

THE RELATION BETWEEN CHILDREN'S EARLY EXPOSURE TO
COMMUNICATION-PROMOTING STRATEGIES AND LATER BEHAVIORAL
ADJUSTMENT AND ADAPTIVE SKILLS

BY

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B.S., Arkansas State University, 2001

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Submitted to the Clinical Child Psychology Program
and the Faculty of the Graduate School
of the University of Kansas in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy.

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Abstract

Children's ability to develop and utilize language to better understand themselves and the environment around them facilitates their capacity to learn, interact, and adapt effectively in a variety of situations. Parents and caregivers can play a significant role in enhancing children's communicative and linguistic abilities by responding to children's interests, activities, and communication attempts while modeling and praising the appropriate use of words and grammatical structures during the course of everyday adult-child interactions. The current study sought to determine whether children's early exposure to communication-promoting strategies that emphasize such concepts is associated with increased behavioral and emotional adjustment and adaptive functioning. Results suggested an association exists between children's classroom exposure to evidence-based strategies and lower T-scores on the BASC-2 TRS Behavioral Symptoms Index composite and higher T-scores on the BASC-2 TRS Adaptive Skills Composite. In addition, children's frequency of communication in the classroom was associated with higher T-scores on the BASC-2 TRS Adaptive Skills Composite. This may indicate that child care providers can utilize communication-promoting strategies to enhance children's behavioral and emotional adjustment and adaptive functioning. Methods of training parents and child care providers in the use of communication-promoting strategies are discussed.

Acknowledgements

I would like to thank my dedicated committee chairs, Drs. Eric Vernberg and Dale Walker, for their tireless efforts in making this project, and the whole of my graduate career, quite a rewarding experience. In addition, I appreciate the work and time of committee members Drs. Michael Roberts, Julie Boydston, and Vicki Peyton, and I hope they truly know how much I have valued their input and support over the years. Certainly, my classmates and cohort in the University of Kansas Clinical Child Psychology Program, along with those I have had the privilege to work alongside at Juniper Gardens and Bert Nash, also deserve special mention. Finally, I would like to acknowledge my parents, John and Sherry Powell, for loving me and being there always.

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The Relation between Children's Early Exposure to Communication-Promoting Strategies and Later Behavioral Adjustment and Adaptive Skills

Mastering the expression and comprehension of language is arguably the most important of all developmental milestones for young children. The ability to engage in reciprocal communication with others allows infants and toddlers to grasp basic concepts about their physical and social environment. Through this process, children discover the significance of using words and sentences to convey thoughts, feelings, and desires, and begin to experience the value of utilizing language to properly interpret and negotiate difficult or confusing situations. Accordingly, the earlier and more frequently children realize the benefits of communication, the more likely they are to understand it to be the most appropriate and rewarding method of solving problems and connecting with others. In essence, the development of age-appropriate speech and language abilities may very well provide the foundation for typical behavioral and emotional adjustment in children.

Speech/Language Impairment, Psychiatric Problems, and Social Consequences

Children with deficits in speech and language development, on the other hand, are at risk for manifesting a variety of problems that may cause impairment across many areas of functioning. Researchers have been investigating this issue at least since the 1940's, when ratings scales, observational data, and projective tests were used to assess the personality characteristics of children with articulation problems (Solomon, 1961). In 1977, Cantwell and Baker conducted a comprehensive review of the research in this area. Along with noting that the paucity of methodologically

sound studies did not allow for firm conclusions, they posited that speech and language difficulties may play a role in the development of many psychiatric disorders commonly observed in children. Whitehurst, Fischel, Arnold, and Lonigan (1992) summarized research from the 1970's and 80's and reported on the various psychiatric outcomes associated with expressive language delay. Among the most valid and well-documented associations were with disruptive behavior disorders, including Attention-Deficit/Hyperactivity Disorder, Oppositional Defiant Disorder, and Conduct Disorder, along with a variety of anxiety and mood disorders.

Research conducted in the last 15 to 20 years has explored the effects of language deficits in terms of production and comprehension and better clarified the links between speech/language impairment and behavioral and emotional problems. For example, Cohen, Davine, Horodezky, Lipsett, and Isaacson (1993) found that among nearly 400 school-age children receiving psychiatric outpatient services, 52.6% had diagnosable language impairments, and among these, 34.4% had not been previously diagnosed. Giddan, Milling, and Campbell (1996) also found high rates of identified (38%) and unidentified (22%) language and speech deficits in preadolescents receiving psychiatric inpatient treatment. Benner, Nelson, and Epstein (2002) reviewed the literature on children with emotional and behavioral disorders (EBD) and comorbid language deficits, including receptive, expressive, and pragmatic (i.e., social communication) delays. Across 26 studies, results indicated that nearly 75% of children with EBD presented with clinically significant language deficits and that over half of children with identified language deficits had comorbid

EBD. In addition, rates of comorbid EBD and language deficits typically increased over time when measured longitudinally. Prevalence rates from these studies are astoundingly high in comparison to such rates for typically-developing children, which have been estimated to be approximately 7.4% (Tomblin et al., 1997).

Beitchman et al. (1996) published longitudinal data examining the outcomes of children identified with speech/language-impairments at five years of age. Results indicated that participants with general language delays (e.g., co-occurring receptive, expressive, and/or articulation deficits) were at the highest risk at 7-year follow-up for manifesting a variety of behavioral problems and exhibiting significant delays in social competence and adaptive skills. In 2001, Beitchman et al. reported data from the same population at 14-year follow-up and found that those young adults with early, identified language impairments were significantly more likely to develop anxiety disorders, particularly social phobia, and, among males alone, were significantly more likely to have received antisocial personality disorder diagnoses.

While much has been made of the link between speech/language impairment and psychiatric problems, the social consequences of speech/language impairment have also been investigated. Rice (1993) argued that children with speech/language impairments may compensate for their communicative deficits by engaging in verbal or physical aggression in a variety of social situations. Other researchers have found that children with speech/language impairments may withdraw from social interactions altogether (Fujiki, Brinton, Isaacson, & Summers, 2001; Guralnick, Connor, Hammond, Gottman, & Kinnish, 1996). Therefore, it follows that children

with speech/language impairment are less likely to be socially accepted, since aggressive children are more often disliked (Denham & Holt, 1993) and withdrawn children are not usually well-integrated into peer groups (Rice). Gertner, Rice, and Hadley (1994) examined this notion using a peer nomination method and found that preschool participants with speech/language impairments were more likely to be rated negatively, or not rated at all, when compared to the ratings of their typically developing peers. Additionally, receptive language ability, as measured by the Peabody Picture Vocabulary Test-Revised, was found to be a significant predictor of a child's popularity, even when participants' age and intelligence were controlled for statistically. Jambunathan and Norris (2000) stated that children as young as 3 years old may be aware of how accepted they are by their peers, and reported that language competence was significantly correlated with perceived social competence within preschool children. With a similarly aged population, Qi and Kaiser (2004) found that preschool children in Head Start programs with language delays exhibited poorer social skills, along with more frequent problem behaviors, based upon checklist data gathered from teachers and observational data collected in the classroom.

