairment only group and the Non-Clinical children on any of the 11 CBCL comparisons. This finding suggests that children with language difficulties do not manifest behavioral symptomatology that differs from typically developing children. This result is unlike the findings presented in the literature that children with Specific Language Impairment (SLI) differ significantly from their typically developing peers behaviorally (Hart et al., 2004).

More specifically, the literature on SLI suggests that children with SLI tend to have more difficulty socially than children without language issues. Children with SLI are identified as being more emotionally immature and having poor emotional and social understanding of peers (see Brinton et al., 2007; Fujiki et al., 2008). Hart et al., (2002) found that children with language impairments demonstrated significantly higher rates of symptomatology on three withdrawal symptom subtypes (reticence, solitary-active, solitary-passive) and two types of sociable behavior (prosocial, impulse control/likability) as compared to their peers using a teacher rated behavioral scale (Hart et al., 2002). However, in this sample, the children in the

Language Impairment only group did not demonstrate clinically significant disruptions of functioning on the CBCL, a parent rated behavioral scale.

The present findings may not be consistent with prior studies due to the raters of behavior being different (parents versus teachers). Both teacher and parent based rating scales are often used to assess behavioral symptomatology in children. There has been some discussion in the literature acknowledging the differences between parental and teacher ratings of children's behavior. Often teachers tend to rate or emphasize peer-related issues or curriculum based issues in assessing behavioral based problems. Whereas parents seem to focus more on conduct issues, hyperactivity, and social issues when assessing their children (see Lindsay et al., 2007).

This tends to be an age-old important issue explored by clinicians when trying to determine the presence and context of symptomatology in children: how is the child functioning at school and at home, and are the observations consistent. These consistencies and inconsistencies lead to very important clinical clues in assessing what may be bothering the child (and the family or school) and importantly the complexity behind where symptoms tend to manifest. Although it is beyond the scope of this study, looking more specifically at parent ratings of social and peer-based deficits among children with language impairments may help to clarify these inconsistencies.

It is also important to note that the differences in findings between the current study and the SLI literature may be due to the co-morbidity between ADHD and Language Impairment not always being examined in the SLI literature. The behaviorally based findings established in the SLI literature may exist because ADHD is not screened out from the language impairment groupings. If investigators are not accounting for ADHD + Language Impairment in their Language Impairment groups, then this may muddy the behavioral findings.

By contrast, in the present study when children from the Non-Clinical group were compared to children from the ADHD + Language and ADHD only groupings, there were significant differences within the broader category of externalizing behaviors on the CBCL. As expected, children with the ADHD diagnosis, regardless of language impairment, differed from children in the Non-Clinical group on "Attention Problems" and endorsed significantly more symptoms than the Non-Clinical children endorse on rule breaking and aggressive behavior. This finding is consistent with the ADHD research and the fundamental diagnostic behavioral features of ADHD (see Loe et al, 2008; APA, 2000).

Diagnostic Classification Comparisons (ADHD + Language, ADHD only, Language only) and the CBCL

Children were then assessed across diagnostic classifications and the Non-Clinical children were excluded to assess the differences between language impairment and attentional issues in a more nuanced fashion.

Children who were grouped in the ADHD + Language Impairment, and ADHD alone classification demonstrated robust differences on the CBCL when compared to children in the Language Impairment alone group. Children with ADHD + Language Impairment and ADHD alone endorsed more symptoms on nearly all of the CBCL subscales (anxious, withdrawn, somatic, social, thought, attention, rule breaking, and aggressive behaviors) as compared to children with Language Impairment alone. These differences indicate that having the diagnosis of ADHD, beyond language impairment, results in significant behavioral symptomatology.

Moreover, these findings indicate that when children from the non-clinical group were excluded from the analyses a more specific picture relating to pathology can be distinguished. The children diagnosed as having Language Impairment alone functioned the best on the CBCL. Again, in spite of the literature which supports disruptions in functioning among children with Language Impairments, the findings from the CBCL did not support significant levels of behaviorally based impairment. These findings from the current study indicate that when children with language

issues are looked at in comparison to children with an ADHD diagnosis (ADHD + Language Impairment and ADHD alone), a significant level of behavioral impairment is not identified.

The findings do however point to children with the ADHD diagnosis, regardless of language issues, exhibiting more anxious, depressed, somatic, social, thought, rule breaking, and aggressive symptoms. Overall, the behavioral findings are consistent with the CBCL findings established in the ADHD literature. Many studies have reported the severity of behavioral impairment among children with ADHD (see Loe et al, 2008).

However, it is meaningful and relevant to the discussion that a diagnosis of language impairment in addition to ADHD did not yield significant findings when compared to ADHD alone. The CBCL did not distinguish children with ADHD + Language Impairment from ADHD alone children when compared on the eight CBCL syndrome scales.

The current literature recognizes that the CBCL and associated syndrome scales have been used successfully to distinguish between children with ADHD from children without ADHD (Barkley, DuPaul, & McMurray, 1990; Steingard et al., 1992; Hudziak et al., 2004). However, it may be the case that a diagnosis in addition to ADHD, such as language impairment, may not be identifiable on the CBCL syndrome scales. Although this is beyond the scope of the current study, this finding may indicate that the CBCL is not a

sensitive enough measure to discriminate between differential diagnostic profiles when ADHD is a part of the diagnostic picture.

