

A Manual for
The Dynamic Assessment of Nonsymbolic Communication

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Drawing by Martha Perske

Introduction to the Manual

This informal manual was developed to describe an evolving process for assessing the nonsymbolic communication of individuals with severe disabilities. As the assessment process was piloted and revised over the past four years (Loncke & Snell, 2000; Snell & Loncke, 1999), the manual has been rewritten to reflect what we have learned about this process. This work stands on the shoulders of many others whose research and writing in prelinguistic and nonsymbolic communication and in dynamic assessment have informed, guided, and inspired our efforts. In particular, we recognize the work of Ellin Siegel, Amy Wetherby, Barry Prizant, Teresa Iacono, Nancy Brady, Lesley Olswang, Elizabeth Pena, Kary Kublin, and Lev Vygotsky, and all their colleagues.

Please copy and use this guide as it seems useful to your work with individuals who communicate through nonsymbolic means or could learn to do so. We would be interested in what you learn that would improve this process; please email us with your comments.

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is available from the first author's web site at the University of Virginia, Curry School of Education. Web site: <http://www.people.virginia.edu/~mes51/> The companion article (Snell, 2002) may also be consulted for additional information.

A Manual for the Dynamic Assessment of Nonsymbolic Communication

In all humans, communication with others starts at birth. For typically developing children, the system of communication becomes increasingly conventional within the first year of life. The first spoken words generally indicate that a child is in transition from nonsymbolic to symbolic communication. The acquisition of symbolic skills appears to happen rapidly and without much effort for most children. However, the communication of some learners may remain entirely or predominantly nonsymbolic (Snell, 2002):

Nonsymbolic communicators are those who interact with others using few or no conventional symbols (words, signs, or picture symbols) but through presymbolic motoric gestures, vocalizations, problem behavior, and, at times, reenactments of past routines and echolalia (Wetherby, Prizant, & Schuler, 2000). (p. 3)

Among these communicators are children and adolescents with significant cognitive limitations who may have labels of autism, mental retardation, or intellectual disability.

Communication repertoires that contain few or no symbolic elements need not be poor, unsuccessful, or inefficient. On the contrary, in the past few decades, research in nonsymbolic communication between typically developing infants and babies has revealed several important findings (Wetherby, Warren, & Reichle, 1998). First, nonsymbolic communication undergoes a process of becoming more sophisticated and more conventional early in life. From the first day of life, children enter a continuous interactive relationship with partners in their environments. Often, these interactions are rooted in rituals or chains of events where each element predicts the

next one. This allows the child and the partner to anticipate, a learning process that will lead the child toward understanding the essence of symbols.

Second, nonsymbolic communication between children and their partners is idiosyncratic – a set of communication forms and meanings emerges that is unique to each individual child. The system is shared with the partners: Partners help to define meanings (by being responsive or not), and introduce and guide routines. This idiosyncratic characteristic explains why the parents (or other significant partners) often are able to “understand” the child, while others cannot. This characteristic also means that the vocabulary is predictable and can be defined.

Third, the efficiency of communication depends as much on the child’s communication partners and the organization of the environment as on the child (Hart & Risley, 1995). Efficiency of communication improves when the child develops an awareness of his or her own intent. Being intentional or goal-oriented means that the child understands how objects and persons can be a means to obtain something (Granlund & Olsson, 1999). Perhaps the most decisive breakthrough in early communicative development is the appearance of intentionality: the use of purposeful communication signals that function to influence partners. Intentionality is evidenced when children exhibit certain behaviors that indicate “the deliberate pursuit of a goal” (Wetherby & Prizant, 1989, p. 77). The development of intentional nonsymbolic communication in typically developing infants results in more efficiency, less ambiguity, and more success.

In fact, as some learners may never reach symbolic communication, the use of the term “nonsymbolic communication” should be preferred over “presymbolic communication”. The term “nonsymbolic” is also preferred over “prelinguistic” or “non-linguistic” because linguistic skills encompass more than the ability to use and understand conventional symbols. Functioning at a linguistic level presupposes the use and understanding of rules that combine

symbols. The ability to use isolated conventional symbols (words, manual signs, pictures, or other forms) does not automatically reflect linguistic mastery.

Organization of Nonsymbolic Communication Systems

At the nonsymbolic level, the learner organizes and modifies his/her system of communication in ways that reflect (a) the success of communication, (b) the development of new forms and functions in communication, and (c) the ability of partners to understand and coach communicative acts of the learner.

Success of Communication

A communicative action is successful when the learner's message is understood by the partner. In general, success is reflected when a person obtains what he or she wants to receive or accomplish. Although the partner may decide not to do what the learner requires him or her to do, success is obtained when the partner acknowledges the learner's communicative act. By experiencing success, communicative responses are shaped and become less ambiguous.

New Forms and Functions

Throughout interaction and communication, new forms and functions may arise. Communication forms are often abstractions of an interactive action. For example, raising both hands in front of the caregiver is generally interpreted as a message to "pick me up". In fact this "gesture" is nothing else than isolating a part of the total series of actions that together constitutes the act of being picked up by someone.

Forms can be any behavior that a child uses in the presence of others: arm and hand gestures, whole body movements, facial expressions, eye contact, turning away, proximity, vocalizations, aggression towards others, and self-injury. Forms may be performed intentionally as signals or unintentionally; the child may or may not be engaging in the behavior in order to

communicate a particular meaning or function. Likewise, partners may interpret a child's forms as being intentional whether or not the child acts intentionally. It is this pattern of partner interpretation and resultant partner action through which children learn intentionality: that certain behaviors have an impact on others. Infants and older children with disabilities learn to use forms to communicate various functions, though primarily to *regulate the behavior of others* by requesting or protesting objects or actions. Often young children with severe disabilities also learn the communicative function of *engaging another in social interaction* (functions of requesting a social routine or comfort, greeting, calling, showing off, etc.) and *joint attention* (directing another's attention to an object, event, or topic). These latter two social functions are acquired less often than and after the mastery of the request/protest function. This has been well documented in children with autism (Mundy, Sigman, & Karasi, 1990; Stone, Ousley, Yoder, Hogan & Helburn, 1997; Wetherby, Alexander, & Prisant, 1998; Wetherby & Prutting, 1984).

Partners' Skills

Partners can develop skills and improve their sensitivity toward communicative actions (Siegel & Wetherby, 2000). As is the case in typical development, partners infer meaning and intention at moments when learners unintentionally vocalize, gesture, eye gaze, etc. Inferring intention and meaning is often one of the first steps toward promoting intentionality in a communicator. Partners' consistent reactions to learners provide consequences that encourage or discourage certain forms and functions. For example, when partners acknowledge and fulfill what appears to be requests they encourage the communicators to repeat their behavior in similar situations. Partners also can "set the stage" for communication by supporting learners antecedent to and during communication attempts. For example, partners who get close to the

communicator, stoop down to their level, establish joint attention to the communicator's action/item of interest are more likely to promote an interaction.

A Process for Dynamic Assessment

This manual sets forth a process for describing the communication system of nonsymbolic learners as they interact with familiar partners in routine environments. The process includes an eight-step procedure of gathering information, describing the current communication system, and exploring changes to improve communication effectiveness through dynamic assessment (Table 1). The process includes interview, observation, dynamic assessment, analysis of videotapes of learners interacting with others in routine situations, and team decision-making.

To the extent that the process is effective for a learner, one should expect one or several outcomes to result when the assessment recommendations are implemented: (a) the nature of learner's communication forms becomes less unambiguous with learner and partner more consistent in using and interpreting the forms; (b) a learner's communication forms change in ways that are more socially appropriate and suited to the learner's chronological age; (c) the learner's range of functions is broadened; (d) learners and/or partners improve their ability to repair breakdowns in communication; and (e) characteristics of the partners and environments improve in ways that challenge the learner to further develop communication.

Insert Table 1 about here

Further development of the communication system may or may not include the transition to symbolic communication (speech or other conventional picture or gesture symbols). However,

it must be emphasized that learners who communicate predominantly nonsymbolically can always improve their communication at this level by becoming more effective and efficient in their interactions, using socially appropriate signals, and expanding their communicative functions.

Communication assessment of a learner functioning at a nonsymbolic level requires an appropriate methodological approach. The goals of the assessment are multiple: (a) to understand the learner's independent communication abilities as established between partners in familiar environments, (b) to understand the learner's reactions to scaffolding or various types of assistance, and (c) to discover interventions that are promising. What needs to be grasped is not a single behavior or a one-dimensional relation between two components, but a whole set of communication interaction components. By definition, the nature of what needs to be assessed is idiosyncratic and multi-componential.

Nonsymbolic communication lacks convention. It is not unusual that the parents or other partners who are in frequent contact with the person have fairly efficient and effective communication, while outsiders may find themselves unable to initiate or grasp the intent of the person's initiations. Each communicator and his/her environment are in a dynamic process of establishing what works for them – without being restricted by external rules. In fact, this is true for any communication environment: Symbolic and linguistic communicators also include a constant flow of nonsymbolic communication elements with their speech such as gestures, eye gaze, and vocalizations that are systematically packed together with speech. In contrast to spoken or signed language, these nonsymbolic features of communication tend to escape normative testing.

Three Major Components

The focus of the assessment is on three major components (a) the communicator, (b) the partners, and (c) the environment. These three components are believed to be in constant interaction with each other, and can be described in terms of transformational processes and balances. This multi-component perspective has been set forth previously by others including Siegel-Causey and Bashinski (1977) and expanded upon by Siegel and Wetherby (2000). Given this perspective, changes in one or more components may influence the other components. For example, if partners change their behavior, a change in the learner's behavior is possible. Consider the partner who modifies a daily routine (such as in dressing, eating, play, or social interaction); this change may stimulate the learner to alter his/her behavior in response to the changed routine. Similarly, enriching the context by adding peers, preferred activities, or accessible toys may provoke positive changes in the learner's alertness and communication. Recent research provides evidence that adding new activities or toys, providing choices, introducing nondisabled peers, and changing the daily schedule has a constructive effect on the behavior of learners with little or no spoken language. These are potentially powerful learning strategies that may be triggered by partners and the environment. On the other hand, communication and alertness may be reduced or may be replaced by protest and problem behavior with other changes. Finally, communication may change very little or not at all if routines and expectations are never altered or modified.

Each of the components (learner, partners, and environment) can be analyzed into subcomponents. For example, for the learner, assessors will want to know which communication forms (gestures, eye gaze, body positioning, acting upon an object, problem behavior, etc.) are used, which communicative functions are pursued, whether there are any limitations in sensory

skills, and the range and typical level of motor activity. For the partner, the assessors will want to identify strategies used to repair breakdowns in interaction and characteristic ways of responding to the learner's communication acts that both seem to encourage or discourage effective communication. These subcomponents are also in a dynamic relation to each other and to the major components. For example, learners with wide ranges of appropriate forms and functions that are responded to by their partners are less likely to use problem behavior to communicate, than are learners who lack appropriate forms and functions or whose appropriate communication attempts are ignored by partners (Carr & Durand, 1985; Horner & Carr, 1997). Furthermore, a child who is active is more likely to elicit more frequent responses from his or her environment than is a more passive child.

