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THE RELATIONSHIP BETWEEN PRAGMATIC LANGUAGE AND BEHAVIOR  
SUBTYPES IN TYPICALLY DEVELOPING CHILDREN

by

Lisa J. Christensen

A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of

Master of Science

Department of Communication Disorders

Brigham Young University

December 2007

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GRADUATE COMMITTEE APPROVAL

of a thesis submitted by

Lisa J. Christensen

This thesis has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

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BRIGHAM YOUNG UNIVERSITY

As chair of the candidate's graduate committee, I have read the thesis of Lisa Jeppson Christensen in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

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## ABSTRACT

### THE RELATIONSHIP BETWEEN PRAGMATIC LANGUAGE AND BEHAVIOR SUBTYPES IN TYPICALLY DEVELOPING CHILDREN

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Master of Science

#### Abstract

This study examines the relationship between syntactic and pragmatic language and reticence, solitary-active passive withdrawal, solitary-passive withdrawal, prosocial skills, and likeability. The Children's Communication Checklist (CCC-2), a language checklist, and Teacher Behavior Rating Scale (TBRIS), a behavior checklist, were completed by three 2<sup>nd</sup>-grade teachers and three 4<sup>th</sup>-grade teachers about each of their students. Factor analysis was used to determine two composite language measures from the CCC-2 scales. The results of two hierarchical regression analyses indicated that social behaviors were significant predictors of pragmatic language, but not structural language. In particular, solitary-passive withdrawal and reticence were significant predictors of pragmatic language deficits.

## ACKNOWLEDGMENTS

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## Introduction

*Social communication* is the ability to use language in interpersonally appropriate ways to influence people and interpret events (Adams, 2005; Olswang, Coggins, & Timler, 2001). As implied by this term, effective communication requires not only linguistic knowledge but social knowledge as well. Efficiency in both linguistic and social abilities is therefore necessary for contextually appropriate, meaningful, and effective interpersonal communication (Adams, 2005). Researchers have indicated several ways in which poor social communication skills may impact children's social and behavioral performance including peer acceptance (Black & Logan, 1995; Steinkamp, 1989), access to interactions which promote social adjustment and development (Noterdaeme & Amorosa, 1999; Rubin & Coplan, 2004), appropriate expression of intention (Carr & Durand, 1985a), and available coping strategies for challenging social situations (Coplan & Armer, 2005; Rubin & Coplan, 2004). With these ramifications for children's everyday social interactions, it is no surprise that social communicative abilities are of increasing concern (Abbeduto & Short-Meyerson, 2002; Kaczmarek, 2002). Less is known about the impact of problematic social behavior on language; however, Paul (2000) has speculated that social interactional problems may underlie later language difficulties.

One of the most common behavioral outcomes associated with impaired or developmentally delayed language is the internalizing behavior *withdrawal* (Noterdaeme & Amorosa, 1999; Willinger et al., 2003). Withdrawal is of particular concern because of the associated detrimental long-term effects it has socially and cognitively. These effects may include depression, low self-esteem, less-active social lives, loneliness, and social

anxiety (Rubin & Coplan, 2004). Most likely because of their relative instability and lack of salience, withdrawal and other internalizing behaviors were largely neglected in research until the 1980s (Rubin & Coplan, 2004). It was not until 1993 that Asendorpf and Rubin first established subtypes of withdrawal thereby allowing more meaningful research and insight on this important topic (Rubin & Coplan, 2004). The ambiguity of using terms such as “shy”, “withdrawn”, and “reticent” interchangeably was resolved by the clear definition of the subtypes of withdrawal. These subtypes include solitary-active withdrawal, social or solitary-passive withdrawal, and reticence. This study will examine the relationship between withdrawn and language behaviors in school age children.

Withdrawal may be better understood when more positive behaviors are examined simultaneously (Fujiki, Brinton, Morgan, & Hart, 1999; Tremblay, Vitaro, & Gagnon, 1992). This study, therefore, also examines the link between language and positive, outgoing behaviors that are grouped under the title *sociability*. The term sociability refers to behaviors conceptualized in two categories: *likeability* and *prosocial behavior*. Likeability does not refer to the actual sociometric rating of a child, but rather it refers to behaviors exhibited which may affect how easy it is for others to get along with or like the child. These may include conforming and friendly behaviors, emotional impulse control, rough and tumble cooperative play, and assertive leadership skills (Hart, McGee, & Hernandez, 1993). Prosocial behavior may include behaviors such as helping, sharing, and comforting during social interactions (Hart, Fujiki, Brinton, & Hart, 2004).

The influence of social behaviors such as withdrawal and sociability on language has not been clearly established. Although children with impaired language skills have consistently been rated by their teachers as being more withdrawn and less sociable than

typical children (Fujiki et al., 1999), the influence of these social behaviors on language ability is unclear. It has been demonstrated that the severity of withdrawal does not appear to be generally linked to severity of language impairment (LI). On the other hand, sociable behavior does appear to be related to level of language ability in children with LI (Hart et al., 2004).

Studies of the relationship of language and behavior have largely used measures of expressive and receptive language. These measures, however, are often based on tasks such as identifying or describing pictures (Carson, Klee, Perry, Donaghy, & Muskina, 1997; Coplan & Armer, 2005; Willinger et al., 2003). These tasks reveal little about the ability to use language in interaction. Some relationship between withdrawal and expressive language scores has been shown. The language measures used, however, sample specific behaviors such as inventories of the words the child produces. These types of measures do not give us a comprehensive view of the child's language (Carson et al., 1997) and therefore may not allow much insight into the social communicative behaviors that would most likely be influenced by withdrawal. Other researchers have addressed this by using specific aspects of pragmatics as a measure of communicative ability (Black & Logan, 1995; Steinkamp, 1989). These studies, however, have usually been limited to information taken from informal language samples which may not be representative of typical performance. The Children's Communication Checklist (CCC-2, Bishop, 2006) is a standardized measure of communicative ability that includes measures of both structural and pragmatic language skills. The use of this caregiver checklist may offer insight into rare and subtle characteristics of communication which may not be observed during shorter samples of behavior (Botting, 2004).

The current study attempts to examine the relationship of social behaviors (withdrawal and sociability) to language in more detail by asking teachers of 3 fourth-grade and 3 second-grade classrooms to complete two checklists about each of their students: the CCC-2, which assesses structural as well as pragmatic aspects of communication; and the Teacher Behavior Rating Scale (Hart & Robinson, 1996, TBR), which includes the specific subtypes of withdrawal and sociability. The data will be analyzed to answer the following research questions:

1. Is there an association between social behavior (subtypes of withdrawn and sociable behaviors) and language behavior in typically developing children?
2. Is the association between sociable behavior and language behavior more heavily influenced by structural or pragmatic language skills?
3. Are there specific relationships between subtypes of withdrawn and sociable behavior and structural and pragmatic language skills?

## Review of Literature

### *Language and Behavior*

Language plays an important role in social and behavioral development (Willinger et al., 2003). Social communication, the ability to use language to communicate appropriately (Olswang et al., 2001), consists of four aspects: *social cognition, social interaction, expressive and receptive language processing, and verbal and nonverbal pragmatics* (Adams, 2005). These four aspects, although distinct, all interact within the construct of social communication. Although many different views exist in the literature concerning the relationship between social cognition and language development, most agree that social cognitive competence (including skills such as emotion perception, social problem solving, and self-cognition) and language competence are strongly related (Marton, Abramoff, & Rosenzweig, 2005). Social interaction refers to a child's recognition that interaction with other individuals is desirable and that others may reciprocate in these exchanges. Language processing refers to a child's ability to process grammatical structures, word meanings, and phonological forms (Adams, 2005). Pragmatics refers to both the verbal and nonverbal behaviors that contribute to the appropriate use, adaptation, and interpretation of language in context (Adams, 2005; Gilmour, Hill, Place, & Skuse, 2004). Each of these four components is critical to the actual communication of meaning in social interactions.

