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Different histories, different stories:

Using a narrative tool to assess children's internal worlds

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Abstract

This study investigated the concurrent validity of a children's narrative assessment tool, the Plenk Story-Telling Test (PST). The PST attempts to measure aspects of young children's internal working models by eliciting narratives from nine pictures. The PST, Child Behavior Checklist, and the Parenting Stress Index were administered to a clinical sample and a community sample of children. Data from 262 participants were obtained. Children in the clinical sample significantly differed from the community sample on each instrument. The PST was reliably coded and most of the responses could be interpreted through a factor analysis. Consistent with hypotheses, children in the clinical sample viewed the world as a more dangerous place, were more preoccupied and less optimistic than those in the community sample. These findings support initial concurrent validity for the PST because it reliably distinguished between the two different groups, making the PST a potentially useful tool for both research and clinical uses.

Keywords: preschool, children, narrative assessment, attachment, schema

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Different histories, different stories:

Using a narrative tool to assess children's internal worlds

Clinical assessment of young children traditionally involves caregiver reports, developmental histories, behavioral observations, and interviews with the child. Information from such assessment methods can help clinicians conceptualize the nature of problems that bring children to services. Such assessments can also inform practitioners about which interventions may help children function more adaptively. In this study, we explore an instrument that examines what children think about themselves and their expectations of others as such information can provide a rich understanding of problems children face. For example, is a child's oppositional behavior a function of learning and poor consistency in parental follow-though or sadness about not feeling loved or valued? Despite the importance of understanding the content of children's perceptions and internal worlds, a limited number of tools exist which effectively assess young children's inner worlds and feelings (Bettmann & Lundahl, 2007).

Further, existing tools tend to be difficult to use in clinical settings. This study investigated one assessment tool with potential clinical utility, The Plenk Story Telling task (PST: Plenk, 1982).

Children's early experiences with caregivers play a critical role in how they view social interactions and what they expect from others. Attachment theory posits that children whose needs are regularly met through emotionally attuned care giving tend to develop expectations that their social worlds are stable, safe, and secure. By contrast, children whose needs and bids for connection are routinely ignored or rebuffed tend to develop expectations that their social worlds are chaotic, unresponsive, dangerous or threatening (Kobak & Madsen, 2008; Koren-Karie, Oppenheim, & Getzler-Yosef, 2004; Scharfe, 2003; Siegel & Hartzell, 2003; Wallin, 2007). Wachtel (1994) notes that cyclical psychodynamics help to explain why new relational

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dynamics tend to replicate old ones. She notes, "As a consequence of the existing psychological structures and their power to shape how we experience events, a new situation is likely to take on the characteristics of earlier ones in significant ways" (1994, p. 15). Theory and research support that patterns of perceiving social situations are linked to early childhood experiences, experiences which are believed to form rules for understanding how the social world operates and what can be expected (Wallin, 2007). These internalized expectations are often referred to as internal working models or schemas (e.g., Bowlby, 1969; Bretherton, & Munholland, 2008; Fonagy, 2001; Fonagy, Steele, Steele, Moran, & Higgitt; 1991; Main, Kaplan, & Cassidy, 1985).

The concept of internal working models or schemas suggests that expectations for present and future social interactions are based on past social experiences. It is the internal working model or schema, then, that bridges early experiences with present interpretations of social stimuli. Wachtel (1994) frames similar concepts in terms of "cyclical psychodynamics," the notion that unconscious material from the past shapes current relational dynamics, as well as visa versa. While considerable research has investigated how children process social information (e.g., Crick & Dodge, 1994), the widest research supporting both the genesis of internal working models and the lasting influence of internal working models comes from attachment theory (e.g., Ainsworth & Eichberg, 1991; Bowlby, 1988; Bretherton & Munholland, 2008).

This robust line of research consistently shows that young children develop expectations for relationships that influence their willingness to explore, their ability to regulate emotions, and the degree of flexibility they can marshal to respond to environmental demands (Simpson & Belsky, 2008; Wallin, 2007). Some research draws links between environmental demands and problematic attachment. One study, for example, showed connections between parental stress and problematic attachment between parent and child (Jarvis & Creasy, 1991). This link

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illuminates the important connection between parenting behavior and child's internal working models. Parents who are more stressed and pressured are more likely to raise children whose internal working models reflect their beliefs that others will not be present and available to meet their needs. Research demonstrates that children's expectations or internal working models are fairly stable across time and link to successful socialization during key developmental periods and tasks (Bretherton & Munholland, 2008; Scharfe, 2003).

If clinicians and researchers could better gauge children's feelings and internal worlds, they could potentially design more sensitive and appropriate treatment for young populations. Although instruments exist to assess aspects of people's internal working models, the implicit nature and complexity of internal working models make its assessment and measurement challenging. Internal working models are believed to reside below the level of consciousness, making it difficult to simply describe the rules that make up one's internal working model. The task of assessing children's internal worlds is even more problematic given children's relatively limited verbal and reasoning capacity.