When a learner's nonsymbolic communication system is viewed as a dynamic process involving multiple components, assessment is aimed toward (a) describing the three major components (learner, partners, environment) and their subcomponents, (b) understanding how these components hold each other in balance, and (c) discovering how a learner's communication system can be modified – through changes in one or more components.

Dynamic Assessment

Assessing nonsymbolic communication requires a middle ground between normative or static testing and clinical discovery-oriented exploration. The strength of normative testing is its strong external validity: knowing what skills are generally expected for a given person at a certain age. The assessor wants to determine in how far a person falls within the typical range of a specific behavior under specific conditions. The value of this approach is that it allows one to quantify data and to maintain a high degree of replicability, along with a strong external validity.

There are several flexible nonstandardized approaches for assessing communication including naturalistic observation, ecological-functional assessment, elicitation tasks, and dynamic assessment. Individuals with cognitive disabilities who use nonsymbolic, possibly nonintentional communication require more flexible, individualized assessment approaches, particularly those that do *not* (a) place the individual primarily in a respondent role, (b) rely on information gathered at a single point in time, or (c) gather data only on spontaneous communication which may be too infrequent. Dynamic assessment procedures mesh well with these requirements (Justice & Ezell, 1999; Kublin, Wetherby, Crais, & Prizant, 1998). The accuracy of each informal approach can be facilitated when team members collect information prior to assessment about the individual's communication through interviews with parents and others who know the individual well.

By contrast to a normative or static approach, flexible nonstandardized approaches for assessing communication (of which dynamic assessment is an example) avoid comparing the learner's existing system of communication with others of the same chronological or developmental age. This approach aims to describe what is observed when the learner interacts with familiar partners in the context of daily environments, and how events, behaviors, and interactions (the three components) appear to relate to each other. These descriptions may lead to hypotheses about patterns in behavior between learners and partners in certain contexts and about which behaviors can trigger or influence other behaviors. For example, it may be observed that the learner displays more communicative behavior when a partner sits down with the learner and shows interest in what he or she is doing. Flexible nonstandardized approaches explore what happens in different, familiar situations and how the learner responds to different, changing stimuli and groups of stimuli.

Dynamic assessment is a flexible nonstandardized approach that has been applied to individuals with little or no verbal ability as well as with significant language delays (Kublin, Wetherby, Crais, & Prizant, 1998; Olswang, Bain, & Johnson, 1992; Olswang, Bain, Rosendahl, Oblak, & Smith, 1986; Pena, 1996; Pena, Quin, Iglesias, 1992). It is largely based on Vygotsky's (1986) notion of the *zone of proximal development*: the range of knowing that exists between comfortably known material and the new schemes that a learner is on the verge of acquiring. A basic principle of this approach is that children respond well to an adult's mediated assistance on tasks in this zone, that is, tasks whose difficulty lies just beyond their level of independent performance. The procedure of dynamic assessment therefore involves the introduction and withdrawal of scaffolding or prompting to determine if and whether a learner's performance can be improved through instruction. A test-teach-test model is basic to dynamic assessment. The assessor observes how well a learner responds without assistance, then introduces a defined amount of assistance over one or a series of trials and notes the changes in responding. Finally, the learner is informally re-tested on the same task to see whether learning has occurred. Dynamic assessment may involve high or low structure depending on the precision with which prompting is provided and withdrawn (Pena, 1996). Dynamic assessment has been applied to children having communication disorders and appears to facilitate assessment of processes that have been difficult to measure through traditional testing (refer to Snell, 2002).

Describing current communication. The assessment process described in this manual begins with a description of the learner's current communication system, based on both interviews with those who know the person well and direct observations of the learner and his or her partners. Assessors can heighten the reliability of the information by building in control questions and by using a system of verifying what a parent (a peer, a relative) tells about the

communication system. For example, the same questions can be posed with two individuals who know the child well. This method may validate similar answers to the same question. However, different answers can still be valid, in that they reflect the ways partners relate differently to the same learner. Second, observation and interview are complementary and can be used to verify, extend, or question pieces of information that may not be certain from the interview. Third, several assessors may be involved in the process – which makes it possible to estimate inter-rater agreement. This applies both for agreement on what is noted during observations and agreement about how interviews are interpreted.

Applying dynamic assessment. After exploring a learner's communication through interview and observation, principles of dynamic assessment are introduced. Once the existing system of communication is described, the question about the modifiability of the system arises. What will happen if existing routines are modified, for example, if the partner does things differently than usual? The basic purpose of dynamic assessment is to cause minor changes in a learner's communication system while providing or withholding assistance to see how the learner reacts and possibly learns. More specifically, through dynamic assessment the clinician wants to observe the potential for (a) a learner acquiring a more efficient or effective way to communicate, (b) a partner adopting an improved interaction style with the learner, or (c) changing the environment to lead to desirable changes in the learner's communication.

One technique assessors may use to promote changes in communication routines is *communication temptations* or *environmental arrangements*. Temptations present minor challenges to what is known and expected by the communicator and his/her partners. For example, instead of giving the learner a whole sandwich to eat, the assessor might only give a very small piece. This may stimulate the person to do something to obtain more, such as

vocalizing or reaching out. The assessor then attempts to shape this response into a new communication form, such as shaping reaching behavior into contact or distal pointing or replacing crying with reaching. Assessment that involves the use of contexts structured to entice a child to initiate communication appears to elicit more requesting behavior from young children at prelinguistic to multi-word levels than do unstructured contexts. Likewise having parents participate in assessment appears to facilitate sampling children's communication (Wetherby & Rodriguez, 1992). Thus combining the test-teach-test cycle of dynamic assessment with intentionally arranged changes in the daily environment and active parental involvement in assessment can produce opportunities to explore the flexibility of the learner's communication system.

Assessment outcomes. The outcome of the dynamic assessment session(s) is a new description of a learner's communication system with an emphasis on where the system may grow and be modified and how partners and environments may be changed to promote communication. For example, evidence may be gathered in the dynamic assessment session that a learner can be taught to establish eye contact before taking a caregivers' hand when he/she wants to lead the caregiver to get something from the refrigerator. Also changes in the environment may be discovered that provoke communicative acts. For example, one might improve a nonstimulating playground area by including nondisabled peers, by lending personal support to students who need it, and by making equipment accessible.

Higher external validity for this assessment process can be pursued by entering the same multi-phase process of assessment with several learners. At present, this type of communication assessment has been conducted with three learners functioning at a nonsymbolic communication level in Virginia in the summer of 1999 (Snell, 2002; Snell & Loncke, 1999) and three similar

children in Belgium in the winter and spring of 2000 (Loncke & Snell, 2000). Replicating the assessment procedures allowed more refinement of the process. These refinements are reflected in this manual.

Information on the Eight Steps of the Assessment Process

In this section, we set forth guidelines for following the eight steps of the assessment process.

Step 1: Interview Team Members to Gather Information

Step 1 involves interviewing people who know the learner in order to gather information about communication in five areas:

- A. Learner's communication: expressive (form/ function) and receptive skills, repair strategies, etc.
- B. Potential routines or activities into which to embed communication
- C. Reinforcers/preferences
- D. Problem behaviors and current intervention strategies
- E. Partner and environmental strategies to promote communication

The interview is aimed at understanding the communication system that is already in place. It departs from the strong assumption that there is no communication system and that communication is not possible. If the right questions are asked, even for learners with extreme cognitive, sensory, or motor limitations, parents, teachers, peers, and/or other caregivers will give ample examples about how signals are exchanged and understood, and what is successful and what is not successful in different conditions and situations. At present, the questionnaire that is used is partially based on existing lists of nonsymbolic skills (Golinkoff, 1986; Olswang, Bain, & Johnson, 1992; Shane & Grabowski, 1986; Siegel & Wetherby, 2000; Wetherby & Prizant, 1990;

Wetherby, Alexander & Prizant, 1998). The questionnaire, located in Appendix A, consists of three sets of questions concerning: (a) the learner's communication skills, (b) the partners' communication skills and strategies, and (c) the communicative effects on the environment.

Prior to the interview, the interviewers address the issues of confidentiality and the rights of participants during the whole assessment process, including the use of videotaping.

The interview can take up to two hours, depending on the amount of information that needs to be discussed. The interview is a two-way process. Both the interviewer and the interviewed partners of the learner enter into a conversation. The interviewer starts by stating the purpose of the assessment process and outlining the different steps, and what commitment it will take. It is highly recommended that the interviewer take a positive attitude, emphasizing that there is much to learn about how communication and communication strategies have become established between the learner and his/her partners. In all our applications we have started with parents or care-providers as the primary informants. We have added other team members at the parents' suggestion including the learner's teacher, teaching assistant, speech and language pathologist, and occupational or physical therapist. Siblings and nondisabled peers might also be able to provide highly informative input.

During the process the interviewer is encouraged to explain why specific questions are being asked (the relevance of some of the issues may not always be obvious). Although the interviewer takes the lead, he/she must reflect an attitude that the learner's partners are the experts on this particular issue. The partners are encouraged to elaborate on issues that appear important to them or to the interviewer, by giving examples, telling anecdotes, etc. The interviewer expresses genuine interest and asks questions about these instances. Very often, throughout the discussion, information will be given that will resurface in later sections of the

interview. In this case, the interviewer lets the partners take the lead, and will skip the question later, or will briefly summarize for confirmation. It is highly recommended to have separate interviews with the different partners of the learner. Recurring information appears to increase the accuracy of the interpretation.

During the pilot applications of the questionnaire, we tape recorded and transcribed these interviews. While this approach is time-intensive and costly, little information is lost. We recommend that interviewers practice the interview and the recording process first with other individuals, so as to become more accurate and eliminate the need for recording.

The interview is not only the first step in the assessment, it is also an initial and important step in setting a relationship with the partners of the learner. Essentially, it is the early part of an intervention process. By reflecting a positive view on the learner, and by asking questions that are focused on how communication is established, the partners' perception of the learner may be influenced. The learner and his/her partners and environment are implicitly presented as a triangular system that holds great potential for expanding effective interaction. Also, the questionnaire makes it clear that communication is to be looked for in daily routines and familiar contexts, such as at meals, during grooming, play, bedtime rituals, etc., which is likely to increase the partners' impression that something feasible can be done to improve the learner's communication with partners.

Step 2: Study Interview Data to Plan Observation

In Step 2 the assessors examine information gleaned during the interview in order to address three questions whose answers will enable more informative observations:

- A. What natural routines might be observed?
- B. What structured activities (temptations) might be observed?

C. What forms and functions might be expected or elicited?

After the interview, generally a fairly extended description of the communication system can be made. This is written in a schematic way, with a focus on (a) communication forms, (b) communication functions, (c) partner strategies in interaction with the person, (d) environment subcomponents. If more than one assessor has been present at the interview, it is advisable that they summarize their description separately, and compare notes afterward. In the descriptions, special attention must be given to apparent contradictions (between partners, or within the story told by each of the partners) and confirming evidence.

