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Social cognition and language in children with specific language impairment (SLI)

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Abstract

This investigation examined the relationship between social pragmatics, social self-esteem, and language in children with specific language impairment (SLI) and in their age-matched peers (7–10 years). The children with SLI indicated significantly poorer social cognitive knowledge than their typically developing peers. They showed low social, but not academic self-esteem. They often used inappropriate negotiation and conflict resolution strategies. Their errors reflect some qualitative differences from those of the typically developing children (e.g., children with SLI use more nonverbal strategies, demonstrate passive/withdrawn behavior, etc.). Our data show that these children's social pragmatic deficit is not causally related to their language impairment; the two problems are co-occurring. Further, the parents and teachers of the children with SLI indicated different views regarding these children's social relations. Although the parents expressed major concerns about their children's social competence, the teachers did not notice this problem.

Learning outcomes: The reader will be able to summarize, critically analyze, and interpret the findings from existing research on social cognition and its relationship with language abilities in children with specific language impairment. Further, the reader will gain an understanding of the importance of applying intervention procedures that facilitate the use of language in different social situations, and the necessity of increasing parent–teacher communication in schools.

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Keywords: Specific language impairment; Executive function; Social cognition; Conflict resolution; Negotiation; Self-esteem

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1. Introduction

Social cognition is fundamental to our understanding who we are as individuals, allowing us to participate effectively in social settings. Appropriate social skills are a prerequisite in establishing positive interpersonal relationships. Language competency is necessary for the application of social communication skills and for the initiation and maintenance of such relationships. The inability to form these relationships may contribute to lowered self-esteem and various behavioral problems (Fujiki, Brinton, Morgan, & Hart, 1999).

Social cognition is an umbrella term. A number of skills and abilities are important features of social cognition: emotion perception; social problem solving; and self-cognition (Cohen, Menna, Im, & Horodezky, 1998). This complexity might be one reason that so many different views appear in the literature on the relations between social cognition and language development. All agree that there is a strong relationship between social cognitive competence and language competence, however, there are alternative views regarding the causality of this relationship.

Locke (1997) argues that children's socio-cognitive abilities provide a foundation for language development, thus language acquisition is determined by social cognition. According to other authors (e.g., Bishop, 1997; Leslie, 1987), both language and social cognition are underpinned by certain cognitive abilities such as encoding and discriminating information, working memory, and processing capacity. Furthermore, methodological differences also add to the variations seen in empirical data. The tasks that have been used to investigate social cognition differ in their linguistic complexity and in their information processing and memory demands.

Despite these difficulties, both developmental and neuropathological data support a strong relationship between language development and social cognition: children with better linguistic skills evidence higher level of socio-cognitive competence (Jenkins & Astington, 1996); socio-cognitive abilities can be predicted from early language development (Astington & Jenkins, 1995); language deficits in autism are linked with socio-cognitive development (Baron-Cohen, Tager-Flusberg, & Cohen, 1993); the language deficits alone do not account for the range of social difficulties that children with specific language impairment (SLI) encounter (Singer & Bashir, 1999).

1.1. *Social competence in children with SLI*

The objective of the current study was to investigate the social cognitive skills of children with SLI through direct assessment and by examining their parents' and teachers' perception of their social skills. We were interested in studying different aspects of social cognition such as social problem solving, negotiation, initiation of interaction, and social self-esteem in various social settings from children's everyday life. Our intention was to compare children's self-reports with the reports of their parents and teachers to see whether they are in agreement.

Children with SLI are at a disadvantage in forming successful peer relationships, and therefore, at risk for social problems and poorer self-esteem (Craig, 1993; Jerome, Fujiki, Brinton, & James, 2002). They exhibit difficulties in initiating social interactions (Craig

& Washington, 1993); in successfully participating in ongoing interactions (Hadley & Rice, 1991); in negotiating with others; and in resolving conflicts (Brinton, Fujiki, & McKee 1998; Brinton, Fujiki, Spencer, & Robinson, 1997; Stevens & Bliss, 1995). Children with SLI are less preferred playmates as compared to typically developing peers and are often the subject of peer rejection (Fujiki, Brinton, Hart, & Fitzgerald, 1999). Furthermore, they are more likely to initiate conversations with adults than with their peers (Rice, Sell, & Hadley, 1991). On the William and Asher Loneliness questionnaire, children with SLI rated themselves in the school setting as more lonely than their typically developing classmates and having significantly fewer peer relationships (Fujiki, Brinton, & Todd, 1996). Furthermore, teacher reports have indicated that students with SLI demonstrate withdrawn behaviors, particularly reticence within the classroom environment (Fujiki, Brinton, Hart, et al., 1999; Fujiki, Brinton, Morgan, et al., 1999).

The ability to join an established social interaction is an essential social skill (Craig & Washington, 1993). Craig and Washington examined the ability to access and participate in ongoing interactions in children with SLI, ages 7–8 years old, in comparison to chronologically age (CA) matched and language similar (LS) peers. All children in the CA and LS groups successfully accessed the interaction, most accomplishing this fairly quickly and effortlessly, whereas, only two out of the five children with SLI were successful in their attempts, employing only nonverbal means. A replication of the study, with a group of slightly older children (8–12 years), showed similar results. Although all the CA and LS children achieved access into the interaction, two children in the SLI group never gained access and the remaining children required larger amounts of time to do so (Brinton et al., 1997).