Importantly, this study did find that when children were parsed based on ranges of behavioral impairment (normal, borderline, clinical) and then grouped by diagnostic classification, children in the ADHD + Language Impairment group were significantly more impaired on the CBCL Internalizing scale, as compared to ADHD alone and Language alone. In this case, when the severity of symptomatology was considered before grouping children by diagnosis, children codiagnosed with ADHD and Language Impairment stood out as having more anxious and depressive symptoms than ADHD only or Language Impairment only children. These findings indicate that with more specificity, by using severity of symptoms as a grouping variable, children who were identified as having both attentional and language impairments demonstrate more severe anxious, depressed, and withdrawn behaviors. The clinical implications of these findings are important to consider. By being more nuanced, clinicians could be informed first by assessing the range of severity for each symptom type rather than relying first on a child's diagnostic classification followed by an assessment of which behavioral symptoms were endorsed.

Affect Maturity and the Thematic Apperception Test

Affect maturity, as conceptualized by Thompson (1986), is the connection between internal representations of self and other and the range at which a person can experience self and other as "...individuated affective beings with enduring inner dispositions that affect their emotional responsiveness" (Thompson, 1986).

As described in the first chapter, the TAT is a projective measure that allows the respondent to create a narrative involving both cognitive and affective patterns related specifically to his or her interpersonal functioning and object relations. This study is the first to address levels of affect maturity among a sample of children with the TAT to understand more fully the relationship between diagnosis and level of affect maturity. Additionally, the present study uniquely assessed the child's level of affect maturity as it relates to the types of TAT cards presented.

The second hypothesis of this study addressed affect maturity and the impact of diagnosis and symptomatology on the child's level of affect maturity. More specifically, it was hypothesized that children who have both attention and language issues would have lower levels of affect maturity. In order to test this hypothesis, TAT cards were assessed with the Thompson Scale of Affect Maturity (1986) and looked at by diagnostic classification.

The findings demonstrate that when an overall Thompson score of affect maturity is used (scores summed across all TAT cards) there are no significant findings based on diagnosis or severity of behavioral symptomatology. Of note, in spite of cognitive abilities differing significantly between diagnostic groups, when verbal intelligence (WASI: VIQ) was controlled for in comparisons between diagnostic classifications on overall Thompson affect maturity scores the findings did not change. This was unexpected, as the TAT is understood to be a complicated measure that requires both visual and verbal problem solving skills. It also requires the child to respond in an organized and sophisticated manner. Given the requirements of this task, one may expect that verbal intelligence would impact affect maturity. However, the disconnect between verbal intelligence and affect maturity may indicate that the Thompson scale is more purely rating maturity of affect rather than verbal expression, organization or overall quality of production.

Importantly when the TAT and associated affect maturity scores are looked at for each TAT card a more useful picture comes into focus. The findings indicated that children in the ADHD + Language Impairment group maintained the lowest levels of affect maturity for most cards, followed by the ADHD alone and Language alone groups. The TAT cards that were identified as eliciting the lowest affect maturity score among the ADHD + Language Impaired group were 3BM and

7GF. With regard to the six other TAT cards presented, the findings maintained the same hypothesized direction (i.e. ADHD + Language Impairment had the lowest affect maturity score vs. ADHD and Language Impairment alone) for all cards except 13B.

This finding indicates that children who have both attentional and language difficulties struggled to create narratives on the TAT with levels of affect maturity on par with ADHD only and Language only children.

The implications and meaning of differing levels of affect maturity is important to consider. Much like a clinician's understanding of defenses and all that relates to defensive range, flexibility and rigidity, affect maturity too offers an additional method to assess and locate the patient's affective capacity along a continuum. Questions such as, "Does this individual entertain the possibility of affect reversibility?" "Is affect attributed to individualized internal states?" "Can this individual tolerate a range of affect?" and "Does this individual have a capacity to reality test the affect itself?" are meaningful in the context of how the clinician conceptualizes treatment and intervention (Thompson, 1986).

On the more mature end of the spectrum, affects are understood and experienced by an individual as psychological states, and such states can differ from person to person and vary at different times. As well, affects exist based on separate and internal experiences of self as differentiated

from other. Thus the clinician can conceptualize the patient's relationship between self, other, and affect as represented more akin to "Self-Affect-Other" which would equate to an affect maturity score of 4. This is in contrast to affect being the dominating organizer of experience and the self not being entirely differentiated from other or a Level 3 score. Stated more simply, a Level 3 equates to good feelings are derivatives of good objects and bad feelings are derivatives of bad objects (Thompson, 1986). An affect maturity score of 2 would indicate that affect is not attributed to a psychological state, rather it happens outside of the self or is fixed inside of the self. Thus, the self "has" the feeling rather than experiences a feeling.

When affect maturity is limited, and in turn, affect tolerance is limited, the individual has a diminished capacity to deal with their feelings, except to try to replace the feeling with another feeling or merely sustain the unwanted feeling. In either case, the feeling is dominant and it colors the event or reality for the moment and the perception of self and other in that moment. Thus, level of affect maturity has a significant impact intra and interpersonally.