Based on this description, a series of hypotheses are identified about the communication level at which the learner is functioning. For example, it may be assumed that a person's communication is predominantly nonsymbolic. To check this hypothesis, special attention will be needed to see whether any communication occurs at a symbolic level. If the person uses a number of symbols in a conventional and consistent way, he/she is displaying a potential for some symbol learning. If no or very few symbols are used, communication may be essentially nonsymbolic and interactive strategies should be oriented at making these effective and successful.

Based on the description and the hypotheses, the assessors and the team jointly decide on which situations, times, and locations are most likely to elicit communication sequences. Partners and assessors should discuss the motivation for choosing activities, locations, and partners. For example, partners should know that routines are observed because of the likelihood that the learner uses contextual cues to understand what will come next in the sequence of activities. Generally, it is advised to observe and videotape in situations that are natural and familiar to the learner. Also, videotaping and observing in more than one location will increase the

opportunities to confirm or question the reliability of what will be observed or its specificity (e.g., communication behavior that is solely elicited by one specific partner).

Step 3: Observe and Videotape with Familiar People in Routine Settings

In Step 3, observations are made of the learner interacting with familiar partners in routine communication contexts while attending to three elements:

- A. Learner's communication behavior during natural routines and structured activities
- B. Partner's responsive behaviors
- C. Environmental facilitators and barriers

The purpose of the observation is to affirm and extend information obtained during the interviews, while gathering videotaped material that can be reviewed later by team members or analyzed across interaction trials by the assessors. The aim of the observation is to gather information in the three areas of learner skills, partner skills, and environmental facilitators and barriers. Thus, taping in different locations and activities and with different partners is desired. Information gathered during the interview is likely to be extended and in part validated by the observation. The videotapes will be used in later steps to analyze communication sequences, and as demonstration and discussion materials with the parents and other team members.

While team members may be asked to vary their typical reactions to learners or their interactions with learners to promote more communication responses from learners, dynamic assessment (a test-teach-retest model) is not used during the initial observation. In several cases however, we have found that using communication temptations (explained in more detail later) improved the learner's responsiveness during the initial observation and resulted in richer communication samples than simply videotaping the daily routine. The use of communication temptations may require some prompting to motivate the learner to communicate, but does not

involve the test-teach-retest model of dynamic assessment. We also found it necessary at times to ask (and even prompt) overly “helpful” partners to not anticipate the learner’s needs, but to wait and give learners an opportunity to initiate requests.

Observations are of interactions that occur between the parents and the daily partners of the learner, not between assessors and the learner. Because assessors usually do not belong to the group of daily partners, the assessor’s direct interventions toward the learner will be minimal. On the other hand, it is hoped that the communications between the learner and his/her routine partners will reveal typical patterns of interaction.

The observation is meant to be informal. We have found it helpful to give some hints and requests to partners during the observation to make the interaction more fruitful (e.g. ask a parent to prolong a situation the learner is responsive to). However, it must be emphasized that the partners have and must retain control over what goes on, including stopping the session.

For some learners, the use of a camera may be felt as intruding or at least disturbing. Although a camera is a necessary piece of equipment in this phase, observers should try to keep its disturbing effects as minimal as possible by taping from a distance with a zoom lens.

At the end of the session, partners and assessors will sit down and review the session. Several questions should be addressed at this time, such as: (a) How typical were these observations for the learner and his partners’ daily communication? (b) Did the observation (presence of assessors, videotaping equipment, etc.) alter the learner’s behavior in some significant way? In case a learner appears upset or otherwise disturbed by the assessors’ presence, it may be advisable to plan a period of habituation in which the assessors and the learners can interact and communicate more freely with each other.

Step 4: Study Videotapes to Generate Hypotheses for Team Collaboration

During Step 4, the assessors view and analyze observation videotapes in order to informally answer a series of questions. The answers to these questions will influence the team's planning of the dynamic assessment in Step 5.

- A. What communication forms and functions are used? What are potential forms and functions?
- B. What characteristics do the learner and partner display in their interaction?
- C. What is the rate of communicative acts?
- D. Are the partners responsive? What strategies do the partner use? What are potential partner strategies?
- E. Does the environment provide sufficient support and challenge for communication?
- F. Is this sample representative? How might it change?

The videotape data gathered on interactions between learners and partners are analyzed, primarily to refine and further document the description of the communication system in place. We have started this step by recalling particularly rich interactions or interactions that were unsuccessful or troublesome that occurred during the observation. These segments were located and reviewed. For some learners, the entire tape or longer portions were viewed before any detailed analyses were undertaken. Next, segments that were especially rich in interaction or important for other reasons were examined while recording the specific moment-by-moment content using codes that represent categories of learner and partner behavior. Six categories of learner behavior (forms, whether the learner was prompted, functions, whether communication was directed toward partner, discourse function, evidence of intentionality, and repair strategies) and four categories of partner behavior may be coded (repair strategies, whether the partner was

prompted, facilitative behavior, barriers to communication). Each category has from 2 to 15 codes. Definitions of each item in the grid can be found in Appendix B while the Observation of Communication Acts Grid is located in Appendix C. Although not systematically assessed, we made informal tests of inter-rater agreement on the coding of several videotaped segments of learners and partners during communication interactions and found them to be in generally in acceptable ranges. The exceptions included partner codes in general and the overlap between intentionality and repair codes for the learner. Particularly these parts of the analysis will require additional refinement which may include better definitions, simplification, or some other modifications.

The questions informally addressed through the analyses are elaborated upon next:

What communication forms and functions are used? Are these similar to those described during the interview? What are potential forms and functions that the learner may be taught?

Sometimes the description that partners provide about learners during the interview underestimates the potential of the learner. For example, partners may routinely ignore the learner's behavior in some ordinary situations without being aware that it is a communicative act with potential. Also, being used to a certain type of communication within a routine makes partners overlook possibilities to bring in changes that would trigger the need for learners to adapt or extend their communication. For example, during meals, a parent may correctly interpret the person's stare at the bottle of milk as a communication form with the meaning of "more" – and respond appropriately to the form by giving the person an extra cup of milk. However, the partner is also caught in the routine and doesn't realize that he or she may add "hold out for" or teach an improved variation to this form, for example by asking the learner to vocalize, point, or behave in a way that would clarify the existing communicative form.

At this point, it is also important to hypothesize which improved variation in forms (and functions) may be possible. In other words, what other forms than what was observed might the learner be able to use, if he or she is taught or prompted to use them? An understanding of the learner's potential repertoire of forms helps in defining the learner's zone of proximal development and provides ideas for planning the dynamic assessment in Step 5 of the process.

What characteristics do the learner and partner display in their interaction? We want to find out if the person *initiates* communication or whether he or she only responds to communication that has been initiated by his or her partners. If initiation occurs, how does the partner respond to it? Does the partner notice the attempt to communicate? Is the attempt acknowledged and encouraged? How does the partner respond? Does the learner take notice? Is the partner's response encouraging or discouraging? Repeated failure of partners to notice and acknowledge the learner's initiation may point to a lack of perception by the partner of the person's communicative potential. Moreover, not responding to initiating leads to a decrease in communication initiations.

What is the rate of communicative acts? Communication is obviously most intense at moments of heightened interaction – typically, these are moments where joint attention naturally occurs or where joint attention is evoked (e.g., when the partner starts to ask questions or starts commenting on something the learner is engaged in) or at moments where material help is needed (e.g., in getting dressed or during meals). It is helpful to describe how long such an interactive communicative exchange can be (how many back-and-forth turns), what keeps the interaction going on (and who keeps it going on), and what makes it stop (a change in interest by either the learner or partner, a completed task, a breakdown in communication, etc.).

Are partners responsive? What strategies does the partner use? What physical attitude do partners reflect when they are in communication? Does the partner follow the learner's lead in the interaction? What are potential partner strategies? Communicative and interactive partnership requires a number of skills and techniques that partners have to a more or lesser degree. For example, it is crucial to acknowledge communicative attempts of the learner. Also, it is important that the partner adjusts his or her own rate of communication and interaction to that of the learner. Responses from the learner with significant disabilities may take much more time than from a typical communicator. The partner will also have to strike a balance between over-interpretation and under-interpretation of what the learner is trying to say. Some over-interpretation is probably favorable as it sets the mechanism of inferring intentions and meaning, and, up to a certain level, over-interpretation may help the learner to discover new communication forms and functions.

Learners are encouraged to interact when partners provide cues to acknowledge learners' requests or to indicate what an interaction will be, and when partners lend support to encourage interactions or to repair breakdowns. For example, it is typically facilitative for partners to initiate an interaction with learners by facing the learner, getting at their level, saying the learner's name, being attentive, and pausing. Sometimes it helps to hold the learner's hands or to touch the person's arm while facing the learner. Communication and interaction often develop best within well-established routines where the learner knows what to expect and to anticipate, and what the role of the partner is (a playmate, one who makes requests, one who can fulfill requests, etc.).

Partners also may inhibit interactions in many ways. Inhibition, like facilitation, is often individualized to the learner – what stops or promotes an interaction with one learner may be

different for another learner. Inhibitors generally include being nonresponsive, too distant (though being too close is an inhibitor for some learners), failure to give eye contact or establish joint attention, no confirmation or feedback on the learner's intent, or not waiting for a response from the learner but anticipating or leaving the situation. Some partners will not be persistent in trying to repair interactions that have failed for some reason, while others will take time to do so. Learners who resort to problem behavior as signals for communicating messages previously ignored may affect partners in different ways: (a) partners may ignore the problem behavior and inhibit the interaction, (b) partners may ignore the problem behavior and prompt an alternate response to keep the interaction going, or (c) partners may attend to the problem behavior and facilitate the interaction while also reinforcing the inappropriate signal.

Does the environment provide sufficient support and challenge for communication? Are toys or interesting materials available and does the person know how to get to these materials? The material environment is also important and evidence is gathered from the observation tape to address the richness and appropriateness (age appropriateness, accessibility) of the materials as well as the number and interest level of the activities, choices, and people present. If environments are sparse, age inappropriate, or nonaccessible, they should be improved for the dynamic assessment based on the assumption that such improvements may increase the learner's communication.

Is this sample representative? How might it change? It is often helpful to make a micro-analysis of a selected number of interaction sequences. For this purpose, an analysis grid and definition guide (Appendices B and C) can be used. The analysis can reveal how an initiated communicative act leads (or does not lead) to a series of responses and turns between the learner and his or her partner(s). The analysis is an attempt to quantify some of the learner and partner

data, such as frequency of responses within a given time, occurrence of intentionality, persistence of the learner, responsiveness of the partner, etc. The analysis shows how communicative acts follow each other in turns with the partner's responses to the learner. Because of the micro-nature of the analysis, it is recommended that a limited number of communication exchanges be selected. In order to obtain a fair sample of the person's and his/her partners' communication forms, functions, strategies, and breakdowns, the assessors should select several sequences taken from different activities on the videotape. We also recommend that two observers record and compare their coding after every interaction act is coded. Disagreements on data coding should be discussed and resolved, or those data should be omitted if no consensus is reached. As mentioned earlier, portions of the coding process are much more difficult to use and may not yield good inter-rater agreement.