Social communication is necessary for children to form, participate in, and maintain appropriate social relationships (Marton et al., 2005). Children's exclusion from these relationships may adversely affect their opportunity to participate in interactions that help develop social-cognitive and language skills (Rice, 1993; Rubin & Coplan,

2004). It may also be linked to lowered self-esteem, increased victimization by peers, and other behavioral problems (Conti-Ramsden & Botting, 2004; Fujiki et al., 1999; Jerome, Fujiki, Brinton, & James, 2002). Timler, Olswang, and Coggins (2005) used the case study of a preschool boy named Joey to demonstrate the negative impact that LI has on social interaction and how these effects are often associated with the later development of behavior problems. At the beginning of the year, Joey's interactions with adults were not particularly troublesome. He had difficulty with peer interactions, however. He often played by himself and was ignored or asked to leave when attempting to play with other children. By the end of the year, Joey had become more aggressive and had higher reported levels of problem behaviors (Timler et al., 2005). Joey's difficulties illustrate those of other children who struggle to use language, have difficulties in peer interaction, and may ultimately be at a higher risk for behavior problems (Olswang et al., 2001; Timler et al., 2005).

Although some association is likely, the exact nature of the relationship between language and behavior is not clear. Language deficits may lead to behavioral problems by denying children the ability to express themselves, comprehend others, or effectively cope with a behavioral predisposition (Coplan & Armer, 2005; Willinger et al., 2003). Out of 288 outpatients, ages ranging from 4 to 12 years old, referred solely for psychiatric disorder, Cohen et al. (1993) found approximately 34% to have a previously undetected language impairment. Compared to those with a psychiatric disorder and previously identified language impairment, these children had more serious externalizing behavioral problems. This could suggest the contribution of language to behavioral

problems since children whose LI was unidentified, and therefore not treated, were more severely impaired behaviorally.

Other research suggests that behavior problems could possibly lead to associated language difficulties. For example, Paul (2000) has suggested that the withdrawn behaviors often seen in children with LI might precede the language difficulties experienced by these children. Although this notion has not been investigated in detail, there is little question that behavioral problems may negatively impact the child's social interaction with peers, social interactions which help foster important language skills (Horowitz, Jansson, Ljungberg, & Hedenbro, 2005). Willinger et al. (2003) found significantly higher rates of behavior problems in children with expressive and receptive language deficits and suggested a possible reason to be the detrimental impact behavior problems can have on parent-child communication. Behavior problems may impact the amount, type, and quality of communication between parent and child. This may limit a child's opportunities for language exposure and acquisition or alter the type of language models provided by the parents. For example, the parent of a child with behavior problems may allow the child fewer turns and use a higher proportion of command statements rather than questions. Black and Logan (1995) found that these patterns in parent-child interactions, among others such as appropriate turn-taking, are linked to children's conversational skills and peer acceptance. Children's conversational patterns were similar to those of their parents. Parents of rejected children were more likely to make more demands and closed requests, take irrelevant turns, interrupt, and not leave time for a response after taking a turn.

Causality could also be cyclic. As behavior impairs communication, opportunities for interaction and language development are lost, which further prevents psychosocial adjustment and development and contributes to problem behaviors (Horowitz et al., 2005; Noterdaeme & Amorosa, 1999). Mabel Rice (1993) described this as a “Social Consequences Account of language impairment” (p. 140) in which socialization acts as a source of language development and language in turn acts as a tool of socialization. It is argued that children with LI are less able to participate effectively in social interactions because of their language deficits and are then excluded from socialization that could aid in language development. Rice also argues that even when children with LI do participate, the impairment impedes their ability to interact fully and to learn language from the interaction. Therefore LI can affect a child’s ability to benefit linguistically from socialization as other children may. Willinger et al. (2003) also noted that language and behavior problems could merely be co-occurring or both result from neurodevelopmental immaturity. A potential relationship between language and behavior in typically-developing children, as addressed in this study, would contradict this hypothesis. Although a precise causal relationship may remain elusive, a variety of research has been to done to clarify this important relationship between language and behavior.

#### *Language and Behavior Problems in Community Samples*

Several studies using community samples have addressed the relationship of language and behavior. Although clinical samples often find stronger associations, these can be inflated by their overrepresentation of extremes and comorbidity (Plomin, Price, Eley, Dale, & Stevenson, 2002). Community samples are important in considering the behavior of the general population and in providing a comparison for clinical samples to

see if associations are greater than would be expected based on more widespread sampling. In a sample of 581 second-grade children (164 with language impairments<sup>1</sup>), parent ratings of behavior disorders significantly correlated with children's spoken language scores (Tomblin, Zhang, & Buckwalter, 2000). A similar correlation was found in a sample of 4000 sets of twins assessed by parents at ages 2, 3, and 4 years (Plomin et al., 2002). Although the correlation tends to be modest in the younger population (Rescorla & Achenbach, 2002), it becomes stronger with age (Plomin et al., 2002). This increased strength of relationship may occur as children spend more time with the adverse effects of their language and/or behavior deficits and as their social situations (school, etc.) become more demanding. In a study of children 18-35 months, Rescorla and Achenbach (2002) did not find an association in measures of language development and behavior. The data did suggest, however, that significant behavior problems may be more likely when children's language has been delayed for many months. This may also be the reason for the modest association found by Carson et al. (1997) between language and behavior in children age 24-29 months. Although Plomin et al. (2002) also found only a modest correlation between behavior problem and verbal development scores in longitudinal data gathered at age 2, 3, and 4 years, the correlation did strengthen from age 2 to 3 years and 3 to 4 years.

Cohen, Menna, et al. (1998) compared research conducted with children ages 7-14 years with similar research that included children as young as 4 years (Cohen & Hordezky, 1997). The data indicated that younger children (4-6 years) were the least symptomatic and that school entry may be a point of dramatic increase in observed

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<sup>1</sup> The over sampling of children with poor language skills was done intentionally to increase the information available concerning these children.

psychopathology. These age-related findings support the suggestion that there are “language-related risk factors” (p. 928) which, despite the inability to prove a strong relationship in young children, may be associated with or predict more salient behavior problems in the future (Carson et al., 1997).

Several studies have suggested a relationship between language and behavior based on the frequent comorbidity of LI and behavioral and psychological problems (Beitchman et al., 1996; Beitchman, Hood, & Inglis, 1990). In their 1996 study, Beitchman et al. found that children with LI at age 5 years were almost twice as likely to have psychiatric disorders at age 12.5 years than were their peers with typically developing language.

Clinical samples have also shown the frequent comorbidity of LI and behavior problems. Cohen, Barwick, Horodezky, Vallance, and Im (1998) found that 40% of children referred solely for psychiatric problems had an undetected LI. In a study of 242 children attending language units at age 7 years, Conti-Ramsden and Botting (2004) also found a high prevalence of comorbidity with behavior problems: 64% had problem behavior ratings above clinical threshold by age 11 years.

Prevalence of psychiatric disorder has also been linked to type of language deficit. It is most prevalent in pure language disorders and least prevalent in pure speech disorders, indicating that the most severe psychiatric outcomes are associated with actual language and not merely its phonological expression (Baker & Cantwell, 1982; Noterdaeme & Amorosa, 1999). Of the various aspects of language, perhaps the most likely to be related to behavior is pragmatics.