Accessing an interaction is not merely sufficient in sustaining relationships. Once one enters communication with another, engaging in ongoing interactive dialogue requires adequate social skills that are necessary in maintaining the relationship. Children with SLI often display deficits in their abilities to maintain a conversation with their peers. Brinton et al. (1997) found that children with SLI talked less, were addressed less frequently and collaborated less than their partners within the triads. Rice et al. (1991) reported similar results observing children's social interactions in a natural classroom setting. The children with SLI were less likely to initiate interaction with their peers but rather preferred to direct their initiations toward adults. Examination of their responses noted that they were often limited to shorter sentences or nonverbal responses. Preschoolers with communication disorders also engaged in fewer instances of active conversation, were less directive in their communication style, exhibited a lower rate of positive social behaviors, and were less responsive to social bids (Guralnick, Connor, Hammond, Gottman, & Kinnish, 1996). Furthermore, preschoolers with SLI during free play offered significantly fewer responses, often gave no response when addressed by their peers, and were more likely to interact with adults than their classmates. In addition, the bids of the children with SLI were often ignored by their peers (Hadley & Rice, 1991).

Bringing about an agreement or transaction among two parties, compromising, and adjusting ones differences by mutual concessions, are important social strategies and tactics that fall under the realm of negotiation, a contributing factor to social competence of children. Previous research (Brinton, Fujiki, & McKee, 1998) demonstrates that children

with SLI exhibit significant deficits in negotiation skills. The children with SLI produced fewer negotiation strategies than their age- and language-matched peers and participated as the least influential group in the negotiation process. An analysis of their strategies revealed a mean strategy level that was lower than their partners'. The children with SLI primarily performed strategies that asserted solely their own desired choices. They were the only group that did not produce strategies requesting an opinion from their partners or recognize that it is necessary to make an agreement within the group. These results suggest that children with SLI have difficulty considering others' perspectives.

Negotiation is just one element that is vital in resolving conflicts. From early on, children are faced with conflicts in a variety of social settings: teasing on the playground, bullying in the lunchroom, fighting over toys, disagreements in the classroom and friction on the school bus. Children must be competent in their ability to resolve disputes, as it is a mediator in maintaining successful relationships and a contributor to a child's overall social development.

Bryan, Donahue, and Pearl (1981) studied the interaction skills of children with learning disabilities (LD), who exhibited linguistic and social pragmatic difficulties in a problem-solving task. Their findings revealed that the children with LD showed more passive behaviors than their peers to avoid disagreements, were less persuasive, and were the least effective participants in cooperative group decisions.

Children with SLI show poor conflict resolution skills. They use significantly fewer conflict resolution strategies than the typically developing children and they display limitations in strategies that involve persuasion, asking questions to acquire information, and the ability to take into account the perspective of another individual (Stevens & Bliss, 1995).

Although it is evident that children with SLI exhibit deficits in social skills, in varying domains (e.g., accessing and participating in ongoing interactions, negotiation, and conflict resolution), it remains unclear what factors contribute to this apparent lack of social knowledge. Although language competency is an important prerequisite for the implementation of appropriate social skills, alone it is insufficient. Basic social knowledge such as understanding when to use the proper forms is also required for effective communication (Stevens & Bliss, 1995).

In investigating patterns of behavior in children, it is difficult to discern between language and social functioning, as they are interdependent upon one another. Social behavior is conducted through the utilization of language, such as initiating, responding and negotiating with peers, while linguistic functioning is often tested in the context of social settings. Though the correlation between the two variables is co-dependent, the relationship may not be a causal one. Children with SLI may display deficits in social knowledge that is distinct from their difficulties with language competence, which may simply co-occur with one another (Brinton et al., 1997; Brinton, Fujiki, & Higbee, 1998).

A discussion of this issue is presented in research exploring the access and participation capabilities in children with SLI in an ongoing interaction. Brinton et al. (1997) questioned the relationship between the poor social performance evident in the children with SLI and their language competency. They raised two relevant arguments supporting the fact that the poor performances of children with SLI may not be solely attributable to their deficits in

language. First, the children with SLI displayed poorer social performance than the children with similar language competence. Second, there was no correlation between the children's performance in terms of their ability to access and integrate with the group and their language competency as measured by formal testing. In fact, it was noted that the participant with the highest language scores was unable to achieve access and subsequently participate in the interactions.

Brinton, Fujiki, and Higbee (1998) examined the ability of children with SLI to participate in cooperative learning groups. They conducted an analysis of children's verbal and nonverbal activity and noted that the children with SLI, who were the least active participants in the group, lacked the ability to collaborate with their peers even in a nonverbal fashion, thus were not able to compensate for their verbal deficits. This observation suggests that the limited linguistic knowledge evident in the children with SLI was not a single factor responsible for their incompetent social performance. A distinct underlying deficit in social knowledge is an element that must be considered.