The analysis can yield detailed documentation on (a) the variety of forms, (b) and functions used by the learner, (c) the discourse function (whether the person initiates or responds), (d) the nature of the communicative act, (e) the strategies of the learner's communication: degree of intentionality and repair strategies, (f) the strategies of the partner's communication: facilitating actions and repair strategies. The analysis results can be helpful for the next step when the team will discuss the data and make plans for the dynamic assessment. Finally, the analysis can be repeated with tapes taken during the dynamic assessment to evaluate how the learner responds during test-teach-retest sequences. The additional coding of whether the learner or the partner is prompted can aide in judging the skill of the learner and/or partner.

Step 5: Collaborate with Team Members on Dynamic Assessment Plan

In Step 5, the learner's participating team members (careproviders, teachers, speech and language pathologist, etc.) collaborate with those organizing the assessment to achieve two outcomes:

- A. Review taped interaction samples and communication hypotheses
- B. Plan dynamic assessment: routines and activities, targeted and expected forms and functions, needed materials, environmental manipulations, targeted partner behaviors

Address videotaped interaction samples and communication hypotheses for dynamic assessment. After analyzing segments from the observation videotapes, the data are shared and discussed with the team. This may be the first time that partners have well-documented feedback on how effective their communication and interaction is with the learner. Although the learner's behavior and communication remain the focus of the discussion, it is important to discuss in detail the partner's communicative actions and interaction behavior in order to raise the team's awareness of each member's role in facilitating the learner's communication. In other words, partners will understand that the focus is on a system of communication of which they are a part and which they can modify by improving their interactive behavior and aspects of the environment.

The meeting can start by presenting segments of the videotaped observation, explaining how these interactions were analyzed, and suggesting potential ways the existing communication system works and how it may be improved. This is an excellent moment for partners to look back and try to reconstruct why they responded in the ways they did (or why they failed to do so).

The discussion also focuses on the potential in the learner where communication can be made more effective and what changes would facilitate this (refined learner skills, new learner skills, new partner behaviors, improvements in the environment).

Plan the dynamic assessment. Next, ideas are launched in preparation for the dynamic assessment. The partners learn about ways to enrich the communication sample by improving deficient environments or activity schedules and by introducing temptations and other variations in the communication patterns. Temptations are meant to explore the “learnability” of the learner (and his or her partners) to modify an interaction in an effort to improve it. As described previously, a communication temptation (or environmental arrangement) involves a slight change in what the person is used to or what the person expects will happen. This slight change in what is familiar triggers the person to respond differently and sometimes in more sophisticated ways, but creates a need to communicate. For learners operating at a prelinguistic to multi-word level, communication temptations have been found to stimulate more requesting behavior than unstructured test contexts or natural, uninterrupted observations (Wetherby & Rodriguez, 1992). Thus they are a useful addition to dynamic assessment procedures with these learners as they create an opportunity for communication; the need to communicate is combined with scaffolding that enables team members to tap a learner’s potential for making improvements in communication.

Environmental arrangements may include: (a) violating the expected sequence or outcome of a familiar routine and making a “silly situation” (e.g., when dressing a child, put her sock on your hand instead of her foot); (b) pausing in the midst of an interesting spectacle or a favorite activity (stop after reading several pages of a picture book; pause just before blowing bubbles from an extended wand; hold a full spoon mid-way to a student’s mouth); (c) offering a choice; (d) presenting a familiar activity but with missing critical items (painting materials and no paint brush); (e) giving small portions of a favorite play material or food; and (f) getting close to an

individual who needs assistance but withholding assistance (learner struggling with jacket zipper; child unable to open jar of peanut butter) (Kaiser, 2000; Wetherby & Prizant, 1989).

When using temptations to increase opportunities for communication, several precautions are appropriate. First, preferred activities must be identified for individuals that suit their interests and age. Team members' description of the learner's preferences are a good place to start when identifying potentially interesting activities. [In some cases, team members will not be able to predict preferences and a preference assessment may be advised (Brown & Snell, 2000, p. 102-105).]

Second, it may be wise to adapt typical environmental arrangements to enable responses by those with extensive motor involvement. For adults with cerebral palsy, Iacono and her colleagues (Iacono, Carter, & Hook, 1998) modified temptations taken from the *Communication and Symbolic Behavior Scales* (CSBS) (Wetherby & Prizant, 1993a), an excellent example of high structure dynamic assessment with strong ratings of "authenticity." The modifications they made were matched to specific learners: a) lengthening the display of an activity so one individual could orient and attend to it (slowly inflate a balloon and direct the air in the individual's direction and repeating this over sessions) or (b) adding a switch to make self-activation possible (playing music on a tape recorder).

Third, it is important to coach partners who have established rapport with the learner to present the environmental arrangement so learners are comfortable and the interaction is familiar. Partners will learn to present an activity to gain the attention and involvement of the learner and then to pause while still holding joint attention and waiting for communication (e.g., sing a familiar song and then stop part way through; have student activate music with a switch and then place the switch just out of reach; present only a small amount of a favorite drink). How long to

pause (latency) for a learner to initiate communicative behavior is not always obvious, particularly when there is motor involvement or when learners have difficulty orienting to the activity. The more traditional latency of 3 or 5 seconds may need to be considerably lengthened for some students (e.g., 10-15 seconds). Finally, care must be taken not to “overdo” the use of temptations and expose the learner to excessive frustration. This may be particularly the case for learners whose problem behavior serves to signal requesting (Hamilton & Snell, 1993).

During this meeting, the team agrees on a number of scenarios to present during the actual dynamic assessment (Step 6). Temptations and other variations in communication and interaction will be linked to eliciting specific responsive behavior in the partner. For example, a learner’s access to the candy jar could be blocked and followed immediately by a response latency. If no request response is forthcoming, a prompt is given to look or reach toward the place where the jar is. This response is treated as a request and the learner is allowed to go to the jar and get candy. An interesting book that is being read is closed and the partner hesitates for a few seconds; if the learner uses an appropriate form (e.g., not problem behavior) to request more reading, the partner opens the book and reads – but the partner also may prompt a nonresponsive child to touch the book. The team will want to plan (a) the learner’s response (targeted new signals as well as refinements in existing forms), (b) how the learner will be prompted, (c) the specific prompt or prompts that are suited to the learner, and (d) the latency that will be waited prior to giving a prompt, and between prompts if a hierarchy of prompts is used (Snell, 2002; Snell & Brown, 2000). For example, several pilot applications of this dynamic assessment process (Loncke & Snell, 2000; Snell & Loncke, 1999) used a simple system of least prompts as follows:

1. Wait a latency of 3-5 seconds for the learner to initiate communication.

2. Establish joint attention by moving closer and looking at the learner; then pause.
3. Model an appropriate signal that the learner can make and then pause.
4. Physically prompt the same signal (Snell, 2002, p. 170).

Partners often benefit from practicing the prompt procedure with the learner before the assessment begins, so that the test-teach-retest model can be used more fluently during the assessment. However, the assessment is meant to be informal and assessors can and should feel free to prompt partners during the process, to openly comment on the assessment process, to answer questions, and to start anew if problems arise during the teaching or testing procedure.

Step 6: Conduct Dynamic Assessment

In Step 6, team members work together with the assessors to conduct the dynamic assessment. Assessment plans include plans to:

- A. Manipulate/prompt learner variables
- B. Manipulate/prompt partner variables
- C. Arrange environmental variables

The actual dynamic assessment session is aimed at exploring the learner's ability (and his or her partners' ability) to communicate in more effective ways. Specific modifications are introduced to an interactive situation where improvement in communication of some specified nature is desired. The modifications are provided over one or more trials and then gradually reduced or withdrawn so that (a) the learner and his or her partners are stimulated to respond in different ways to each other, and (b) the assessor can ultimately determine whether any learning has taken place.

As described previously, the basic principle of Vygotskian theory (on which dynamic assessment is based) is that children respond well to an adult's mediated assistance on tasks in

the zone of proximal development, that is, tasks whose difficulty lies just beyond their level of independent performance. The procedure of dynamic assessment therefore involves the introduction and withdrawal of scaffolding or prompting to determine if and whether a learner's performance can be improved through instruction. A test-teach-test model is basic to dynamic assessment. The assessor observes how well a learner responds without assistance, then introduces a defined amount of assistance over one or a series of trials and notes the changes in responding. Finally, the learner is informally re-tested on the same task to see whether learning has occurred. Dynamic assessment may be highly or minimally structured, depending on the precision with which prompting is provided and withdrawn (Pena, 1996).

Although the meeting is planned and prepared, dynamic assessment will still require flexibility from the partners. On the one hand, the partner may follow the plan that was prepared in an attempt to figure out what the learner can learn. On the other hand, the partner must be willing to change and modify plans as the interaction with the learner evolves. Depending on the response or initiation of the learner (or lack thereof), the partner may use alternative routines, activities, materials, and temptations, or adjust prompts, response latencies, and targeted communication forms or functions in order to explore their communicative effectiveness.

The test-teach-retest model is applied in a loose fashion – that is the number of trials in each phase (test for baseline, teach the new or refined skill, and retest for learning) is not precisely defined. The team may discuss and plan approximate numbers of trials or may not, but having a sample at each phase is important. Prior plans about numbers of trials may be changed during assessment depending on the learner's responses. Generally, for every targeted communication response (new or refined form or function) the team will want to apply the model of test-teach-and retest. We tended to use far fewer test and retest trials (1 to 3 trials) and more teaching trials

for each targeted response. When we changed the activity, location, or partner, we tended to repeat the test-teach-retest model even for the same targeted responses.

It is recommended that the partners who most frequently interact with the learner engage in the planned assessment activities with the learner, not the assessors. The clinician or some other member of the team may be coaching the partner, giving suggestions about how to bring variation, handle materials, prompt, etc., but they do not take the lead in the interaction. The whole assessment session is videotaped.

Step 7: Study Tapes to Generate Hypotheses for Team Collaboration on Intervention

In Step 7, the videotapes of the dynamic assessment are reviewed and analyzed to answer several questions:

- A. What communication forms and functions are used with and without assistance?
- B. What is the rate of communicative acts?
- C. What was learned about improved nonsymbolic forms?
- D. What was learned about extended functions?
- E. What was learned about the potential for symbolic forms?
- F. What was learned about facilitative effects of partners and the environment?
- G. What was learned about barriers presented by partners and the environment?

After completing the assessment, segments of the videotapes are analyzed and a description of the communication system is made. This description differs from the one given following the interviews (Step 2) in that the focus is much more on possible communication goals and objectives, improvements in the environment and in partners' interaction patterns, and directions for further exploration and intervention. A report of assessment outcomes includes comments on the communication forms that are already present and those forms that the learner (and the

partners) has shown some evidence for learning. An important component of the description is the lexicon or “communication dictionary,” an overview of all the communication forms that the learner used during the assessment, their meaning, their effectiveness, and how partners respond. (Refer to Appendix D for an example of an assessment report resulting from the dynamic assessment of a 5-year-old with autism.) Table 2 shows an example of a communication dictionary written for a 10-year-old following the team collaboration on the dynamic assessment results.