*Pragmatics and Behavior*

Because behavioral disorders are so closely associated with language abilities, it is important to give specific consideration to how behavior may be related specifically to pragmatics. This is particularly important given the fact that several scholars consider pragmatics to be the underlying force that motivates other aspects of language (Fujiki & Brinton, in press; Ninio & Snow, 1999). Pragmatic skills may include turn taking, conveying communicative intent, topic management, adjusting interactions based on shared meaning, and following cultural rules of linguistic politeness and appropriateness. They contribute to various social-communicative tasks such as compromising, conflict resolution, and accessing peer interaction (Black & Logan, 1995; Fujiki & Brinton, in press; Marton et al., 2005; Timler et al., 2005). Pragmatic difficulties may exist despite relatively good structural language skills and are a key component of social communication (Fujiki & Brinton, in press).

Kaczmarek (2002) noted the importance of pragmatics in children's ability to improve their social-communicative performance in relation to peer acceptance and friendship. Behaviors such as taking lengthy turns, not clearly directing initiations, interrupting other speakers, responding noncontingently, using inappropriate prosody, etc. have been linked to lower ratings of peer acceptance (Black & Hazen, 1990; Black & Logan, 1995; Hazen & Black, 1989; Steinkamp 1989). For example, Steinkamp (1989) found that among 4-year-olds, affect tone and using person-focused rather than play-focused verbalizations had a greater influence on social acceptance than the actual number of verbalizations used by the child. Hazen and Black (1989) and Black and Logan (1990) found that in triad interactions of preschool children, disliked children were

less responsive to peers, less likely to clearly direct their communication to or acknowledge peers, and less likely to respond contingently.

In addition to peer acceptance, some research has also shown an association between pragmatics and problematic behavior. Of 142 children with conduct disorders, Gilmour et al. (2004) found that two-thirds also had pragmatic language impairments. It was suggested that in some cases teachers may interpret certain pragmatic deficits as behavior problems. For example, a student who may lack the pragmatic skills to appropriately make register changes when speaking to adults instead of peers may be seen by teachers as disrespectful or having some kind of behavior problem.

It has also been suggested that disruptive behavior can often be managed by addressing pragmatic difficulties. This idea is the basis for an extensive body of research demonstrating that severe behavior problems, such as self-injury, aggression, and tantrums, act as a means of communication and serve social functions, such as escape and attention (Carr & Durand, 1985a; Carr & Durand, 1985b; Oliver et al., 2006). Numerous studies have shown that functional communication training can provide meaningful replacement behaviors that can result in significant long-term decreases in severe behaviors that generalize across individuals and contexts (Carr & Durand, 1985a; Durand & Carr, 1991; Wacker et al., 2005).

Low language abilities have been associated with both externalizing and internalizing behavior problems (Rubin & Coplan, 2004). Externalizing behaviors include attention problems such as attention deficit disorder with hyperactivity (ADHD), conduct disorder, opposition and defiance, and aggression. Internalizing behaviors may include anxiety, fear, depression, and social withdrawal (Rubin & Coplan, 2004). In a

community sample of children ages 24-29 months, Carson et al. (1997) found that both types of behaviors were negatively associated with some indices of language development with language expressiveness being the most predictive of behavior checklist scores.

Cohen, Menna, et al. (1998) found that children referred for psychiatric services with previously-identified LI differed from other groups of referred children in teacher ratings of both ADHD and social withdrawal. In a study comparing children referred for psychiatric disorders to their siblings, it was found that problems with externalizing behaviors and receptive language were the strongest predictors of child referral (Cohen et al., 1996). As indicated by several studies, attention problems, such as ADHD, are one of the most common behavioral correlates of LI (Noterdaeme & Amorosa, 1999; Rubin & Coplan, 2004; Willinger et al., 2003). Despite their frequent co-occurrence, however, research has not shown any relationship between ADHD and specific aspects of language such as narrative discourse or pragmatics (Cohen et al., 2000).

Although internalizing behaviors are often less salient, and therefore more often overlooked (Rubin & Coplan, 2004), recent studies have also indicated a high prevalence of the internalizing behavior withdrawal among children with lower language abilities. Coplan and Armer (2005) found that shy children with low expressive vocabulary scores differed from shy children with higher expressive vocabulary in that the former group's shyness was associated with greater social withdrawal, lower self-perceptions, and increased teacher attention.

In a sample of 83 children with LI having a mean age of 8;3 (years; months), Noterdaeme and Amorosa (1999) found that 47% exhibited attention problems and 39%

exhibited withdrawal. Willinger et al. (2003) found a similar pattern among children with mixed expressive-receptive language disorder (mean age 4;8): 17% exhibited withdrawal and 10% exhibited social problems (the lower prevalence in comparison to the prior study is suggested to be due to the lower mean age). Thus while externalizing behaviors may be more immediately apparent, internalizing behaviors such as withdrawal are also prevalent and important to consider.

Although many studies do examine withdrawal, the term itself is often used in various ways. This ambiguity may, in part, be mitigated by a clear definition of withdrawal. In order to do this, a review of withdrawal and its subtypes follows.

### *Withdrawal*

Withdrawal, or social withdrawal, is a type of overcontrol also referred to as an internalizing problem (Rubin & Coplan, 2004). The impetus for the study of social withdrawal is theory and research indicating the importance of peer interaction for typical development (Rubin & Asendorpf, 1993). Social withdrawal affects peer interaction in a variety of ways including increased difficulty with interaction and relationships, depression, low self-esteem and self-perception, less active social lives, loneliness, and social anxiety (Hymel, Bowker, & Woody, 1993; Rubin & Asendorpf, 1993; Rubin & Coplan, 2004; Younger & Daniels, 1992). Withdrawn unpopular children are more likely to be left out of peer activities and to be viewed by their peers as socially and athletically incompetent and unattractive (Hymel et al., 1993). Withdrawal often becomes more obvious to peers as a child becomes older and the behaviors become increasingly age-inappropriate (Younger & Daniels, 1992). Poor peer acceptance may exacerbate existing withdrawn tendencies (Horowitz et al., 2005). It is clear that if peer interaction is a

significant factor in normal development, then social withdrawal and its strong and persistent influence on peer interaction is an important topic of study.

Social withdrawal is often used as an umbrella term for all forms of behavioral solitude (Rubin & Asendorpf, 1993). This term has been used to refer to various types of internalizing problems which can lead to ambiguity among studies examining withdrawal (Kerr & Warren, 1997). Although there is a common pervasive thread to the “behavioral expression of solitude” (p. 9), research has identified several categories of nonsociable behaviors within the construct of withdrawal (Coplan & Rubin, 1998; Hart et al., 2000; Rubin & Asendorpf, 1993). These subtypes are commonly referred to as *solitary-active withdrawal*, *solitary-passive withdrawal*, and *reticence*. Each has distinct underlying psychological mechanisms (Coplan & Rubin, 1998) and characteristic developmental and behavioral outcomes (Rubin, 1982). Differences in underlying psychological mechanisms may include factors such as varying involvement of approach or avoidance motives and temperamental inclinations (Rubin & Asendorpf, 1993). Subtypes of withdrawal may also differ in severity of social and developmental impact (Rubin, 1982). Each of these subtypes is discussed as follows.

