

Outcome Measures for School-Age Children with Social Communication Problems

This article addresses outcome measures for social communication problems exhibited by school-age children. General guidelines for selecting outcome measures are provided. Specific outcome measures are discussed relative to (1) a model for viewing abilities that are necessary for social communication and (2) a framework for sampling these abilities across four different contexts. A case example provides an application of outcome measures to monitoring change. Key words: *outcome measures, school-age children, social-cognition, social communication*

Lesley B. Olswang, PhD
Professor and Associate Chair
Department of Speech and Hearing
Sciences
University of Washington
Seattle, Washington

Truman E. Coggins, PhD
Associate Professor
Department of Speech and Hearing
Sciences
University of Washington
Seattle, Washington

Geralyn R. Timler
Assistant Professor
Department of Communicative Disorders
University of Rhode Island
Kingston, Rhode Island

SPEECH-LANGUAGE pathologists (SLPs) find themselves increasingly challenged by a population of school-age children who have difficulty managing social situations. These youngsters share a common problem; they can't seem to adequately communicate during everyday social interactions. These are not, however, children diagnosed with social-emotional behavior or conduct disorders. Moreover, they are not children with mental retardation. Rather, these children very often exhibit cognitive abilities within normal limits for their age and have difficulty interacting as a result of more complex language deficits, social-cognitive impairments, and/or limited processing resources. These are children who demonstrate an array of deficits and diagnoses, including speech-language impaired, autistic spectrum disorders, attention deficit-hyperactivity disorder, and language-learning disorder. What sets them apart is their inability to use language to communicate appropriately, i.e., social communica-

tion. In school, they have trouble entering peer groups, resolving conflicts, negotiating, compromising, and have genuine difficulty making and keeping friends.

Clinicians must create sophisticated treatment packages to meet the needs of these children. The treatments are sophisticated, because the problems are complex. Documenting change that results from these treatments is a challenge, due in large part to the complexity of the problem. The purpose of this article is to examine outcome measures in social communication among school-age children. The discussion that follows will provide an overview of outcome measures, including a definition and general guidelines for selection. The discussion continues with a framework for viewing social communication, issues related to measuring outcomes, and recommendations for sampling outcome measures. A case example illustrates the application of suggested tasks and measures for a school-age child with social communication problems.

OUTCOME MEASURES

Definition

The term "outcome measures" has become associated with measures that reflect the outcomes of intervention (Fratalli, 1998a, b; ASHA, 2001). Since outcomes can be multi-faceted, including change in the client's current and future behavioral status, functioning and attitude, no single measure of intervention is possible (Fratalli, 1998b). Meaningful measurement of client outcomes requires that professionals understand their interventions and the relationship between interventions and behavior change. The focus of this article will be on outcome measures that are used to docu-

ment behavior change of children with social communication problems. Behavior change will be considered positive or negative, and related to intervention that is either ongoing or completed. The emphasis will be on outcome measures that directly sample the child's social communication behaviors. Clinicians typically obtain these measures of change; however, parents and teachers can also be used to provide a view of relevant behaviors across a variety of contexts. By definition, no single outcome measure would ever be possible; rather, a range of outcomes is necessary.

Goals

Our view of outcome measures implies two goals:

1. observing breadth and depth of behavior change, and
2. linking change to treatment.

The first goal is predicated on the belief that behavior change is multifaceted. We know that communication is complex, dynamic, and context dependent; therefore, treatment always creates multi-faceted changes. As clinicians, we may have a primary behavior that we are attempting to manipulate, but the nature of communication means that more than one behavior will change as a result of our treatment. This first goal requires clinicians to consider simultaneously how, when, and by whom change is measured.

The breadth and depth of behavior change can be considered from a variety of viewpoints. Arguably, the most basic is stimulus and response generalization. Stimulus and response generalizations allow clinicians to systematically view behavior change beyond a primary target behavior. Stimulus generalization, of course, refers to performance in a variety of settings, with a

variety of people and materials. It also refers to performance with varying amounts of contextual support; that is, performance becoming more independent and requiring less external structure. For example, we may treat a child in one context and see change in another context. A child may learn to enter a peer group in a structured treatment session, and demonstrate stimulus generalization by demonstrating peer entry in the classroom.

Alternatively, response generalization refers to changes in behaviors that are somehow related to the target behavior. Examining response generalization depends upon the taxonomy one is using to categorize the behaviors. For example, the basic components of language (i.e., syntax, semantics, phonology, and pragmatics) provide one framework for measuring response generalization. Another example would be to view behavior change from the World Health Organization (WHO) model of disablement, specifically, the International Classification of Impairments, Activities, and Participation (ICIDH-2) (WHO, 2000). From this perspective a clinician might target verb complements (i.e., impairment), and observe changes in the client's ability to resolve conflicts with peers (i.e., activity limitation) and examine the client's friendships (i.e., participation restriction). A final example would be to view behavior change from the perspective of consumers. Schwartz and Baer (Schwartz & Baer, 1991) have described four types of consumer:

1. direct consumer (i.e., the primary recipient of treatment),
2. indirect consumer (i.e., the purchaser of treatment or person strongly affected by treatment),

3. members of the immediate community (i.e., people who interact with the direct and indirect consumer on a regular basis, and
4. members of the extended community (i.e., people who do not know the direct consumer but are members of the same community).

Clinicians often observe change in indirect consumers or members of the community that seem connected to the treatment process. In sum, outcomes will require multiple measures that vary depending upon the framework for viewing behavior change.

The second goal for measuring outcomes is to link change to treatment. One way to examine this link is to explore the temporal relationship between behavior change and treatment. The closer the temporal, sequential tie between behavior change and treatment, the more confidence the clinician has that the treatment was responsible for change. If behavior change is immediate and dramatic in relationship to the introduction of treatment, one has increased confidence that treatment is triggering, or somehow responsible, for the observed change. Further, each time treatment is introduced or withdrawn, with co-occurring behavior change (particularly predicted behavior change), the validity of the causal relationship between the two increases. Thus, a discussion of outcome measures must consider how change is linked to treatment.

Procedural guidelines

These measurement goals give rise to three procedural guidelines.

1. Documenting breadth and depth of change dictates that clinicians utilize multiple measures. These measures must be sensitive to changes in a vari-

ety of behaviors, contexts and communicative partners. In selecting multiple measures, the clinician will need to decide what behaviors are most likely to change, which behaviors are most important to monitor, and who is in the best position to document the changes. Further, the clinician will need to decide the most appropriate contexts for measuring change, and how the treatment contexts influence performance.