Several measurement strategies exist to measure children's internal worlds, all of which possess strengths and liabilities. Some measurement strategies, such as the Strange Situation task, observe overt child attachment behaviors and make inferences about how the behaviors may reflect a child's internal world (Ainsworth, Blehar, Waters, & Wall, 1978). Other instruments make inferences about a child's internal representations from information provided through interviews or questionnaires by an adult who knows the child (see Sheperis et al., 2003) while some seek verbal or behavioral information directly from children (Bettmann & Lundahl, 2007; Bretherton, Ridgeway, & Cassidy, 1990; Emde, Wolf, & Oppenheim, 2003). Some strengths of behavioral observation strategies include the relative objectivity that can be obtained



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through achieved interrater reliability and the potential to code without knowing condition assignment. A weakness of behavioral observation strategies is that they are resource intensive, making them inaccessible for many researchers and most clinicians. Gathering information from adults who care for a child is economical in terms of time and money, and sensible given that caretakers generally possess good understandings of their children. Yet, adult reports on child behavior can contain bias that may derive from factors such as parental depression (Youngstrom, Izard, & Ackerman, 1999) or propensity to abuse a child (Dopke, Lundahl, Dunsterville, & Lovejoy, 2003). Seeking information directly from children has the potential to overcome some of the weaknesses of the observational and other-report approaches.

One method to gather information directly from children is the use of narrative assessment tools. Several researchers have used narrative assessments to gauge young children's internal worlds (Bretherton, Ridgeway & Cassidy, 1990; Hodges & Steele, 2000; Hodges, Steele, Hillman, Henderson & Kaniuk, 2003; Stacks, 2007). For example, Hodges et al. (2003) used story stems to elicit narratives from adopted and maltreated children. Notably, the researchers found distinct differences in the narrative themes of adopted-in-infancy versus later-adopted children, showing that the later-adopted children's narratives showed more prominent themes of avoidance, aggression and injury than their early-adopted peers. Such findings are consistent with theory: children's internal working models are impacted by early experiences. One would expect children adopted later in life, compared to those adopted at infancy, to face relatively more upheaval, disorganization, and social disappointments from caretakers. Such findings reveal that assessment tools can access aspects of children's internal working models by demonstrating concurrent validity.

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A variety of narrative assessment techniques and tools exist (Bettmann & Lundahl, 2007). Most are similar in that they present young but verbally capable children with a stimulus such as a story, picture, or scenario and ask the child to respond to the stimulus by telling a story about the stimulus. The central assumption of narrative assessment tools is that children's responses to a stimulus will be informed by past experiences that were organized within their internal working models, their internalized sense of relationships and relational expectations (Emde, Wolf & Oppenheim, 2003). Logic suggests that if children provide varied responses to a standard stimulus, the variation must originate at the child level. Based on this premise, narrative assessment tools have been effectively used in both clinical and research domains. For example, the MacArthur Story Stem Battery has been used to study young children's internalized relational representations in normative and maltreated samples and is predictive of both behavioral problems and anxiety (Emde et al., 2003; Hill & Taliaferro, 2000; Minnis et al., 2006; Robinson, Herot, Haynes, & Mantz-Simmons, 2000).

We conducted an exploratory study to assess the concurrent validity of a relatively untested narrative assessment tool, the Plenk Story-telling Test (Anderson, 1978; Davies, 1982; Plenk, 1982). The rationale for testing the PST is that reports from clinicians using the instrument find it to be economical in time and supportive in conceptualizing a child's mental and emotional health, yet lack empirical data regarding the instrument's validity. The PST draws responses from children by presenting nine cards with pictures on them and asking the children to tell a story about the picture (see Method and Appendix sections for more details). Some of the pictures depict a child in a social interaction with peers or adults, while other cards show a child alone. Only one picture is devoid of any people and depicts an abstract landscape. By design, the pictures are ambiguous so that children's responses offer insight into the child's

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experiences and expectations of relationships with adults and peers, rather than demand characteristics of the picture. We reasoned that a sample of clinical children and a sample of community children would respond differently to these pictures, thereby providing initial support for the instruments concurrent validity. Concurrent validity is the ability of a measurement tool to distinguish between groups that should be theoretically different. Therefore, if the PST could not distinguish between a clinical and community sample of children, its use would be suspect. To date, no such test had been conducted.

The PST was developed by psychologist Dr. Agnes Plenk at The Children's Center, a private, not-for-profit mental health agency serving the needs of families with emotionally and behaviorally challenged toddlers and preschool aged children in Salt Lake City, Utah. The PST has provided valuable insight into the internal worlds of preschoolers attending their therapeutic preschool program. Children referred to the clinic were typically expelled from regular preschool settings because of severe emotional or behavioral difficulties. In addition, the histories of most of the children attending the program include exposure to caregiver domestic violence, physical, sexual abuse or neglect, parental mental illness, and poverty: 70% of the families are at 200% of the poverty level. All of these factors can interfere with child development and childrearing. Thus, the research hypothesis is that that the internal working models of these children should be more troubled than a community sample.

The primary hypothesis of this research was that children in the clinical sample would respond to the PST with more themes of social difficulties, emotional pain or anxiety, and general distress compared to their community counterparts. To investigate this hypothesis, a coding system for the PST needed to be developed. Thus, this research investigated three questions. First, can responses to the PST from preschool-aged children be reliably coded?

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Second, if responses can be reliably coded, do the responses have a reliable factor structure that coincides with clinical expectations? Third, can the PST distinguish between clinical and community samples?

To investigate the concurrent validity of the PST, we compared responses to the PST from children being treated in a mental health center to children not in treatment. These two samples were also compared on the Child Behavior Checklist (Achenbach, 1991) and the Parenting Stress Inventory (Abidin, 1995) to ensure that the samples did differ.