The relationship between affect maturity, as Thompson has conceptualized, and the current thinking of mentalization as Fonagy and others have described, come together on a similar spectrum of self-development and are

worth addressing briefly. Fonagy describes three core assumptions in mentalization theory: (1) the sense that one has of herself is rooted in the experience of the ascription of mental states made by a primary caregiver throughout development; (2) the capacity develops through interaction with the caregiver via 'contingent mirroring'; and (3) traumatic events can disrupt this exchange (see Weinberg, 2004). Mentalization theory and affect maturity can be thought of as models that point to similar processes of understanding of one's own and another's mental state. The ability to think about one's own mental processes, alongside another person's mental processes is psychologically sophisticated. Holding in mind our own and the other's wishes, desires, feelings, and thoughts, and acknowledging other as separate from self is the act of mentalizing, as well as a demonstration of affect maturity.

Children indeed are expanding their range of affect maturity alongside many other facets of emotional, cognitive, and overall developmental lines. As expected for the children in this study who were between the ages of 7 and 10, overall levels of affect maturity ranged between 2 and 4, most often centering at 3. The findings from this study indicate that significantly differing levels of affect maturity were associated with diagnostic classification. This finding can enrich the clinicians' understanding of her child patient as affect maturity can successfully act as a marker of self-object relatedness. In turn, an achievement

in therapy could be one of expanding or restructuring a patient's affective system so the child could more readily experience an ongoing dialogue among feelings and move towards a Self-Affect-Other constellation.

Relationship between Behavior and Affect Maturity

The post hoc analyses of this study were essential when trying to integrate the findings from the two main hypotheses. From a clinical perspective, thinking about the relationship between emotions and behaviors is imperative, especially when working with children. Thus, exploring the connection between the TAT and affect maturity, as it relates to the CBCL was an important aspect of this study.

The findings from the CBCL categories (normal, borderline, clinical) and the associated affect maturity score for Cards 3BM, 4, 7GF, and 12M resulted in the significant finding that more behavioral symptoms were associated with lower levels of affect maturity. However, it is important to note that the number of children in the borderline and clinical ranges was few and this should be considered when interpreting the findings.

This finding is indeed important as it relates to severity of symptomatology and the impact on the internal experience of the child. Children who are experiencing more symptoms, as measured by the CBCL syndrome scales, had more difficulty constructing narratives with levels of affect maturity on par with children who were less symptomatic.

This finding suggests, as many clinicians would appreciate, that children who are experiencing more symptoms have more difficulty engaging with a full range of affect. It is important to note that these findings were based on all participants, which included a non-clinical group of children, across each TAT card. Thus, the significant affect maturity findings are pertinent for all children endorsing symptomatology within the range of normal to clinical.

Types of TAT cards and Clinical Implications

The findings from the final set of post hoc analyses build upon the two main hypotheses. In these analyses, children were looked at in two different albeit related ways. First, children were assessed based on their diagnostic classification and level of affect maturity as it related to the types of TAT cards presented. Secondly, children were looked at based on their symptom severity on the CBCL and level of affect maturity as it related to the types of TAT cards presented.

Grouping or clustering the TAT cards by common feeling or mood was a way of determining how emotional content impacts affect maturity. The findings from the TAT cluster analyses indicate that for all children (ADHD + Language Impairment, ADHD only, Language Impairment only) regardless of diagnostic classification and severity of behavioral symptomatology, the “Non-aggressive” type of TAT cards

elicited the highest levels of affect maturity. Clinically this finding is germane, as clinicians would expect that relatively benign stimuli would create a milieu for the most expansive or mature levels of experiencing and/or expressing emotion.

The findings from the TAT clusters also indicate very important clinical implications for children who have an ADHD diagnosis. Children with ADHD, either with language impairment or without, demonstrate a specific pattern of affect maturity when aggressive and depressive types of TAT cards were presented. Both ADHD alone, and ADHD + Language Impairment groups demonstrate higher levels of affect maturity on TAT cards with aggressive content as compared to depressive. Children who have language impairment alone do not share in this pattern. This is a very central finding, as it relates to clinical conceptualizations of affect regulation among ADHD populations.

One clinical interpretation of this finding is to conceptualize aggressive content for children with ADHD as an organizer of affect. Much like Harris & Tuber (2007) report among a sample of ADHD children and Rorschach responses, color on the Rorschach allows for children with ADHD to remain present and enlivened. This too may be the case for aggressive stimuli, as compared to depressive, on the TAT. Harris & Tuber (2007) found that when achromatic Rorschach cards were presented, ADHD children more pervasively shut out both affectivity and object relatedness

in a way that differed from the comparison non-clinical sample. The findings from their investigation conclude that the non-clinical comparison group did not need bright color to stay focused and enlivened. By contrast, children with ADHD lacked inherent affect stimulation and felt a relative diminution of available resources when the external environment was not exciting (Harris & Tuber, 2007).

In the present study, children with language impairment only did not demonstrate a significant difference when aggressive stimuli were contrasted to depressive. This suggests that carrying the diagnosis of ADHD uniquely alters levels of affect maturity when depressive content is presented.

The findings also suggest that diagnostic classification is a specific and clinically salient indicator of related affect maturity. Looking at diagnostic classifications and more specifically at the overall types of TAT cards provides a clinically important difference. Looking at affect maturity in the context of TAT clusters (Non-Aggressive, Aggressive, Depressive, or Longing) for children with ADHD provides a framework for understanding internal experiences of emotion.