*Solitary-active withdrawal*. This subtype has also been referred to as active-withdrawal (Younger & Daniels, 1992), active-isolation (Harrist, Zaia, Bates, Dodge & Pettit, 1997), and isolation (Rubin & Asendorpf, 1993). It involves high social approach and low social avoidance motives (Rubin & Asendorpf, 1993). Solitary-active children are isolated *by* their peers rather than *from* them—they seem to be withdrawn because their peers do not allow them to interact (Rubin & Asendorpf, 1993; Harrist, Zaia, Bates, Dodge, & Pettit, 1997). This may be due to certain characteristic behaviors that are

unacceptable to peers (Harrist et al., 1997; Hart et al., 2000). Some of these behaviors may include repetitive-sensorimotor play (e.g., banging blocks together), solitary-sensorimotor play with or without objects, solitary-dramatization in the presence of peers, aggression, immaturity, impulsivity, and boisterousness (Coplan, Gavinski-Molina, Lagacé-Séguin, & Wichmann, 2001; Coplan & Rubin, 1998; Coplan, Rubin, Fox, Calkins, & Stewart, 1994; Hart et al., 2000; Rubin & Asendorpf, 1993).

Sociodramatic play is normal for children when they are alone or playing with their peers. It becomes problematic when done alone while in the presence of peers, which is common with this type of withdrawal (Coplan et al., 2001). According to Rubin (1982), sociodramatic play is negatively correlated with sociometric status; the proportion of positive group interactions to total number of social interactions; and indices of social, social-cognitive, and cognitive skill. Harrist et al. (1997) found that solitary-active withdrawal was associated with higher than expected levels of rejection, high levels of teacher-reported immaturity, anger, and lack of restraint. These researchers also found that, when compared to other withdrawn children, children in this category scored lower on social information-processing competence and higher on measures of social dysfunction. Peers used explanations consistent with solitary-active withdrawal to explain why these students fit into categories, such as “someone who is often left out,” “someone who has trouble making friends,” and “a person who can’t get others to listen” (Younger & Daniels, 1992, p. 957). Although solitary-active withdrawal is rare, when it does occur it is negatively salient to peers, parents, and teachers (Coplan et al., 2001).

*Solitary-passive withdrawal.* Also referred to as passive withdrawal, unsociable, social disinterest, and inhibition (Asendorpf, 1991; Coplan, Prakash, O’Neil, & Armer,

2004; Harrist et al., 1997; Kerr & Warren, 1997; Rubin & Asendorpf, 1993; Rubin & Coplan, 2004; Younger & Daniels, 1992), solitary-passive withdrawal is associated with a low social approach motive, but not necessarily a high social avoidance motive (Rubin & Asendorpf, 1993). Children who experience this “form of well-regulated solitude” (Coplan et al., 2001, p. 471) lack a strong motivation to engage in social interaction and may prefer to play alone despite evidence of social competence in almost every respect (Coplan et al., 2004; Harrist et al., 1997; Rubin & Asendorpf, 1993). Solitary-passive withdrawal is marked by quiet, exploratory, and constructive behavior (e.g., coloring or building with blocks) performed alone but in the company of peers (Coplan et al., 1994; Coplan et al., 2001). Peers categorized children with solitary-passive withdrawal as “someone who would rather play alone than with others,” “someone who is very shy,” and “someone whose feelings get hurt easily” (Younger & Daniels, 1992, p. 957). These children tend to be more object- than people-oriented (Rubin & Asendorpf, 1993) and are primarily distinguished from non-withdrawn children only by their increased solitary behavior during free play and elevated sociometric ratings of neglect (Harrist et al., 1997).

Although solitary constructive play is associated with decreased social initiation by peers and decreased conversations with peers (Coplan et al., 2004; Rubin, 1982), several studies have shown a lack of significant correlation with negative peer sociometric ratings, low teacher ratings of social competence, and other indices of maladjustment (Coplan et al., 2004; Coplan & Rubin, 1998; Harrist et al., 1997; Rubin, 1982). These findings, however, are not undisputed, especially when results are examined by age and gender. Behaviors associated with solitary-passive withdrawal are often

positively reinforced by adults during early childhood, but then become a concern in middle childhood as the psychological meaning of the behavior changes (Coplan & Rubin, 1998; Coplan et al., 1994). In a study of children age 4 to 7 years, Nelson, Rubin, and Fox (2005) found that as children get older, solitary-passive withdrawal becomes less prevalent, but it also becomes more salient to peers and associated with fewer positive outcomes. It was also noted that solitary-passive withdrawal negatively predicted perceived peer acceptance. Although Harrist et al. (1997) reported lower occurrence of social problems as rated by teachers for children in this subtype, it was noted that these children experience elevated levels of peer neglect and are at risk for rejection in the future.

Gender also seems to be a determining factor in the negative outcomes associated with solitary-passive withdrawal. The negative outcomes associated with solitary-passive withdrawal may be most appropriately applicable to boys (Hart, Olsen, Robinson, & Mandleco, 1997). Coplan et al. (2001) found that for girls, solitary-passive withdrawal is more often negatively associated with maladjustment and is essentially unrelated to teacher ratings of social competence. In boys, however, they found a positive association with maladjustment and a significantly negative association with teacher ratings of social competence. Solitary-passive withdrawal and its apparent predilection toward playing alone, may be the most benign of the subtypes of withdrawal. Still, the possible long-term effects of solitary-passive withdrawal cannot be discounted.

*Reticence.* Reticent children have also been described as shy (Rubin & Asendorpf, 1993), passive-anxious (Harrist et al., 1997), conflicted-shy (Coplan et al., 2004), inhibited (Asendorpf, 1991), and socially wary (Rubin & Asendorpf, 1993). Asendorpf

(1991) described these children as experiencing an approach-avoidance conflict. Despite a desire to engage in interactions, the child avoids them due to some other factor (Coplan et al., 2004; Rubin & Asendorpf, 1993). Several reasons for this behavior have been posited, including the expectation of a negative interaction experience, fear, anxiety, temperamental predisposition, an attempt to cope with fearfulness, and novelty of a situation (Coplan et al., 2004; Coplan & Rubin, 1998; Harrist et al., 1997; Hart et al., 2000; Rubin & Asendorpf, 1993). Whatever the reason, reticent children isolate themselves even though, unlike solitary-passive children, they would like to interact socially (Coplan et al., 2004; Harrist et al., 1997).

Children within this category are often categorized by onlooker and unoccupied behavior, anxiety, hovering, shyness, oversensitivity, sadness, staring, aimlessly wandering, and watching other children but not attempting to join in play (Coplan et al., 2001; Coplan & Rubin, 1998; Coplan et al., 1994; Harrist et al., 1997; Hart et al., 2000). Although onlooker behavior has been found to be relatively benign, unoccupied behavior is associated with higher teacher ratings of maladjustment and with fewer peer conversations (Rubin, 1982). Reticence has also been linked to negative emotionality, anxiety, and poor social and academic competence (Coplan et al., 2001; Coplan et al., 2004). In a study conducted in Russia, China, and the United States, Hart et al. (2000) found that of the three subtypes of withdrawal, children who were more reticent were less likely to be accepted by their peers. These findings were consistent across all three cultures (Hart et al., 2000). Similar to solitary-passive withdrawal, reticence is more strongly associated with negative peer acceptance in boys than in girls (Coplan et al.,

2004; Hart et al., 1997). As with both other subtypes of withdrawal, it is important to recognize the unique aspects and possible adverse outcomes of reticence.

Although withdrawal is often used ambiguously to refer to any number of behaviors manifest as an expression of solitude, it is most aptly used when divided into distinct subtypes. Understanding the unique aspects of solitary-active withdrawal, solitary-passive withdrawal, and reticence and distinguishing them in research will help elucidate information gained about withdrawal. Research on withdrawal may also benefit from including measures of positive behavior, or sociability, which is discussed below.