Insert Table 2 about here

In addition to the communication dictionary, the written assessment outcomes should include the partner’s responses to the communication forms. Some of the responses of the partners will appear to be effective (i.e., acknowledges and acts upon the learner’s communicative acts), while others may not. The analysis can show which strategies facilitate communication. For example, for some learners it can be shown that communication is much more easily established if the partner interrupts his/her activities, physically turns to the learner, takes the learner’s hands in his/hers, establishes eye contact, and asks “What do you want?” Techniques that are successful with one partner-learner dyad may not be with another. The analysis and report should aim to describe the partner techniques that were effective and those that were not effective. These findings and the hypotheses regarding the learner’s intervention are discussed with the team in Step 8; based on the team’s discussion and problem-solving the report and recommendation are revised to reflect team consensus.

Step 8: Collaborate with Team Members on Intervention

In Step 8 team members work together to:

- A. Examine intervention hypotheses
- B. Problem solve intervention issues
- C. Make recommendations for intervention at school and home

The team members meet to review the results of all the prior steps and examine how their understanding of the communication system has evolved in time. Typically, the team members recognize the learner's ability to learn and change as well as their own role in guiding him/her. Different intervention options can be discussed. For example, team members may use the findings to redefine short-term goals in communication, discuss what would be the most likely to accomplish, revise dates for their accomplishment, and formulate changes in instructional methods. Sometimes team members prefer to strive very strongly to teach symbolic communication. While team members may recognize that symbolic forms would be difficult for the learner to master, they may tend to see no alternatives. The outcomes of the dynamic assessment steps can demonstrate the learner's strengths in using a nonsymbolic system of communication and point to the benefits of focusing instruction on improving the efficiency and effectiveness of the learner's existing nonsymbolic communication system. The assessment findings provide clear guidelines for making these improvements in form and function and for optimizing interactions with partners at the nonsymbolic level.

Following this collaboration with team members, a report is written. The report contains recommendations on intervention techniques that have been found successful or have the potential for success with the learner. In fact, dynamic assessment is somewhat of an experimental intervention: trying to figure out what works and what doesn't work, what holds

promise for further learning and improvement, and what appears to be unrealistic as a short-term goal.

The partners and other relevant team members (e.g., teacher, speech and language pathologist, etc.) should be part of the eight-step procedure. Throughout the discussions, observations, analyses, assessment, and planning sessions, new ideas arise and are evaluated by the team. Team members who live, interact, and/or work regularly with the learner understand best the day-to-day reality of the learner functioning at home, school, and in the community and their challenges and successes. The combination of this knowledge of the learner with the findings of a dynamic assessment enables assessment recommendations to be indexed by priority and functionality. Together with the report on the communication system, ideas and recommendations are incorporated into an intervention plan with long and short-term objectives. The plan should reflect present communication priorities, be functional to the learner in everyday routines, and be incorporated into the learner's Individualized Educational Program (IEP).

We have found that participation in the eight-step process generally increases motivation and commitment in partners and also reveals new and realistic ideas about communication improvement that fit within the learner's and the partners' capabilities. Revising the IEP so communication objectives link with the team recommendations and laying out an intervention plan should build upon the momentum of enthusiasm in partners. Simpler, more focused versions of dynamic assessment that involve updating the interview and examining target objectives can be used to monitor learning and update a learner's communication program.

References

- Brady, N.C., McLean, J.E., McLean, L.K., & Johnston, S. (1995). Initiation and repair of intentional communication acts by adults with severe to profound cognitive disabilities. *Journal of Speech and Hearing Research, 38*, 1334-1348.
- Brown, F., & Snell, M.E. (2000). Meaningful assessment. In M.E. Snell & F. Brown (Eds.), *Instruction of students with severe disabilities* (5th ed.) (pp. 67-114). Upper Saddle River, NJ: Merrill/Prentice-Hall.
- Carr, E.G., & Durand, V.M. (1985). Reducing behavior problems through functional communication training. *Journal of Applied Behavior Analysis, 18*, 111-126.
- Golinkoff, R. M. (1986). "I beg your pardon?": The preverbal negotiation of failed messages. *Journal of Child Language, 13*, 455-476.
- Granlund, M., & Olsson, C. (1999). Efficacy of communication intervention for presymbolic communicators. *Augmentative and Alternative Communication, 15*, 25-37.
- Hamilton, B.L., & Snell, M.E. (1993). Using the Milieu approach to increase communication book use across environments by an adolescent with autism. *Augmentative and Alternative Communication, 9*, 259-272.
- Hart, B., & Risley, T.R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore: Paul H. Brookes.

- Horner, R. & Carr, E. (1997). Behavioral support for students with severe disabilities: Functional assessment and comprehensive intervention. *The Journal of Special Education, 31*, 84-104.
- Iacono, T., Carter, M., & Hook, J. (1998). Identification of intentional communication in students with severe and multiple disabilities. *Augmentative and Alternative Communication, 14*, 102-114.
- Justice, L. M., & Ezell, H.K. (1999). Vygotskian theory and its application to assessment: An overview for speech-language pathologists. *Contemporary Issues and Science and Disorders, 26*, 111-118.
- Kaiser, A. (1993). Functional communication. In M.E. Snell (Ed.), *Instruction of students with severe disabilities* (4th ed.) (pp. 347-379). New York, NY: Merrill/Macmillan.
- Kublin, K. S., Wetherby, A.M., Crais, E.R., & Prizant, B. M. (1998). Prelinguistic dynamic assessment: A transactional perspective. In A.M. Wetherby, S.F. Warren, & J. Reichle (Eds.), *Transitions in prelinguistic communication* (pp. 285-312). Baltimore: Paul H. Brookes.
- Loncke, F., & Snell, M.E. (2000, August). *A procedure for dynamic assessment of nonsymbolic and prelinguistic communication*. Paper presented at the 9th biennial conference of the International Society for Augmentative and Alternative Communication, Washington, D.C.
- Mundy, P., Sigman, M., & Kasari, C. (1990). Joint attention, developmental level, and symptom presentation in young children with autism. *Development and Psychopathology, 59*, 389-401.
- Olswang, L.B., Bain, B.A., & Johnson, G. (1992). Using dynamic assessment with children with

- language disorders. In S. Warren & J. Reichle (Eds.), *Causes and effects in language assessment and intervention* (pp. 187-215). Baltimore, MD: Paul H. Brookes.
- Olswang, L.B., Bain, B.A., Rosendahl, P.D., Oblak, S.B., & Smith, A.E. (1986). Language learning: Moving performance from a context-dependent to -independent state. *Child Language Teaching and Therapy*, 2, 180-210.
- Pena, E.D. (1996). Dynamic assessment: The model and its language applications. In K.N. Cole, P.S. Dale, & D.J. Thal (Eds.), *Communication and language intervention series: Vol. 6. Advances in assessment of communication and language* (pp. 281-307). Baltimore, MD: Paul H. Brookes.
- Pena, E., Quin, R., & Iglesias, A. (1992). The application of dynamic methods to language assessment: A nonbiased procedure. *The Journal of Special Education*, 26, 269-280.
- Shane, H. & Grabowski, K. (1986) *Communication profile for the severely speech impaired*. Unpublished manuscript.
- Siegel-Causey, E., & Bashinski, S. (1977). Enhancing initial communication and responsiveness of learners with multiple disabilities: A tri-focus framework for partners. *Focus on Autism and Other Developmental Disabilities*, 12 (2), 105-120.
- Siegel, E. & Wetherby, A. (2000). Nonsymbolic communication. In M.E. Snell & F. Brown (Eds.), *Instruction of students with severe disabilities* (5th ed.) (pp. 4-9-451). Upper Saddle River, NJ: Merrill/Prentice-Hall.
- Snell, M.E. (2002). Using dynamic assessment with learners who communicate nonsymbolically. *Augmentative and Alternative Communication*, 18, 163-176.
- Snell, M.E., & Brown, F. (2000). Development and implementation of educational programs. In M.E. Snell & F. Brown (Eds.), *Instruction of students with severe disabilities* (5th ed.)

- (pp. 115-172). Upper Saddle River, NJ: Macmillan/Merrill.
- Snell, M.E., & Loncke, F. (1999, December). *An interactive process for assessing nonsymbolic communication: Pilot findings*. Paper presented at the annual meeting of The Association for Persons with Severe Handicaps, Chicago.
- Stone, W.L., Ousley, O. Y., Yoder, P. J., Hogan, K.L., & Hepburn, S.L. (1997). Nonverbal communication in two-and three-year-old children with autism. *Journal of Autism and Developmental Disorders*, 27, 677-696.
- Vygotsky, L. (1986). *Thought and language*. (A. Kozulin, Ed.). Cambridge, MA: MIT Press. (Original work published 1934).
- Wetherby, A.M., Alexander, D.G., & Prizant, B.M. (1998). The ontogeny and role of repair strategies. In A.M. Wetherby, S.F. Warren, and J. Reichle (Eds.), *Transitions in prelinguistic communication* (pp. 135-159). Baltimore, MD: Paul H. Brookes Publishing.
- Wetherby, A., & Prizant, B. (1989). The expression of communicative intent: Assessment issues. *Seminars in Speech and Language*, 10, 77-91.
- Wetherby, A. & Prizant, B. (1993 a). *Communication and Symbolic Behavior Scales-Normed Edition*. Chicago, IL: Applied Symbolix.
- Wetherby, A. M., & Prizant, B. M. (1993 b). Profiling communication and symbolic abilities in young children. *Journal of Childhood Communication Disorders*, 15, 23-32.
- Wetherby, A., Prizant, B., & Hutchinson, T. (1998). Communicative, social-affective, and symbolic profiles of young children with autism and pervasive developmental disorder, *American Journal of Speech-Language Pathology*, 7, 79-91.
- Wetherby, A., Prizant, B., & Schuler, A.L. (2000). Understanding the nature of communication

and language impairments. In A.M. Wetherby & Prizant, B.M. (Eds.), *Autism spectrum disorders: A transactional developmental perspective* (pp. 109-141). Baltimore, MD: Paul H. Brookes.

Wetherby, A., & Prutting, C. (1984). Profiles of communicative and cognitive-social abilities in autistic children. *Journal of Speech and Hearing Research, 27*, 367-377.

Wetherby, A., & Rodriguez, G. (1992). Measurement of communicative intentions during structured and unstructured contexts. *Journal of Speech and Hearing Research, 35*, 130-138.

Wetherby, A., Warren, S., & Reichle, J. (Eds.) (1998). *Transitions in prelinguistic communication*. Baltimore, MD: Brookes Publishing.