Gilmore (2000) argued that disruptions in ego function prevent children with ADHD from integrating, regulating, modulating or balancing internal and external stimuli. These disruptions are due to the failure of the main function of the ego as synthesizer and organizer of internal

and external stimuli (Gilmore, 2000). For this discussion, it is important to look at the content of the stimuli, and which emotions influence affect maturity for children with ADHD. If children with ADHD are conceptualized as being disrupted internally by more depressive stimuli and by contrast, aggressive stimuli act to create an enlivening rather than deadening experience internally, then, it may behoove clinicians to think of children with ADHD as having counterphobic or avoidant reactions when feelings of depression are activated.

It is also pertinent to this discussion to understand that affect maturity functions along a spectrum. Thus, with clinical populations the range of affect and related levels of maturity can be impacted by certain emotion laden stimuli. Since affect maturity is not fixed, and given that children are inherently developing, specificity with regard to themes (in this case, aggressive or depressive,) becomes beneficial to identify for clinicians working with ADHD populations.

Conclusions

The findings of this investigation indicate that children with attention, language impairment or both attention and language impairment, function differently when severity of behavioral symptomatology is measured. Additionally, children within each diagnostic classification have differing levels of affect maturity, based on severity

of symptomatology endorsed on the CBCL and based on types of TAT cards presented. Specifically, children with ADHD + Language Impairment and ADHD alone have a counterphobic and avoidant reaction to depressive content on the TAT, which supports the conceptualization of affect regulation difficulties among an ADHD population.

Limitations of the Study

There are limitations to the current study that need to be addressed. First, the Thompson Scale of Affect Maturity (1986) has not previously been used with children. The present study was not a medium for validating this scale empirically; rather it was used as an exploratory measure of affect maturity with children. After determining that verbal intelligence did not impact overall affect maturity scores, verbal intelligence was not controlled for in each analyses that followed (i.e. per TAT card and associated affect maturity score) this may be a methodological question for future studies to address.

Secondly, the cards that were chosen for the affect clusters were done so based on an overall mood that is typically elicited from respondents when administered the TAT. There are limitations in trying to generalize a mood from any given TAT card as this has not been empirically established and should be taken into consideration when drawing conclusions from the findings. Third, it is important to note that the sample when parsed along

diagnostic classification was relatively small. Next, the sample of children used in this study is a predominantly lower SES, urban, and a minority based group. Thus, it is central on the one hand to acknowledge that this is an underrepresented sample and the findings are of great import. However, it is noteworthy that this population inevitably faces greater difficulties, which may not be considered "generalizable" to the greater ADHD or Language Impairment populations. An argument to the contrary can also be formed, as this sample is no more or less "ADHD" or "Language Impaired" due to it being drawn from a more underrepresented population.

Future Directions

The findings from this investigation indicate that there are important emotional and behavioral differences between children who are co-diagnosed with ADHD and Language Impairment, as compared to children with ADHD alone or Language Impairment alone. Since this sample was self-selected and relatively small, it would be important for future studies to randomly select participants and create a larger pool to draw upon.

The findings from the CBCL indicate that children from differing diagnostic groups significantly differ on syndrome scales. However, this finding was primarily based on comparisons between ADHD + Language Impairment verses Language Impairment only and ADHD only verses Language Only.

It may be of import for future studies, using a larger sample, to investigate more fully the utility of the CBCL among children co-diagnosed with ADHD and another diagnosis to understand this measures usefulness among non-behavioral diagnostic impairments. Additionally, it may be of interest for future studies to incorporate both teacher and parent ratings when assessing behavioral based symptoms in children with language impairments.

The clinical implications of differences in affect maturity are exciting to consider as these findings may inform treatment. Understanding more fully the level of affect maturity of our patients may help to identify internal representations of self and other and the range at which a person can experience affect. It may be useful for future studies to examine affect maturity, using the Thompson Scale of Affect Maturity, among a larger set of children from both clinical and non-clinical populations.

APPENDICES

Appendix A

Thompson Scale of Affect Maturity (1981)

Zero Score

An additional score of 0 was added for the purposes of this investigation due to the scale being used with children. A score of 0 indicates that the child produced a narrative, however did not include an affective event, affective state or associate affect to the content of the narrative.

Level One

- Emotions are purely event like in character
- Little differentiation within the affect event
- Emotion is attributed more to the situation as a whole (includes self, object, surround) and not to any individual facet of the situation (e.g. whole scene described as sad, thus an undifferentiated quality of sadness exists)
- Emotions may have a atmospheric or mood-like quality
- Characters may seem to be immersed in the affect-event – while character is in the event it colors all reality for him/her, but when event changes it is not integrated as part of the self's history

Level Two

- Emotions are still predominately event like – but now rudimentary attribution of the emotion to self and others (but not on basis of their being individuated selves with inner psychological reality)
- Emotions attributed indiscriminately on the basis of external features of the characters (expressions and expressive actions are not yet differentiated from the affect)
- Storyteller may attempt to 'read' emotions from expressive appearances (e.g. a smiling face must indicate some sort of happy situation).
- Affect state (not seen as psychological state) and it retains event like properties
- But role of self and other is more predominant than in level one
- Emotion may seem like it is a happening emanating from outside the self or lodged inside the self – i.e. person 'has' the emotion rather than 'being' happy.
- Implication affect can be warded off, expelled, or eliminated

- Affect state is still irreversible – with event coloring all reality and self-object representations
- Mixed/contradictory feelings not possible – but may see rapid alternation of affects attributed to part selves or part objects (e.g. storyteller may switch subject emotions several times in succession without any integration of these affects). Thus, several different affect states may be evoked successively (rather than at same time)
- As each state is event like it redefines the situation, the representation of self and other and the evaluation of the target or object of the emotion.