### *Sociability*

There are several reasons to assess sociability in conjunction with withdrawal. First, even in the most behaviorally impaired children, negative acts make up a small percentage of overall behavior. Another advantage of considering both positive and negative behaviors is that taking both into account increases the accuracy of future predictions of behavior. Boys who are disruptive in kindergarten but also exhibit sociable behavior, for example, have more positive ratings of adjustment at age 9 years (Tremblay et al., 1992). Additionally, parents and teachers may prefer more positive statements and measures on children (Tremblay et al., 1992). Finally, although children may exhibit withdrawn behaviors, this does not necessarily preclude their ability to also exhibit positive social and interactional behaviors when necessary or in other situations (Fujiki et al., 1999). Thus a child who is quiet, but can interact effectively when the need arises, may not be viewed as having social difficulties. Overall, the inclusion of positive and negative behaviors in a study allows for a more comprehensive profile of the child's abilities.

Sociable behaviors may include helping, showing concern, giving praise or comfort, inviting by-standers, stopping a quarrel, engaging in play, having conversations with other children during play, cooperativeness, and supportiveness (Coie, Dodge, & Coppotelli, 1982; Coplan & Rubin, 1998; Tremblay et al., 1992). Like withdrawal, sociability can be divided into subtypes. These subtypes, however, are not as well defined (Fujiki et al., 1999). Two subtypes of sociable behavior are *likeability* and *prosocial behavior* (Hart et al., 1997; Hart, Fujiki, Brinton, & Hart, 2004). Likeability is characterized by conforming behaviors, friendliness, emotional impulse control, cooperative play, and assertive leadership skills (Hart et al., 1993). Prosocial behaviors include helping, sharing/caring, consideration, concern, and defending (Grusec, Davidov, & Lundell, 2002).

As would be expected, sociable behaviors are associated with higher sociometric ratings, even across varying cultures (Hart et al., 2000). Cooperativeness and prosocial behaviors are also strong correlates of positive social status across age groups (Coie, Dodge, & Kupersmidt, 1990). Bierman, Smoot, and Aumiller (1993) found that among 95 boys ages 6-12 years, both aggressive-rejected and aggressive-nonrejected status was associated with lower prosocial abilities. In a meta-analysis, Newcomb, Bukowski, and Pattee (1993) found that popular and controversial children were significantly more sociable. Rejected and neglected children were also significantly less sociable than average children. This pattern was generally consistent regardless of the source (parent, teacher, peer, etc.). It was also noted that although controversial children exhibited more aggressive behaviors than rejected children, they had higher social status because of their ability to use their cognitive and social abilities to compensate. Sociability is strongly

related to peer acceptance, allows children to compensate for other behavior problems, and may be negatively associated with withdrawal, particularly reticence (Coplan & Rubin, 1998). These roles of sociability further call for its inclusion in this and other studies involving withdrawal and other behavior problems.

Distinguishing between types of sociability, like subtypes of withdrawal, will allow more specific information to be drawn from studies involving these important behaviors. The current study, in particular, will use these specific subtypes in an attempt to further discriminate the relationship they have with language, particularly pragmatics.

#### *The Current Study*

The current study attempts to look at the relationship between language and behavior by focusing on specific types of social behavior as well as specific aspects of pragmatics. Cohen et al. (2000) were unable to find support for their hypothesis that ADHD would be associated with specific aspects of language, but no hypotheses concerning withdrawal and sociability and specific aspects of language were addressed. In a mixed sample of children with various communication difficulties and pervasive development disorders (PDD), Farmer and Oliver (2005) found that ratings of peer relationship difficulties correlated significantly with certain aspects of communicative behavior. This relationship was largely attributed to the differentiated clustering of the scores of children with PDD and children with LI. Although some indirect information can be drawn from research in this review discussing various relationships between language as a whole, behavioral disorders, pragmatics, withdrawal, and sociability, a more direct analysis of the relationship between specific aspects of pragmatics and

behaviors such as withdrawal and sociability is needed. The current study addresses this need.

It is hypothesized that there will be a strong association between language scores and social behaviors (withdrawal and sociability subtypes). The influence of sociability and withdrawal on language (pragmatic abilities and structural abilities) will be examined to more specifically consider these relationships. It is predicted that subtypes of social behavior will predict levels of language performance (e.g., children who are less reticent will have better pragmatic skills). Although these relationships are expected based on the current research, we sampled typical children, which may result in less variation and therefore more modest results.

## Method

### *Participants*

The current study employed a community sample which included teachers and students from six classrooms—three 2<sup>nd</sup> grade and three 4<sup>th</sup> grade—at a local elementary school. Classroom teachers completed two checklists about each of the participating students. Students were not directly involved in data collection.

*Teachers.* The teachers involved in the study had varying levels of experience. Two were first year teachers (one 2<sup>nd</sup> grade and one 4<sup>th</sup>), three had been teaching between two and six years, and one had been teaching for 19 years. All teachers were female.

*Students.* As many of the students from the six classrooms as possible were included in the study. In order to be included, however, each student had to have parental consent and meet several qualifications based on guidelines provided for the CCC-2. Teachers provided information concerning the students' eligibility based on the following criteria. The students must have received parent permission for participation, speak English in the home, be able to speak in sentences, have no significant hearing loss, and have had regular contact with the teacher completing the survey for at least two months.

A total of 77 students, 47 4<sup>th</sup>-grade students and 30 2<sup>nd</sup>-grade students, met these qualifications and were included in the study. Of the 77 students, 41 were male and 36 were female. Ages ranged from 7;6-10;11 with a mean age of 9;3 and a median age of 9;9. Of the 4<sup>th</sup>-grade students, 24 were male and 23 were female. The mean age was 10;0 with a standard deviation of 0;4. Of the 2<sup>nd</sup>-grade students, 17 were male and 13 were female. The mean age was 8;0 with a standard deviation of 0;4. Eleven students were receiving special services, primarily 4<sup>th</sup>-grade students. An additional student qualified

for reading and writing resource, but had refused services. See Table 1 for more detail on type of resources being received. Seventy-two of the students were Caucasian and six were of other ethnicities including one African American, one Latin American, and four Other.

### *Materials*

The materials used included two checklists: the Children's Communication Checklist-2 (Bishop, 2006) and the Teacher Behavior Rating Scale (TBRS; Hart & Robinson, 1996).

*CCC-2.* The CCC-2 was normed for children from ages 4;0 to 16;11. This test was developed to screen for communication disorders and to identify pragmatic/social interaction deficits (Norbury, Nash, Baird, & Bishop, 2004). Although normed for completion by parents, it may also be completed by teachers, speech-language pathologists, or other caregivers who have regular contact with the child (Bishop, 2003). Research conducted while developing the checklist showed that teachers and speech-language pathologists also provide reliable ratings (Bishop, 1998). The checklist includes a total of 70 items, 7 in each of 10 scales: *Speech, Syntax, Semantics, Coherence, Initiation, Scripted Language, Context, Nonverbal Communication, Social Relations, and Interests*. A more detailed description of these scales is included in Appendix A. Each item is scored by the caregiver based on how often the child exhibits the communicative behavior: 0, less than once a week (or never); 1, at least once a week, but not everyday (or occasionally); 2, once or twice a day (or frequently); or 3, several times (more than twice) a day (or always). The scales can be grouped into areas associated with specific

Table 1

*Resources Being Received by Participating Students (Age, years;months)*

Student ID	Language	Speech	Reading	Writing	Math	Self-Contained
B14 (10;4)				X		
A1 (10;2)	X					X
A9 (9;5)		X	X	X		
A12 (10;0)		X	X	X	X	
A13 (9;9)			X	X	X	
A16 (9;8)				X	X	
C1 (10;9)						X
C15 (9;10)						X
A3 (9;6)		X				
D5 (8;0)	X					
R20 (8;8)			X			
Total	2	3	4	5	3	3

language impairment (SLI), pragmatic aspects of communication, and autism spectrum disorder (ASD). Two composite scores can also be calculated: the General Communication Composite (GCC) and the Social Interaction Difference Index (SIDI). The GCC is derived from the sum of the first eight scales. It is highly effective in distinguishing children with SLI, pragmatic language impairment, and autism from age-matched peers and identifies children who are likely to have clinically significant communication disorders. The SIDI is derived by taking the difference between the sum of scales A-D and the sum of scales E, H, I, and J. It can be used to identify communicative profiles associated with a language disorder or ASD (Bishop, 2003). To more accurately address the hypotheses of interest in the current study, scale scores were used rather than the GCC or the SIDI.