The fundamental reasoning underlying the social difficulties experienced by children with SLI was further questioned by Brinton, Fujiki, and McKee (1998) in their research on negotiation skills of these children. It was pointed out that the children with SLI demonstrated poor negotiation skills even when it posed minimal linguistic demands that seemed to be well within the children's expressive capabilities, signifying a lack in social knowledge that is separate from poor language functioning.

1.2. Self-esteem and children with SLI

In investigating the social profiles of children with SLI it is also important to consider the effects it may have on their perceptual well-being. Previous research focusing on the relationship between peer relations and self-perception found that children who have poor peer relations and are rejected by their partners, display more negative self-perceptions (Boivan & Begin, 1989). As it is evident, children with SLI display poor communication skills and are perceived as less desirable conversational partners (Hadley & Rice, 1991), often experiencing rejection by their peers (Fujiki, Brinton, Hart, et al., 1999; Fujiki, Brinton, Morgan, et al., 1999). Furthermore, due to their linguistic limitations, these children often experience difficulties in academic performance. Their communication difficulties lead to limitations in social and academic functioning making them vulnerable for social rejection and academic failure, it is therefore, suggested that children with SLI are at a particular risk for poorer self-esteem (Glenn & Smith, 1998; Jerome et al., 2002; McAndrew, 1999).

Drummond (1976, cit. Glenn & Smith, 1998, p. 40) compared the self-concept and achievement motivation of elementary school children, who were enrolled in speech therapy with children who showed typical speech and language development. His results indicated that children with speech problems tended to have poorer self-concepts than their age-matched peers, especially in the higher grades.

More recently, there has been some degree of variability in the literature examining the self-esteem of language impaired children. McAndrew (1999) reported no significant differences in self-esteem of language disordered children in comparison to the mean of the

standardized scales of measurement on the Piers–Harris Self-Concept Scale and on the Coopersmith Self-Esteem Inventory. McAndrew suggested that his findings might have been skewed due to limited sample size. In a larger group study, children with SLI perceived themselves negatively in several domains of competence and acceptance including, scholastic competence, social acceptance, and behavioral conduct (Jerome et al., 2002).

Because of the conflicting data in the literature, the relationship between specific language impairment and self-esteem needs to be further investigated. Previous research primarily utilized a global evaluation of self-esteem. However, it is important to keep in mind that social status and academic performances are highly valued in the lives of children and feelings of incompetence in these two domains can potentially have the most severe impact on development (Jerome et al., 2002).

The purpose of this study was to obtain a more complete profile of social competence in children with SLI from various perspectives. Through direct assessment, we aimed to investigate the coping strategies and verbal reactions of children with SLI to commonly occurring social situations involving negotiation, conflict resolution, and initiation of social interactions. Further, we aimed to study the relationship between children's social pragmatic skills and their social and academic self-esteem. In addition to the children's own perception, we were interested in the viewpoints of the parents and teachers regarding their children's social behavior. Our goal was to compare the performance data of the children with the perceptions of their parents and teachers to see the effect of social pragmatic skills on these children's everyday life in different social settings.

We hypothesized that children with SLI show both poorer social coping strategies and lower self-esteem than their peers. Further, parents and teachers of children with SLI report more concerns regarding their children's social behavior than the parents and teachers of the typically developing peers. Our main research question targeted the relationship between social behavior and linguistic knowledge: is there a causal relationship between social competency and language performance in children with SLI or are the difficulties in these two areas co-occurring problems that have shared underlying cognitive backgrounds?

2. Methods

2.1. Participants

Two groups of children (SLI and control), 7.0–10.0 years of age, participated in the current study. The first group ($N = 19$) consisted of children with specific language impairment, who had been diagnosed by a certified speech–language pathologist. All children in this group received speech–language services. Their language scores were at least 1.5 S.D. below age average on the test of Clinical Evaluation of Language Fundamentals-Revised (Semel, Wiig, & Secord, 1987). They all fell within the normal range of performance IQ (i.e., between 90 and 120 on the WISC-R, Wechsler, 1974), used English as their primary language, and were included in mainstream education.

The second group ($N = 19$) consisted of chronological age-matched (within 3 months) children with typical language development (TLD). For all typically developing participants, scores within the average range on the CELF-3 screening test (Semel, Wiig, & Secord, 1995) were achieved.

There were 10 girls and 9 boys in each group. All participants passed a hearing screening on the day of testing. None of the children exhibited articulatory errors, motor, emotional, or physical handicaps. Language-age matched participants were not included in this study because our pilot data showed a floor effect for most children who were 4–5 years of age.

In addition, one parent of every child (38 parents) and 22 English and/or classroom teachers participated in the current study. The parent participant was the child's mother in most cases.

2.2. Stimuli

2.2.1. Hypothetical scenarios

Twenty three hypothetical scenarios embedded in seven different contexts (i.e., school cafeteria, classroom, school bus, playground, shopping center, family scene) were presented to all participants to directly assess negotiation and conflict resolution skills and determine coping strategies and verbal reactions to each situation. All scenarios presented were “everyday” typical scenarios that children experience regularly. A sample question that required the implementation of a negotiation strategy was, “*What do you say if you and another child come to get the same toy at the same time?*” An example of a situation where the participants needed to initiate a social interaction was as follows, “*If two children are playing together and you want to join them, what would you do?*” To assist the children in visualizing each scenario and to allow for more genuine reactions, a picture illustrating its context was presented to the participants during testing. The task was not to describe the pictures but to answer the questions about these scenes.