Level Three

- Emotions now attributed to persons (but not in a fully independent way)
- Self and other may be enveloped into the same emotion
- No understanding that two people may experience the same emotion but for their own individual reasons (if some explanation is given it is the same for both characters).
- Feelings are attributed to the self (for single subject) but rationalized feelings are concordant with the immediate situation.
- Slightly more differentiation – self and other may be assigned complementary affects (but not rationalized in an individual way)
- Affect of the other may differ from that of the self – it is still assigned in an egocentric way (it's the expected response to the self's own feeling)
- Reversals of affect may occur b/w self and other (e.g. first one is feeling guilty, then the other) becomes unclear who is experiencing affect or if both experience the affect
- Mixed/contradictory affects make their appearance (attributed to subject at same time rather than in succession) – but affects remain largely independent of each other, do not interact and are not integrated into reversible structure (e.g. He's happy she loves him; he's depressed b/c he wants to join his unit.)
- Affect state is now seen as a psychological state to be attributed to the subject (but still largely irreversible). So that good feelings are caused by a good object; bad feelings by a bad object – with no recognition of the object's independent existence, characteristics, etc.
- Hints of the realization that affects have to be dealt with by the self (they will not simply pass away) – but expressed through magical, pollyannaish resolution (e.g. he'll get over it or he'll be happy again)

- Suggests substation of another affect event that is attributed to the self but not integrated with the previous one (seems that new event is invoked to counter pose the original feeling – so that there is some relationship b/w the two rather than simply replacing one for the other)

Level Four

- Affects are now clearly attributed as psychological states to individual persons
- Affect is more individualized expression of the person's characteristics
- Extended temporal integration is still not carried out – so attribution of individualized affect states tends to be not so much in terms of subjects enduring personality as in terms of relatively superficial external or stereotyped ways of individuating a person (e.g. role, sex, occupation or immediate features of person's reaction to the situation)
- Mixed/contradictory emotions attributed to the subject - brought in juxtaposition to each other so there is some recognition of the contradiction and conflict and some attempt to resolve it
- Way-station in development of reversibility – mixed emotions are not wholly independent (but integration of mixed emotion into hierarchy or full reversibility is not yet achieved -- e.g. of a solution to a conflict (he's pulled in two directions – he loves her but he wants to get away. He finally leaves and manages to forget her)
- Cause, object and target of the emotion may now have mixed attributes, causing conflicts and attempts at resolution, but still not fully resolved in a hierarchical scheme allowing a complex view of a fully independent object.
- Affects have lost their predominately event like character – so sense that affect-states do not pass away without a trace, and they may change the self and themselves undergo modification

Level Five

- Reversibility has been achieved
- Self and other are perceived as individuated affective beings with enduring inner dispositions that affect their emotional responsiveness
- Affects a persons experiences are clearly modified by and stem from his uniqueness as a person (as compared to others)

- Self and other assigned affects in terms of their uniqueness as persons and are individuated uniquely even when they react in terms of their roles (or sex)
- Mixed/contradictory emotions may often be experienced, but conflicting emotions now modify each other and may be placed in a wider perspective (he's torn b/w his love for her and his wish to join his unit)
- Conflict is not eliminated and can be intensified since simple defenses against affect such as denial or minimization are no longer facilitated by the affective organization – so reversibility is achieved
- Cause or object of the emotion may be evaluated independently of the affect and states of the self are seen as contributing to the affect
- Affects are clearly seen as needing to be integrated into the self's history (rather than passing away, being replaced by other affects or being undone through forgetting or action)
- Sense a person can tolerate this, emotion will be integrated, some realistic sense of how long this will take and how it will take place and that the self may be modified by the feeling
- May show evidence of reflective self-awareness concerning affects – person may experience a reaction to his feeling or show awareness of how he is reacting or of what effect he might have on others (e.g. he's depressed over how angry he is, and wishes he could be more tolerant)

Appendix B

Diagnostic Criteria for Attention Deficit Hyperactivity Disorder (ADHD; DSM-IV)

A. Either (1) or (2):

(1) Six or more of the following symptoms of **inattention** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Inattention
(a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
(b) often has difficulty sustaining attention in task of play activities
(c) often does not seem to listen when spoken to directly
(d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
(e) often has difficulty organizing tasks and behaviors
(f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
(g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)
(h) is often easily distracted by extraneous stimuli
(i) is often forgetful in daily activities

(2) Six (or more) of the following symptoms of **hyperactivity-impulsivity** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity
(a) often fidgets with hands or feet or squirms in seat
(b) often leaves seat in classroom or in other situation sin which remaining seated is expected
(c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)

(d) often has difficulty playing or engaging in leisure activities quietly
(e) is often "on the go" or often acts as if "driven by a motor"
(f) often talks excessively

Impulsivity
(g) often blurts out answers before questions have been completed
(h) often has difficulty awaiting turn
(i) often interrupts or intrudes on others (e.g. butts into conversations or games)

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

Table 1.1

Two-sample T-Test for each Diagnostic Classification and CELF: Receptive (R), Expressive (E), Total (T)

	ADHD Only n = 20[a]			Language Only n = 11			Non-Clinical n = 15[a]		
	R	E	T	R	E	T	R	E	T
ADHD + Language	4.356***	7.344***	7.472***	1.012	.457	.855	4.015***	4.449***	5.022***
ADHD Only				5.127***	7.614***	7.922***	.171	-1.110	-.179
Language Only							4.771***	4.576***	5.202***