*TBRS*. The TBRS (Hart & Robinson, 1996) is an unpublished questionnaire designed to measure the frequency of certain social behaviors exhibited by a particular child. Originally developed for younger children, the psychometric properties for school-age children (6;4-12;6) were reported by Fujiki et al. (1999). The scale consists of 116 items, each rated by the teacher based on how often the child exhibits the behavior described: 0, never; 1, sometimes; and 2, very often. Although teachers were asked to complete the entire survey and were unaware of which items were of interest, only the items relating to solitary-passive withdrawal, solitary-active withdrawal, reticence, prosocial behavior, and likeability were used in the study. The items included in each of these subscales are included in Appendix B.

*Procedure*

*Distribution of materials.* After agreeing to participate, each teacher received two packets. The first packet included parent consent forms. The forms (see Appendix C) included a brief explanation of the study and the contact information of the researcher. The packet also included candy for the students. Teachers were instructed to send home a consent form with each student and to distribute the candy to any student who returned the consent form regardless of whether permission was granted or denied.

The second packet included the actual teacher checklists: the CCC-2 and TBRS. For each participating student, teachers were asked to complete each checklist according to the directions on the test forms. They were also asked to alternate the order in which the checklists were completed. Teachers were asked to include each student's date of birth, sex, ethnicity, and any special services the student was receiving as well as to make a note of any possible excluding factors as listed on the test forms (such as significant hearing loss, inability to speak in sentences, or English not being spoken in the home). Exclusions were decided by researchers based on the participant qualifications listed previously. Consent forms and checklists were collected upon completion and each teacher was offered \$100 in appreciation for their participation.

*Scoring of checklists.* The CCC-2 scale scores were entered into the scoring spreadsheet. Data for each of the five behavior subtypes of interest on the TBRS were entered into a separate spreadsheet. Scores for each student were calculated based on the average score of the items pertaining to each subtype. For example, the scores given for a particular student on each of the six items describing reticence were averaged to give a

reticence score for that student. This procedure was then followed to calculate scores on each subtype of behavior for each student.

#### *Data Analysis*

A factor analysis was done to provide empirical support for grouping the scales of the CCC-2 into measures of pragmatic and structural language. The subtypes of social behavior were then entered in two sets of hierarchical regression analyses to examine their relationship with the two language measures determined by the factor analysis.

## Results

### *Factor Analysis*

The mean scores and standard deviations produced by the administration of the CCC-2 and the TBRS are presented in Tables 2 and 3, respectively. Prior to conducting the analysis, the scales of the CCC-2 were grouped according to which aspect of language they measured: structural or pragmatic. Social relations and Interests scales of the CCC-2 were omitted from this analysis due to their general lack of explicit structural or pragmatic language components. In order to determine which of the remaining eight communication scales from the CCC-2 would best group to form composite measures of structural and pragmatic communication skill deficits, a principle components factor analysis was conducted. This was done using the mean scale scores.

As indicated in Table 4, the scales Initiation and Scripted Language had little communality with any of the other factors and thus were dropped. The analysis produced two reliable factors for structural and pragmatic communication with eigenvalues greater than 1 accounting for 66% of the item variance. When rotated (oblimin) to simple structure, item loadings ranging from .60 to .95 on the designated factors were yielded with no substantial cross loadings (see Table 5). Due to a lack of variation in ratings of solitary-active withdrawal, this subtype of withdrawn behavior was dropped.

### *Regression Analyses*

*Regression descriptions.* Two sets of hierarchical regression analyses were performed. The first set was used to determine whether children's withdrawn behaviors contributed uniquely to their structural and pragmatic language abilities above and beyond sociable behaviors. In contrast, the second set examined whether sociable

Table 2

*Means (standard deviations) for CCC-2 Scales and Composite Scores*

	2 <sup>nd</sup> Grade	4 <sup>th</sup> Grade	All Students
Speech	9.5 (2.5)	9.0 (3.2)	9.2 (2.9)
Syntax	10.4 (2.4)	10.4 (2.4)	10.4 (2.4)
Semantics	11.3 (2.7)	9.6 (2.7)	10.2 (2.8)
Coherence	10.9 (2.9)	10.4 (2.9)	10.6 (2.9)
Initiation	11.8 (2.5)	10.2 (2.3)	10.9 (2.5)
Scripted Language	11.3 (1.7)	10.1 (2.5)	10.6 (2.3)
Context	10.9 (2.2)	9.9 (2.5)	10.3 (2.5)
Nonverbal	10.0 (2.8)	9.9 (2.9)	9.9 (2.9)

Table 3

*Means (standard deviations) for Withdrawal Subtypes*

	2 <sup>nd</sup> -Grade	4 <sup>th</sup> -Grade	All Students
Reticence	0.08 (.21)	0.34 (.44)	0.24 (.38)
Solitary-Active	0.06 (.31)	0.08 (.23)	0.08 (.26)
Solitary-Passive	0.18 (.31)	0.26 (.40)	0.23 (.36)
Prosocial	1.56 (.59)	1.50 (.53)	1.52 (.55)
Likeability	1.66 (.57)	1.65 (.40)	1.64 (.48)



Table 5

*Factor Structure of Structural and Pragmatic Language Composites*

	Structural	Pragmatic	Scale	
			M	SD
Speech	.789		.855	.261
Syntax	.885		.852	.227
Semantics	.735		.841	.310
Coherence		-.835	.932	.256
Context		-.603	.961	.255
Nonverbal Communication		-.950	.871	.278
Eigenvalue	2.781	1.256		
Cronbach's alpha	.733	.742		

behavior was a significant predictor of structural and pragmatic language beyond withdrawn behaviors. These analyses also assessed whether withdrawn and sociable behavior subtypes would remain significantly associated with structural and pragmatic language abilities when tested in the context of one another. In order to control for possible age effects, grade level was entered on the first step of each equation.

The effects of withdrawn behavior after controlling for sociable behavior were examined by entering sociable behaviors as a block on the second step of the equation and entering withdrawn behaviors on the third step (see table 6). In table 7 this order was reversed in order to examine the effects of sociable behavior after controlling for the effects of withdrawn behavior. Interactions of grade with each of the behavior variables were entered concurrently on the last step of the equation. All interactions between grade and social behaviors were tested; however, only significant interactions were included in the table. For interpretation, *t* values (ratio of the coefficient to the standard error) are reported for each predictor. These *t* values indicate which individual variables retained statistical significance when all the predictors were considered on the final step of each equation. The identical *t* values and betas reported in Tables 6 and 7 are from the final step of each equation. Betas for each step of the equations are included in the text below.