2.2.2. Test of self-esteem

Participants were presented with twenty yes/no questions selected from the Culture free self-esteem inventory (Battle, 1992), to assess their level of academic and social self-esteem. Twelve statements targeted the children's academic self-esteem (i.e., “I am doing the best schoolwork that I can.”) and 8 statements addressed their social self-esteem (i.e., “I need more friends;” “Boys and girls like to play with me”).

2.2.3. Parent and teacher questionnaires

To obtain the viewpoints of parents and teachers of the participants regarding their children's social competence and behaviors, two separate questionnaires were distributed. The questionnaires targeted 5 different areas of social and language competence including social relations, linguistic knowledge, conversational skills, nonverbal communication, and adaptive behavior including conflict resolution skills. The parent questionnaires consisted of 45 questions, which were generally distributed at the testing sessions. The teacher questionnaires included 53 questions. There were 17 identical questions in the two questionnaires. These questions allowed us to compare the parents and teachers view of

their children and to evaluate children's social behavior depending on the social setting. A five-point scale that included, "never," "rarely," "sometimes," "often," and "always," on both questionnaires was used to answer the questions.

2.3. Procedure

Each child was individually tested in one session. In task one (hypothetical scenarios), participants were informed that they would be presented with typical scenarios, in the form of questions, so as to determine their reactions when confronted with such situations in their daily lives. During the task, the children were given a picture illustrating each context to gaze at. The participants were instructed not to describe the picture but to answer the questions addressed to them. Each response was individually written down by the examiner at the time of testing. All testing sessions were tape recorded to ensure accuracy of the responses.

In the next task (self-esteem), yes/no questions were administered by presenting the children with such statements as, "I have only a few friends." The children then indicated whether they felt the statement was true or false by answering yes or no to each account. At the closing of each session, parents/legal guardians received a questionnaire to fill out and written permission was obtained from them prior to distributing questionnaires to the teachers. The teacher questionnaires were mailed directly to the schools. No parent had access to the teachers' responses.

2.4. Scoring

In the hypothetical scenarios task, responses to each of the 23 scenarios were evaluated from two different perspectives: pragmatic and linguistic accuracy. From a pragmatic standpoint, responses received scores ranging from 0 to 2. A score of 2 was granted when reactions showed evidence of the use of conflict resolution or negotiation strategies that were age-appropriate to the situation, thus displaying competent use of social pragmatic skills. When participants implemented the use of strategies that were inappropriate to the situation at hand, a score of 1 was given. Finally, responses received a score of 0, when the participant failed to utilize strategies and their reactions were irrelevant and inappropriate to the scenario, demonstrating a significant lack of social knowledge. Responses to the hypothetical scenarios were also evaluated from a grammatical point of view. A score of either 0 or 1 was given. The child received a score of 0 if his/her answer was grammatically incorrect (e.g., he/she used an incorrect sentence structure or produced an incomplete sentence).

In the self-esteem task, yes/no questions were evaluated as either showing an appropriate level of self-esteem or lack thereof, with a score of 0 displaying a poor self-esteem and 1, exhibiting a positive self-concept. In scoring these answers we followed the protocol of the "Culture free self-esteem inventory" (Battle, 1992).

On the parent and teacher questionnaires the scores ranged from 0 to 4 with 4 being the most positive and 0 being the least positive score. Each question/statement was individually analyzed and the rating scale was adjusted according to its content. For example, if the parent answered "never" to the statement that "The child is often teased," then a score

of 4 was granted, while in the sample, “The child communicates with classmates,” the answer “never” received a score of 0.

2.5. Reliability

The third author of this paper and graduate students as research assistants performed the recording of children’s responses for each task. Each child’s responses were transcribed and scored by the first and second authors independently. If they disagreed on any responses, a third opinion was requested. The mean of agreement was 96.79% with a range of 93.85–98.97%.

3. Results

Mixed-model ANOVAs were used in most cases to analyze the group differences and within group variables. An effect size (d) was calculated for each task. The Cohen’s (1988) effect size categories were applied (small effect size: $d = 0.2$; medium: $d = 0.5$; large: $d = 0.8$).

3.1. Hypothetical scenarios

The results of this task were analyzed from two different perspectives: children’s use of grammatical structures and social pragmatic knowledge. The results of mixed-model ANOVA (group \times language area) showed significant group differences, $F(1,72) = 61.08$, $P > .001$. The effect size was large ($d = 1.84$). The children with SLI performed significantly poorer than the children with TLD in this task. They made more grammatical errors than the children with TLD, and their answers reflected particular deficits in social pragmatics: finding the appropriate ways to initiate a conversation, negotiate with other children, and solve different conflicts.