Method

Participants

A total of 262 participants were included in this study, 199 from a clinical sample and 63 from a community sample. Because participants could not be randomly assigned to the two groups, we gathered demographic data from each group and information about the children's and parents' emotional and behavioral functioning (see Child Behavior Checklist and Parent Stress Index below). Demographic information for the entire sample is found in Table 1. For the third research question we attempted to control for potentially confounding variables by group matching. Specifically, we matched the clinical and community sample groups on the children's sex, their parents' marital status, and children's relationship to their caregiver (e.g., biological family or adoptive family) which reduced the overall sample to 114. Details on this process are described below.

Clinical sample. We collected clinical sample data from archival records at a mental health center that specializes in working with preschool-aged children who have failed to progress in other mental health treatment centers. The PST is routinely administered during psychological evaluations conducted in this center, resulting in a large number of available

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protocols. Rather than proscriptively administering the PST, we drew a sample of approximately 250 cases based on five criteria. First, the child had responded to all nine cards of the PST. Second, the child was no longer in treatment. This was done to meet Institutional Review Board requirements. Third, the child was between the age of 48 and 78 months; this age range was chosen because it represents the typical age range of children seen at the clinic. Fourth, we only accessed files that preceded collection of the community sample by two years in an attempt to control for cohort effects. Fifth, the child did not have developmental delays.

Community sample. We used convenience sampling to recruit the community sample. Graduate students in one of the first author's research classes volunteered to administer the PST and other measures to children in the community. After being trained to administer the PST by the mental health center's director and the PST developer (Douglas Goldsmith and Agnes Plenk, respectively) students identified community children who fit the following four criteria. First, children needed to be between 48 and 78 months of age. Second, the children could not be relatives of the students. Third, the children could not have developmental delays. Fourth, the parents of the children had to give consent while the children had to give assent. A total of 72 children were sampled, but only 63 met the above criteria.

Measures

Plenk Story-telling Test. The PST consists of nine picture cards. Eight of the cards show photograph pictures of children, the other picture is that of an abstract landscape with what looks like a storm approaching a large field. Of the eight photograph cards, three show two or more children with no adult, one card has one child and one adult, two of the cards have two children and one adult, and two cards have only one child. Two of the nine cards contain color, the rest are black and white. Descriptions of the cards can be found in the Appendix. The pictures were

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designed to be ambiguous and somewhat provocative to prevent responding in a set manner. All of the cards were selected by a team led by Dr. Plenk because of their perceived ability to evoke stories which would include relational themes, peer conflict, peer groups, caregiver affection, and separation. Notably, all of these themes tie into constructs central to attachment theory in terms of children's ability to signal caregivers when they need support and comfort, children's abilities to cope with external conflict, and children's perceptions of the availability of support and affection from adults.

PST administration. The PST takes approximately 15 to 20 minutes to administer. The PST is administered in the following manner: Prior to seeing the cards, the PST administrator tells the child that she will be seeing pictures and that she should describe what is happening in the picture or tell a story about the picture. PST administrators provide some specific prompts, such as "what will happen next?" or "how do the people feel?" If the child tells a story where a concern of danger exists, the administrator can say, "Is there anyone who could help?" In order to gain a sense of the child's perception of adults as a secure base, the children are encouraged to conclude the story through the prompt, "Who will help the child feel better?" The PST is administered by showing children the nine cards in order, one at a time and writing down children's responses verbatim.

PST scoring system. We took several steps to develop a scoring system for the PST. First, several members of the research team conducted a content analysis (Neuendorf, 2001). Team members separately read 20 protocols from the clinical sample to identify themes and content items. Next, the research team met to consult and discuss such themes, followed by trial coding attempts between two independent raters. We repeated these steps until team members developed a final coding scheme which included 34 consistently-coded items.

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To quantify the presence of a given theme or item within a child's response, we developed a numeric scoring system. After reading the entire response to a particular card, coders read through the 34 items and provided one of three quantitative rankings. If the response did not contain a particular theme or item, coders marked a value of zero. Coders marked a value of one if there was some evidence that the item applied to the response, and a value of two if the item was clearly present. Coders calculated summary scores for each item by adding response values across all nine cards for each participant.

PST coding. Two coders independently rated each PST response. For each of the nine cards, coders read the entire response and then read through all themes and provided one of the three response options (i.e., 0, 1, or 2). The first author trained the graduate student coders on the scoring system and routinely met with them to check inter-rater agreement and prevent drift. After all responses were coded and interrater reliability assessed, the coders independently recoded the items where interrater reliability was below .65. To rectify disagreements, coders met and discussed the coding decisions with the first author until team members reached consensus. The next step was to produce a single score which could be entered into the factor analysis. To do this, an average of the two coders' ratings was calculated for each item (within each card for each participant). To be included in the final analyses, interrater reliability for each theme for all participants and all nine cards had to be at least .65. Ten items or themes did not meet this criterion and were dropped from further analyses (FOOTNOTE: for more information about dropped items, please contact primary author). The range of interrater reliability for the remaining 24 items was a low of r = .66 and a high of r = .99 with an average of r = .82 (SD =.08) and a median of r = .82. Our first research question was whether the PST could be reliably coded; these results suggest it can be.