2. Since a fundamental goal for measuring outcomes is linking change to treatment, the measures must be ones that can be administered repeatedly. The clinician cannot afford to have variations in measures obscuring variations in performance. Outcome measures used for documenting the temporal relationship between behavior change and treatment must be as stable as they are sensitive.
3. Outcome measures must be clinically useful. Because the measures need to be administered repeatedly over time, clinicians must be able and willing to administer them. The measures must be characterized by a degree of ease and feasibility. This procedural requirement is a tall order, and is increasingly so in relationship to the need for repeated, multiple measures.

Outcome measures need to sample breadth and depth of change, and link the change with treatment. As a result, the procedural guidelines require that we identify sensitive and stable measures that sample a variety of relevant behaviors in a variety of contexts over time. Finally, the measures must also be reasonable for clinicians to administer. This is a tall order, particularly as

we consider the complexity of social communication in school-age children.

KEY MEASUREMENT ISSUES

As children progress through the primary grades, social communication becomes increasingly complex. Social communication refers to using language in interpersonally appropriate ways to influence people and interpret events. Children are expected to negotiate conflicts with peers, understand jokes and sarcasm, use polite forms, explain their thoughts and behaviors, and interpret the thoughts and behaviors of others. Children's social communication behaviors become critical in helping them establish and maintain friendships as they proceed through school. For years, social communication problems have been a core feature of children with autistic spectrum disorders. Increasingly, other populations of atypical children have been found to exhibit meaningful deficits using their language in social situations including, children with specific language impairment (Bishop, Chan, Adams, Hartley, & Weir, 2000; Brinton & Fujiki, 1993; Redmond & Rice, 1998), traumatic brain injury (Blosser & DePompei, 1989; Ylvisaker & Feeney, 1995), and most recently children with fetal alcohol syndrome and related disorders (Coggins, Friet, & Morgan, 1998; Olswang, 1998; Timler & Olswang, 2001). While etiology differs, the social communicative deficits observed in these atypical children appear similar. They seem to have genuine difficulty using their language to handle the higher-order demands associated with real time social interactions. They have difficulty interacting with peers, particularly in situations where conflicts arise. When faced with disputes,

they often become the targets of ridicule and teasing. Not surprisingly, children with social communication problems tend to have social limitations in the form of behavioral problems. Thus, speech-language pathologists are feeling increased pressure to provide clinical services to these youngsters. Documenting the effectiveness of these services requires appropriate outcome measures.

The goals and guidelines for selecting outcome measures lead logically to two specific issues:

1. We must summarize the array of possible social communication behaviors that a clinician might wish to measure, and
2. We must consider the relevant contexts for measuring these behaviors.

A measurement framework

What to measure

Deciding what, who and how to measure requires a social communication framework. The framework we present in this chapter is based on the creative works of Bishop and colleagues, Brinton and Fujiki, and Redmond and Rice (Bishop et al., 2000; Brinton & Fujiki, 1993; Redmond & Rice, 1998). For the theory and rationale on which this framework rests, the reader should consult these authors. The framework is anchored on three overlapping competencies: social-cognition, language, and processing resources. In our view, a deficit in one or more of these three competencies is likely to result in social communication problems.

Social-Cognition. Throughout the school day, children use their language to successfully enter peer groups, cooperatively work

with others, or effectively negotiate and resolve conflicts (Campbell & Siperstein, 1994). Execution of these social communication behaviors requires particular social-cognitive abilities. These social-cognitive abilities enable a child to appraise a social situation, decide what to do, and act on that decision.

Many models have attempted to describe the social-cognitive abilities that underlie social performance. Crick and Dodge (Crick & Dodge, 1994) posit a social processing model that we have found particularly useful. The model is comprised of five social-cognitive capabilities that include:

1. encoding and interpreting cues,
2. identifying and selecting goals,
3. considering and selecting possible strategies or responses to meet the goals,
4. evaluating the possible consequences associated with the goals and strategies, and
5. evaluating the effectiveness of the strategies based upon feedback from others.

A breakdown in any one of these components could compromise a child's ability to perform in a socially competent manner.

Language. Appropriate social communication also requires linguistic competence. Indeed, language is the primary means by which school age children succeed in establishing and maintaining social relationships. The pivotal role that language plays in teacher-related and peer-related adjustment (Gresham, 1998) places school-aged children with compromised language not only at a social communicative risk, but also jeopardizes their ability to participate in social environments.

A school-aged child needs sufficient semantics or word knowledge (word meaning and word relationships) to appropriately communicate with others. Advanced semantic knowledge, such as the ability to interpret multiple-meaning words, allows for sophisticated forms of information as needed in social exchanges. Lack of flexibility in word knowledge can create misunderstandings in interpersonal communication and confusion when deciphering linguistic information.

Interpersonally appropriate use of language also requires adequate syntax. Facility with comprehension and production of complex syntactic constructions, especially embedded clauses, is necessary for elaboration of abstract ideas that occur in social interactions. More complicated interactions require a sophisticated understanding and use of compound and complex sentence types (e.g., "I'd like to help, but I'm late for school." "If the movies are over early, we can go bowling afterwards.").

Finally, school-aged children must have advanced pragmatic knowledge. Advanced pragmatic skills enable children to be "tuned into the rules" of conversation within a variety of communicative genres. Pragmatics, and knowledge of how communication should vary in different contexts, allows a child to know how to talk and behave in different situations with different people. These are the abilities that are necessary for determining how to appropriately behave as a child interacts with teachers and peers. These abilities enable a child to read a situation and know how to frame his/her communication. When a child needs to resolve a peer conflict, for example, he/she must assess the context and decide how to most ap-

propriately act. This involves the social-cognitive skills of appraising the situation, determining what goal or outcome for the conflict is desired, deciding what strategies would most appropriately lead to the goal, but also, selecting and using language to enable a child to execute social behaviors in context.

Processing. To be sure, school-age children must have adequate social-cognitive and linguistic abilities to handle the demands of more sophisticated social interactions. However, a conversationally competent youngster must also process multiple pieces of incoming information in the context of, and embedded in, real time events (Chapman, 1992; Cowan, 1998). In order to keep up with a conversation, one must simultaneously remember incoming material, compute the meaning of what has already been heard and formulate a timely response (Bishop, 1997). The findings of Carmichael Olson and her colleagues (Olson, Feldman, Streissguth, Sampson, & Bookstein, 1998), along with those from Mattson and her research team (Mattson, Goodman, Caine, Delis, & Riley, 1999), make clear that limitations in processing interfere with social performance and complex language use.