Using Language to Treat Psychiatric and Psychosocial Problems

Although some investigators have explored the possibility that inherent behavioral or social/adaptive deficits may lead to language impairments (Rice, 1993; Windsor, 1995), early childhood intervention research, along with research in speech/language pathology and clinical child psychology, has focused on improving children's use of language to communicate appropriately with others, solve various

problems, develop crucial adaptive skills, and improve their awareness of various internal cognitive and emotional processes. For example, when children present with oppositionality, aggression, depressive symptoms, or anxiety in clinical settings, treatments often involve helping these individuals learn how to better solve or reframe problems by using self-talk or other, similar cognitive strategies, often referred to as cognitive-behavioral therapy (CBT). For instance, a child diagnosed with early-onset Conduct Disorder might be encouraged to use language to practice forming less hostile perceptions of others' intentions, consider alternative behaviors in response to potentially threatening or distressing environmental stimuli, and recall undesired consequences associated with inappropriate behavior (American Academy of Child and Adolescent Psychiatry [AACAP], 1997b). Children with excessive worries, persistent fears, and somatic symptoms commonly associated with anxiety disorders are often asked to label anxious thoughts and feelings when they occur and develop positive self-statements to replace faulty cognitions, regulate overly emotional responses, and cope with psychosomatic pain (AACAP, 1997a). Similarly, children with depressed mood and low self-esteem are taught to identify negative perceptions of themselves, or the perceived deprecating evaluations of others, and use language and logic to discredit cognitive distortions (AACAP, 1998). Finally, children who lack social competence, are excluded from peer groups, or have difficulty developing meaningful relationships with others may be recommended for social skills training, which typically involves improving expressive (e.g., conversational strategies, pragmatic language use) and receptive (e.g., listening, turn-

taking, comprehending social cues) language abilities through individual or group interventions (Windsor, 1995).

Challenges Facing Interventionists Working with Younger Populations

Many of the aforementioned CBT and social skills interventions require that children and adolescents have developed basic linguistic or cognitive proficiencies. For instance, to teach individuals to utilize self-statements to alleviate anxiety in distressing situations or to resist the temptation to act aggressively before considering consequences, they must grasp some features of metacognition, or more specifically, the knowledge of one's own cognitive activities and capabilities (Flavell, 1999). Quakley, Reynolds, and Coker (2004) found that children could discriminate amongst thoughts, feelings, and behaviors as early as 4 years of age, and Kuhn (2000) surmised that children as young as 3 years of age are aware of themselves and others as possessors of knowledge and capable of learning. However, those younger than 3 years of age may need a different type of "treatment" to protect against behavioral, emotional, and social deficits caused, in part or in whole, by speech/language impairment. Early interventions directed at increasing children's exposure to language may improve outcomes for young children at-risk for diagnoses of psychiatric disorders or developmental delays.

Lexical development, or the learning of vocabulary, occurs as a function of a child's innate abilities and exposure to adult speech input (Papalia, Olds, & Feldman, 1998). With regard to the latter, which is the focus of intervention discussion in the present study, Huttenlocher, Haight, Bryk, Seltzer, and Lyons (1991) found a

significant relationship between the overall amount of exposure to parents' speech and acceleration in overall vocabulary growth in children aged 1-2 years of age. Hart and Risley (1995) described their extensive longitudinal studies during which parent-child interactions were observed in the home and found that children's amount of exposure to adult communication was directly related to their vocabulary growth and later intellectual development (Walker, Greenwood, Hart, & Carta, 1994). Lonigan and Whitehurst (1998) found that exposure to communication-promoting strategies during shared-reading, or dialogic reading, activities has significant effects on a child's oral language development. Such strategies, empirically demonstrated to promote communication in infants and young children, included attending and responding to a child's interests, providing comments and labels when children needed help identifying words or pictures, repeating or expanding upon a child's verbalizations, and praising and encouraging communication attempts and good behavior. In essence, the successful treatment of speech/language impairments, along with attendant behavioral, emotional, and social deficits, may be enhanced by early interventions geared toward improving the amount and quality of language to which children are exposed.

Teaching Adults Communication-Promoting Strategies

Researchers in the fields of early childhood special education, speech/language pathology, and clinical child psychology have long extolled the effectiveness of teaching certain communication strategies to adults that promote speech/language development and behavioral and emotional adjustment in children.

Hart and Risley (1968) and Hart and Rogers-Warren (1978) initially described such strategies as being naturalistic, conversational, and responsive in nature, involving choosing activities of interest to the child, arranging for opportunities to prompt language usage, and emphasizing the positive consequences of using language. These concepts were the basis for Milieu Teaching (MT; Alpert & Kaiser, 1992), Responsive Interaction (RI; Kaiser et al., 1996), and Enhanced Milieu Teaching (EMT; Hancock & Kaiser, 2006), all of which have been empirically demonstrated to enhance a child's language development.

MT encourages caregivers to view everyday adult-child interactions as opportunities to utilize specialized, but easy-to-learn, methods for teaching children language skills. Techniques are characterized by following a child's attentional lead, arranging the environment to indirectly prompt language usage (e.g., placing a favored toy on a high shelf to encourage requests), and directly prompting language usage through open-ended questions and requests for communication (Warren & Walker, 2005). RI is similar to MT in that the chief goals espoused to caregivers regard viewing typical adult-child interactions as potential "teaching moments" and understanding that language-promoting strategies are most effective when used in a manner that capitalizes on a child's interests. However, more emphasis is placed upon growth recasts, or expansions of a child's verbalizations that improve upon the syntactical or semantic structure of their specific utterances. For example, a child might say "truck go" during play, and immediately following this, the caregiver might say, "yes, the red truck is going fast" (Warren & Walker).

EMT techniques are essentially a combination of both MT and RI, emphasizing following a child's lead and interests; responding to a child's verbal and non-verbal initiations; and providing semantically appropriate feedback, such as comments on a child's interests, labels of objects of interest, and imitations of a child's verbalizations in which correct grammar and additional words are inserted. Such strategies are meant to maintain a child's attention and provide models of communication slightly beyond a child's current language abilities. Through this process, Hancock and Kaiser (2006) believe children learn the appropriate means to describe themselves and the world around them while simultaneously being rewarded with positive adult attention for using language to communicate thoughts, interests, and desires.

Interestingly, some of the most prevalent and empirically validated parent-training methods used by clinical child psychologists and early interventionists employ techniques similar to RI/MT to decrease symptoms of child non-compliance and oppositionality and improve the parent-child relationship. Excellent examples include McMahon and Forehand's (2003) *Helping the Noncompliant Child* (HNC) and Sheila Eyberg's *Parent-Child Interaction Therapy* (PCIT; Hembree-Kigin & McNeil, 1995). Both are based upon the parent training model developed by Constance Hanf in the early 1970's and involve encouraging parents to describe and praise a child's appropriate behavior and communication, follow a child's lead in mutual play activities, and imitate a child's play behaviors and communicative attempts throughout the course of intervention. HNC explains the effectiveness of

these communication-promoting strategies by emphasizing the power of adult attention on reinforcing emotional self-regulation and the effectiveness of prosocial, and less coercive, parent-child interactions on decreasing oppositionality and non-compliance. PCIT, perhaps more so than HNC, extols the virtues of communication-promoting strategies as a collection of techniques used to repair the parent-child relationship, which leads to decreased problem behavior, emotional adjustment, and positive parent-child interactions. Recently, Bagner and Eyberg (2007) found that PCIT improves deficits in language development of children with comorbid Mental Retardation and Oppositional Defiant Disorder. In addition, Hancock, Kaiser, and Delaney (2002) reported that teaching parents RI, along with techniques involving the appropriate application of contingent consequences for children's behavior, reduced children's undesirable behaviors and improved their language output. Finally, it should be noted that play therapists often use RI/MT strategies to elicit child communication of feelings, thoughts, and experiences as part of their intervention techniques (Landreth, 2002).