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In an attempt to ensure that children in the clinical and community samples differed, they were compared on two commonly used instruments designed to assess the mental and behavioral health of children and children's families. These instruments are described below.

Child Behavior Checklist. The Child Behavior Checklist (CBCL) gauges levels of children's problematic behaviors and emotional concerns based on parent report. The CBCL is a 118 item questionnaire that allows parents to report concerns about their children. It uses a "0 to 2" response format (0, not true; 1, sometimes true; 2, true). We used three summary scores produced by the CBCL: (1) the Total Problem Score which is the sum of the responses to all items, (2) the Internalizing Score which is derived from items that capture concerns about children's emotional state (e.g., anxiety, depression, somatic complaints, withdrawal), and (3) the Externalizing Score which captures concerns about aggressive or delinquent behaviors. The CBCL is widely used and demonstrates good test-retest reliability (r = 0.89) as well as criterion-related validity. CBCL scores are stable over time and are associated with clinical syndromes (Achenbach, 1991).

Parenting Stress Index. The Parenting Stress Index (Abidin, 1995) is a 120-item self-report measure of family stress that is completed by parents. The Total Stress and Life Stress scores were used in this study. The PSI has high internal consistency (r = .70 to .90) and good test–retest reliability (r = .55–.70) and clinical utility.

Demographic data

Demographic data for the clinical sample was pulled from clinical records. As variability exists in what is written in a clinical record, what could be extracted was uneven. For example, confidently identifying a child's race or ethnic background from clinical records was spotty which resulted in considerable missing data. Demographic data for the community sample was

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gathered through a simple demographic questionnaire. Some participants, however, left some areas blank such as annual income.

Results

After describing characteristics of the entire sample and the group-matched sample, we discuss results from the Factor Analysis which was our second research question. Then we present group difference results on the PST between the community and clinical group-matched samples which corresponds to our third research question.

Sample Characteristics

Entire sample. Table 1 presents both descriptive and inferential statistics for all participants. Across all participants, the clinical sample evidenced significantly more risk factors than the community sample. As expected, the samples differed on several demographic variables. For example, children in the clinical group were significantly less likely to be living with their biological parent. Also, mothers in the clinical sample were about 30 months younger than their counterparts and were significantly less likely to be married. The clinical sample was also comprised of a higher percentage of ethnically diverse families relative to the community sample. The clinical sample also reported significantly lower family incomes compared to their community sample counterparts. These differences suggest that the two samples did in fact differ with the clinical sample showing more life struggles that would likely negatively impact children's internal working model. Significant differences were not found for children's gender, though children's age did differ between the two groups with the community sample being significantly older (by about 12 months). Children's age was subsequently used as a covariate for tests of group difference because the PST requires verbal responding which is associated with developmental age.

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Next, we assessed whether parents of children in the clinical sample viewed their children to have more behavioral and emotional problems compared to parents in the community sample. As predicted, parents of children in the clinical sample perceived their children to have more emotional and behavioral problems as measured by the CBCL (see Table 3). Also, a significantly greater percentage of children in the clinical sample were taking psychotropic medications. Further, parents of children in the clinical sample were significantly more stressed than parents of community sample children based on PSI reports. To establish concurrent validity, a measure needs to discriminate between theoretically different groups. The results of our sampling strategy revealed two very different groups.

Matched-group sample. Table 2 presents both descriptive and inferential statistics for participants who were group-matched. In an effort to control for potential confounds to our third research question a subset of the entire sample was group-matched on three variables: child sex, parents' marital status, and the child's relationship to family. Given the low number of participants, we could not group match on family ethnicity (this data was frequently unavailable in clinical sample participants), child age, attending daycare, or family income. Group-matching controlled for the potential confounds of child sex, parents' marital status, and child's relationship to parent as no significant differences were found. We could not control for or assess the potential confounding effect of racial background because the racial backgrounds of only 12 of the 57 participants in the clinical sample could be identified. Two other potentially confounding variables were not controlled through group matching, the groups significantly differed with respect to children's age and annual income with the clinical sample being younger and having lower family incomes compared to the community sample. Further, only 80% of the community sample participated in regular out-of-home daycare or preschool experience while,

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by definition, the entire clinical sample was in a therapeutic preschool. The two groups did not differ with regard to parent's average age. We did not group-match for parents' perceptions of their children, and the pattern was similar to the entire sample: parents in the clinical groups experienced higher levels of stress and perceived their children to have more problems when compared to parents in the community sample (see Table 3).

Factor analysis

Responses from the entire sample were included in the factor analysis. Summed values for each of the 24 themes were entered into an exploratory factor analysis (EFA) using principal component analysis. Three criteria were used to determine the number of factors to rotate: Eigen values greater than 1.0, the scree plot break, and the interpretability of the factor solution. Direct oblimin rotation, with Kaiser normalization, was used because it was theorized that there is correlation between the factors (which was supported by bivariate correlation analyses). The factor structure was used as the focus of analysis because it is not affected by changes in the size of the factor correlations and therefore considered to be more stable (Pett, Lackey & Sullivan, 2003). The EFA, which converged in 14 iterations, yielded four factors with all but one item loading above a cut-off level of 0.30.