The consensus is growing that successful social performance requires higher-order cognitive processing known as executive functioning. Executive functions are the decision-making and planning processes invoked at the outset of a task and in the face of novel challenges (Singer & Bashir, 1999). These functions play a deciding role in how we use what we know. Higher-order executive functions guide one's behavior through manipulating information in memory, strategic planning and formulating ap-

appropriate responses. Because these processes encompass a range of abilities that overarch "all contexts and content domains" (Denckla & Reader, 1993; p. 443), they permit children to disengage from the immediate context and reason about interpersonal goals; a fundamental ability in forming and maintaining a positive peer relationships.

Language is a fundamental part of executive function (Denckla, 1996, 1998). There are, according to Tannock and Schachar (1996), a variety of functions involved in social communication. These functions are thought to include:

1. recognition of the social and informational demands of the situation;
2. knowledge of appropriate linguistic forms that code underlying meanings;
3. ability to organize and express thoughts and ideas simultaneously through several modalities (e.g., lexical, syntactic, gesture, suprasegmental features); and
4. ability to make rapid, "on-line" alterations according to real time changes in the communicative context.

An impairment in any of these components, alone or in combination, could logically compromise a child's social communicative abilities.

Summary

In selecting outcomes, clinicians must decide what they will measure. The framework presented above provides an assemblage of behaviors that have repeatedly been identified in the research and professional literature as critical for social communication. However, social-cognitive, linguistic, and processing abilities may combine in a myriad of ways to meet the demands of a particular environmental context. The chal-

lenge for clinicians is knowing which combination of behaviors in this complex compound are the most appropriate outcome measures for a specific child.

How and where to measure

Identifying "how" and "where" to measure outcomes is the second important measurement issue. This issue addresses relevant social contexts for sampling behaviors of interest. Context not only refers to situational variables (e.g., materials, activities), it also encompasses environmental or external support (Coggins, 1991; Coggins, Olswang, & Guthrie, 1987; Olswang & Coggins, 1984). Moreover, as social context varies, so do the demands that are placed on children. For example, consider the following hypothetical example concerning two peer negotiations during a school day. In the first context, two children are negotiating how to best implement a group activity in their classroom. Their teacher stands close by, monitoring the exchange and periodically offering helpful hints when the youngsters disagree. The children take turns and use socially appropriate dialogue to resolve a conflict. In the second context, these same two children are on the playground negotiating who will have the next turn at bat. No adults are present and the children are left on their own to resolve a conflict. After several unsuccessful attempts to get a turn at bat, one youngster turns and says, "Hey it's my turn. You had a turn. You played a long time. Gimme the bat . . . or else. Ok, I'm gonna push you out!" The children resort to assertive and even hostile/coercive behaviors to resolve the conflict.

Context variables influence processing and, in turn, impact a child's performance or outcome measures. These environmental

variables may increase pressure on the child in terms of the amount of time needed to respond, the nature of competing stimuli and/or the emotional content of the situation. As context varies, and demands increase, the resources for processing all relevant pieces of information likewise change.

Model for sampling performance

The issues discussed above present a creative challenge for clinicians. In short, how can one adequately sample the multiple behaviors of interest present in different contexts? Our proposed solution to this conundrum has been to focus on a core set of salient contextual variables and processing demands that have the potential to substantially influence social performance. Contextual variables include the structure of the task, the number of individuals involved in the task, distractions in the environment, and need for immediate response. Processing demands refer to the amount of energy or effort a child must exert in response to different contextual variables. The assumption is that, as context becomes more complex, processing demands increase. Processing demands include memory, planning, organization, and integration.

From our perspective, social performance may vary considerably as a function of context. However, the effects of contextual variables and processing demands cannot be predicted for any given child nor are the effects likely to be consistent across different situations. Therefore, SLPs cannot automatically assume that a sample obtained under one set of assessment conditions will accurately predict how a child will perform under a different set of eliciting conditions. To determine how context variables influence processing and, in turn, impact a

child's performance on outcome measures, a clinician is obligated to assess a child under different conditions. Only in this way will the clinician be able to reconcile variability in children's social communication performance (Coggins et al., 1987).

A model for sampling relevant outcome measures is provided in Table 1. The model presents four clinically useful tasks that include: hypothetical tasks, narrative tasks, analog tasks, and direct observation. The four tasks in Table 1 are presented along a "real time" continuum of contextual and processing demands. Using the "real time" continuum, we have identified four discrete nonstandardized tasks that may vary in contextual and processing demands. Because the demands vary, the child's social communication performance may differ in each task. For example, processing demands are likely to be fewer at the contrived end of the continuum, when a child has ample time to respond and few distracters. In contrast, processing demands may increase as the context becomes more naturalistic; a child may have less time to respond and be faced with distractions. Using this argument, one might expect a child to have more difficulty with social communication toward the naturalistic end of the continuum. However, given the complexity of context, one might argue that the natural environment provides redundancy of cues. Multiple cues come from the environment and from participants, perhaps making processing somewhat easier. The fact is, redundancy of cues in the natural environment may be helpful to some children, and distracting to others. We have attempted to simplify this somewhat by identifying four discrete tasks along our continuum. We will assume for the sake of clarity, that the processing and contextual

Table 1. Tasks and demands

		A CONTINUUM OF TASKS			
		Contrived		Naturalistic	
		Hypothetical	Narratives	Analog	Direct Observation
Contextual Demands		Low Demand			High Demand
Structure					
Number of people involved					
Distractions					
Immediacy of response					
Processing Demands		Low Demand			High Demand
Memory					
Planning					
Organization					
Integration					

demands increase as we move along the continuum, and as each task becomes more naturalistic, or more reflective of social communication in “real time.” We realize this is an “idealized” view, and that contextual and processing demands depend upon many variables that can occur in any given situation. A valid evaluation of processing demands would always require a closer look at the actual discourse that is taking place. With that caveat in mind, Table 1 presents our four discrete tasks (hypothetical tasks, narrative tasks, analog tasks, and direct observation) to illustrate different contexts that can be used to assess social communication.

The discussion that follows provides a descriptive summary of the four assessment tasks. In addition, we discuss how a variety of outcome measures can be used with each

task. Advantages and cautions associated with each task are also identified. Finally, we show how the application of quantitative and qualitative data can be used with the tasks and the outcome measures.