Study Aims

Children with deficits in language production and comprehension are at-risk for exhibiting a variety of psychiatric symptoms and diagnoses. Perhaps this is best explained by noting the role that language has been found to play with regard to children's learning abilities, social competence, appropriate self-expression, and problem-solving skills. Therefore, interventions directed at improving children's linguistic development and communicative abilities have the potential for facilitating

children's behavioral and emotional adjustment and adaptive skills. The current study seeks to provide further evidence demonstrating the benefits of children's exposure to caregivers' eliciting and rewarding their communication attempts while introducing them to language and vocabulary in naturalistic, child-directed situations and settings.

The first hypothesis proposed was that children's early exposure to empirically-validated, communication-promoting strategies would be associated with better behavioral and emotional adjustment and adaptive skills. The second hypothesis proposed was that children's early use of verbal communication would also be associated with better behavioral and emotional adjustment and adaptive skills. Detailed observational data and teacher- and parent-report measures, collected over the course of approximately three years, were used as variables in the current study. Results offer implications about the importance of early exposure to communication-promoting language strategies on children's emotional and behavioral development.

Method

Participants

Participants were recruited from the population of a larger, longitudinal, experimental-control group study in which the primary goal was to determine the effects of an intervention to promote language development in child care centers by encouraging the use of MT and RI techniques, along with other evidence-based strategies that enhance children's communicative abilities (Walker, 2002), herein referred to as the Promoting Communications study. In this study, children between

approximately 6- to 12-months were recruited from participating child care centers in medium- to large-sized Midwestern cities, and remained participants until their 3rd birthdays (36 mos.). No exclusionary criteria, except that at least one family member and the participating child speak English, were used during the recruitment process. Families were offered \$20.00 in the form of gift cards to be given at each of three home visits, which were set to occur at yearly intervals, making the total reimbursement amount \$60.00 for families who participated throughout the project's duration. Children who dropped out of the Promoting Communications study were not recruited for participation in the current study typically because they had left the child care center before enough data had been collected or were difficult to reach because they moved out of the geographical region. In addition, some children were not recruited for the current study because less than 7 classroom observational data points, less than 2 home observational data points, or no demographic data were collected during their participation in the Promoting Communications study. Specific information about observational and demographic data used in the present study is given in later sections.

Out of the 72 children recruited from the Promoting Communications study, 55 (76%) were given parental consent for participation in the current study. Of these children, approximately 61% were male, and approximately 80% were of European-American descent. Approximately 91% of participating children's parents reported middle- to upper-middle class socioeconomic status in terms of income (\$65,000+), and approximately 87% of their mothers (and 68% of fathers) reported earning a

bachelor's or advanced degree. It should be noted that family income and parental educational information was not available for one participant, and for another, information regarding the father's educational attainment was not available.

Demographic characteristics of the approximately 24% of children whose families did not consent to participation in the current study was available from the Promoting Communications study. These children, as a group, had some different characteristics than those who were given consent, in that they were, on average, more likely to be female (59% as opposed to 39% for participating children), and their parents were less likely to report a yearly family income over \$65,000 (71% as opposed to 91%). In addition, mothers of children who were not given consent to participate were less likely to hold college degrees (71% as opposed to 87%), as were fathers (59% as opposed to 68%). As regards the latter, information regarding fathers was less likely to be available for children who were not given consent to participate (65% as opposed to 96%).

Measures

Parent-Infant and Caregiver Code for the Observation of Language

Interactions (PICCOLI-2; Walker, Hart, & Hou, 2004). This observational tool required the use of notebook computers and was utilized by trained graduate research assistants on the Promoting Communications study to code the communications of children and adults, along with the context and activity during which such communication occurred, at 20-second intervals over a 30-minute period per observation. Relevant to the current study was the coding of caregiver use of

language strategies that most closely represented those behaviors featured in RI and MT interventions, along with the coding of children's attempts to communicate with others, in participants' homes and classrooms. The definitions for the PICCOLI-2 strategy variables used for testing hypothesis 1 are listed in Table 1, and encompass responding to children's interests and communication attempts and following their attentional lead, commenting upon or labeling aspects of objects or activities and providing choices, imitating or expanding upon children's word or multiple-word utterances, and praising a child for good behavior and exhibiting appropriate communication. Also in Table 1 are child communication variables used for testing hypothesis 2, and include single word utterances, multiple-word utterances, and singing.

Data obtained from an observation for each of these variables were numerically expressed as the percentage of 20-second intervals during the observation that the behavior representing the variable was noted as occurring. Because observations generally took 30 minutes to complete, this means that approximately 90 intervals were coded. However, only the activity and participant context were coded for 18 intervals, evenly distributed across a given observation, which yielded information that was not used for the current study. For the remaining intervals, which totaled approximately 72, only adult and child communicative behaviors were coded. Therefore, for each data point, variables were calculated by the PICCOLI-2 computer scoring program (Walker, Hart, & Hou, 2004) using this formula:

$(x/\text{Number of adult-child behavior intervals}) \times 100\%$, in which x equals the number of intervals in which the adult or child communicative behavior was coded as occurring.

For each child, 11 data points were collected for all seven variables in the classroom environment. Three data points were collected for all variables in the home setting. The percentages for each variable were averaged across data points so that an overall mean percentage was obtained for each variable, both for the classroom and home observations, across all participating children. Descriptive data for all participants for the strategy and child communication variables in the classroom setting and home setting are listed in Table 2.

In longitudinal research, missing data are not uncommon, and there were several reasons reported to explain why PICCOLI-2 observational data from the Promoting Communications study were missing from analyses conducted for the current study. These included participant and observer factors, such as child or family illness, equipment malfunction, and inclement weather. In addition, some children were older than 6 months when they began participating, with the main result being that 6-month classroom observational data was ultimately unavailable for 60% of participants, and 9-month classroom observational data was unavailable for 24% of participants. Despite this, for every study participant, data from at least 7 classroom observations (out of 11) were available to create variables, and data from at least 2 (out of 3) home observations were available to create variables. Overall, only 13% of observational data were missing from classroom observations, and only 11% of observational data were missing from home observations.