The four factors accounted for 24.03%, 12.78%, 8.11%, and 6.21% of the variance, respectively, combining for approximately 51% of the variance. We selected names that depicted the factors (see Table 3). The first factor, *Dangerous World*, consists of six items including themes such as the death of a child or an adult, injury of a child or an adult, and child at risk or in danger without support. The second factor, *Positive Interactions and Emotions*, consists of five items that contain themes of positive social interactions and expressions of positive affect or

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praise. The third factor, *Social Conflict and Negative Emotion*, is comprised of seven items that depict social conflict, a sense that children are in trouble, and negative affect.

The fourth factor, $Factor\ 4$, is made up of five items that do not conceptually group together. Three of the items are related to perceptions of adults offering comfort or support while the other two items stray from this theme. One of the items, law enforcement involvement, is about the presence of adults, though whether such presence is an indicator of help or distress is unknown. Bivariate correlations suggest that law enforcement involvement was positively and significantly associated with children seeking help from adults (r = .16) and receiving practical help from adults (r = .29). Yet, logic suggests law enforcement officers tend to involve themselves in situations (e.g., domestic violence) where the best interests of a child are not being met. The remaining variable in this factor, "child blames self or holds negative self views," does not conceptually fit with the other items in this factor. Lastly, one item, "verbal aggression from adults," did not load on any factor and was excluded from further analyses.

The four factors had moderate to high levels of internal consistency estimates (Cronbach alpha's = .83, .72, .72, and .65, respectively). We ran a three-factor model given the weakness of Factor 4; however, this did not result in an additive interpretive gain. The correlation matrix of the four factors is in Table 4.

Group differences

To test whether the community and clinical samples would differ on the four PST factors, an omnibus MANOVA was conducted. Child age was used as a covariate because the community sample was significantly older than the clinical sample and age was significantly correlated with two of the factors. Correlations between age and the factors were as follows:

Dangerous World (r = -.19, p < .05). Social Conflict and Negative Emotion (r = -.17, p < .10),

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Positive Interactions and Emotions (r = .18, p < .05), and Factor 4 (r = -.12, ns). In general, older children reported fewer statements suggesting they see the world as a dangerous place or expecting conflict while they were more likely to have a positive expectation of the world.

The MANOVA was significant, Wilk's Lambda (4, 256) 4.01, p < .001, indicating group differences exist. See Table 6 for Means (Standard Errors) and effect sizes. The covariate, child's age, was not significant, F(4, 109) = 0.58, ns. Next, we examined group differences among the four factors. Consistent with expectations, children in the clinical sample had significantly higher scores on the P0.05, suggesting they perceive the world as a more dangerous place. Similarly, children from the clinical sample had significantly lower scores on P0.05, suggesting they perceive the world as a more dangerous place. Similarly, children from the clinical sample had significantly lower scores on P0.05, suggesting they do not perceive the world as positively or expect as much support as children in the community sample. Children in the clinical sample also had significantly higher scores on P0.05, suggesting they do not P0.06, suggesting they do not P0.07, suggesting they expect more conflict and P0.08, suggesting they expect more conflict with others and more negative emotions.

Contrary to expectations, clinical sample children had higher scores on $Factor\ 4$ compared to community sample children, F(1, 112) = 5.24, p < .05. Given that three of the items appear to be associated with stable, child-centered families (e.g., child seeks help from parent; parent provides practical support; parent comforts child), this finding is rather surprising. We found one item on Factor 4 to be particularly interesting: law enforcement involvement. Specifically, we were surprised that young children would involve law enforcement in stories from pictures that do not depict law enforcement. Thus, we ran an exploratory comparison to see if the groups differed. In fact, the clinical sample reported more instances of law enforcement, M

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= 0.42 (SE = 0.11), than the community sample, M = 0.13 (SE = 0.11), though the difference was not statistically significant, F(2, 111) = 1.55, ns.

Discussion

Results suggest children's responses to the Plenk Story-telling Test can be reliably coded and that responses can be grouped into at least three different factors. Further, the PST appears capable of assessing children's internal schema in accordance with theory. Attachment theory suggests children whose needs are routinely met through attuned care giving tend to develop expectations that their social worlds are stable, safe, and secure. By contrast, children from more chaotic worlds, whose needs and bids for connection are routinely ignored or rebuffed, develop expectations that their social worlds are chaotic, unresponsive and likely dangerous or threatening (Koren-Karie, Oppenheim, & Getzler-Yosef, 2004; Scharfe, 2003; Siegel & Hartzell, 2003). That the PST affirmed such distinctions between children's internalization of care giving provides initial support for its concurrent validity. Specifically, a clinical group of children described a world that was more dangerous, negative, troubled and in conflict than a comparable group of community children; such findings are consistent with theory.

The first PST factor, *Dangerous World*, captured responses indicating a concern with danger and the lack of safety. Narrative responses that made up this factor showed concern that a child or an adult would die or be injured or that a child would be at risk without the assistance of an adult. Children in the clinical sample scored significantly higher on this factor relative to their community sample counterparts. Similarly, predicted group differences were found for the *Positive Interactions and Emotions* factor and the *Social Conflict and Negative Emotion* factor. Specifically, children in the clinical sample were significantly less likely to populate their stories with expressions suggesting positive emotion, praise, affection, or positive social interactions. At

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the same time, children in the clinical sample were significantly more likely to make comments which suggest a preoccupation with interpersonal conflict, punishment and expressions of negative emotion.