Hypothetical tasks

Hypothetical tasks are the most contrived measures on our assessment continuum. By definition, hypothetical tasks are highly structured, include few individuals, have few distractions, and don’t require an immediate response. These tasks are also assumed to have low processing demands. Hypothetical tasks are designed to simulate a particular communicative event and increase the probability that a child will produce a desired response. An example of this type of task comes from Stevens and Bliss (1995). In their study, children with lan-

guage impairment (and age matched controls) participated in a hypothetical problem solving activity in which an imaginary conflict was presented and a hypothetical solution was required. This study also had the children engage in role enactment of the conflicts. The methods allow for measures of verbal and nonverbal strategies that children would use to resolve hypothetical conflicts.

Timler (2000) utilized a similar hypothetical task to examine conflict resolution behaviors in children diagnosed with alcohol related disabilities (ARD). Timler (2000) presented 12 social conflict vignettes to nine children with ARD and nine typically developing children. The vignettes were designed to present a conflict with a peer that children were to resolve. For example:

You and some friends are playing soccer. It is a close game and you are excited to see who will win. The soccer ball flies off the field and another friend who is not in the game runs to get it. She/he will not give the ball back to you.

Children were shown each vignette via computer presentation then asked an open-ended statement to elicit strategies for resolving the conflict (e.g., "Tell me all the things that you can say or do here."). Following the open-ended statements, they were presented with possible choices of strategies for resolving the conflict (e.g., "What's the best thing to say or do here? Would you ask the teacher for help or would you wrestle to get the soccer ball out of her hands?"). Finally, each child was asked what they had hoped to accomplish with the strategies (e.g., "Tell me why you picked that one? What is your goal?"). Timler's (2000) vignettes were remarkably success-

ful in eliciting behaviors that reflected social-cognitive abilities. Children who produced less appropriate social strategies (e.g., "I'd grab it from her.") were identified by parents and teachers as having fewer social skills and more problem behaviors than children who stated more appropriate strategies (e.g., "I'd ask him to join the soccer game.")

Hypothetical tasks have several advantages for data collection. First, these tasks are efficient to administer. Second, the tasks create discrete opportunities to sample specific behaviors. Because of their structure, they obligate a child to respond in a pre-determined manner, demonstrating knowledge or performance of a particular behavior. The tasks can be created to sample social communicative abilities and/or linguistic behaviors. The vignettes used by Timler (2000) though administered only once in her study, could be administered on a regular basis (i.e., weekly, biweekly, or monthly). The vignettes elicit both social and verbal knowledge, and as such could be tailored to sample whatever behaviors the clinician was interested in monitoring. Further, they successfully elicited a variety of responses from the children.

The primary limitation of hypothetical tasks is that they are contrived. The situation is manufactured, the setting artificial (outside the classroom), only the clinician is present, and the children are knowingly observed. As such, they do not reflect how a child would perform under real time social conditions. Nevertheless, hypothetical tasks can provide directions for intervention, and can be useful in monitoring change resulting from intervention. Certainly, poor performance on these tasks may indicate that the child has limited knowledge about how to

behave across a variety of social situations. Intervention for such a child would likely focus on description, explanation, and modeling of appropriate social communication behaviors. Hypothetical tasks can then be used to examine change in social knowledge. Because of the nature of the task, children can be presented with the vignettes repeatedly over time to examine improved social knowledge by documenting increased selection of socially appropriate strategies. For children who perform adequately on the hypothetical tasks, yet have social difficulties as reported by parents and teachers, further assessment in more naturalistic settings is indicated. Such children may need behavioral interventions that focus on increasing appropriate behaviors already in their repertoire.

Narrative tasks

The demands associated with narratives are hypothesized to be greater than those of hypothetical tasks; therefore, they assume the next position on our continuum. Narratives provide children a means of verbally recapitulating experiences (Feagans & Appelbaum, 1986; Bishop & Edmundson, 1987). Westby (1984) has argued that narratives function as psychological bridges between verbal communication, which serves to regulate social interactions, and literate written language, which functions to regulate thinking.

Narratives are self-initiated, self-controlled forms of expressive language that occur in a variety of social contexts (Charman & Shmueli-Goetz, 1998; Ewing-Cobbs, Brookshire, Scott, & Fletcher, 1998; Hewitt, 1994; Hughes, McGillvray & Schmidek, 1996; Paley, 1994; Reilly, Bates,

& Marchman, 1998). Narratives are an important source of knowledge about inference, social cues, and the mental states of other people (Paul, 1995; Owens, 1999). From our perspective, the ability to "capture and convey events in the world" (Berman & Slobin, 1994, p. ix) through narration is an important component of peer acceptance.

The context and processing demands of narratives provide clinicians with a "window of opportunity" from which to view linguistic behaviors associated with social communication. In particular, narratives are ideal for examining how children manage extended units of text. Dealing with extended discourse reflects a child's ability to access multiple pieces of relevant information, which in turn enables them to perform higher level reasoning, critical thinking, and social problem solving. A key feature of narratives is recognition of the listener's perspective and needs in order to understand the message. Narratives, therefore, allow clinicians to examine sophisticated skills in semantics, syntax, and pragmatics; of particular note is the need to integrate these components of language in formulating a good narrative. As such, this task begins to resemble some of the real time demands of social situations.

Based on our clinical experience, the ability to relate a satisfying narrative relies on two complementary processes: cohesion and coherence. With respect to the former, a child must be able to link a series of related events into logical networks or episodes (Paul & Smith, 1993). Producing a series of utterances that "hang together" means that the child is able to interpret and integrate event context (Lund & Duchan, 1993). Coherence means being informative. A coherent narrative is one in which the narrator

does not presuppose knowledge on the part of the listener.

Coggins and his colleagues (Coggins, Friet, & Morgan, 1998) gathered narrative cohesion and coherence data from two school-age children diagnosed with diffuse organic brain dysfunction. The goal of this case study was to determine whether the two youngsters possessed sufficient ability to derive inferences and conclusions from a specific text and then communicate the information effectively to a listener. The preliminary data revealed serious compromises in both children's ability to connect a series of events into a logical structure and communicate essential information. The investigators speculated that both children were experiencing serious limitations in two communicative functions considered essential for regulating social interactions and sharing information.

Narratives are structured events that allow clinicians the possibility of analyzing a child's ability to deal with multiple pieces of relevant information under conditions that resemble real time demands. The prime advantage of narratives is that they provide a degree of experimental control while, at the same time, allowing a child the freedom to be spontaneous and creative. These task demands are different from the hypothetical tasks, which target and elicit particular predetermined behaviors. Therefore, this becomes an important context for examining the child's ability to integrate an array of linguistic behaviors that appear important for social communication.