The PICCOLI-2 allows for the measurement and analysis of the sequential, moment-to-moment relationships between aspects of the environment, adult behavior, and child behavior with high reliability. Inter-observer reliability on the PICCOLI-2 from previous studies was reported to range between .76 and .94 (Walker, Hart, & Hou, 2004). Inter-observer reliability was collected and analyzed for the Promoting Communications study, from which all observational data for the current study was obtained, using a point-by-point method denoted by the following formula, $(\text{Number of agreements} / \text{Number of disagreements} + \text{Disagreements}) \times 100\%$, totaled across all categories. During inter-observer reliability checks, two graduate research assistants observed one target child independently, but simultaneously, throughout the 30 minute observation. The observers positioned themselves apart so they could not see each other's computer screens. The criterion reliability for graduate research assistants was 85% or above. The average inter-rater reliability for previously trained observers over the course of the 3-year project was 85.92%.

The Behavioral Assessment System for Children – 2nd Edition (BASC-2; Reynolds & Kamphaus, 2004). The BASC-2 Parent Rating Scales (PRS) and Teacher Rating Scales (TRS) are behavioral checklist forms which asked participating parents and child care providers, respectively, to note the frequency with which they observed their children engaging in certain clinically relevant behaviors. Specifically, with each item raters were asked to indicate whether a certain observable behavior occurs “never,” “sometimes,” “often,” or “almost always.” Results provided for the multidimensional interpretation of participating children's estimated behavioral,

emotional, and adaptive adjustment in comparison to their typically developing peers in a norming sample. The average age, in months, at which the BASC-2 PRS was completed for children was 38.96 ($SD = 4.13$). For the BASC-2 TRS, the average age of children at the time of completion was 38.92 ($SD = 4.01$).

For the current study, two empirically-derived composite scores were used in analyses to test the current study's hypotheses. These were calculated by the BASC-2 computer scoring program (Reynolds & Kamphaus, 2004) based upon the responses of raters. The first, termed the Behavioral Symptoms Index, yields a T-Score ($M = 50$, $SD = 10$) that denotes a child's level of behavioral and emotional adjustment across a range of clinical concerns. Higher T-Scores indicate increased behavioral and emotional problems. Table 3 lists the BASC-2 clinical subscales that comprise the Behavioral Symptoms Index, which represent a child's level of hyperactivity, aggression, depressive symptoms, atypical thought processes, attention problems, and withdrawal from others.

The second BASC-2 composite score used in the current study is the Adaptive Skills Composite, which yields a T-Score that describes a child's ability to function in an age-appropriate manner within their environment. Higher T-Scores indicate better adaptive functioning. Table 3 lists the BASC-2 subscales that comprise the Adaptive Skills Composite, which represent a child's ability to manage and adjust in a variety of situations, develop a positive attitude towards others, perform simple tasks effectively at a level commensurate with his or her age, and exhibit purposeful and

pragmatic verbal skills. Descriptive data for all participants on the BASC-2 TRS and PRS composite scales are listed in Table 4.

For two participants (3.6%), BASC-2 TRS data were not obtained due to teachers not returning forms. These participants were excluded from analyses comparing classroom observational data to checklist data obtained from teachers. In addition, for one participant (1.8%), the Adaptive Skills Composite could not be computed due to missing answers from the teacher's BASC-2 TRS checklist form. This participant was excluded from analyses that required a BASC-2 TRS Adaptive Skills Composite score. For two other participants (3.6%), the BASC-2 PRS was not obtained due to parents not returning forms. These participants were excluded from analyses comparing home observational data to checklist data obtained from parents. For one other participant (1.8%), home observational data were not available. This participant was excluded from analyses comparing such data to checklist data obtained from parents.

Reynolds and Kamphaus (2004) reported that large norming groups were used to standardize the BASC-2 PRS ($N = 4,800$) and TRS ($N = 4,650$), and that demographic variables such as gender, race/ethnicity, geographic region, and socioeconomic status/parent's education for the sample population were matched to census data. The norms for children aged 2-3 years were utilized for the current study. Alpha coefficients for the TRS and PRS composite scales in this norming group ranged from .87 to .96 and .85 to .93, respectively, indicating high internal consistency. In addition, test-retest reliabilities for the composite scales of the

Preschool version of the BASC-2 TRS ranged from .84 to .87, and inter-rater reliabilities ranged from .61 to .81. For the BASC-2 PRS, test-retest reliabilities for the Preschool version ranged from .81 to .86 for the composite scales, and inter-rater reliabilities ranged from .66 to .84. Reynolds and Kamphaus reported solid clinical validity based upon correlation studies using other, similar behavioral checklist measures.

Demographic Data. Children's gender, family annual income, parent education levels, and race/ethnicity were obtained during home visits. Parents were asked to define their child's gender and race or ethnicity, report their highest degree obtained, and categorize their family's annual income into increments of \$5,000, ranging from \$0-\$4,999 to \$75,000 or above. Demographic information was collected annually on three occasions from participants and their families.

Procedure

For the current study, approved by the University of Kansas Human Subjects Committee, parents of participating children who had completed the Promoting Communications study were mailed packets containing information about the research and consent forms to sign (see Appendix A) and return if they wished to participate. No additional exclusionary criteria were used, nor extra reimbursement offered, to parents who consented to participation in the current study. Once participants had been identified, a packet containing the BASC-2 PRS was sent to parents through their child care center or by U.S. Mail. In addition, the current or former teachers of participating children were recruited through meetings with the

current study's principal investigator in which research goals were discussed and the consent form (see Appendix B) was presented. Teachers consenting to participation then received a packet containing the BASC-2 TRS through their child care center or by U.S. Mail. Completed BASC-2 checklists from both parents and teachers were sealed in envelopes and collected at the child care center, or were sent by U.S. Mail to the principal investigator's office address.

Observational data were gathered by the Promoting Communications study's graduate research assistants coding adult-child interactions in the homes and classrooms of participants using the PICCOLI-2. Each was specifically trained to record the use of responsive interaction and milieu teaching techniques, along with other research-based communication-promoting strategies, and child communication attempts. In the classroom, observational data were gathered at 3 month intervals throughout a child's duration in the project, which was usually from 6 months of age to 36 months of age. Therefore, 11 total classroom observations were typically collected for children. In the home, observational and demographic data were collected for participating children at 3 yearly home visits during their tenure in the project.

Results

Hypothesis 1

To test the current study's primary hypothesis that children's early exposure to language strategies is associated with later behavioral and emotional adjustment and adaptive skills, four multiple regression analyses were initially conducted. This

number was necessary because children's exposure to language-promoting strategies (see Table 1) was measured in both the classroom and home settings, and because two BASC-2 composite scales were used to measure child outcomes (behavioral and emotional adjustment, adaptive skills; see Table 3). It should be noted that scores from BASC-2 teacher ratings were paired with data from classroom observational measures, and scores from BASC-2 parent ratings were paired with data from home observational measures, so that each analysis contained data taken from the same setting (i.e., either classroom or home). This was done because analyses of cross-setting data (e.g., comparing teacher ratings to observational data taken in the home) may have required drawing conclusions that could potentially be extraneous to, or outside the purview of, the current study's hypotheses.