Child-oriented mental health clinics often serve children who have experienced or witnessed environmental hardship. These children are frequently exposed to trauma, loss, instability, and high levels of conflict. In our sample, children from the clinic were at much greater environmental risk than their community counterparts and their parents reported higher emotional and behavioral problems. While we did not code for the specific types of environmental stress, such as a child witnessing domestic violence or availability and sensitivity of caregivers, the clinical sample of children were much less optimistic than their counterparts based on the stories they told. These findings support initial concurrent validity for the PST because it reliably distinguished between the two groups.

The fourth factor is, at first blush, more problematic for providing support for the PST's concurrent validity or coherence. To begin, the five items making up this factor did not conceptually group as clearly as the first three factors. Three of the items shared a common theme, seeking or receiving help from an adult, yet the other two did not show conceptual similarity. Group differences for the three items that indicated seeking or receiving help from an adult went contrary to expectations. The names of the items are consistent with a secure attachment organization (i.e., child seeks help from adult, adult provides practical help, adult comforts child when hurt); yet children in the clinical sample scored higher on these items, a surprising finding. Two interacting processes may explain this finding. First, help from an adult is most needed when problems exist. Given that children in the clinical sample reported more problems, it makes sense that they would score higher on these items. Second, when children

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responding to the PST indicate a problem exists the administrator often asks "Who would help with the problem?" as a means of assessing children's expectations of their social world. This question may artificially pull for responses that a parent or adult would help. An opposite response would be remarkable for young children. For example, a young child who just expressed a problem exists and then explains that no adult is available to help would likely feel very anxious. Saying that a parent or adult will be available in times of need, despite a history that suggests otherwise, may protect the child from feeling high levels of anxiety.

Clinical Implications

On the whole, the PST holds promise as a tool to assess children's feelings and internal working models. An advantage of the PST is that it is quickly and easily administered which makes it economical for clinical and research activities. This makes it significantly more useful than most other comparable instruments. More importantly, it offers clinicians the opportunity to gain insight into a child's feelings and constructions of his or her internal world. The current study suggests the PST holds promise as a tool to assess aspects of children's feelings and internal worlds. Such a tool is useful in clinical and research settings. The PST deserves further investigation as a tool which enables us to glean insights into young children's worlds.

Several limitations need to be considered in assessing this study. First, the study had limited resources, a situation that made it impossible for all the data to be retyped so that the coders would blind to the data. Therefore, the coders were aware of group membership during coding because of the nature of data extraction which could pose a risk to validity due to social desirability. Given the developmental state of research on the PST, responses were not typed or transcribed into a different medium and the method of transcribing responses differed across samples (i.e., case notes and identification systems differed across the groups). Thus, there is a

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chance that knowing the sample biased coding. However, none of the coders had an interest in the outcomes and all coders were instructed to code the responses without trying to influence the outcome. A second potential limitation of the study is that data collection differed between the samples. Clinicians administered the PST to the clinical sample, while graduate social work students administered the PST to community sample participants. Thus, differences in administration could have accounted for the group differences. In an attempt to control for differences based on administration, the director of the mental health center and co-author (DG) trained students before they administered the PST. Additionally, the creator of the PST participated in training the students who administered the PST to community children.

Yet another limitation is that we do not specifically know if children in the clinical sample, relative to those in the community sample, actually experienced more troubled social interactions with their caretakers. Factors other than caretaking, such as environmental stressors from poverty, may have produced the differences found on the PST. Thus, it is premature to assume that the PST measures the effects of caregiving on children's internal working models. A more conservative interpretation is that the PST assesses differences in how children from different backgrounds perceive certain social situations without making inferences about the causes of these differences.

One final limitation is size of the correlations in this study. As many are small, we can infer modest but significant relationships between the variables studied. While these limitations are concerning, all efforts were made to control potential systematic error or bias. Clearly this study does not establish the PST as a valid tool for assessing children's internal working models or feelings; it does, however, provide initial support for this.

Future Directions





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The present study provides initial support for the PST's concurrent validity; specifically, the PST distinguished between two groups. Clearly, these results need replication before sufficient confidence can be placed in the PST to use it in clinical or research settings. Further studies may assess the PST's criterion validity by correlating the PST factors with the factors on the CBCL, PSI, and other characteristics of the clinical sample. However, the PST is a viable tool for clinicians and researchers seeking to better understand the complex internal worlds of young children with whom they work.



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Table 1 Sample characteristics: Entire sample

	Clinical Sample	Community Samp	le Group Differences
Child's Sex: Frequency	7 (%)		
Male	134 (67.3)	37 (58.7)	X^2 (262) = 1.36, $p > .20$
Female	65 (32.7)	26 (41.3)	(1)
Child's average age in	months (SD)		
	59.0 (6.1)	71.7 (9.8)	t(260) = 12.31, p < .001
Attending daycare	100%	72%	
Child's Ethnicity: Frequency	uency (%)		
Caucasian	53 (66.3)	52 (93.5)	
Hispanic	14 (17.5)	1 (1.6)	
African American	3 (3.8)	1 (1.6)	X^{2} (141) = 14.57, $p < .05$
Mixed	7 (8.8)	3 (4.9)	•
Asian American	0 (-)	2 (3.3)	
Other	3 (3.8)	1 (1.6)	
Parents' average age in	years (SD)		
Mothers	30.5 (6.6)	33.1 (6.6)	t(222) = 2.51, p < .05
Fathers	33.4 (7.5)	31.0 (2.7)	t(153) = 0.72, p > .40
Parents' marital Status:	Frequency (%)		
Married	70 (37.8)	59 (93.7)	
Never married	44 (23.8)	3 (4.8)	
Divorced	37 (20.0)	0 (-)	X^2 (249) = 64.23, p < .001
Widowed	0 (-)	1 (1.6)	-
Separated	34 (18.4)	0 (-)	
Relationship of parent t	to child: Frequency (%	6)	
Biological mother	147 (76.2)	55 (88.7)	
Adoptive mother	8 (4.1)	1 (1.6)	
Biological father	10 (5.2)	5 (8.1)	$X^{2}(255) = 9.42, p = .05$
Foster parent	11 (5.7)	0 (-)	•
Other	17 (8.8)	1 (1.6)	
Average annual family income (SD)	\$19k (13k)	\$64k (66k)	t(153) = 6.85, p < .001