The primary limitation of this task concerns the degree to which context influences performance. Narratives, particularly storybook narratives, use pictures as visual guideposts. These visual aids reflect the ba-

sic story line and likely reduce memory, planning and some organizational demands. In addition, it is not unusual for clinicians to provide children with a particular storybook and invite them to look through the book in order to become familiar with the general story line. To be sure, a clinician who observes the child previewing a storybook can not be considered a totally naïve listener and, as such, might conceivably influence the child's narrative. The obtained language sample may, therefore, reflect optimal rather than habitual performance. A second perceived limitation is the amount of time this outcome measure takes to complete. Miller (2001) contends that clinicians who use computer software for transcribing and analyzing language samples (e.g., SALT) spend no more time scoring and analyzing data than they would administering and scoring a multi-modal standardized test. The availability of sophisticated software packages for analyzing conversation and narrative samples make this nonstandardized task a viable methodology. Therefore, narratives become a useful context for measuring outcomes in social communication. Narratives are efficient, can be administered repeatedly over time, and generally provide a feasible assessment tool.

Analog tasks

Analog tasks move us further along the real time continuum. These tasks are manufactured by the clinician, but include real life social dilemmas. Other children are typically present, processing demands increase and responses must occur within a narrow window of opportunity. Thus, planning and organizing time are reduced, as the child must perform in a social situation "on the spot."

Brinton, Fujiki and Higbee (1998a) have created an analog task that looks at cooperative interaction among school-age children. In this task, three children, two typically developing and one "target" child with a disability, work together to build a cardboard periscope. This task has proved quite successful in eliciting verbal and nonverbal collaborative behaviors. In a related study, Brinton, Fujiki and McKee (1998b) utilized another analog task to sample negotiating behaviors of school-age children. In this study, a language-impaired child interacted with two same-age peers to negotiate the purchase of a snack from a "snack shop." The task required the children to pool their individual resources to buy one item for the group. This task proved successful in eliciting negotiating strategies used by the target children.

The clear advantage of analog tasks is that they sample socially significant events in real time. Further, they present clear opportunities that are likely to elicit desired behaviors. The clinician creates a social situation to mimic a real world event but which results in spontaneous interactions similar to a naturalistic context. The ecological validity of the analog task is high. Furthermore, analog tasks can be efficiently administered and scored. The structure of the task enables the clinician to focus on behaviors of interest with relative ease.

Arguably, the most serious limitation of analog task is that they do not ensure a given response will occur. Analog tasks lack traditional experimental control, particularly when other peers are included. The clinician may, therefore, expend considerable energy in creating an eliciting context only to get few behaviors of interest. While this sam-

pling issue threatens task validity, Brinton and Fujiki and colleagues (Brinton et al., 1998a; Brinton et al., 1998b) have shown strong evidence of the value of these tasks in evoking desired behaviors. As such, analog tasks can be quite useful in sampling outcome measures associated with social communication.

Direct observation

At the naturalistic end of the real time continuum is direct observation. Direct observation enables the collection of authentic and functional performance that is embedded within actual social communicative interactions (Kovarsky & Damico, 1997; Silliman & Wilkinson, 1994; Westby, Stevens-Dominguez, & Oetter, 1996). By definition, direct observation reflects performance when contextual and processing demands are highest.

Direct observation allows clinicians to examine performance as it occurs in real time. Lund and Duchan (1993) have carefully described the value of this assessment procedure. Bishop (1998) has developed the Children's Communicative Checklist (CCC) to examine important pragmatic components of social communication. This checklist rating scale appears to be a quick and efficient way of gathering "a more qualitative picture of the profile of communicative difficulties in children" during everyday communicative interactions. Bishop's (1998) findings demonstrate that difficulties in the social use of language can be reliably rated by speech-language pathologists and classroom teachers. Damico and colleagues (Damico, 1985; Damico, 1992; Damico, Oller, & Tetnowski, 1999) have designed the Systematic Observation

of Communicative Interaction (SOI) for observing language use in naturally occurring social situations. The SOI specifically codes illocutionary acts as well as corresponding verbal and nonverbal during social interactions. The instrument has been shown to be a sensitive tool for discriminating children who are typically developing and those who are exhibiting social communicative deficits (Damico, 1985).

The advantage of direct observation is that it allows an examination of functional language in real time. Behaviors can be observed in relationship to what is occurring in the environment as they naturally unfold. The latter allows for a unique inspection of how variables within the environment may serve to support or hinder social interactions.

Although direct observation has decided strengths, it also has several noteworthy limitations. First, it is difficult to know precisely where, with whom, and when to observe. Each sampling condition yields ecologically valid though slightly different information. The clinician must decide which constellation of contextual variables will reveal the most representative sample of behaviors. Second, since the clinician has little experimental control, the frequency with which a behavior occurs may be problematic. Third, observing children in natural environments presents non-trivial challenges with respect to both data collection (e.g., "Do I follow the child around, making a log of behaviors as they occur, or record a pre-determined set of behaviors and data reduction?" "How much time do I spend observing?") and data reduction (e.g., "How can I summarize the data in a time efficient manner?" "Is the summary sensitive?").

Summary

The real time continuum illustrates discrete tasks that can be used to sample outcome measures related to social communication. Each task allows clinicians to examine children's knowledge of people, relationships, and events from a different perspective. Contextual and processing demands associated with successful social performance vary with each of the tasks. The clinician needs to decide what information is desired, and how to best obtain that information. Ultimately, the clinician will also need to determine how often data should be collected. In reality, the best information is likely to be gained from a variety of tasks, which are administered repeatedly and periodically during intervention. For example, hypothetical and/or narrative tasks lend themselves to more frequent administration because of their ease in delivery and scoring. Analog tasks and direct observation, which are more time consuming, might be better administered less frequently (see Olswang & Bain, 1994; Olswang & Bain, 2000 for guidelines regarding frequency of measurement).

The tasks presented in Table 1 create the context for eliciting and sampling behaviors. Outcome measures, the "actual data" emerging from these tasks, must be further defined, however. Our discussion turns now to considering types of data for examining social communication. While outcome measures traditionally utilize quantitative data, the tasks that we have described along our real time continuum provide excellent opportunities to examine children's performance from both quantitative and qualitative perspectives. In our view, clinicians

must utilize both types of data in order to obtain a comprehensive and theoretically satisfying understanding of social communication.