*Regression findings.* Results shown in Tables 6 and 7 indicate that children's withdrawn and sociable behaviors and interactions of behavior variables with grade made no significant contributions to structural language skills. However, when sociability was entered first, both sociable and withdrawn behaviors were found to contribute significantly to pragmatic language scores (see Table 6). Two specific relationships were

Table 6

*Equation 1. Hierarchical Regressions Performed on Structural and Pragmatic Language Criteria: Sociable and Withdrawn Predictors with Sociability Entered First*

Step	Variable	Structural				Pragmatic			
		$R^2$	$R^2$ inc	B	$t$	$R^2$	$R^2$ inc	B	$t$
1.	Grade	.012	.012	-.435	-.752	.028	.028	.169	1.50
2.	Sociable behaviors	.031	.019			.238***	.210***		
	Prosocial			-.026	-.142			-.172	-1.312
	Likeability			-.098	-.531			.069	.519
3.	Withdrawn behaviors	.064	.033			.473***	.235***		
	Reticence			-.055	-.243			.567***	3.473***
	Solitary Passive			.017	.103			.446***	3.665***
4.	Interactions	.126	.062			.545*	.072*		
	Grade × Prosocial			-.380	-.715			.255	.665
	Grade × Likeability			.534	.800			-.482	-1.002
	Grade × Reticence			-.019	-.077			-.513**	-2.878**
	Grade × Solitary Passive			.374	1.920			.065	.463

\* $p < .05$ \*\* $p < .01$ \*\*\* $p < .001$

Table 7

*Equation 2. Hierarchical Regressions Performed on Structural and Pragmatic Language Criteria: Sociable and Withdrawn Predictors with Withdrawal Entered First*

Step	Variable	Structural				Pragmatic			
		$R^2$	$R^2$ inc	$\beta$	$t$	$R^2$	$R^2$ inc	$\beta$	$t$
1.	Grade	.012	.012	-.435	-.752	.028	.028	.373	.892
2.	Withdrawn behaviors	.059	.047			.454***	.426***		
	Reticence			-.055	-.243			.567**	3.473**
	Solitary Passive			.017	.103			.446***	3.665***
3.	Sociable behaviors	.064	.005			.473	.019		
	Prosocial			-.026	-.142			-.172	-1.312
	Likeability			-.098	-.531			.069	.519
4.	Interactions	.126	.062			.545*	.072*		
	Grade × Prosocial			-.380	-.715			.255	.665
	Grade × Likeability			.534	.800			-.482	-1.002
	Grade × Reticence			-.019	-.077			-.513**	-2.878**
	Grade × Solitary Passive			.374	1.920			.065	.463

\* $p < .05$ \*\* $p < .01$ \*\*\* $p < .001$

noted. First, children who displayed more prosocial behavior, but not more likeability, were *less* likely to have pragmatic language difficulties ( $\beta = -.389, p < .01$ ;  $\beta = -.089, p = \text{NS}$ , respectively). Second, children rated by teachers as exhibiting more solitary-passive behavior, but not more reticence, were *more* likely to have pragmatic skill deficits ( $\beta = .463, p < .001$ ;  $\beta = .199, p = \text{NS}$ , respectively).

As seen in Table 7, when withdrawn behaviors were entered first, prosocial behavior no longer significantly predicted decreased difficulties in pragmatic language ( $\beta = -.195, p = \text{NS}$ ). In this equation, likeability was still not a significant predictor of pragmatic language ( $\beta = .049, p = \text{NS}$ ). Both solitary-passive and reticent behavior, however, became significant predictors of pragmatic language difficulties ( $\beta = .488, p < .001$ ;  $\beta = .276, p < .011$ , respectively).

Significant  $t$  values shown in Tables 6 and 7 further confirmed that when all the other predictors in the model were considered, solitary-passive behavior and reticence retained significant relationships with pragmatic language. These relationships were present in the context of each other and the sociable subtypes. Likewise, a significant Grade by Reticence interaction persisted in the context of sociability and withdrawn behaviors. This reflected a significant, independent contribution of the Grade by Reticence interaction to pragmatic language difficulties. Correlations within each grade level revealed that relationships involving pragmatic language and reticence were stronger for second graders ( $r = .697, p < .01$ ) than for fourth graders ( $r = .486, p < .01$ ). No other significant grade interactions contributed significantly to the prediction of structural or pragmatic language and thus were not entered into the final model.

## Discussion

This study examined the relationship between social behaviors and language. We considered the relationship of two types of social behavior, sociability and withdrawal, on structural and pragmatic language abilities. Typically developing 2<sup>nd</sup>-grade and 4<sup>th</sup>-grade children were studied.

The initial factor analysis, as mentioned previously, grouped the CCC-2 scales into two composite language measures. The structural language measure included Speech, Syntax, and Semantics. The pragmatic language measure included Coherence, Context, and Nonverbal Communication. Although these groupings varied somewhat from those proposed by Bishop (2003), they were conceptually consistent with general frameworks of structural and pragmatic language and were thus considered acceptable. The two scales that did not fit in either measure based on the results of the factor analysis were Initiation and Scripted Language. Conceptually, Initiation would have been expected to fit with the other pragmatic scales. Initiation may have grouped differently partially because it is not as easily observed by a teacher in the structured setting of a classroom. Scripted Language, conceptually, would seem to group with the structural scales, with some overlap into pragmatics. It is, therefore, not surprising that this scale was not grouped with other structural or pragmatic scales. The separation of Initiation and Scripted Language from the other scales could also be a reflection of the nature of the current sample. Because typical children were studied there was less variability which may have influenced the associations between scales.

As mentioned previously, solitary-active withdrawal was dropped from the analysis because of a lack of variation within the sample. The two hierarchical regression

analyses, therefore, were conducted using the withdrawn behaviors solitary-passive withdrawal and reticence as independent variables and the structural and pragmatic language measures as dependent variables. Results indicated a relationship between social behaviors and pragmatic language, but no relationship between social behaviors and structural language. This is consistent with previous research indicating a relationship between social behavior and pragmatic language despite variable structural language abilities (Gilmour et al., 2004). Because no significant predictor of structural language was found, the remainder of the discussion will address the relationship between behavior subtypes (likeability, prosocial behaviors, solitary-passive withdrawal, and reticence) and pragmatic language. Unlike many other analyses, this analysis examined whether behavior subtypes predicted pragmatic language.

Likeability was not a significant predictor of pragmatic language. Prosocial behavior was a significant predictor of pragmatic language when considering other factors. The results indicated that children who exhibited more prosocial behavior also had stronger pragmatic skills. This finding is consistent with previous research indicating that children who exhibit more prosocial behaviors are more positively viewed and accepted by their peers (Coie, Dodge, & Kupersmidt, 1990; Newcomb, Bukowski, & Pattee, 1993). When viewed in the context of withdrawn behavior and the interaction between grade and behavioral factors, prosocial behavior was no longer a significant predictor of pragmatic language. This may indicate that when all factors are considered, the negative effect of withdrawn behavior outweighs the positive effect of prosocial behavior on typical children's pragmatic language. Logically it would make sense that children who demonstrate higher levels of withdrawal would have fewer opportunities to

develop their pragmatic skills. At the same time, it is possible that pragmatic limitations contribute to withdrawal.

Both of the withdrawn behaviors, solitary-passive withdrawal and reticence, were significantly associated with decreased pragmatic language skills. This relationship persisted in the context of prosocial behaviors, likeability, and the grade interaction with each of the subtypes of withdrawal and sociability. This suggests that even when a variety of factors were considered, the presence of solitary-passive withdrawal and reticence remained a significant predictor of pragmatic language. This finding is reminiscent of the speculation that withdrawn behaviors may underlie poor language skills (Paul, 2000). The influence of the Reticence by Grade interaction on pragmatic language also persisted in the context of all other factors. Further research is needed to more definitively address this issue.