Notes. SD = standard deviation.



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Table 2
Sample characteristics: Matched groups

	Clinical Sample (n = 57)	Community Sampl (n = 57)	e Group Differences
Child's Sex: Frequency	v (%)		
Male	37 (64.9)	37 (64.9)	X^{2} (113) = 0.00, ns
Female	20 (35.1)	20 (35.1)	` '
Parents' marital Status:	Frequency (%)		
Married	53 (93.0)	52 (91.2)	
Never married	4 (7.0)	5 (8.8)	X^2 (114) = 0.14, ns
Relationship of parent	to child: Frequency (%	ó)	
Biological parent	50 (87.7)	56 (98.2)	
Adoptive mother	4 (7.0)	0 ()	X^{2} (114) = 5.34, ns
Other	3 (8.8)	1 (1.8)	` '
Parents' average age in	years (SD)		
Mothers	32.3 (6.5)	33.5 (6.5)	t(98) = 0.95, ns
Fathers	35.1 (7.0)	30.3 (3.3)	t(56) = 1.80, ns
Attending daycare	100%	80%	
Child's average age in	months (SD)		
	60.6 (5.5)	67.9 (9.4)	t(112) = 5.05, p < .001
Child's Ethnicity: Freq	uency (%)		
Caucasian	10 (83.3)	53 (96.4)	
Hispanic	2 (16.7)	0 ()	
Asian American	0 ()	2 (3.6)	X^2 (69) = 9.78, $p < .05$
Average annual family income (SD)	\$25k (15k)	\$68k (62k)	t(75) = 3.75, p < .001

Note. SD = standard deviation. Where the numbers of participants do not add to 114, data was missing.



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Table 3 *Indicators of Psychological Distress*

Indicator	Clinical Sample	Community Samp	le Group Differences (t scores)
	Entire	Group	
CBCL – mothers' report	n = 166	n = 55	
Total	66.16 (11.19)	42.91 (7.72)	14.31, p < .001
Internalizing	62.48 (10.95)	45.60 (7.73)	10.58, p < .001
Externalizing	67.14 (12.76)	43.35 (8.13)	12.97, p < .001
CBCL – fathers' report	n = 78	n = 9	
Total	62.00 (11.03)	46.50 (9.46)	3.35, p < .001
Internalizing	59.12 (10.03)	47.50 (8.71)	2.75, p < .01
Externalizing	64.13 (11.83)	47.67 (7.99)	3.34, p < .01
PSI – mothers' report	n = 135	<i>n</i> = 55	
Total score	273.41 (44.83)	198.75 (31.27)	11.82, p < .001
Life stress	17.50 (11.37)	8.02 (7.51)	5.72, p < .001
PSI – fathers' report	n = 48	n = 7	
Total score	254.33 (41.62)	211.29 (29.41)	2.62, p < .05
Life stress	14.04 (9.77)	15.86 (18.44)	-0.41, p > .50
Number of children (%) ta Medications	king psychotropic		
Yes	48 (25.0)	$1 (1.8) X^2$	(249) = 14.45, p < .001
No	144 (75.0)	55 (98.2)	` , , , , , , , , , , , , , , , , , , ,
	Group-Mate	ched Sample	
CBCL – mothers' report	n = 53	n = 47	
Total	65.70 (12.25)	43.85 (9.05)	10.03, p < .001
Internalizing	61.62 (11.22)	45.74 (8.64)	7.85, p < .001
Externalizing	67.55 (13.31)	44.13 (9.19)	10.11, p < .001
CBCL – fathers' report	n = 37	n = 8	
Total	61.16 (12.98)	44.88 (8.54)	3.38, p < .01
Internalizing	58.05 (11.47)	46.62 (7.56)	2.68, p < .01
Externalizing	63.30 (13.48)	45.75 (7.63)	3.54, p < .01
PSI – mothers' report	n = 46	n = 47	



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Total score	269.49 (49.52)	206.30 (35.31)	7.01, p < .001
Life stress	12.37 (9.56)	8.74 (7.71)	2.02, p < .05

PSI – fathers' report
$$n = 21$$
 $n = 9$
Total score 260.14 (44.93) 204.89 (28.77) 3.39, $p < .05$
Life stress 10.86 (8.77) 17.67 (16.38) -1.51, ns

Number of children (%) taking psychotropic

Medications

Yes 20 (35.1) 0 (-)

No 37 (64.9) 50 (100.00) $X^2 (107) = 21.58, p < .001$

Note. CBCL = Child's Behavior Checklist. PSI = Parent Stress Index. CBCL and PSI values are averages (standard deviations).