Classroom Strategy Exposure and Behavioral/Emotional Adjustment. In the first analysis, predictors were the overall mean percentages for each of the four strategies observed in the classroom setting, and the dependent variable was the Behavioral Symptoms Index obtained from teacher ratings on the BASC-2 TRS. Results indicated that the linear combination of strategy variables was significantly related to Behavioral Symptoms Index scores, $F(4, 48) = 3.19, p = .02$. The sample multiple correlation coefficient was .46, indicating that approximately 21% of the variance in Behavioral Symptoms Index scores in the sample may be accounted for by the strategies. See Table 5 for a summary of the regression statistics for individual predictors.

As can be seen in Table 5, three of the strategy variables were negatively related to Behavioral Symptoms Index scores, which was expected since higher exposure to language strategies should be associated with lower frequency of (and impairment due to) clinically relevant behaviors. However, the strategy variable “Praise/Positive Feedback” was positively associated with Behavioral Symptoms Index scores. Although small sample size restricts making definitive conclusions about the contributions of individual predictors in the current study’s regression models, this finding was unexpected and notable. When this variable was removed from the model, the linear combination of the three remaining strategy variables was not significantly related to Behavioral Symptoms Index scores, $F(3, 49) = 2.29, p = .09$. However, the sample multiple correlation coefficient in this model was .35, indicating that approximately 12% of the variance in Behavioral Symptoms Index scores in the sample may be accounted for by the remaining strategies.

Classroom Strategy Exposure and Adaptive Skills. The second regression analysis used to test the primary hypothesis included the four predictors representing children’s exposure to strategies in the classroom setting, with Adaptive Skills Composite scores obtained from teacher ratings on the BASC-2 TRS as the dependent variable. Results indicated the linear combination of strategy variables was not significantly related to Adaptive Skills Composite scores, $F(4, 47) = 2.26, p = .08$, although 16% of the variance could be explained by the strategies in this model. See Table 6 for a summary of the regression statistics for individual predictors.

However, the “Praise/Positive Feedback” variable was negatively associated with Adaptive Skills Composite scores (see Table 6). This was unexpected because children’s increased exposure to strategies should be associated with higher adaptive functioning, which was evident with the other strategies. When the “Praise/Positive Feedback” variable was removed from the model, the linear combination of the remaining three communication-promoting strategies was related to Adaptive Skills Composite scores, $F(3, 48) = 3.08, p = .04$. Although this value was notable, it was not statistically significant when the p value of .05 was adjusted to account for experiment-wise error using a standard Bonferroni correction method ($.05/2 = .025$). In this model, the sample multiple correlation coefficient was .40, indicating that approximately 16% of the variance in Adaptive Skills Composite scores in the sample may be accounted for by the strategies.

Home Strategy Exposure and Behavioral/Emotional Adjustment. In the third regression analysis, predictors were the overall mean percentages for each of the four strategies as observed in the home, and the dependent variable was the Behavioral Symptoms Index obtained from parent ratings on the BASC-2 PRS. Results indicated that the linear combination of strategy variables was not significantly related to Behavioral Symptoms Index scores, $F(4, 47) = 1.04, p = .40$. See Table 7 for a summary of the regression statistics for individual predictors.

Home Strategy Exposure and Adaptive Skills. The fourth regression analysis included the four overall mean strategy exposure predictors from home observations, with Adaptive Skills Composite scores from the BASC-2 PRS as the dependent

variable. Results indicated the linear combination of strategy variables was not significantly related to Adaptive Skills Composite scores, $F(4, 47) = 0.09, p = .98$. See Table 7 for a summary of the regression statistics for individual predictors.

Hypothesis 2

The second hypothesis of the current study was that an association exists between children's early language usage and later behavioral and emotional adjustment and adaptive skills. Once again, four regression analyses were conducted to test the strength of the purported association, because children's language usage was measured in both the classroom and home and two separate composite scales assessed children's behavioral/emotional development and adaptive skills, respectively. Again, scores from BASC-2 teacher ratings were paired with classroom observational data, and scores from BASC-2 parent ratings were paired with home observational data, so that each analysis contained data taken from the same setting.

Classroom Language Usage and Behavioral/Emotional Adjustment. In the first regression analysis, predictors were the overall mean percentages of the three child language usage variables computed from data gathered from classroom observations, and the dependent variable was the BASC-2 TRS Behavioral Symptoms Index. Results indicated the linear combination of the child language usage variables was not significantly related to Behavioral Symptoms Index scores, $F(3, 49) = 0.55, p = .65$. See Table 8 for a summary of the regression statistics for individual predictors.

Classroom Language Usage and Adaptive Skills. In the second regression analysis, predictors were the child language usage variables computed from classroom observations, and the dependent variable was the BASC-2 TRS Adaptive Skills Composite. Results indicated that the linear combination of the child language usage variables was significantly related to Adaptive Skills Composite scores, $F(3, 48) = 3.43, p = .02$. In this model, the sample multiple correlation coefficient was .42, indicating that approximately 18% of the variance in Adaptive Skills Composite scores in the sample may be accounted for by the child language usage predictors in the model, which as expected were positively associated with Adaptive Skills Composite scores. See Table 8 for a summary of the regression statistics for individual predictors.

Home Language Usage and Behavioral/Emotional Adjustment. In the third regression analysis, predictors were the child language usage variables obtained from data gathered in the home, and the dependent variable was the BASC-2 PRS Behavioral Symptoms Index. Results were similar to that which was found in the classroom, in that the linear combination of child language usage variables was not significantly related to Behavioral Symptoms Index scores, $F(3, 48) = 1.87, p = .15$. See Table 9 for a summary of the regression statistics for individual predictors.

Home Language Usage and Adaptive Skills. In the fourth regression analysis, predictors were the child language usage variables obtained from data gathered in the home, and the dependent variable was the BASC-2 PRS Adaptive Skills Composite. Results were dissimilar to that which was found in the classroom, in that the linear

combination of child language usage variables was not significantly related to Adaptive Skills composite scores, $F(3, 48) = 1.63, p = .20$, and were also negatively associated with this variable, which was unexpected. See Table 9 for a summary of the regression statistics for individual predictors.

Discussion

The importance of early language development for children has been well-established in the research literature (e.g., Cantwell & Baker, 1977; Hancock & Kaiser, 2006; Hart & Risley, 1995; Rice, 1993). Language allows for the appropriate expression of desires and frustrations, the ability to solve problems and navigate ambiguous or confusing situations, and the learning of interpersonal concepts and pragmatic communication, among a host of other benefits that aid in facilitating a child's social and emotional well-being. One need only review outcomes research on children with impaired speech/language skills to understand the magnitude of this developmental milestone (see Beitchman et al., 1996; Benner et al., 2002; Qi & Kaiser, 2004; Whitehurst et al., 1992). The aim of the current study was to identify and investigate the associations between children's early exposure to evidence-based, language-promoting strategies and their later behavioral and emotional adjustment and adaptive functioning. In addition, the current study sought to determine whether the frequency of children's language usage was associated with later adjustment. The results from analyses conducted to test these hypotheses demonstrate the importance of children's exposure to language-promoting strategies, particularly in the classroom, with regard to their behavioral, emotional, and adaptive functioning. In

addition, analyses demonstrated the importance of children's early language usage in the classroom with regards to their adaptive functioning.