The main effect for the language areas was also significant: $F(1,72) = 19.18$, $P > .001$. There was no group \times language area interaction ($P > .05$). Children in both groups showed better grammatical than social pragmatic knowledge, but the difference in performance between the two language areas was larger for the children with SLI than for the children with TLD (see Table 1). The children with SLI performed just above chance level in terms of social pragmatics, whereas the children with TLD used language in most cases pragmatically appropriately.

Table 1
Means and standard deviations (in percentages) for the hypothetical scenarios task for children with SLI and their peers with TLD

	Children with SLI		Children with TLD	
	Grammar	Pragmatics	Grammar	Pragmatics
Mean	75.05	56.68	98.89	86.95
S.D.	18.9	21.3	9.5	3.1

Table 2

Examples of pragmatic errors made by the children with SLI on the hypothetical scenarios task

Behavioral tendencies	Question	Response
Passive/withdrawn behavior	If you and another child came to get the same toy at the same time, what would you say?	Nothing, just give it up.
Aggressive behavior	The children at the playground are teasing you, what do you say?	Push them.
Inappropriate verbal solutions	A younger child draws a picture for you that don't like, what do you say?	Don't do that again.
Inappropriately used verbal clichés	If two children are playing together and you want to join them, what do you say?	Thank you.
Neglect to provide explanations of behavior	You did not do your homework, what do you tell your teacher? Your teacher gives you a note to give to another teacher. You walk to the other teacher's classroom, what do you say?	Nothing, I did not do my homework. Here.
Avoiding the conflict/negotiation process	The children at the playground are teasing you, What do you say?	Nothing, just walk away.
Inappropriate negotiation strategies	What do you say if you and another child came to get the same toy at the same time?	I got it first.

In addition to the statistical analysis, we performed a more qualitative error analysis. Table 2 shows examples of social pragmatic errors from children with SLI.

3.2. Self-esteem

Children's self-esteem was examined in two main areas: academic self-esteem and social self-esteem. We analyzed these two areas separately because of conflicting overall results in the literature (see Section 1). The results of a priori analyses showed a significant difference between academic and social self-esteem for the children with SLI, but not for the children with TLD: $t(1, 36) = 2.53, P < .05$ (for the children with SLI), $t(1, 36) = 0.43, P > .05$ (for the children with TLD). There was a significant group difference for social self-esteem ($t(1, 36) = 2.79, P < .01$) but not for academic self-esteem ($t(1, 36) = 0.41, P > .05$).

The results of a two-way ANOVA (group \times self-esteem type) indicated that the overall group scores were very close to statistical significance, $F(1, 36) = 3.97, P = .054$. There was a significant difference in overall scores between academic and social self-esteem, $F(2, 72) = 5.7, P < .01$, and there was a group \times self-esteem type interaction trend, $F(2, 72) = 2.96, P = .058$. Further, there was a large effect size for social self-esteem ($d = 0.9$), but only a small one for academic self-esteem ($d = 0.13$).

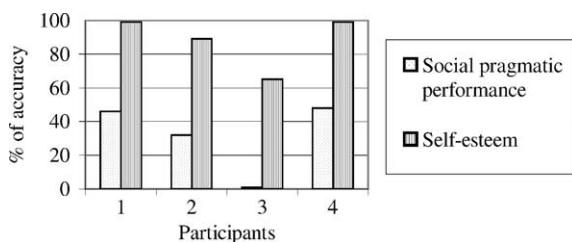


Fig. 1. Negative relationship between social-pragmatic performance and self-esteem in a subset of children with SLI.

A qualitative analysis of the relationship between social pragmatic skills (negotiation, conflict resolution, initiation of interaction) and self-esteem resulted in some interesting preliminary findings. There was a negative relationship between the social pragmatic scores from the hypothetical scenarios and the social self-esteem scores amongst several of the participants within the analyzed group of children with SLI. A number of those children who received the lowest scores on the hypothetical scenarios reported the highest level of social self-esteem (see Fig. 1).

3.3. Parent questionnaire

The results of a mixed-model ANOVA with group (SLI, TLD) and behavioral categories (adaptive behavior, social relations, linguistic knowledge, conversational skills, nonverbal communication) as independent variables indicated significant differences between the two groups, $F(1, 36) = 55.38, P < .001$ and across categories, $F(4, 144) = 3.48, P < .05$. There was a significant group \times categories interaction, $F(4, 144) = 8.5, P < .001$. The effect sizes were large for each category (adaptive behavior: $d = 1.11$; social relations: $d = 1.73$; language competence: $d = 2.07$; conversational skills: $d = 2.13$; nonverbal communication: $d = 2.39$).