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Table 4
Correlation Matrix among Four Factors

Factor	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1: World is Dangerous				
Factor 2: Positive Interactions and Emotions	32**			
Factor 3: Social Conflict and	45**	18**		
Negative Emotion				
Factor 4	.19**	.18**	.41**	

N = 262. p ** < .001

Table 5 Factor loadings of the exploratory factor analysis of the PST

Item		Factors					
	1	2	3	4	Mean	SD	h^2
Factor 1: World is Dangerous							
Child dies	.81	.02	.19	05	0.90	1.90	.63
Adult dies	.78	11	.17	05	0.42	0.93	.63
Child is in danger or at risk	. 74	.04	19	15	4.08	2.98	.71
Adult is injured	.73	.01	05	07	0.57	1.10	.58
Child is injured	.69	.05	40	.04	2.52	2.29	.74
Adult is unavailable to child	. 67	06	09	.18	1.70	1.88	.51
in time of need							
Factor 2: Positive Interactions and Emotion	ns						
Adult expresses positive emotion	06	.80	.02	.12	3.05	1.70	.68
Positive interaction btwn adult and child	.01	.79	.16	27	4.61	2.08	.72
Adult praises, provides affection to child	.06	. 64	25	.02	1.70	1.05	.43
Child expresses positive emotion	24	.63	.21	.01	6.86	3.64	.61
Positive interaction btwn peer and child	28	.34	.23	.03	3.89	2.34	.34
Factor 3: Social Conflict and Negative Em	notion						
Conflict/tension btwn adult and child	.15	10	72	14	2.20	1.94	.69
Child is in trouble or is disciplined	- .18	07	70	31	1.34	1.66	.66
Conflict/tension btwn peer and child	.09	.06	63	00	2.60	1.94	.42
Adult punishes child excessively	10	.04	63	.25	0.12	0.44	.37
Child expresses negative emotion	.15	.07	61	08	6.84	3.38	.45
Adult expresses negative emotion	.03	.00	52	13	1.23	1.32	.32
Adult is physically aggressive to child	.27	12	47	.05	0.48	1.05	.38
Factor 4							
Child seeks help from an adult	.03	.05	02	74	1.20	1.47	.57
Adult provides practical help to child	.03	.03	02	7 -	3.63	2.35	.57 .64
Adult comforts child when child is hurt	.05	.37	11 11	<i>12</i> 65	1.20	1.61	.60
Child blames self, views self as bad	05	26	02	56	0.37	0.95	.38
Law enforcement is involved	.18	20 14	.02	33	0.63	1.56	.18
Did not load							
Adult is verbally aggressive to child	07	05	16	12	0.12	0.44	.05





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Table 6

Means (Standard Error) and inferential statistics across factors

Factor	Clinical Sample	Community Sample	Effect Size (Partial Eta Squared)	
Factor 1: World is dangerous	8.68 (0.85)	5.83 (0.87)	0.07	
Factor 2: Positive interactions and emotions	18.15 (1.14)	22.30 (1.16)	0.09	
Factor 3: Social conflict and negative emotion	13.95 (1.01)	9.51 (1.03)	0.10	
Factor 4:	6.10 (0.65)	5.20 (0.66)	0.02	

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Appendix

Description of Plenk Story-telling Test Cards

Picture #1 – Black and white photo of a young boy on the telephone. His expression is neutral.

Picture #2 – Black and white photo of two elementary age boys interacting. One boy has his back to the camera and is in motion with a rifle swung across his back shoulder. The other boy is facing him and in motion as if fleeing from him, though his face is expressionless.

Picture #3 – Black and white photo of a man and a toddler in an outdoor setting. The toddler has one arm around his neck and the other on his cheek and her/his face pressed up to his.

Picture #4 – Black and white photo of a group of young children in a classroom setting. The children are sitting in a circle with one boy in the center smiling. Four other children are in view: two of them have dark complexions. Two children are looking at the camera and the other looking at the boy in the center with no distinguishable expressions.

Picture #5 – Color photo of a woman and two young boys in the interior of a house. The boys are dressed identically and have what appears to be mud all over them. One boy is standing with a worried expression on his face while the other appears to be crying as the woman is removing his T-shirt. The woman, wearing a dress, apron, and horn-rimmed glasses is kneeling down and removing the one boy's T-shirt. She has her mouth slightly open.

Picture #6 – Black and white photo of children outside of a building, presumably a school. The camera is focused on an elementary aged girl standing against a pole looking straight ahead with a hint of a frown on her face. There is a group of children huddled together in the background as well as a couple of children running towards that huddled group. One boy is running away from the group.

Picture #7 – Black and white photo of a woman and two children in an outdoor setting. The woman is lying on the ground laughing and the shirtless boy is squatting besides her looking at her but the expression is not visible. The girl is kneeling beside the woman but has her body is turned away.

Picture #8 – A scenic color photo showing dark clouds in the sky, orange desert-like flat ground, and dead twigs/branches in the forefront. There is one dark rectangular silhouette in the far distance.

Picture #9 - A young boy squatting above a body of water. He is looking down at the water and has one arm extended with his index finger in the water. He has a sad expression and appears to be leaning over a boat or a bank.