Findings

Hypothesis 1. Multiple regression analyses suggested that the linear combination of communication-promoting strategies, as observed in the classroom environment, were associated with the BASC-2 TRS Behavioral Symptoms Index and the Adaptive Skills Composite scale scores, in that higher exposure to strategies indicated lower T-Scores on the clinical scale and higher T-scores on the adaptive scale. Conversely, results from the home analyses did not indicate a notable linear effect when comparing children's strategy exposure in the home to index scores on the parent version of the BASC-2. However, with the classroom and teacher data, three of the four strategies were associated with composite scale scores in a manner predicted by the current study's hypotheses. These three were designed to encourage attentiveness and responsiveness to a child's communication attempts, interests, and activities, along with the modeling of new words or more grammatically sound phrases in naturalistic conversation. Therefore, findings are consistent with the position that children's early exposure to these strategies may have favorable effects on their behavioral and emotional adjustment and adaptive functioning.

Although it may appear the results suggest that children's exposure to verbal positive reinforcement was associated with less behavioral and emotional adjustment and decreased adaptive functioning, more parsimonious reasons may exist to explain this finding. First, teachers in the Promoting Communications study were encouraged

by interventionists to decrease attention given to behavioral problems in their classroom and provide verbal and tangible rewards to problematic children when they were observed engaging in prosocial behaviors or complying with requests. This occurred because teachers typically inquired of how to address disruptiveness and oppositionality in their classrooms. Even though classroom behavior management was not officially addressed by the Promoting Communications study's intervention efforts, providing strategies to this effect worked to enhance the collaborative and practical aspects of intervention delivery. In any case, this may have increased the amount of observed praise and positive feedback that was offered to participants who were ultimately rated less favorably on the BASC-2 TRS by teachers. Second, Powell, Burchinal, File, and Kontos (2008) noted that teachers often provide additional support to children who are not appropriately engaged in designated tasks, suggesting the increased probability that children with behavioral or emotional problems are more likely to receive praise and positive feedback from teachers. In essence, although the use of praise and positive feedback was associated with higher Behavioral Symptoms Index scores and lower Adaptive Skills Composite scores, this may have been due to teachers being more likely to use this strategy with children who required behavioral support (Wilcox-Herzog & Kontos, 1998) and not because children's exposure to praise and positive feedback was somehow detrimental to their behavioral/emotional adjustment and adaptive functioning.

Hypothesis 2. Results from multiple regression analyses also revealed that the linear combinations of variables pertaining to child verbal communication in the

classroom and home were not related to clinical scores on the BASC-2 TRS and PRS Behavioral Symptoms Index. However, the results did indicate that children's verbal communication attempts in the classroom were significantly associated with Adaptive Skills Composite scores from the BASC-2 TRS, which underscores the importance of children's use of language in settings that require the successful management and negotiation of interpersonal relationships, the ability to learn and follow rules in a relatively controlled environment, and the flexibility to adjust appropriately to new or confusing changes in a dynamic social milieu. Conversely, the results from home observations and parent checklist data did not indicate an association between children's use of language and scores on the Adaptive Skills Composite of the BASC-2 PRS.

Discrepancies in Results from the Classroom and Home. Interestingly, the effects of strategy exposure and child language usage in the home on parents' ratings of children's behavioral/emotional adjustment and adaptive skills were statistically insignificant and, in some cases, contradictory to the current study's hypotheses. Although this discrepancy from results obtained from the classroom and from teachers was unexpected, it might be best explained by examining the differences in how parents and teachers rate children on behavioral checklist measures. A wealth of research exists which has identified and attempted to explain the differences in how teachers and parents rate their children on behavioral measures, such as those used in the present study. Achenbach, McConaughy, and Howell (1987) conducted a meta-analytical review of over 41 samples in 26 studies and found that the correlation

between parents and teachers was .27 on behavioral measures completed for the same child. This statistic was markedly different from correlations between parents of the same child (.59) and teachers of the same child (.69) that were found in similarly meta-analyzed reviews of studies.

Achenbach et al. (1987) surmised that situational or contextual variability may account for such differences. However, Piacentini (1993) has noted that parents may be less attuned to their child's externalizing and internalizing behaviors than their child's teachers. This may be because parents do not typically witness their child's interactions with peers or their responses in more restrictive settings (e.g., the classroom), which are more likely to elicit problematic behaviors. In addition, Piacentini suggested that parents may be less aware than teachers of what constitutes normative behavior in children. In sum, such factors may have served to decrease the accuracy and variability of BASC-2 PRS composite scale scores and diminish the potential relationship between observed exposure to communication-promoting strategies and children's later adjustment and adaptive functioning. Further research is needed to elucidate these issues and to better understand the differences between parent and teacher report on the BASC-2.

Limitations

Conclusions drawn from the results of the current study are perhaps most limited by the homogeneity of the participant sample. Children were overwhelmingly European American/White and raised by mostly well-educated parents reporting total family incomes at middle- to upper-middle-class levels. This may make it difficult to

generalize results to minority children and/or those from families of lower socioeconomic status. In addition, children were initially recruited for the Promoting Communications study from community-based child care centers, as it sought to test the effectiveness of an intervention to promote communication with children served in child care, and not specifically with a clinical sample. The present study recruited participants from this non-clinical sample, which may work to decrease the variability of scores on clinical measures such as the BASC-2.

However, results may ultimately provide worthwhile information about the BASC-2 and its utility as an outcome measure with preschool samples. Although recent studies (e.g., Beg, Casey, & Saunders, 2007; Williford & Shelton, 2008) have used the BASC-2 to assess for a range of child psychopathology-related variables in young children, very little research exists that has used the BASC-2 to measure outcomes among non-clinical samples. Given the well-documented difficulties of measuring preschool children with norm-referenced behavioral checklists (e.g., Huberty, DiStefano, & Kamphaus, 1997; Koot, Van Den Oord, Verhulst, & Boomsma, 1996), the results indicate the possibility that differences among non-clinical samples of preschool children may be statistically delineated.

Finally, of the approximately 100 children whose families consented to their participation in the larger study, over 25% were not recruited for the current study because an insufficient amount of data had been collected or their parents could not be reached to give consent due to moving away from the region. Of those children available for recruitment, 76% were given consent to participate. Therefore, the size

of the sample was smaller than expected when conducting and drawing meaningful conclusions from complex inferential statistical procedures, such as multiple regression analysis, particularly with regard to examining the unique contributions of individual predictors (Tabachnick & Fidell, 2001). The smaller sample size also disallowed the use of certain procedures (e.g., structural equation modeling) that might have better exploited the variability and richness of the longitudinal observational data collected for the Promoting Communications study.

Future Directions

Despite these limitations, results generally indicate that adult attentiveness to children's interests, responsiveness to children's communication attempts, and modeling of appropriate vocabulary and grammar likely work to enhance children's behavioral and emotional adjustment and adaptive functioning, particularly in the classroom setting. Results also support the importance of promoting children's early and frequent use of language to best prepare them for functioning within dynamic social and learning environments. Future studies examining the effects of early intervention attempts that promote behavioral and emotional adjustment and adaptive functioning in children should continue to incorporate longitudinal analyses and detailed observational data with larger, more representative samples.