Measures: Types of data

Quantitative data

Outcome measures customarily utilize quantitative data. This is not particularly surprising since many treatment questions lend themselves to quantitative data: for example, how do specific intervention strategies alter the emergence of a new behavior or skill, or how does a particular treatment variable influence the performance of specific observable behaviors. The emphasis is on operationally defining specific behaviors so that independent observers (including parents and teachers) can measure change in performance (Schwartz & Olswang, 1996). The focus is on a small set of narrowly defined, countable behaviors, "the highly discrete behaviors that observers are trained to discriminate from the ongoing flow of events" (Meyer & Evans, 1993). Quantitative methodology requires that behaviors of interest be identified and defined before the data collection begins. The clinician knows from the outset what behaviors he/she must count. Quantitative data enable clinicians to easily examine and document performance change by measuring increases and decreases in the occurrence of specific behaviors.

Qualitative data

Quantitative data reflect preconceived notions about what is important to measure. What quantitative data lack is an examination of "systemic" performance (Schwartz & Olswang, 1996), that is, behavior meshed

in context. A system focus assumes that the meaning of behaviors cannot be separated from the context in which they occur. Social communication is a multi-faceted, complex and dynamic use of language that depends upon moment-to-moment processing and person-to-person interactions in the environment. Social communication is embedded in context. Semantics, syntax, and pragmatics are determined by the social exchange, but also individual social and cognitive interaction styles, cultural expectancies, societal norms, personal experiences, and a host of contextual variability (Kovarsky & Damico, 1997). Acknowledging this complexity is to recognize the need for qualitative data.

Qualitative data are descriptive. These descriptive data include field notes, personal and official documents, photographs, and interviews with parents and teachers (see Bogdan & Biklen, 1992). Behaviors of interest emerge during the data collection process, rather than being decided apart. The data provide insight into the process of social communication, which might be considered a more even-handed assessment of functional performance. For example, qualitative data will allow a clinician to determine how a child's performance varies with particular people, or how emotional lability might interface with performance. Qualitative data will reveal how children resolve conflicts with peers through description of the strategies they employ as the conflict occurs. If a child has difficulty with turn taking, qualitative data may uncover the nature of this difficulty; for example, too much talking, not enough talking, inappropriate topic formulation, partner's unwillingness to relinquish a turn. Qualitative data can provide a critical view for describing

the depth and complexity of language performance in social interactions.

Quantitative and qualitative data must be utilized in measuring social communication outcomes. Each type of data will reveal complementary and critical information. To use one at the expense of the other will not provide the clinician with an accurate picture of change.

CASE EXAMPLE

The goals and procedural guidelines for selecting social communication outcome measures require multiple measures that can be feasibly and systematically administered over time. Effective sampling dictates that clinicians use a variety of tasks to assess performance across multiple measures and contexts. To illustrate these principles, we present a case example of a school-age youngster diagnosed with diffuse organic brain damage and documented social problems at home and school. First, we provide a view of the child's baseline performance across multiple measures of social communication. Next, we briefly describe the child's social communication intervention. Finally, we present several repeated measures of social communication over time to demonstrate how these measures were used to direct the child's intervention program and document the breadth and depth of the child's changes in social communication.

Sally is an 8;3 (years;months) old second-grader who is enrolled in a regular education

classroom. Her parents report that she had difficulty making and keeping friends, and exhibited poor judgment in most social situations. Sally was identified as having a clinically significant score on the Problem Behaviors Domain of the Social Skills Rating Scale-Parent Edition (Gresham & Elliott, 1990). In addition, her primary teacher noted significant problems with peer entry on the Taxonomy of Problem Situations (Dodge, McClaskey, & Feldman, 1985).

Sally's diverse language profile is presented in Table 2. She scored within normal limits on the Peabody Picture Vocabulary Test-III (PPVT-III) (Dunn & Dunn, 1997) and the Formulated Sentences and Listening to Paragraphs Subtests of the Clinical Evaluation of Language Fundamentals-Third Edition (CELF-3) (Semel, Wiig, & Secord, 1995). However, she scored more than one standard deviation below the mean on the Test of Pragmatic Language (TOPL) (Phelps-Terasaki & Phelps-Gunn, 1992) and the Test of Language Competence (TLC) (Wiig & Secord, 1989).

Quantitative and qualitative data were collected for three of the four assessment tasks presented in Table 1. The three tasks administered to Sally included a hypothetical task (Timler, 2000), a narrative task (following Coggins et al., 1998), and a direct observation of Sally's social communication. We used the Systematic Observation of Communicative Interaction (SOI) (Damico et al., 1999) to sample the naturally occurring events in Sally's classroom. Findings from these tasks and measures are summarized in Table 3 and discussed in the following paragraphs.

Table 2. Case Example: Standardized Testing of Language Performance

Child	Age	IQ*	PPVT-III*	CELF-3 Formul. Sent.*	CELF-3 Listen. To Par.*	TOPL*	TLC Comp.*	TLC Express Intents*	TLC Interpret. Events*
Sally	8;3	85	89	10	8	68	71	73	76

*Standard scores presented

Table 3. Case Example: Measures of Social Communication Performance

TASKS AND MEASURES			
TYPE OF DATA	Hypothetical Task	Narrative Task	Direct Observation
Quantitative Data	<p><i>Condition 1 ("Tell me all the things you could do")</i></p> <p>Pro-social: 15 Assertive: 7 Hostile/Coercive: 7 Adult Seeking: 4 Passive: 0</p> <p><i>Condition 2 ("What would you do first?")</i></p> <p>Pro-social: 4 Assertive: 5 Hostile/Coercive: 0 Adult Seeking: 2 Passive: 1</p> <p><i>Condition 3 (Forced Choice Strategy Selection):</i></p> <p>Pro-social: 1 Assertive: 2 Hostile/Coercive: 8 Adult Seeking: 0 Passive: 1</p>	<p>Total Propositions: 54</p> <p><i>Pragmatic</i></p> <p>1) Coherence: #reiterations: 2 #evaluative comments: 5</p> <p>2) Cohesion: #pronoun ref.: 15 #conjunctive links: 1</p> <p><i>Linguistic</i></p> <p>1) #different words: 104 2) #propositions with complex syntax: 6</p>	<p>Observation #1:</p> <p>Non-communicative: Appropriate: 24 Inappropriate: 0</p> <p>Communicative: Appropriate: 62 Inappropriate: 17</p> <p>Verbal Errors: 15</p> <p>Nonspecific vocab. 2 Poor topic maint: 4 Situationally inapp. 3 Response delay 2 Turn Taking Diff. 4</p> <p>Observation #2:</p> <p>Non-communicative: Appropriate: 16 Inappropriate: 0</p> <p>Communicative: Appropriate: 69 Inappropriate: 29</p> <p>Verbal Errors: 27</p> <p>Poor topic maint: 10 Situationally inapp. 3 Response Delay 4 Turn Taking Diff. 10</p>
Qualitative Data	<p>Talked about getting help from adults</p> <p>Frequent talking, often off topic</p> <p>Mentioned these situations happening to her a lot</p> <p>Needed frequent repetition of conflict vignettes</p> <p>Reformulated many of her answers</p> <p>Added misinformation to her vignettes (e.g., "I'd say it's not good to be mean too because what if I was in a wheelchair")</p>	<p>Very talkative</p> <p>Didn't seem aware of listener needs</p> <p>Primarily described pictures rather than tell a story</p>	<p>Aggressive Comments ("Shut up")</p> <p>Teasing</p> <p>Speaks continuously, no idea of turns, often no apparent listener</p> <p>Solicits teacher</p> <p>Rarely talks to peers</p> <p>Perseveres on topic</p> <p>Too close to peers</p>