Table 1. Dynamic Assessment Process for Nonsymbolic Skills

Step	Description
1. Interview Team Members to Gather Information	<ul style="list-style-type: none"> A. Learner's communication: expressive (form/ function) and receptive skills, repair strategies, etc. B. Potential routines or activities into which to embed communication C. Reinforcers/preferences D. Problem behaviors and current intervention strategies E. Partner and environmental strategies to promote communication
2. Study Interview Data (transcripts) to Plan Observation	<ul style="list-style-type: none"> A. What natural routines might be observed? B. What structured activities (temptations) might be to observed? C. What forms and functions might be expected or elicited?
3. Observe and Videotape the Learner with Familiar Partners in Routine Settings Conducive to Communication	<ul style="list-style-type: none"> A. Learner's communication behavior during natural routines and structured activities B. Partner's responsive behaviors C. Environmental facilitators and barriers
4. Study the Videotapes to Generate Hypotheses for Potential Dynamic Assessment	<ul style="list-style-type: none"> A. What communication forms and functions are used? What are potential forms and functions? B. What characteristics do the learner and partner display in their interaction? C. What is the rate of communicative acts? D. Are the partners responsive? What strategies do the partner use? What are potential partner strategies? E. Does the environment provide sufficient support and challenge for communication? F. Is this sample representative? How might it change?
5. Collaborate with Team Members on Hypotheses and Devise an Assessment Plan	<ul style="list-style-type: none"> A. Review taped interaction samples and communication hypotheses B. Plan the dynamic assessment: routines and activities, targeted and expected forms and functions, needed materials, environmental manipulations, targeted partner behaviors
6. Conduct and Videotape the Dynamic Assessment	<ul style="list-style-type: none"> A. Manipulate/prompt learner variables B. Manipulate/prompt partner variables C. Arrange environmental variables

7. Study Tapes to Summarize Findings for Team Planning of Intervention	A. What communication forms and functions are used with and without assistance? B. What is the rate of communicative acts? C. What was learned about improved nonsymbolic forms? D. What was learned about extended functions? E. What was learned about the potential for symbolic forms? F. What was learned about facilitative effects of partners and the environment? G. What was learned about barriers presented by partners and the environment?
8. Collaborate with Team Members on Intervention Plans	A. Examine intervention hypotheses B. Problem solve intervention issues C. Make recommendations for intervention at school and home

Table 2. Communication Dictionary

Hope's Communication Dictionary
Date: August, 1999

Signal: What Hope does	Function: What it means	What we do	Comments
Gets partner and leads to item/ place	Need help/ want to show you/ comment	Verbalize her intent and fulfill function	Function may not be clear
Hits left shoulder or chest	Rejection of action, object, stop, showing anger	Stop action, move away, or tell why cannot stop	Consistent; may vary in intensity but not injurious
Shakes head back and forth	No?	React as if she is saying no	Her intent is not consistent
Shakes head up and down	Yes?	React as if she is saying yes?	Her intent is not consistent
Squeals	Get partner's attention	Comment on her intent; seek clarification if not obvious	Can get loud, specific intent may not be clear
"UP-PA"	Get up come with me	We tend to go with her	Wants a joint routine or assistance
Touches PCS for meal and snack choices	Wants a particular choice	Confirm choice, give her the choice	Given in a request context: "What do you want for breakfast?"
Touches WANT PCS on Cheaptalk mainly with prompt	Wants more	Confirm, give her more as appropriate	Given in a request context
Signs EAT	Wants to eat, wants more of a food	Confirm, give food or choice of food	Given in a request context
Approximate signs DRINK	Wants to drink, wants more of a drink	Confirm, give drink or choice of drink	Given in a request context
Approximate signs MORE	Wants more of an activity or item	Confirm, give her more	Less spontaneous
Tantrums, hitting, giving protest signal (hits left shoulder)	Wants more of something that is being withheld	Confirm her intent; sympathize, hit pillow with her	Will using symbols to label her feelings help in these frustrating times?

Appendix A. Questionnaire

Note: The following questionnaire is partially based on several existing lists of nonsymbolic skills (Golinkoff, 1986; Olswang, Bain, & Johnson, 1992; Shane & Grabowski, 1986; Siegel & Wetherby, 2000; Wetherby & Prizant, 1990; Wetherby, Alexander & Prizant, 1998). There are three parts to the questionnaire:

- I. Interview about the Individual's Communication Skills
- II. Interview about the Partner's Communication Behavior and Strategies
- III. Interview on the Environment's Effect on Communication Behavior

Dynamic Assessment of Nonsymbolic Communication
I. Interview about Individual's Communication Skills
 (Snell & Loncke, 1-5-2000)

Section 1: Information about the Individual

Question	Interviewer's Responses	Comments
1. Does _____ have limitations in vision? [Normal, abnormal, untestable, not assessed] If YES, please describe these.		
2. Does _____ have limitations in hearing? [Normal, abnormal, untestable, not assessed] If YES, please describe these.		
3. What are _____'s movement limitations, if any? Normal, abnormal, untestable, not assessed, If ANY, please describe these.		
4. How old is _____? What is his/her birth date?	Age: _____ Birthdate: Mo: _____/Day: _____/_____	
5. How many years of special education has _____ received?		
6. How many years of services has _____ received from a speech and language pathologist? Currently getting this in school? (_____ hours/week)		

7. What disability or disabilities does _____ have?		

Section 2: Survey of Forms/Signals and Functions/Meanings (Based on Shane, 1986)

Question	Interviewer's Responses	Comments
8. What people are significant to _____?		
9. How does _____ indicate specific recognition of each of these people?		
10. Does _____ have a method of requesting any of these people? YES NO If YES, tell me how.		
11. What objects are important to _____?		
12. How does _____ indicate recognition of each of these objects?		
13. Does _____ have a method of requesting any of these objects? YES NO If YES, tell me how _____ requests any of these objects.		

<p>14. What activities or events are important to _____?</p>		
<p>15. How does _____ indicate that each of these activities are important?</p>		
<p>16. Does _____ have a method of requesting any of these activities? YES NO If YES, tell me how _____ requests any of these activities.</p>		
<p>17. Does _____ have a YES/NO response? YES NO If YES, describe the response _____ makes to indicate YES. If YES, describe the response _____ makes to indicate NO.</p>		
<p>18. Does _____ have a method of requesting MORE? If YES, describe how _____ requests MORE.</p>		
<p>19. Does _____ indicate she/he does not want an object? YES NO If YES, tell me how _____ indicates he/she does not want more or rejects an object.</p>		
<p>20. Does _____ indicate he/she wants something to stop or not to start? YES NO If YES, describe how _____ indicates he/she wants something to stop.</p>		

<p>21. Does _____ show he/she wants an activity to begin to start? YES NO If YES, describe how _____ indicates he/she wants an activity to start.</p>		
<p>22. Does _____ have a way to get your attention or direct it toward an object or activity? YES NO If YES, tell me how _____ can get your attention.</p>		

Section 3: Forms used to indicate specific requests/needs/emotions (Based on Shane, 1986)

Question	Interviewer's Responses	Comments
<p>23. How does _____ tell you that he/she is hungry/desires food?</p>		
<p>24. How does _____ tell you that he/she is thirsty/desires drink?</p>		
<p>25. How does _____ tell you that he/she needs to defecate?</p>		
<p>26. How does _____ tell you that he/she has defecated?</p>		

<p>27. How does _____ tell you that he/she needs to urinate?</p>		
<p>28. How does _____ tell you that he/she has urinated?</p>		
<p>29. How does _____ tell you that he/she is tired?</p>		
<p>30. How does _____ tell you that he/she is sick?</p>		
<p>31. How does _____ tell you that he/she is cold?</p>		
<p>32. How does _____ tell you that he/she is hot?</p>		
<p>33. How does _____ tell you that he/she is uncomfortable (position)?</p>		
<p>34. How does _____ tell you that he/she is uncomfortable (other)?</p>		
<p>35. How does _____ tell you that he/she is in pain?</p>		
<p>36. How does _____ tell you that he/she is itchy?</p>		
<p>37. How does _____ tell you that he/she is confused?</p>		

<p>38. How does _____ tell you that he/she desires physical contact or comfort?</p>		
<p>39. How does _____ tell you that he/she is happy?</p>		
<p>40. How does _____ tell you that he/she is sad?</p>		
<p>41. How does _____ tell you that he/she does not want a person present or to interact with a person?</p>		
<p>42. How does _____ tell you that he/she is angry?</p>		
<p>43. How does _____ tell you that he/she is surprised?</p>		
<p>44. How does _____ tell you that he/she is greeting you/others?</p>		
<p>45. How does _____ tell you that he/she is showing off?</p>		
<p>46. How does _____ tell you that he/she is seeking permission?</p>		

47. How does _____ tell you that he/she is commenting on an action or object?		
48. How does _____ tell you that he/she is requesting information?		

Section 4: Assessment of Nonsymbolic Communication Competence

(Based on Seigel-Causey & Wetherby, 2000; Wetherby & Prizant, 1990)

A. Communication Forms

Forms are the signals or behaviors people use to communicate. They include sounds, words, gestures, facial expressions, movements, etc.

Question	Interviewer's Responses	Comments
49. Let's look at this list of communication behaviors or forms and check all those that _____ uses to communicate with you? (show listing) ¹		
50. Can you give examples of _____'s communication behaviors that are socially acceptable (you are not embarrassed when _____ does this in public)?		
51. Can you give examples of _____'s communication behaviors that are socially unacceptable (you are embarrassed when _____ does this in public)?		
52. Are any of these communication behaviors subtle (small movements or sounds that are similar		

unless you know the difference)? What ones?		
---	--	--

B. Intentionality

Intentionality refers to the meaning that we give to _____’s behavior or signal during an interaction.

- *Intentional communicators are aware of the ways their communicative behaviors might effect others and they persist with these behaviors until their goal is attained or failure is apparent.*
- *Non-intentional communicators show no awareness that their behaviors have meaning or signal value for others and therefore they do not persist with these behaviors when communication failure occurs.*

Intentionality can be shown in many ways. Let’s think about how _____ might show his/her intentionality.

Question	Interviewer’s Responses	Comments
52. Does _____ alternates his/her gaze between a goal (something he/she wants) and you or another person who is listening? Please give me an example.		
53. Does _____ persist in signaling you until some goal of theirs is achieved or failure is clear?		
54. Does _____ change the quality of the signal (louder, bigger movement, more force) until the goal is achieved? Please give me an example.		
55. Does _____ make his/her signal more conventional (closer to what others do to get the point across – like change from a looking at signal to a pointing towards signal)? Please give me an example.		

<p>56. When _____ wants something and gives a signal, does he/she wait for a response from you or others? Please give me an example.</p>		
<p>57. When a goal is met or accomplished, does _____ stop his/her signal? Please give me an example.</p>		
<p>58. When a goal is met or accomplished, does _____ display satisfaction? Please give me an example.</p>		

C. Readability of communication behaviors:

Readability refers to the clarity of a person’s communication behaviors or signals and the ease with which these signals are interpreted by others.