It is also noteworthy that the BASC-2 was generally an effective outcome measure for testing the current study's hypotheses with classroom and teacher data, considering that participants were recruited from a non-clinical sample of preschool children. Results may suggest that future studies involving younger, typically-

developing children may be served well by using the BASC-2 as a broadband measure of behavioral and emotional adjustment and adaptive skills. However, more research is needed, preferably utilizing larger and more diverse samples, to determine if the BASC-2 may be used in a manner similar to how it was used in the current study, particularly if data is to be gathered from the home or from parents.

Perhaps most importantly, results suggest that future research should elucidate how intervention efforts can best promote children's continued use of age-appropriate communication and language to maintain desirable behavioral, emotional, and adaptive functioning outcomes throughout the course of development. Specifically, future studies should be directed at establishing intervention delivery methods that best encourage parents, teachers, and others involved with the care of children to use evidence-based communication-promoting strategies to enhance behavioral, emotional, and adaptive adjustment outcomes. Certainly, the Hanf behavioral parent-training models developed by McMahon and Forehand (2003) and Sheila Eyberg (Hembree-Kigin & McNeil, 1995), with their particular emphasis on language-promoting, responsive adult-child interactions, are widely recognized as effective treatments for disruptive behavior disorders in clinical settings. Encouragingly, Eyberg's P-CIT has been converted into a group parent-training program, which may allow for the more efficient presentation of language-promoting strategies to multiple families, many of whom may be less likely to engage in individualized treatment modalities (Niec, Hemme, Yopp, & Brestan, 2005).

However, more broad-based, less conventional methods of disseminating language-promoting strategies to parents with young children at-risk for maladaptive behavioral and emotional adjustment may be needed. For example, community-based mental health professionals that provide CPST (community psychiatric supportive treatment) or case management services would be ideal providers for delivering interventions that highlight the importance of attentiveness to children's interests and responsiveness to their age-appropriate communication attempts. This is true primarily because the majority of their time spent with families occurs in naturalistic settings where they can model and directly encourage the use of communication-promoting strategies across a variety of situations and settings.

Providers and teachers in the field of early care and education have long been exposed to professional development activities, both formally and informally, that espouse evidence-based practices and approaches that enhance outcomes for children. However, Pianta (2006) has argued that current methods of educating and training the child care workforce are generic and often group-focused, and do not ensure that the knowledge gained by providers actually translates into better classroom experiences for children. In response, Pianta has developed an internet-mediated, consultancy-based model of professional development that can be individualized for particular teachers and uses standardized observational methods to measure what he terms as the primary unit of high-quality child education and care, which is the teacher-child interaction. Researchers and interventionists should continue to develop methods of encouraging teachers' use of language-promoting strategies that are similarly

individualized, measurable, and focused on improving teacher-child interactions (Walker, Harjusola-Webb, Small, Bigelow, & Kirk, 2005).

In conclusion, children's increased exposure to strategies that encourage language and communication are likely associated with later behavioral and emotional adjustment and adaptive functioning. Fortunately, such strategies are simple, easy to learn, and easily disseminated to a variety of caregivers, parents, and other professionals involved in the care of children. This serves to bolster the idea that future training and interventions developed for parents and child care professionals should incorporate such strategies to improve the adult-child relationship and outcomes for children.

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Table 1

Observational Variable Definitions for the PICCOLI-2 Measure

Observational Variable	Brief Description
<i>Language-Promoting Strategies</i>	
Talking/Responding	Talking/responding to a child about his or her interests
Comments/Labels	Describing objects, aspects of objects, or activities
Expansions/Imitations	Mimicking or adding to a child's communication
Positive Feedback/Praises	Verbal reinforcement for prosocial behavior
<i>Child Communication</i>	
Child Words	Verbal communications containing one word
Child Multiple-Words	Verbal communications containing more than one word
Child Singing	Singing words of a song

Table 2

*Descriptive Data for the PICCOLI-2 Observational Measure**

Observational Variable	Classroom		Home	
	Mean	SD	Mean	SD
<i>Language-Promoting Strategies</i>				
Talking/Responding	1.834	1.275	4.825	3.337
Comments/Labels	6.009	2.650	12.161	6.062
Expansions/Imitations	0.808	0.629	3.633	2.779
Positive Feedback/Praises	1.419	0.747	3.117	2.440
<i>Child Communication</i>				
Child Words	4.790	2.078	10.445	5.698
Child Multiple-Words	6.293	3.486	12.870	8.641
Child Singing	0.374	0.730	0.148	0.450

*All numerical values in this table are expressed as percentages.

Table 3

BASC-2 Composite Score Subscales for the Preschool Version

Subscale	Brief Description
<i>Behavioral Symptoms Index</i>	
Hyperactivity	Disruptive, impulsive, and uncontrollable behaviors
Aggression	Verbal/physical aggression towards peers and adults
Depression	Negative verbalizations or tendency get upset easily
Attention Problems	Problems paying attention, gives up easily, distractible
Atypicality	Easily sidetracked, odd/repetitive thoughts or behaviors
Withdrawal	Persistently shy, avoids social situations or interactions
<i>Adaptive Skills Composite</i>	
Adaptability	Age-appropriate adjustment in a variety of situations
Social Skills	Positive attitude towards peers and adults
Activities of Daily Living*	Performing simple/everyday tasks safely and efficiently
Functional Communication	Has verbal skills to seek out and find information easily

* Only for BASC-2 PRS

Table 4

Descriptive Data for the BASC-2 Behavioral Checklist Measures

Composite Scale	TRS ^a		PRS ^b	
	Mean	SD	Mean	SD
Behavioral Symptoms Index	49.925	7.211	49.058	6.812
Adaptive Skills Composite	58.058	8.923	55.308	6.983

^aTeacher Rating Scales

^bParent Rating Scales

Table 5

Classroom Predictors of the BASC-2 TRS Behavioral Symptoms Index for Hypothesis 1

Variables	Regression Statistics		
	β^*	p	Partial r
<i>Four-Predictor Model</i>			
Talking to/Responding to Interests	-.381	.006	-.386
Comments/Labels	-.195	.141	-.211
Imitations/Expansions	-.044	.736	-.049
Praise/Positive Feedback	.306	.026	.315
<i>Three-Predictor Model</i>			
Talking to/Responding to Interests	-.315	.023	-.318
Comments/Labels	-.152	.264	-.159
Imitations/Expansions	-.023	.865	-.024

*Standardized Coefficients

Table 6

Classroom Predictors of the BASC-2 TRS Adaptive Skills Composite for Hypothesis 1

Variables	Regression Statistics		
	β^*	p	Partial r
<i>Four-Predictor Model</i>			
Talking to/Responding to Interests	.253	.071	.260
Comments/Labels	.226	.103	.236
Imitations/Expansions	.249	.071	.260
Praise/Positive Feedback	-.012	.934	-.012
<i>Three-Predictor Model</i>			
Talking to/Responding to Interests	.250	.064	.264
Comments/Labels	.224	.098	.237
Imitations/Expansions	.248	.068	.260