The parents of children with SLI gave significantly lower ratings to their children in each category than the parents of children with TLD (see Tables 3 and 4). The post hoc Tukey analysis ($P < .05$) revealed that the parents of children with SLI indicated more difficulty in each target area than the parents of children with TLD. These latter parents reported much fewer difficulties and specified only two categories as sometimes problematic: adaptive behavior and social relations. In contrast, the parents of the children with

Table 3

Means and standard deviations (in percentages) for the self-esteem task for children with SLI and their peers with TLD

	Children with SLI		Children with TLD	
	Academic self-esteem	Social self-esteem	Academic self-esteem	Social self-esteem
Mean	78.42	61.53	81.21	78.47
S.D.	19.07	22.01	23.16	14.71

Table 4

Means and standard deviations (maximum score: 4) for the parent questionnaire for children with SLI and their peers with TLD

	Adaptive behavior		Social relations		Language competence		Conversational skills		Nonverbal communication	
	SLI	TLD	SLI	TLD	SLI	TLD	SLI	TLD	SLI	TLD
Mean	2.46	2.99	2.49	3.18	2.48	3.48	2.34	3.46	2.29	3.61
S.D.	0.52	0.43	0.47	0.31	0.56	0.39	0.65	0.36	0.61	0.49

SLI showed overall concerns with their children's social and language performances regardless of the social situation and social setting. They reported many frustrating and negative experiences from their children's social life.

3.4. Teacher questionnaire

A mixed-model ANOVA with group (SLI, TLD) and behavioral categories (adaptive behavior, social relations, linguistic knowledge, conversational skills, nonverbal communication) as independent variables was used to evaluate the teacher questionnaire. The results indicate significant group differences between the children with SLI and the children with TLD, $F(1, 20) = 7.84, P < .01$. The within-subject analysis revealed significant differences across categories, $F(4, 80) = 5.7, P < .001$. Table 5 shows the means and standard deviations for the teacher questionnaire across categories for both groups. The effect sizes were mixed: there was a large effect size for linguistic knowledge ($d = 1.46$), conversational skills ($d = 1.31$), and nonverbal communication ($d = 1.13$). Adaptive behavior showed a medium effect size ($d = 0.69$) and the effect size for social relations was small ($d = 0.39$). There was also a significant group \times categories interaction, $F(4, 80) = 3.59, P < .01$. The post hoc Tukey analysis ($P < .05$) showed that the teachers, in contrast to the children's self report on social self-esteem and to the parental reports, found the social relations and adaptive behavior of the children with SLI comparable to their typically developing peers. The teachers rated the children with SLI lower than the children with TLD only in linguistic knowledge, conversational skills, and in nonverbal communication, but not in social behavior (social relations and adaptive behavior).

Table 5

Means and standard deviations (maximum score: 4) for the teacher questionnaire for children with SLI and their peers with TLD

	Adaptive behavior		Social relations		Language competence		Conversational skills		Nonverbal communication	
	SLI	TLD	SLI	TLD	SLI	TLD	SLI	TLD	SLI	TLD
Mean	2.78	3.17	3.2	3.44	2.25	3.16	2.64	3.32	2.55	3.64
S.D.	0.7	0.39	0.76	0.45	0.72	0.51	0.6	0.42	1.21	0.64

4. Discussion

The current study investigated the social pragmatic skills of children with specific language impairment, including negotiation, conflict resolution skills and their ability to access an ongoing interaction. It was hypothesized that the children with SLI display poorer coping strategies in socially demanding situations as compared to age-matched typically developing children.

The study further sought to answer the following question: is the observable lack of social knowledge in children with SLI in a causal relationship with their linguistic deficit, or are the weaknesses in social skills co-occurring with the linguistic deficit?

The findings of the current study clearly demonstrate that children with SLI exhibit difficulties in social pragmatics, which result in agreement with previous findings (Brinton et al., 1997; Craig & Washington, 1993; Hadley & Rice, 1991; Stevens & Bliss, 1995). The children with SLI performed significantly poorer on the hypothetical scenarios task than their age-matched peers on both pragmatic and syntactic measures. Moreover, they exhibited significantly poorer social pragmatic than linguistic skills. This pattern was similar to the findings in the control group, however, the difference between the two language areas was larger for the children with SLI and there was a broader range of performance accuracy among these children than in the children with TLD. The typically developing children displayed nearly perfect linguistic skills. Pragmatically they performed slightly lower, yet still above 85% of accuracy. The social pragmatic performance of the children with SLI was just above chance level. They performed with 75% accuracy on grammatical measures, while performing significantly poorer pragmatically, with an average of 57% of accuracy.

The higher grammatical scores amongst the children with SLI may be attributed to the fact that these children have been in speech/language therapy for extended periods and have since improved their language proficiency. The statistical data and the results of the error analysis from the hypothetical scenarios task indicate that the social and linguistic deficits in a number of children with SLI are rather co-occurring than in a causal relationship.

As is confirmed in prior research, children with SLI display the tendency to use nonverbal means in place of speech in their initiation and participation in social situations (Craig & Washington, 1993; Rice et al., 1991). In the current study we found that the children with SLI employed more nonverbal coping strategies than their peers regardless of its appropriateness to the situation. The nonverbal reactions included evidence of physical aggressive behavior, such as, pushing and shoving and conversely passive/withdrawn reactions, such as, relinquishing to their partner avoiding the negotiation process. This corroborates with previous research concluding that children with SLI use fewer conflict resolution (Stevens & Bliss, 1995) and negotiation strategies (Brinton, Fujiki, & McKee, 1998) than their peers. The group of children with SLI showed little evidence of utilizing effective strategies to negotiate and resolve presented conflicts. The reactions of these children reflected the tendency of often departing the scene without resolving the conflict or expecting a third person to solve the conflict in an attempt to avoid the negotiation process.