Note. a = Two children from the ADHD group and one child from the Non-Clinical group did not have data for the WASI
*** p < .001

Table 2.1
Two-sample T-Test for each Diagnostic Classification and WASI scores: Verbal (VIQ) and Performance (PIQ)

	ADHD n = 20[a]		Language n = 11		Non-Clinical n = 15[a]	
	VIQ	PIQ	VIQ	PIQ	VIQ	PIQ
ADHD + Language	-1.5294	-2.156*	1.1144	.6896	-1.6187	-2.3663*
ADHD			2.2874*	2.9502**	.3516	.1489
Language					-2.509*	-3.4214**

Note. a = Two children from the ADHD group and one child from the Non-Clinical group did not have data for the WASI
* p < .05
** p < .01

Table 9.1
CBCL Syndrome Scales based on T-score categories and Diagnostic Classifications

Withdrawn/ Depressed	ADHD + Lang n=15	ADHD only n=20	Language only n=11
Normal	10 (66.67%)	18 (90%)	11 (100%)
Borderline	3 (20%)	1 (5%)	0
Clinical	2 (13.33%)	1 (5%)	0

Table 9.2
CBCL Syndrome Scales based on T-score categories and Diagnostic Classifications

Somatic Complaints	ADHD + Lang n=15	ADHD only n=20	Language only n=11
Normal	11 (73.3%)	19 (95%)	10 (91%)
Borderline	4 (26.7%)	0	0
Clinical	0	1 (5%)	1 (9%)

Table 9.3
CBCL Syndrome Scales based on T-score categories and Diagnostic Classifications

Internalizing	ADHD + Lang n=15	ADHD only n=20	Language only n=11
Normal	10 (66.7%)	15 (75%)	11 (100%)
Borderline	3 (20%)	5 (25%)	0
Clinical	2 (13.3%)	0	0

Table 10.1
Ordinal Regression: CBCL Withdrawn/Depressed T-scores and Diagnostic Categories

Withdrawn/ Depressed	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Finaldx	.177569	.14324	-2.14*	.032	.03653	.86301
/cut1	.66722	.52895			-.37000	1.7034
/cut2	1.7109	.66545			.40664	3.0151

* p < .05

Table 10.2
Ordinal Regression: CBCL Somatic Complaints T-scores and Diagnostic Categories

Somatic Complaints	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Finaldx	.43016	.29063	-1.25	.212	.114424	1.6171
/cut1	1.3058	.57825			.172526	2.4395
/cut2	2.5332	.80288			.959608	4.1068

Table 10.3
Ordinal Regression: CBCL Internalizing T-scores and Diagnostic Categories

Internalizing	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Finaldx	.31352	.181143	-2.01*	.045	.101033	.97289
/cut1	.39638	.513392			-.60984	1.4026
/cut2	2.3040	.789315			.756930	3.8512

* p < .05

Table 11.1
Linear Regression for Overall Thompson Mean Scores by Diagnostic Classification

Covariate	Coef.	Std. Error	P>|t|	95% Confidence Interval	
ADHD + Language	0[a]				
ADHD	.227	.261	.386	-.294	.749
Language	.524	.309	.095	-.094	1.142
Non-Clinical	.392	.280	.166	-.167	.951
Constant	1.806	.201	<.001	1.404	2.207

Note. a = baseline category
* p < .05

Table 15.1
Logistic Regression of TAT Card 7GF among ADHD vs. Non-Clinical and Language Impairment

Card 7GF		Odds Ratio	Std. Error	P>|z|	95% Confidence Interval	
Thompson Score						
	0	1				
	2	35.00**	43.474	.004	3.067	399.356
	3	3.611	2.635	.078	0.864	15.093

** p < .01

CBCL Anxious/Depressed and Card 3BM

Table 19
CBCL Categories for Anxious/Depressed and Diagnostic Classification

Anxious/ Depressed	ADHD + Lang n=15	ADHD only n=20	Lang only n=11	Non-Clinical n=16
Normal	10 (66.6%)	16 (80%)	11(100%)	11 (68.8%)
Borderline	4 (26.7%)	4 (20%)	0	4 (25%)
Clinical	1 (6.7%)	0	0	1 (6.2%)

Table 19.1
Distribution of Thompson Affect Maturity Scores for Card 3BM and CBCL categories

	Thompson Affect Maturity					
Anxious/ Depressed	**0**	**1**	**2**	**3**	**4**	**5**
Normal	9	1	9	31	1	0
Borderline	4	0	5	3	0	0
Clinical	1	0	0	1	0	0
Total	14	1	14	35	1	0

Table 19.2
Ordinal Logistic Regression with CBCL Anxious/Depressed and Card 3BM

Anxious/Depressed
Card 3BM

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card3BM	.603615	.14746	-2.07*	.039	.373848	.97433
/cut1	.327614	.52734			-.705955	1.3611
/cut2	3.1252	1.0717			1.11386	5.3151

* p < .05

CBCL Withdrawn/Depressed and Card 12M

Table 20
CBCL Categories for Withdrawn/Depressed and Diagnostic Classification

Withdrawn/ Depressed	ADHD + Lang n=15	ADHD only n=20	Lang only n=11	Non-Clinical n=16
Normal	10 (66.7%)	18 (90%)	11 (100%)	11 (68.7%)
Borderline	3 (20%)	1 (5%)	0	5 (31.3%)
Clinical	2 (13.3%)	1 (5%)	0	0