These findings discussed above can be used to answer the original research questions. An association was found between social behavior and language behavior in typically developing children. This association was present between sociable behavior and pragmatic language, but not present between sociable behavior and structural language. In particular, prosocial behavior, when other factors were controlled, was associated with fewer pragmatic deficits. The most persistent finding across contexts, however, was the association between solitary-passive withdrawal and reticence indicating that these subtypes of withdrawal are predictive of lower levels of pragmatic language ability.

It should be noted that the CCC-2 and TBRS rating forms were both completed by the children's classroom teacher without any ratings performed by clinicians or parents.

The ratings are, therefore, not independent and could reflect teacher's perceptions of the students. This issue of shared method variance can result in higher correlations (Baumrind, Larzelere, & Cowan, 2002). Future studies would benefit from using independent raters to complete the scales. The scale ratings could also be compared to other assessments, such as clinician observations or formal tests.

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## Appendix A

### CCC-2 Scales

**A. Speech:** This scale includes items concerning the child’s speech production. This includes behaviors such as simplifying or mispronouncing words, speaking in a “babyish” way, deleting or substituting sounds or syllables, and speaking fluently and intelligibly.

Example: *Leaves off beginnings or endings of words (e.g., says “roe” instead of “road” or “nana” instead of “banana”)*

**B. Syntax:** This scale includes items concerning syntax such as proper pronoun usage, length and complexity of utterances, and use of tense markers.

Example: *Utterances sound babyish because they are just two or three words long (e.g., “me got ball” instead of “I’ve got a ball” or “give doll” instead of “give me the doll”)*

**C. Semantics:** This scale includes items describing the child’s ability to appropriately choose and use words. Caregivers are asked to note the presence of behaviors such as word searching or confusion, use of vague words, and use of more abstract rather than concrete words.

Example: *Mixes up words of similar meaning (e.g., says “dog” for “fox” or “screwdriver” for “hammer”)*

**D. Coherence:** This scale includes items that rate the child’s ability to participate in coherent conversation and to be understood in the presence of intelligible speech. This includes behaviors such as using clear referents, using effective retell or narrative structure, and explaining context or background to a listener.

Example: *Does not explain what he or she is talking about to someone who does not share his or her experiences (e.g., talks about “Johnny” without explaining who Johnny is)*

**E. Initiation:** This scale includes items about the child’s ability to initiate appropriate conversation such as knowing when to start and stop talking and choosing appropriate topics.

Example: *Talks repetitively about things that no one is interested in*

**F. Scripted Language:** This scale includes items about whether the child’s language is spontaneous or whether it is scripted. Scripted language may be overly precise or adult-like as if the child is just repeating something heard from an adult or on TV. It may also include behaviors such as the use of favorite phrases even when the context is inappropriate, etc.

Example: *Uses favorite phrases, sentences, or longer sequences in inappropriate contexts (e.g., says “all of a sudden” instead of “then,” as in “We went to the park and all of a sudden we had a picnic;” or routinely starts utterances with “by the way”)*

**G. Context:** This scale includes items assessing the child’s ability to use context to aid in communication. This includes the ability to appreciate jokes or irony, to understand words or expressions even when not used literally, to communicate across contexts, to be polite, etc.

Example: *Gets confused when a word is used differently from its usual meaning (e.g., does not understand when an unfriendly person is described as “cold” and assumes the person is shivering)*

**H. Nonverbal Communication:** This scale includes items pertaining to the child’s appropriate use and comprehension of nonverbal aspects of communication such as facial expressions, eye contact, proximity, and gestures.

Example: *Stands too close to other people when talking to them*

**I. Social Relations:** This scale includes items about how the child acts towards others and how others act toward the child. This includes behaviors such as if the child is anxious and inattentive or concerned and interested when interacting with others and if the child is bullied, teased, or babied by peers.

Example: *Hurts or upsets other children without meaning to*

**J. Interests:** This scale includes items about the diversity, appropriateness, and flexibility of the child's interests.

Example: *When given the opportunity to do what he or she likes, chooses the same favorite activity (e.g., playing a specific computer game)*

## Appendix B

## TBRS Subscale Items

*Reticence*

- Shies away when approached by other children
- Appears to be doing nothing
- Is reserved around other children
- Is unoccupied even when there is plenty to do
- Is fearful in approaching other children
- Stares at other children without interacting with them

*Solitary-Active Withdrawal*

- Animates toys (e.g., pretends an inanimate object – doll or stick – is alive) by self, away from peers
- Talks aloud or sings dramatically around peers when they are doing similar things but does not interact with them while doing so
- Pretends to be something (e.g., fireman, doctor, airplane) in vicinity of peers doing similar things but does not interact with them while doing so
- Animates toys (e.g., pretends an inanimate object such as a doll or stick is alive) in the vicinity of peers doing similar things but does not interact with them while doing so
- Does pretend/dramatic play with peers, but does not interact with them while doing so

*Solitary-Passive Withdrawal*

- Reads books alone, away from others
- Does constructive activities (e.g., build with blocks, legos) or does puzzles alone, away from others
- Builds things by self rather than with other children
- Likes to play alone
- Plays with toys by self rather than with other children

*Prosocial*

- Offers to help a child having difficulty with task
- Offers to share materials with peers
- Helps other children who are feeling sick
- Shows sympathy to someone who makes mistake
- Comforts a child who is crying or upset

*Likeability*

- Other children like to be with child
- Peers enjoy talking with him/her
- Is cooperative during rough and tumble play
- Peers accept child into ongoing activities
- Controls temper in conflicts with peers

## Appendix C

## Parental Consent Form

Dear Parent:

I am conducting a study to look at the relationship between communication and social ability. The benefit of this research is that it will provide educators with a better understanding of how language ability impacts the social problems of children (e.g., rejection by other children).

I am requesting that \_\_\_\_\_ be allowed to take part in this study. The following information is provided so that you can decide if you wish to allow your child to take part. Even if you give consent at this time, you may withdraw permission later if you decide to do so.

I will ask your child's teacher to complete two questionnaires describing your child's behavior: the *Children's Communication Checklist* (focusing on communication skills) and the *Teacher Behavior Rating Scale* (focusing on behaviors such as withdrawal and aggression). Your child will not be directly tested. Teachers will use numbers in place of your child's name, so I will not have access to your child's identity.

The risks associated with the research are minimal. Please be assured that information describing your child will be confidential. I will not be able to link your name or your child's name with the specific information provided by your child's teacher. Even so, all materials will be stored in a locked cabinet within a secured laboratory at BYU. I will share the results with your child's teacher, unless you request that I do not do so. At the conclusion of the study I will be happy to discuss the general results with you. If you would like specific information regarding your child you must make it clear that you want this information. Providing this information will require that I know your child's name and keep his/her results separate from the other children in the study.

Participation in the study is voluntary. All research methods have been reviewed and approved by the research director of Alpine School District and the Institutional Review Board at BYU. If you have any questions concerning the study, please contact me. My address and phone number are; Brigham Young University, 130 TLRB, Provo, UT 84602, (801) 422-5994. If you would like to discuss this study with a person not involved in the research, you may contact Dr. Renea Beckstrand, Brigham Young University, 422 SWKT, (801) 422-3873 (renea\_beckstrand@byu.edu).

Sincerely,

Martin Fujiki, Ph.D.

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If you will allow your child to participate in this research, please sign this letter and return it to your child's classroom teacher. Your cooperation is appreciated. Your child will receive a mini-candy bar for returning the permission form, whether or not you grant permission.

I give my permission for \_\_\_\_\_ teacher to take part in the study described above. I understand that I may withdraw my child at any time. I also understand that all information concerning the study will be confidential.

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Signature of parent or guardian