Another common behavior observed in the children with SLI, was the production of inappropriate questions and comments in various social situations. Similarly to the findings of Brinton, Fujiki, and McKee (1998), many of the children's remarks reflected their inability to recognize the perspective and needs of other individuals. Perspective taking requires various cognitive steps: defining the problem, generating alternate strategies, selecting and implementing specific strategies, and evaluating outcomes (Selman, Beardlee, Schultz, Krupa, & Podorefsky, 1986). These stages reflect an increasing differentiation of one's own perspective and of the perspectives of others (Cohen et al., 1998). The children with SLI, in the current study, frequently neglected to provide adequate explanations to others regarding their behaviors. They expressed difficulties with analyzing the social situation, setting goals to resolve a conflict or to initiate an interaction, with planning and organizing the social situation to negotiate with a peer, and to shift the setting. These problems indicate difficulties in executive functions. Executive functions are essential in problem-solving processes, particularly if the tasks are novel and nonautomatic. Our previous study on working memory capacity in children with SLI evidenced that these children's performance decreases to a greater extent than that of their peers as the demands on executive functions increases (Marton & Schwartz, 2003). The results of the error analysis in the current study and our observations of children's behavior during testing indicate that a deficit in executive functions may play an influential role on the social pragmatic problems observed in children with SLI.

Further, similarly to the typically developing children, the children with SLI made use of simple verbal cliché's such as, "Thank you," and "Excuse me," however, even these simple expressions were sometimes inappropriately used to the social settings. Although these cliché's possessed the correct grammatical structure, they were utilized inappropriately in different social situations. In addition to knowledge of the grammatical rules, individuals must know how to apply the structural and discourse rules of language appropriately (Stevens & Bliss, 1995). This application involves planning and organizational skills that are controlled by the executive functions.

4.1. The relationship between social pragmatics and self-esteem

The relationship between the social pragmatic skills and self-esteem of children with SLI was also of interest. It was hypothesized that children with poorer social pragmatic skills display a lower self-esteem. This pattern was only true for social self-esteem. Academic self-esteem was comparable across groups. Most children in both groups were satisfied with the academic progress they made. However, the children with SLI complained about their social relations, about not having enough friends, often being lonely, and never being chosen as a leader in a group situation. These children reported more concerns with how they were coping socially with their peers than with their academic performance within the classroom. These findings are partly in agreement with those of Jerome et al. (2002), who found that children with SLI viewed themselves at a social disadvantage compared to their peers. In contrast to our results, Jerome reported group differences also in academic self-esteem, but he concluded that the negative self-perceptions of the children with SLI were primarily concerning their social acceptance. This suggests that the social status of children amongst their peers is of greater value than

academic achievements, having a larger impact on their level of self-esteem. This finding indicates a strengthened relationship between social competence and the perception of oneself, showing that a lack of social competency is a key factor to the foundation of a diminished self-esteem.

A rather unexpected result was the negative relationship between social performance and self-esteem within a subset of children with SLI. The children, who displayed the poorest social performance on the Hypothetical scenario task, reported the highest level of self-esteem within the group of children with SLI. This finding serves as additional support for a social cognition deficit in some children with SLI. These participants felt that they were experiencing good academic performance and were coping socially well with their peers. These opinions were in opposite not only with their social pragmatic performances, but also with the reports of their parents and in some cases of their teachers. These children lacked social knowledge and were unaware of their own social limitations. This deficit might result from a combination of factors, including denial, poor judgment, and lack of self-awareness. Because of the small sample size we did not conduct statistical analysis regarding this matter, but these preliminary data should be encouraging for future research.

4.2. Parent and teacher ratings

The results of the parent and teacher questionnaires revealed significant group differences. Both parents and teachers indicated poorer social and language performance in the children with SLI than in their age-matched peers. The questionnaires from the typically developing children showed minor, sporadic concerns regarding the children's adaptive behavior and social life. The data from the parents and the teachers of the children with TLD were in agreement.

The parents of the children with SLI reported many problems in each targeted area. They gave low ratings to their children in both social cognitive and language domains. These parents expressed major concerns regarding their children's present and future academic development. Although all of these children received speech–language services, the parents were concerned that there was little carry over from the therapy sessions to the school and after school settings. Moreover, most parents felt that they did not have appropriate strategies to help their children in different social situations. They were frustrated because their children did not have enough age-appropriate friends, often felt lonely, and isolated. These concerns were in agreement with most children's reports on social self-esteem.

There was a significant difference, however, in the way the parents and the teachers judged the social relations of children with SLI. The teachers reported no problems in social relations for these children. They did not notice their isolation in the class and did not see how lonely they felt. They were only concerned about these children's academic and language achievements. Further, the teachers did not use any specific strategies with these children because they knew very little about the special needs of children with SLI. They showed willingness to learn more about these issues and seemed to be open to acquire new methods.

The data from the questionnaires also indicated very little communication between the parents and the teachers regarding these children's social difficulties. The parents often

expressed feelings of embarrassment and discussed their problems either within the family or struggled by themselves.