Question	Interviewer’s Responses	Comments
<p>59. Describe _____’s communication behaviors in terms of movement clarity and consistency or lack of clarity, smoothness, or inconsistency (motor ability).</p>		
<p>60. How conventional or easily understood are _____’s signal to others?</p>		

D. Repair strategies:

Characteristics of fixing unsuccessful interactions

Question	Interviewer's Responses	Comments
61. How quickly does _____ react to your/other's misunderstandings and initiate a repair effort?		
62. If _____ is not successful on the first try, what does he/she do? (repeat same signal, use another)		

D. Capacity for symbols:

The potential for using symbols to expressive oneself

Question	Interviewer's Responses	Comments
63. What is _____'s ability to understand spoken words? Please give me some examples.		
64. What is _____'s ability to understand pictures? Please give me some examples.		
65. What is _____'s ability to understand conventional signs? Please give me some examples.		
66. What is _____'s ability to understand printed words? Please give me some examples.		
67. Which of the following skills does _____ seem to have? <ul style="list-style-type: none"> • Does _____ copy an action or noise you make (imitate you or others)? 		

<p>68. • Does _____ use actions/vocalizations to get something interesting to re-occur or continue (maintaining in interesting spectacle like mechanical toys, bubble blowing by another, etc.)?</p>		
<p>69. • Does _____ use objects in ways that show he/she understands their function (puts a hat on head, takes an empty spoon to mouth, puts a comb on hair, rocks a doll, “drives” a toy car, throws a ball)?</p>		
<p>70. • Does __ use objects like a tool to solve problems (e.g., uses a stick to reach an interesting object in view but out of reach, uses a chair to reach something on top of a table, on a shelf, etc.)?</p>		
<p>71. <i>Does _____ use any of the following to express him/herself? (expressive symbol use):</i></p> <ul style="list-style-type: none"> • _____ points to or writes out words 		
<p>72. • _____ phrases or jingles with words</p>		
<p>73. • _____ words or approximations of words</p>		

<p>74. • _____ commonly used or conventional gestures (pointing, head shakes to mean yes/no, etc.)</p>		
<p>75. • _____ standard manual signs (ASL, etc.) or fingerspelling (signs for yes/no, toilet, eat, drink, etc.)</p>		
<p>76. • _____ pictures or photos</p>		

¹**Note: Question 49. requires that you show a list of communication behaviors or forms and allow informant to check those that _____ uses to communicate.**

Dynamic Assessment of Nonsymbolic Communication:
I. Interview about the Individual's Communication Skills
(Snell & Loncke, 1/5/2000)

Section 4, Question 49: Communication Forms
What do _____'s communication behaviors/signals look like?

Name: _____ **Interviewee:** _____ **Date:** _____

Eye Movements

- Shutting eyes
- Looking away
- Eye contact with person communicating with
- Eye gaze from person to desired item/location

Facial Expressions

- Smile
- Frown
- Grimace
- Surprise
- Anger
- Other

Extremity Movements

- Increased generalized body movements
- Pauses body movement
- Changes muscle tone
- Changes in posture/alertness
- Changes orientation to partner
 - Moves away, pulling away
 - Swaying
 - Leaning toward partner
 - Moves close
 - Alternates proximity
 - Fidgets
 - Runs about

Touch

- Touches partner
- Pulls partner
- Actively manipulates partner
- Displaying emotion to partner (patting another, hugging, pushing away)
- Points/touches item/person (contact gestures)
- Points (distal gestures, not touching)

Movements with Objects

- Touching/manipulating objects
- Acting on objects/using objects
- Stops activity/movement of objects
- Displaying emotion to object (patting another, hugging, pushing away)

Depictive Actions

- Acting out desired action (jumping, ball bouncing motion)
- Acting out routine unrelated to function
- Sings related song/tune
- Performs related dance/movement

Problem Behavior

- Aggressive towards others: _____
- Self injurious behavior: _____
- Destroys materials: _____
- Other: _____

Withdrawal from others

Uses Vocalizations (not words)

Uses Word Approximations or Single Words

Uses Phrases/sentences

Shows/uses Associated Objects

- Actual associated object (cup to indicate thirst)
- Miniature of associated object
- Portion of a real object to represent object/activity

Shows/uses Picture symbols

- Photo
- Drawing
- Line drawing (Picture Communication Symbols)

Shows Non-letter Symbols (Blissymbols, Rhexus pictures)

Shows letters, Words, Writes Words

Makes Conventional Gestures

Makes Manual Signs

Dynamic Assessment of Nonsymbolic Communication

Part II. Interview about the Partner's Communication Behaviors and Strategies

(Snell & Loncke, 6/23/99)

A. Interview

Directions: This section is completed with each primary partner of the learner.

Partner's Communicative Functions

1. *How do you relate to ___ when you are:*
(communicate affect)

- Trying to communicate something to ___?
- Trying to understand what ___ is saying to you?
- Trying to teach ___ to use better body language or pointing?
- Trying to teach ___ to use a communication symbol (word, picture, sign)?
- Trying to correct ___ in a non dangerous situation?
- Trying to correct ___ in a dangerous situation?

Probe: are you...

- warm and positive
- neutral or business-like
- "stand-offish" or negative

2. *What do you do when ___ does not understand you? What works best?*
(repair individual's understanding of partner's message)

A. Probe: I repair the misunderstanding by:

- repeating my message in simplified form (fewer, less complex words, adds gestures)
- repeating it unchanged
- increasing my volume/intensity/emphasis
- changing my comment/task
- Using this strategy: _____
- giving up and changing the topic/activity
- giving up and ignoring ___ or walking away

B. *How successful are you?* (Golinkoff, 1986):

- immediately successful (individual understands partner's message)
- eventually successful (individual understands after repeated tries)
- negotiations (individual fails to understand partner's meaning initially, but partner helps clarify his/her intentions to individual)
- missed attempts or unsuccessful (individual fails to respond to partner's message)

3. *What do you do when you do not understand what ___ is telling you? What works best?* (repair partner's understanding of individual's message)

A. Probe: I try:

- stating/showing what was understood then expressing confusion and waiting
- expressing confusion and waiting
- expressing confusion, but not waiting
- changing the topic
- increasing my volume/intensity/emphasis
- changing my comment or the task
- ignoring ____
- leaving ____
- other

B. How successful are you: (Golinkoff, 1986):

- immediately successful (partner understands individual's message)
- eventually successful (partner understands after repeated tries)
- negotiations (partner fails to understand individual's meaning initially, but helps individual clarify intentions)
- missed attempts or unsuccessful (partner fails to respond to individual's message)

4. *What do you do to keep an interaction going with ____? What works best? (maintain/facilitate ongoing interaction)*

A. Probe: I try

- establishing joint attention, moving closer to ____
- making verbal/gestural comments about ____'s message
- allowing time for ____ to initiate/respond
- adding related materials
- fulfilling ____'s requests
- extending or elaborating on ____'s message
- following ____'s lead (activity, location, materials)
- keeping my direct questions to ____ low
- increasing my questions to ____
- looking at ____
- smiling/touching ____
- not reacting to ____

B. How successful are you?

- very successful, ____ interacts a lot when I do these things
- somewhat successful, ____ responds some but not consistently
- not successful, ____ does not respond, walks away, get mad

5. *What does partner do to initiate an interaction with an individual? What works best? (promote individual's initiation of interaction)*

Probe: I try

- following ____'s lead (activity, location, materials)
- if ____ is busy, establishing joint attention, moving closer
- giving verbal/gestural comments on ____'s actions or possessions
- allowing time for ____ to initiate/respond

- providing interesting communicative temptations
- providing materials ___ likes
- using minimal direct questions to initiate topics
- looking at ___
- smiling at or touching ___
- making no contingent reaction to ___

6. What do you do to increase ___'s participation in an interaction? What works best? (increase participation)

Probe: I try

- using prompts/cues plus pauses
- starting up a familiar activity
- giving ___ preferred activity/materials
- involving people ___ likes

7. What do you do when ___ initiates an interaction with you/others, increases his/her participation in a interaction with you/others, or tries to understand you/others (attempts repair)? What works best? (provide reinforcing consequences)

Probe: I try

- letting ___ participate in or complete the task or activity (natural, contextual)
- repeating an interesting event (natural, contextual)
- showing ___ that I like what he/she is going (positive facial and verbal)
- allowing ___ to choose a item/activity
- giving food/praise/materials I know ___ likes
- changing the activity or topic
- giving ___ anything close at hand
- not paying much attention

8. How do you create communication opportunities or take advantage of natural opportunities to communicate with ___? What works best?

(create opportunities for communication)

Probe: I try

- learning the times, routines, or activities that are conducive to communication
- being there with ___ at these times and engaging ___ in communication
- learning what sensory conditions makes ___ communicate more (music, echoing setting, touch/no touch, temperature, texture of materials, movements, etc.)
- creating these conditions and engages ___ in communication attempts
- identifying how ___ looks/acts, now aware/awake ___ is when he/she communicates best
- being alert to ___'s state of awareness and engaging ___ in communication attempts at these times

Partner's Communicative Forms

1. Tell me how you speak to ____. What work best with ___?

Probe: Do you

- speak like you speak to other the same age?
- speak like you speak to other adults?
- speak the same speed (slower or faster) as with others do not have disabilities
- speak in the same tone of voice
- use mainly words
- couple words with gestures
- speak mainly about things in the here and now
- speak about current as well as past and future events, as I do with others

2. Tell me any other ways you interact with _____. What works best?

Probe: Do you

- speak in less complex ways
- use mainly words ____ knows
- get close
- smile/touch
- couple many words with gestures
- speak about activities/people when ongoing or present
- use familiar words, pictures or objects when speaking about things in the past or future
- look at ____ to judge understanding before I continue
- ask ____ simple questions to involve him/her and judge understanding
- react to ____'s interests/activity, follow ____'s lead for conversation topic
- engage in familiar, liked routine and communicate while it is ongoing
- engage in novel activity, and then communicate while it is ongoing
- often talk about topics ____ likes
- use a picture menu to let ____ select topic
- present something interesting and then pause
- give ____ a turn
- play together and communicate about what we are doing
- read books look at pictures and communicate about what we see together
- my level of attention toward ____ is best if it is
 - continuous
 - intermittent, contingent
 - intermittent, noncontingent

Partner's Communicative Style

1. *Describe how responsive you are to ___'s interactions with you. What does ___ seem to react best to (interact more when you do these things)?*
 - I try to fulfill ___'s requests
 - I directs my comments/activities directly to ___
 - I handles communication break-downs with ___ by
 - being persistent until I understand
 - trying once or twice but then change the topic
 - ignoring misunderstandings

2. *Would you say that your communication with ___ is usually balanced (each of you taking turns and listening and responding to each other) or is not usually balanced?*
 - rarely, ___ dominates
 - rarely, I have to do all the talking
 - some of the time (about 1/3), ___ does more
 - some of the time (about 1/3), I do more
 - most of the time (about 2/3), ___ does more
 - most of the time (about 2/3), I do more
 - all of the time

3. *Would you say your communication with ___ is successful (you understand most of what ___ communicates)?*
 - rarely
 - some of the time (about 1/3)
 - most of the time (about 2/3)
 - all of the time

4. *Would you say ___'s communication with you is successful (___ understands most of what you communicate to him/her)?*
 - rarely
 - some of the time (about 1/3)
 - most of the time (about 2/3)
 - all of the time

5. *What style works best when you interacts with ___?*
 - facing ___
 - speaking directly to ___
 - offering ___ an activity/choice
 - speaking simply
 - waiting for ___ to respond
 - supporting ___'s understanding by rephrasing, using gestures, pointing, objects, etc.
 - following ___'s lead
 - keeping a positive tone

Opportunity/Access Barriers***1. What are the biggest barriers to other adults understanding ____? Or being able to interact with ____?***

[mother/father, grandparents & other relatives, neighbors, teachers, therapists, people at church and in the community, doctor/dentist, etc.)