Hypothetical task performance

Sally was presented with 12 conflict vignettes. The vignettes were randomly presented under three conditions. In Condition 1, Sally was asked to describe all of the strategies she could use to solve each conflict (e.g., "Tell me all of the things you could say or do here"). In Condition 2, Sally was asked to describe the first thing she would say or do if the hypothetical conflict really happened (e.g., "What would you say or do first if this really happened?"). In Condition 3, Sally was given five strategies and asked which one she would choose to solve the conflict (e.g., "What is the best thing to say or do here?").

Sally's responses were assigned to one of five strategic categories: pro-social, assertive, hostile/coercive, adult seeking, or passive. Pro-social strategies included accommodating the needs of both parties, suggesting ways to compromise, asking for more information from the friend, or making a polite request (e.g., "Please give me the book"). Assertive strategies were statements about what one desired in a direct way without saying "please" or stating a social norm (e.g., "It's my turn"). Hostile/coercive strategies directly counteracted the other person's actions in an unfriendly manner (e.g., "I'd grab the book"). Adult-seeking strategies appealed directly to an adult for resolution (e.g., "I'd get the teacher"). Finally, passive strategies forfeited one's own interest (e.g., "I'd just do something else").

Results of the hypothetical task are presented in Table 3. In Condition 1, Sally stated nearly as many assertive and hostile/coercive strategies ($n = 14$) as pro-social strategies ($n = 15$). Left to her own devices (Condition 2), Sally elected to seek adult help quite frequently. When provided with choices, however, (Condition 3), Sally actually demonstrated more hostile/coercive and assertive strategies. The quantitative results confirmed observations that teachers and parents also made about their daughter.

Qualitative data also reflected the same type of responses from Sally. The examiner noted that the child was quite talkative, often was off-topic in remarks, and frequently became agitated and would mention the need for teacher assistance.

Narrative task performance

The narrative task required Sally to create a fictitious story following the wordless pictures in the children's book *Frog, Where Are You?* (Mayer, 1969). The Frog story contains 24 pictures illustrating an adventure about a boy and his dog searching for a pet frog that is lost.

Sally's narrative contained 54 propositions. A proposition was defined as any clause containing at least a noun (subject) and a verb (e.g., "He was sleeping."; "He wanted to go outside."; or, "The boy searched in the tree and his dog in the woods."). Quantitative measures were organized around two pragmatic components and two linguistic components. The complementary pragmatic components included: 1) coherence (i.e., propositions that clearly expressed essential story elements); and 2) cohesion (i.e., propositions that linked events into logical story episodes). A coherent comment occurred when Sally reiterated the motive of the story (i.e., "The boy was searching for his lost frog.") or commented about the mental state of a story character (e.g., "The boy is angry because his dog broke the jar.") A cohesive comment occurred when Sally issued a pronominal reference (e.g., "The boy wondered where his frog went. He started to look in his room.") or a conjunctive reference (e.g., "He told his dog to be quiet because he thought he heard his frog.>").

Two linguistic dimensions were also coded in Sally's narrative production. The first was a semantic dimension (i.e., number of different words in Sally's story) while the second dimension quantified a relevant syntactic variable (i.e., the number of propositions with complex syntax). These quantitative measures were based on our clinical judgment and published data regarding suspected difficulties in the spontaneous language of children with organic brain dysfunction.

Sally's narrative is remarkable in two important respects. First, Sally reiterated the motive of the boy's search (i.e., to look for his lost frog) only twice in her story (3%). Rarely did Sally's utterances go beyond what was directly observable in the stimulus pictures. She did not inform her listener why the boy and his dog were looking in trees, behind logs, or shouting from atop large boulders. Second, only 11% of the propositions

in Sally's oral narrative were complex (i.e., communicated more than one underlying idea at a time). This finding suggests a decided compromise in Sally's ability to use the formal aspects of her language to express more sophisticated ideas.

Direct observation performance

The final task involved direct observation of Sally in her classroom. The observation took place during a free play/game activity. Sally was moving around the room playing games with other children. The Systematic Observation of Communicative Interaction (SOI) (Damico, 1985; Damico et al., 1999) was utilized to gather quantitative data about Sally's use of language in a natural context. Two 12-minute observations were made. Sally's appropriate and inappropriate uses of non-communicative (e.g., body posture, facial expressions, touching) and communicative behaviors were coded. Verbal errors (e.g., nonfluency, nonspecific vocabulary, poor intonation) were also recorded. Results are presented in Table 3. Quantitative data reveal a large proportion of inappropriate communicative acts, with a number of specific verbal errors in pragmatics. Qualitative data support these findings and provide further explanation of the nature of the errors.

Summary of overall performance

The three assessment tasks provide clinicians with a variety of social communication measures. Collectively, the quantitative and qualitative data provided a detailed and informative picture of a child with social communication problems. The hypothetical task allowed us to view Sally's social-cognitive abilities. Even when contextual and processing demands were minimized, Sally demonstrated difficulty in knowing how to solve social conflicts with peers. She tended to be assertive, hostile/coercive, or seek adult assistance. Even provided with choices on how to behave, she resorted to less social strategies. Linguistically, the narrative task and the direct observation reflected a child that talked frequently, but often in simple sentences that were inappropriate to the context. The striking data

from the narrative are the number of propositions and % used with complex syntax. The quantitative and qualitative data revealed that she tended to have a lot to say, produced rather simple sentences, and often produced errors in topic maintenance and turn taking.