4.3. *Clinical implications*

This study offers several important clinical implications. First, speech–language pathologists need to focus on improving the social competence skills in tandem with targeting grammatical weaknesses. Performances on the hypothetical scenarios indicate that several children with SLI experience a lack of social knowledge that does not appear to be causally related to their language impairment. Therefore, speech–language pathologists may wish to focus on intervention procedures that facilitate the use of language in social situations to provide these children with the opportunity to improve their social communication skills. Furthermore, experiencing success in social interactions is central to a child’s self-esteem (Rice et al., 1991). Hence, increasing these children’s social competency skills will potentially have a great impact on their self-perceptions.

There are also important implications for the teachers within the classroom environment. Educators should have an increased awareness of communication disorders and learn how to effectively identify and manage students that display poor social competency skills. It is documented in the literature that due to a small amount of training, teachers lack the knowledge and understanding of the various kinds of special needs children may have (Dockrell & Lindsay, 2001).

The findings of the current study as indicated by the teacher questionnaires suggest that teachers view the children with SLI as being less competent with respect to language, conversational, and nonverbal communication skills. However, the social relations and adaptive behavior of these children were rated as comparable to their peers. Teachers need to be made aware that the difficulties children with SLI experience are not limited to the linguistic domain but extend into other areas of development including social knowledge and the ability to form positive relationships with peers. The development of positive peer relationships for children with SLI is significant, as children with poor social skills are at risk for lowered self-esteem, underachievement, school drop-out, juvenile delinquency, and vocational and relationship adjustment problems following secondary school (Cope-land-Mitchell, Denham, & Demulder, 1997; Walker, Schwarz, Nippold, Irvin, & Noell, 1994). Therefore, it is important for teachers to recognize that children with SLI experience social incompetence and difficulties forming successful peer relationships in addition to deficits in the domains of language. Teachers must be trained to identify and manage these students and provide the appropriate counseling within the classroom.

A final implication is that efficacy of treatment is likely to increase with greater communication between parents, teachers, and the children. According to the data from the questionnaires, parents and teachers need to communicate more effectively and create a holistic profile of the child’s abilities. Greater communication is likely to result in a more effective intervention that is tailored to the child’s individual needs.

In summary, children with SLI exhibit difficulties in social pragmatics including negotiation, conflict resolution, and interaction with peers. On the hypothetical scenarios task, they exhibited significantly poorer social pragmatic than linguistic skills, which pattern was similar to that of the control group, however, the difference between the two

language areas was larger for the children with SLI. The data indicate that the social and linguistic deficits in a number of children with SLI are rather co-occurring than in a causal relationship. In addition to quantitative group differences, there were some qualitative differences in the errors children made in the two groups. The children with SLI employed more nonverbal coping strategies than their peers, such as aggressive behavior and passive/withdrawn reactions, they produced many inappropriate questions and comments, and showed difficulty with recognizing the perspectives and needs of other individuals. Further, they showed little evidence of utilizing effective strategies to negotiate and resolve presented conflicts. Based on the current findings and on our previous results (Marton & Schwartz, 2003), we suggest that the social cognitive problems in children with SLI are related to their deficit in executive functions. The social pragmatic difficulties were also reflected in children's social self-esteem. However, there was a subgroup of the children with SLI, whose results indicated a negative relationship between social knowledge and self-esteem. This issue needs further investigation.

The parent and teacher questionnaires revealed significant group differences. Children with SLI received lower ratings from their parents than their peers in each targeted area. In contrast, the teachers did not report any problems in social relations in either group, but they were concerned about the academic and language achievements of the children with SLI. Unfortunately, very little communication was reported between the parents and the teachers. The results clearly show that joint efforts are needed to increase the social pragmatic skills and social self-esteem in children with SLI.

Future research on specific executive functions (e.g., goal maintenance, inhibition, suppressing irrelevant information, flexible task switching, etc.) and social cognition may reveal more about those cognitive factors that influence social behavior and self-esteem in children with specific language impairment.

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Appendix A. Continuing education

1. The term social cognition relates to:
 - a. Self cognition
 - b. Social problem solving
 - c. Emotion perception
 - d. Social self-esteem
 - e. All of the above

2. Children with SLI perform similarly to their age-matched peers in:
 - a. Initiating social interactions
 - b. Negotiating with others
 - c. Academic self-esteem
 - d. Resolving conflicts
 - e. Social self-esteem
3. The current study found discrepancies between parents' and teachers' views of children with SLI regarding the followings:
 - a. Linguistic knowledge
 - b. Social relations
 - c. Conversational skills
 - d. Nonverbal communication
 - e. Academic development
4. Perspective taking does not involve:
 - a. Egocentrism
 - b. Defining the problem
 - c. Generating alternate strategies
 - d. Selecting and implementing specific strategies
 - e. Evaluating outcomes
5. The current study offers the following clinical implication:
 - a. Social pragmatic skills should be improved in tandem with targeting grammatical weaknesses
 - b. It is important to focus on social interactions during intervention because social interactions are central to a child's self-esteem
 - c. It is important to increase educators' awareness of communication disorders
 - d. Educators need to learn more strategies to help children with poor social competency skills
 - e. All of the above

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