*Standardized Coefficients

Table 7

Home Predictors of the BASC-2 PRS Composite Scales for Hypothesis 1

Variables	Regression Statistics		
	β^*	p	Partial r
<i>Behavioral Symptoms Index Model</i>			
Talking to/Responding to Interests	-.175	.239	-.171
Comments/Labels	.091	.539	.090
Imitations/Expansions	-.184	.210	-.182
Praise/Positive Feedback	-.140	.344	-.138
<i>Adaptive Skills Composite Model</i>			
Talking to/Responding to Interests	.055	.722	.052
Comments/Labels	-.002	.991	-.002
Imitations/Expansions	.085	.572	.083
Praise/Positive Feedback	-.011	.943	-.010

*Standardized Coefficients

Table 8

Classroom Predictors of the BASC-2 TRS Composite Scales for Hypothesis 2

Variables	Regression Statistics		
	β^*	p	Partial r
<i>Behavioral Symptoms Index Model</i>			
Child Words	-.140	.380	-.126
Child Multiple-Words	.015	.921	.014
Child Singing	-.087	.558	-.084
<i>Adaptive Skills Composite Model</i>			
Child Words	.318	.035	.298
Child Multiple-Words	.161	.266	.161
Child Singing	.033	.813	.034

*Standardized Coefficients

Table 9

Home Predictors of the BASC-2 PRS Composite Scales for Hypothesis 2

Variables	Regression Statistics		
	β^*	p	Partial r
<i>Behavioral Symptoms Index Model</i>			
Child Words	.050	.740	.048
Child Multiple-Words	.143	.323	.143
Child Singing	.276	.061	.267
<i>Adaptive Skills Composite Model</i>			
Child Words	-.205	.179	-.193
Child Multiple-Words	-.026	.859	-.026
Child Singing	-.169	.248	-.166

*Standardized Coefficients

Appendix A

Informed Consent Form for Parents

INFORMED CONSENT

TITLE OF STUDY: Examining the Effects of Early Language, Cognitive Development, and Adult Communication on Clinical and Social Problems in Later Childhood

Juniper Gardens Children's Project, the Department of Psychology, and the Clinical Child Psychology Program at the University of Kansas support the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.

Dear Parent(s)/Guardian:

We appreciate your participation in the Juniper Gardens Children's Project, Partnership in Promoting Communication Project. As your child reaches (or has reached) the age of 36 months, we are seeking some additional information to help us understand more about the relationship between language the later behavior of young children.

If you agree to participate in this project, we will ask you to complete a measure, the *Behavioral Assessment System for Children, Parent Ratings Scales*. This measure requires approximately 5 minutes for completion. All other information that will be used by this study was previously collected throughout the duration of the Promoting Communication Project, and includes information about your family background, data on your child's general development, and observational data taken in the classroom and home. In addition, if you agree to participate, your child's current teacher will also be asked to complete a similar behavioral measure, the *Behavioral Assessment System for Children, Teacher Ratings Scale*, which takes approximately 5 minutes to complete. Teachers will also be asked to give informed consent before participating in this additional study.

All of the information gathered will be kept private and each child will be identified only by a number code. Such information will be kept securely in a centralized place for 3 years following completion of the project. Your child's records or the name of the child care center will never be identified by name in presentations or reports. You have the option of requesting any information regarding the data being collected, and if at any time during the project you have any concerns about your child's development we encourage you to please contact us. It is also our policy to let parents know if any testing we conduct suggests that further evaluation is recommended and to help with referrals if requested. There are no anticipated risks associated with this study. In addition, there are no direct benefits to families or child care providers. However, benefits to society include obtaining a better understanding of the relationship between early language development and later childhood adjustment.

If you agree to participation in this project we ask that you please sign below. Please feel free to ask us if you do not understand any part of this form or if you would like more information. Please remember that even if you agree to participate in this project, you are free to withdraw your permission at any time without penalty or loss of services at your child care center. If you have questions about this project please contact us at (785) 864-4074, or you can contact the principal investigator directly at (785)-393-2918.

Thank you for your time and consideration.

Sincerely,

John L. Powell, M. A., Principal Investigator, and Dale Walker, Ph.D., Faculty Advisor

PARENT PERMISSION

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785) 864-7385 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email dhann@ku.edu or mdenning@ku.edu.

I, _____ give my consent to participate in this project. I am
(Your name printed)

the (mother/father/guardian) of _____, and I will complete
(please circle one) (Your child's name printed)

the measure based upon my observations as the parent/guardian of my child.

(Signature-Legal Guardian)

(Date)

Researcher Contact Information

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Appendix B

Informed Consent Form for Teachers

INFORMED CONSENT

TITLE OF STUDY: Examining the Effects of Early Language, Cognitive Development, and Adult Communication on Clinical and Social Problems in Later Childhood

Juniper Gardens Children's Project, the Department of Psychology, and the Clinical Child Psychology Program at the University of Kansas support the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.

Dear Early Childhood Care Provider:

In conjunction with the Juniper Gardens Children's Project, Partnership in Promoting Communication Project, which has worked in partnership with your child care center during the past 3 years, we ask that you participate in a smaller study that will help us determine the effects of early cognitive and language development and adult positive attention on a child's aggressive or oppositional behavior; symptoms of hyperactivity, depression, and anxiety; and social skills in later childhood. Research has indicated that the normal or advanced development of language skills in early childhood may have a significant positive effect on children's later behavior and psychological well-being. This study seeks to understand what specific factors relating to language development may predict better social adjustment in children.

If you agree to participate in this project, we will ask you to complete a measure, the *Behavioral Assessment System for Children, Teacher Ratings Scales*, for each child in your classroom that has completed participation in the Promoting Communications Project, and whose parents have consented to their participation in this particular study. This measure requires approximately 5 minutes for completion. All other information that will be used by this study was previously collected throughout the duration of the Promoting Communication Project, particularly observational information that may have been obtained in your classroom.

All of the information gathered will be kept private and each child and teacher will be identified only by a number code. Such information will be kept securely in a centralized place for 3 years following completion of the project. No teachers' or children's names, nor the name of your child care center, will be identified by name in presentations or reports. There are no anticipated risks associated with this study. In addition, there are no direct benefits to child care providers or families. However, benefits to society include obtaining a better understanding of the relationship between early language development and later childhood adjustment.

If you agree to participation in this project we ask that you please sign below. Please feel free to ask us if you do not understand any part of this form or if you would like more information. Please remember that even if you agree to participate in this project, you are free to withdraw your consent at any time without penalty from your child care center. If you have questions about this project please contact us at (785) 864-4074.

Thank you for your time and consideration.

Sincerely,

John L. Powell, M.A., Principal Investigator, and Dale Walker, Ph.D., Faculty Advisor

EARLY CHILD CARE PROVIDER PERMISSION

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785) 864-7385 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email dhann@ku.edu or mdenning@ku.edu.

I, _____ have read the above letter and I agree to
(Your name printed)

participate as a research partner in the project described.

(Your Signature)

(Date)

With my signature, I affirm that I have received a copy of the Informed Consent form to keep for my records.

Researcher Contact Information

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