Social communication intervention & treatment outcomes

As a result of this assessment, Sally received social communication intervention in a small group setting at her elementary school. Treatment activities focused on role-play of social stories; these stories presented social conflicts the children had to resolve. One of Sally's treatment targets was to increase the number of pro-social statements she produced while resolving the story conflicts with her peers. Some of the targeted pro-social statements included: "If you take turns with me, you can have the first turn." "Let's work together and you can help me finish this"; "If you are finished, could I please have this?" "Why don't we flip a coin and see who wins?" Although treatment focused on increasing the number of Sally's pro-social statements, response generalization to other aspects of Sally's social communication skills were anticipated. For example, some of the targeted pro-social statements were syntactically complex. Changes in Sally's use of complex sentences could be expected. Further, Sally practiced use of the pro-social statements in role-play situations where she needed to take turns appropriately. Thus therapy could impact Sally's turn taking skills. In addition to response generalization, stimulus generalization was also expected. Ultimately, Sally was enrolled in treatment to increase her use of pro-social statements in the classroom. Therefore, Sally's treatment outcomes could include changes in a number of social communication contexts. Accordingly, multiple measures were needed to assess the depth and breadth of Sally's changes across contexts.

The clinician collected treatment data to measure Sally's response to the intervention. During the first two months of intervention, Sally's frequency of pro-social statements increased from 25% to 75% across four role-play stories within

each session. Additional treatment data indicated Sally produced pro-social statements that were syntactically complex and generally took turns appropriately in the role-play. While the treatment data indicated that Sally was responding to the intervention, the clinician needed to document that these changes were generalizing to other contexts. The clinician readministered two of the social communication tasks two months into Sally's intervention program. As is typical of most clinicians employed in school settings, this clinician had limited time to complete an interim assessment of Sally. Therefore, she selected tasks for this interim assessment that could be administered and scored rather quickly. The clinician chose to readminister the hypothetical vignette task, complete one 12-minute direct observation in Sally's classroom and speak with the teacher about Sally's social communication within the classroom.

Results from the hypothetical vignette task and the classroom observation are presented in Table 4. In Condition 1, Sally stated many more pro-social strategies ($n = 27$) than any of the other strategies combined ($n = 7$). Sally stated many more pro-social strategies than in her initial assessment ($n = 15$). In Condition 2, Sally elected to use more pro-social strategies than in her initial assessment ($n = 9$, compared to $n = 4$ during the initial assessment). During the forced choice format, she chose more pro-social strategies ($n = 10$) than any other strategy. These results supported the changes observed during the treatment. That is, Sally produced more pro-social statements within contrived contexts (i.e., the therapy session and the hypothetical task). Although these changes were impressive, these measures did not necessarily reflect how Sally would behave during "real time" conflict situations within naturalistic settings. Therefore, the clinician observed Sally in the classroom. Sally demonstrated slightly fewer turn taking difficulties (first assessment, $n = 4$; second assessment, $n = 1$); however the clinician did not think the data supported significant changes in Sally's performance within the classroom setting. The conversation with the teacher confirmed the clinician's interpretation of this data. Sally continued to have difficulty in peer activities and the

teacher had to intervene frequently to "keep Sally out of trouble with her peers." Clearly, the changes observed in Sally's behavior during treatment had not generalized to the classroom. These data informed the clinician about changes needed in Sally's intervention program. Accordingly, the clinician instructed Sally to count the number of pro-social strategies she used during the school week. Sally and the clinician made a small chart that Sally used to "check off" whenever she used a pro-social strategy. They agreed that Sally's goal was to use five pro-social strategies every week. Three months after introduction of the "pro-social chart," Sally met her goal for 2 consecutive weeks. The clinician decided to again assess Sally's social communication skills. She focused her reassessment on Sally's classroom performance. These results are presented in Table 4. Completion of one twelve-minute direct observation revealed that Sally demonstrated many more appropriate non-communicative ($n = 37$) and communicative behaviors ($n = 77$) than in the previous assessments. The clinician noted that Sally had only one episode of a turn taking error. This data set suggested that Sally was communicating more frequently with her peers. The teacher again confirmed the clinician's interpretations. The teacher reported that Sally required less teacher intervention during group activities. The teacher noted Sally's use of pro-social activities in the classroom and reported that some of Sally's peers were more accepting of her offers to participate in classroom activities.

CONCLUSION

Speech-language pathologists have become increasingly competent in identifying children with impaired language. However, the price we pay for progress is the identification of even more questions to answer. Over the past several years, clinicians have identified an impressive and growing number of children who exhibit social problems, as revealed during verbal interaction with peers. These are children whose speech and

Table 4. Measures of Social Communication Performance at Two- and Five-Month Reassessment

Type of Data	Hypothetical Task (2-month reassessment)	Direct Observation (2-month reassessment)	Direct Observation (5-month reassessment)	
Quantitative Data	<i>Condition 1 ("Tell me all the things you could do"):</i>	Non-communicative:	Non-communicative:	
		Appropriate: 26	Appropriate: 37	
		Inappropriate: 0	Inappropriate: 0	
	Pro-social: 27	Communicative:	Communicative:	
		Appropriate: 55	Appropriate: 77	
		Inappropriate: 18	Inappropriate: 9	
	Assertive: 7	Verbal Errors: 12	Verbal Errors: 10	
		Hostile/Coercive: 0	Nonspecific vocab. 3	
		Adult Seeking: 0	Poor topic maint: 4	
	Passive: 0	Situationally inapp. 1	Situationally inapp. 1	
		<i>Condition 2 ("What would you do first?"):</i>	Response Delay 2	Response Delay 3
			Turn Taking Diff. 2	Turn Taking Diff. 1
	Pro-social: 9			
	Assertive: 3			
	Hostile/Coercive: 0			
Adult Seeking: 1				
Passive: 0				
<i>Condition 3 (Forced Choice Strategy Selection):</i>	Pro-social: 10			
	Assertive: 1			
	Hostile/Coercive: 0			
	Adult Seeking: 0			
	Passive: 1			

language skills seemed adequate for many of the day-to-day intellectual and social demands associated with the preschool years. However, as these youngsters confront situations at school that demand higher levels of inference, social reasoning and information processing, many seem unable to use language in interpersonally appropriate ways.

Experienced clinicians recognize the importance of monitoring communication change as part of the intervention process. This involves recognizing the complexity of communication, particularly the ways in which communication varies in real world social situations. Our purpose in writing this article has been to provide the reader with

guidelines for measuring breadth and depth of change as a part of evaluating treatment for social communication. The paper has provided a model for social communication and for sampling a variety of outcomes in social situations that reflect different contextual and processing demands. The paper has also discussed the importance of using both quantitative and qualitative data to assist in measuring behaviors. Ultimately, outcome measures must be sensitive to change and ecologically valid. Considering the effect that contextual and processing demands have on social communication will assist in selecting these sensitive, ecologically valid measures.

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