Table 20.1
Distribution of Thompson Affect Maturity Scores for Card 12M and CBCL categories

	Thompson Affect Maturity					
Withdrawn/ Depressed	**0**	**1**	**2**	**3**	**4**	**5**
Normal	17	1	8	23	2	0
Borderline	7	0	2	0	0	0
Clinical	2	0	0	1	0	0
Total	26	1	10	24	2	0

Table 20.2
Ordinal Logistic Regression with CBCL Withdrawn/Depressed and Card 12M

Withdrawn/Depressed
Card 12M

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card12M	.49386	.140797	-2.47*	.013	.28244	.86353
/cut1	.57130	.40601			-.22445	1.3670
/cut2	2.2457	.62586			1.01910	3.4724

* p < .05

CBCL Social Problems and Card 7GF

Table 21
CBCL Categories for Social Problems and Diagnostic Classification

Social Problems	ADHD + Lang n=15	ADHD only n=20	Lang only n=11	Non-Clinical n=16
Normal	11 (73.3%)	16 (80%)	11 (100%)	14 (87.5%)
Borderline	3 (20%)	3 (15%)	0	0
Clinical	1 (6.7%)	1 (5%)	0	2 (12.5%)

Table 21.1
Distribution of Thompson Affect Maturity Scores for Card 7GF and CBCL categories

	Thompson Affect Maturity					
Social Problems	**0**	**1**	**2**	**3**	**4**	**5**
Normal	12	0	7	33	3	0
Borderline	5	0	0	1	0	0
Clinical	1	0	1	2	0	0
Total	18	0	8	35	0	0

Table 21.2
Ordinal Logistic Regression with CBCL Social Problems and Card 7GF

Social Problems
Card 7GF

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card7GF	.60739	.15165	-2.00*	.046	.37233	.99084
/cut1	.80431	.48007			-.13660	1.7452
/cut2	1.8895	.59910			.71530	3.0637

* p < .05

CBCL Thought Problems and Card 4

Table 22
CBCL Categories for Thought Problems and Diagnostic Classification

Thought Problems	ADHD + Lang n=15	ADHD only n=20	Lang only n=11	Non-Clinical n=16
Normal	12 (80%)	15 (75%)	11 (100%)	15 (93.7%)
Borderline	0	0	0	0
Clinical	3 (20%)	5 (25%)	0	1 (6.3%)

Table 22.1
Distribution of Thompson Affect Maturity Scores for Card 4 and CBCL categories

	Thompson Affect Maturity					
Thought Problems	**0**	**1**	**2**	**3**	**4**	**5**
Normal	11	0	11	31	2	0
Borderline	4	1	2	2	0	0
Clinical	2	0	0	0	0	0
Total	17	1	13	33	2	0

Table 22.2
Ordinal Logistic Regression with CBCL Thought Problem and Card 4

Thought Problems Card 4	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card4	.52319	.15553	-2.18*	.029	.29240	.93613
/cut1	.76985	.55884			-.3254	1.8651

* p < .05

CBCL Rule Breaking and Card 4

Table 23
CBCL Categories for Rule Breaking and Diagnostic Classification

Rule Breaking	ADHD + Lang n=15	ADHD only n=20	Lang only n=11	Non-Clinical n=16
Normal	11 (73.4%)	12 (60%)	11 (100%)	15 (93.8%)
Borderline	2 (13.3%)	2 (10%)	0	1 (6.2%)
Clinical	2 (13.3%)	6 (30%)	0	0

Table 23.1
Distribution of Thompson Affect Maturity Scores for Card 4 and CBCL categories

	Thompson Affect Maturity					
Rule Breaking	**0**	**1**	**2**	**3**	**4**	**5**
Normal	9	0	11	29	2	0
Borderline	2	0	1	2	0	0
Clinical	4	1	1	2	0	0
Total	15	1	13	33	2	0

Table 23.2
Ordinal Logistic Regression with CBCL Rule Breaking and Card 4

Rule Breaking
Card 4

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card4	.589813	.14634	-2.14*	.033	.36266	.95922
/cut1	.394779	.52778			-.6396	1.4292
/cut2	.916929	.55004			-.1611	1.9949

* p < .05

CBCL Aggressive Behavior and Cards 4, 7GF, and 12M

Table 24
CBCL Categories for Aggressive Behavior and Diagnostic Classification

Aggressive Behavior	ADHD + Lang n=15	ADHD only n=20	Lang only n=11	Non-Clinical n=16
Normal	12 (80%)	16 (80%)	11 (100%)	14 (87.5%)
Borderline	2 (13.3%)	4 (20%)	0	0
Clinical	1 (6.7%)	0	0	2 (12.5%)

Table 24.1
Distribution of Thompson Affect Maturity Scores for Card 4 and CBCL categories

	Thompson Affect Maturity					
Aggressive Behavior	**0**	**1**	**2**	**3**	**4**	**5**
Normal	11	0	12	31	2	0
Borderline	4	1	0	0	0	0
Clinical	0	0	1	2	0	0
Total	15	1	13	33	2	0

Table 24.2
Ordinal Logistic Regression with CBCL Syndrome Scale and Card 4

Aggressive Behavior Card 4	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card4	.56285	.16425	-1.97*	.049	.31768	.99721
/cut1	.92670	.54312			-.13781	1.9912
/cut2	2.0542	.69192			.698123	3.4104

* p < .05

Table 24.3
Distribution of Thompson Affect Maturity Scores for Card 7GF and CBCL categories

	Thompson Affect Maturity					
Aggressive Behavior	**0**	**1**	**2**	**3**	**4**	**5**
Normal	12	0	7	34	3	0
Borderline	5	0	0	1	0	0
Clinical	1	0	1	1	0	0
Total	18	0	8	36	3	0

Table 24.4
Ordinal Logistic Regression with CBCL Aggressive Behavior and Card 7GF

Aggressive Behavior
Card 7GF

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card7GF	.44394	.14339	-2.51**	.012	.235733	.83611
/cut1	.76540	.48293			-.18112	1.7119
/cut2	1.9474	.64651			.68031	3.214

** p < .01

Table 24.5
Distribution of Thompson Affect Maturity Scores for Card 12M and CBCL categories

	Thompson Affect Maturity					
Aggressive Behavior	**0**	**1**	**2**	**3**	**4**	**5**
Normal	20	1	8	23	2	0
Borderline	4	0	1	1	0	0
Clinical	2	0	1	0	0	0
Total	26	1	10	24	2	0

Table 24.6
Ordinal Logistic Regression with CBCL Aggressive Behavior and Card 12M

Aggressive Behavior
Card 12M

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card12M	.47977	.17102	-2.06*	.039	.23856	.96486
/cut1	1.0888	.45202			.20288	1.9747
/cut2	2.2245	.63234			.98513	3.4638

* p < .05

CBCL Internalizing and Cards 3BM, 12M

Table 25
CBCL Categories for Internalizing and Diagnostic Classification

Internalizing	ADHD + Lang n=15	ADHD only n=20	Lang only N=11	Non-Clinical n=16
Normal	10 (66.7%)	15 (75%)	11 (100%)	9 (56.3%)
Borderline	3 (20%)	5 (25%)	0	5 (31.2%)
Clinical	2 (13.3%)	0	0	2 (12.5%)

Table 25.1
Distribution of Thompson Affect Maturity Scores for Card 3BM and CBCL categories

	Thompson Affect Maturity					
Internalizing	**0**	**1**	**2**	**3**	**4**	**5**
Normal	7	0	3	27	2	0
Borderline	5	0	1	4	1	0
Clinical	2	0	1	1	0	0
Total	14	0	5	32	3	0

Table 25.2
Ordinal Logistic Regression with CBCL Internalizing and Card 3BM

Internalizing
Card 3BM

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card3BM	.57886	.13100	-2.42*	.016	.37147	.90203
/cut1	-.03685	.49954			-1.0159	.94223
/cut2	1.7108	.61849			.498616	2.9230

* p < .05

Table 25.3
Thompson Affect Maturity Scores for Card 12M and CBCL categories

	Thompson Affect Maturity					
Internalizing	**0**	**1**	**2**	**3**	**4**	**5**
Normal	16	1	7	21	2	0
Borderline	8	0	2	2	0	0
Clinical	2	0	1	1	0	0
Total	26	1	10	24	2	0

Table 25.4
Ordinal Logistic Regression with CBCL Syndrome Scale and Card 12M

Internalizing
Card 12M

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card12M	.642865	.14072	-2.02*	.044	.41859	.98729
/cut1	.411383	.39189			-.35670	1.1794
/cut2	2.1110	.56276			1.0080	3.2140

* p < .05

CBCL Externalizing and Cards 4, 7GF

Table 26
CBCL Categories for Externalizing and Diagnostic Classification

Externalizing	ADHD + Lang n=15	ADHD only n=20	Lang only n=11	Non-Clinical n=16
Normal	12 (80%)	12 (60%)	11 (100%)	14 (87.5%)
Borderline	1 (6.7%)	6 (30%)	0	0
Clinical	2 (13.3%)	2 (10%)	0	2 (12.5%)

Table 26.1
Distribution of Thompson Affect Maturity Scores for Card 4 and CBCL categories

	Thompson Affect Maturity					
Externalizing	**0**	**1**	**2**	**3**	**4**	**5**
Normal	10	0	10	30	2	0
Borderline	3	0	2	1	0	0
Clinical	2	1	1	2	0	0
Total	17	1	13	33	2	0

Table 26.2
Ordinal Logistic Regression with CBCL Externalizing and Card 4

Externalizing
Card 4

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card4	.58660	1.4460	-2.16*	.030	.36184	.95097
/cut1	.42150	.51023			-.5785	1.4215
/cut2	1.2869	.56499			.17959	2.3943

* p < .05

Table 26.3
Distribution of Thompson Affect Maturity Scores for Card 7GF and CBCL categories

	Thompson Affect Maturity					
Externalizing	**0**	**1**	**2**	**3**	**4**	**5**
Normal	11	0	6	32	3	0
Borderline	4	0	1	2	0	0
Clinical	3	0	1	2	0	0
Total	18	0	8	36	3	0

Table 26.4
Ordinal Logistic Regression with CBCL Externalizing and Card 7GF

Externalizing
Card 7GF

	Odds Ratio	Std. Error	z	P>|z|	95% Confidence Interval	
Card7GF	.56961	.13462	-2.38*	.017	.358423	.90523
/cut1	.45528	.46176			-.44975	1.3603
/cut2	1.3360	.52345			.31014	2.3620

* p < .05

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