2. What are the biggest barriers to peers understanding ____? Or being able to interact with ____? [brothers and sisters, cousins, neighbors, kids at school, friends, etc.]

Probe:

- doesn't know how ____ expresses self
- doesn't spend enough time with ____ to get to know him/her
- rules don't let ____ be around peers enough
- afraid of/dislikes ____
- does not try to understand
- does not believe that ____ is able to communicate
- Does not know how to use ____'s system of communication or AAC device
- other:

B. Interaction Observation: Partner

Directions: This section is completed after the partner interview and after there have been several opportunities to observe the partner interact with the learner. This might occur following the interview if the learner has been present and interacted repeatedly with the partner or this might be completed following the observation in Step 3 of the dynamic assessment process.

Partner's Communicative Functions

1. What affect does partner communicate to individual? (communicate affect)
 - warm and positive
 - neutral or business-like
 - “stand-offish” or negative

2. What does partner do when individual does not understand partner's message? (Wetherby, Alexander, & Prizant, 1998) (repair individual's understanding of partner's message)
 - A. Repairs message by:
 - repeats it in simplified form (fewer, less complex words, adds gestures)
 - repeats it unchanged
 - increases volume/intensity/emphasis
 - changes comment/task
 - uses another strategy: _____
 - gives up and changing the topic/activity
 - gives up and ignoring person or walking away
 - B. Degree of success (Golinkoff, 1986):
 - immediately successful (individual understands partner's message)
 - eventually successful (individual understands after repeated tries)
 - negotiations (individual fails to understand partner's meaning initially, but partner helps clarify his/her intentions to individual)
 - missed attempts or unsuccessful (individual fails to respond to partner's message)

3. What does partner do when partner does not understand individual's message? Wetherby, Alexander, & Prizant, 1998) (repair partner's understanding of individual's message)
 - A. Repairs interaction by:
 - states/shows what was understood then expresses confusion and waits
 - expresses confusion and waits
 - expresses confusion, does not wait or changes topic
 - increases volume/intensity/emphasis
 - changes comment/task
 - ignores individual, leaves
 - other
 - B. Degree of success (Golinkoff, 1986):
 - immediately successful (partner understands individual's message)
 - eventually successful (partner understands after repeated tries)
 - negotiations (partner fails to understand individual's meaning initially, but helps individual clarify intentions)
 - missed attempts or unsuccessful (partner fails to respond to individual's message)

4. What does partner do to maintain or facilitate an ongoing interaction with individual? (maintain/facilitate ongoing interaction)
 - establishes joint attention, moves closer
 - verbally/gesturally comments on individual's message
 - allows time for individual to initiate/respond
 - adds related materials
 - fulfills individual's requests
 - extends/elaborates individual's message
 - follows individual's lead (activity, location, materials)
 - uses minimal direct questions to initiate topics
 - looks at individual
 - smiling/touching individual
 - makes no contingent reaction to individual's message

5. What does partner do to initiate an interaction with an individual? (promote individual's initiation of interaction)
 - follows individual's lead (activity, location, materials)
 - if individual engaged, establishes joint attention, moves closer
 - verbally/gesturally comments on individual's actions or possessions
 - allows time for individual to initiate/respond
 - provides interesting communicative temptations
 - provides materials individual likes
 - uses minimal direct questions to initiate topics
 - looks at individual
 - makes no contingent reaction to individual

6. What does partner do to increase the individual's participation in an interaction? (increase participation)
 - uses prompts/cues plus pauses
 - uses familiar activity
 - uses preferred activity/materials
 - involves preferred partners

7. What does partner do in response to individual's initiations, increases in participation, or attempts at repair? (provide reinforcing consequences)
 - allows task participation or completion (natural, contextual)
 - repeats interesting event (natural, contextual)
 - shows positive affect (facial and verbal)
 - allows individual to select item/activity of choice
 - uses preferred artificial consequences
 - changes the activity or topic
 - uses consequences of unknown reinforcing value
 - ignores individual

8. How does partner create communication opportunities or make use of naturally occurring opportunities for communication? (create opportunities for communication)
 - can identifies natural times, routines, or activities conducive to communication

- is present with individual at these times and engages in communication attempts
- can identify sensory conditions conducive to communication (music, echoing setting, touch/no touch, temperature, texture of materials, movements, etc.)
- creates these conditions for individual and engages in communication attempts
- can identify individual's characteristics of state of awareness that are conducive to communication
- is alert to individual's state of awareness and engages in communication attempts at these times

Partner's Communicative Forms

1. Verbal prompting (Olswang, Bain, & Johnson, 1992)
 - general statement
 - elicitation question
 - cloze or sentence completion
 - indirect model
 - direct model and direct model + elicitation question
 - shaping
2. Nonverbal cues
 - having joint attention with individual
 - having proximity with individual
 - positive affective reaction to individual (laugh, smile, show interest, clap, hug, etc.)
 - negative affective reaction to individual (frown, head shake/"no", etc.)
 - presenting items of interest
 - providing a temptation and pausing
3. Modality of task presentation (Olswang, Bain, & Johnson, 1992)
 - familiar routine
 - manipulatives
 - pictorial-concrete representation
 - figural-abstract representaion
4. Level of attention
 - continuous
 - intermittent, contingent
 - intermittent, noncontingent
5. Relevant or irrelevant response
6. Partner's forms match individual's level of understanding and sensory capability

Partner's Communicative Style

1. Responsive to individual's messages
 - complies with individual's requests
 - directs comments/activities directly to individual
 - handles misunderstanding by
 - persistently and successfully using repair strategies to understand
 - trying a failed strategy but partially successful, unsuccessful, gives up
 - ignoring individual
2. Uses reciprocal communication

- partner interacts with forms and functions that are compatible with the individual's level of understanding and sensory capability
 - rarely
 - some of the time (about 1/3)
 - most of the time (about 2/3)
 - all of the time
 - partner's ability to interpret: reactions indicate understanding of the individual's forms and functions
 - rarely
 - some of the time (about 1/3)
 - most of the time (about 2/3)
 - all of the time
3. Interacts directly with individual
- faces person
 - speaks directly to person/offers activity to individual
 - speaks at individual's level of understanding
 - waits for a response
 - uses accommodations to support individual's understanding/communication
 - follows the individual's lead
 - sets and maintains a positive tone

Dynamic Assessment of Nonsymbolic Communication

Part III. Interview on the Environment's Effect on Communication Behavior

(Snell & Loncke, 7/12/99)

1. Environmental Contexts

A. How many adults/caregivers does _____ have contact with during one week?

one/ two/ 3-5/ 5-9/ more than 10

B. How much time daily is _____ in one-to-one contact with an adult/caregiver for activities such as bathing and grooming, dressing, meals?

less than one hour/ one to two hours/ more than two hours

C. How much time daily is _____ in one-to-one contact with an adult/caregiver in leisure time for games, watching TV, walks?

less than one hour/ one to two hours/ more than two hours

D. How often a day is _____ directly talked to by and adult/caregiver?

less than five times/ between 5 and 20 times/ more than 20 times

E. How much time a day can _____ spend in a private quiet environment, without the presence of adults or other peers?

less than one hour/ one to two hours/ more than two hours

F. How much time a day does _____ spend in active contact with typical peers through joint activities such as games, TV watching, walks?

less than one hour/ one to two hours/ more than two hours

G. Are there times during the week that _____ works together with a typical peer or a caregiver (teacher, therapist) to enhance learning?

____ typical peer
several daily/ once daily/ more than twice a week/ less than twice a week

____ adult caregiver
several daily/ once daily/ more than twice a week/ less than twice a week

H. Does _____ show an interest in some of her/his typical peers through:

- physical contact (touching)
- watching
- directed vocalization or talk
- smiles
- pointing

I. With how many typical peers does _____ have regular active contact through one or more of these behaviors?

none/ 1/ 2/ 3-5/ more than 5

J. What opportunities does _____ have for social interaction with typical peers in her or his community?

K. How many personal toys or items (blanket, etc.) does _____ have for which she/he shows a strong attachment?

none/ one/ more than one

which? _____

L. How often can _____ chose/ buy/ select a new object to play/ experiment with?

several times a day/ twice a day/ less than once a day

M. How often does _____ interact with an adult/caregiver through play with toys, games, activities?

more than once daily/ once daily/ less often than daily

N. Which of the following toys or favorite objects are regularly used or played with?

- toys/objects that draw attention to the adult's actions:
push toys/objects that make noise and represent animate objects (e.g., dogs), musical instruments, pom-poms, mechanical toys, rattles, squeaky toys
- toys/objects that draw attention to the adult's face
bubbles, pinwheels, balloons, plastic transparent drawing board
- toys/objects that facilitate reciprocal interaction
balls, blocks in a form box, train on a track, puppets
- toys/objects that facilitate request for help
push on a swing, a jar of candy with a lid that is difficult to open/ a favorite object that is placed out of reach/ wind-up toys that are difficult to wind/ pinwheels that are difficult to blow

O. Which other toys/objects or items are regularly used by _____?

2. Environmental Approach to Learner

A. Is (lack of) communication considered to be a basic challenge for _____?

yes / no

B. Which communication goals and specific interventions are used for different activities:

dressing and grooming

meals

learning time

leisure time

group activities

C. How do the caregivers attract the attention of the learner prior to an activity?

By seeking eye contact/ by talking/ by calling _____'s name/ other

D. Challenging behavior.

Which challenging behavior(s) does _____ display?

How is/are these behavior(s) interpreted by the caregiver(s)?

E. Reading and storytelling.

Are reading and storytelling frequent activities directed to _____?

daily/ weekly/ sometimes/ seldom/ never

F. Does the _____'s individualized educational program describe strategies and techniques to enhance interaction and communication?

no/ very brief/ elaborated

G. Does the approach appear to involve structured teaching opportunities?

predominantly/ partially/ not especially

H. Does the approach focus on identifying _____'s preferences?

predominantly/ partially/ not especially

I. Does the approach imply the use of one specific or a combination of communication modes such as use of personalized nonsymbolic behaviors (gestures, vocalizing, etc.), signing, picture communication?

Which? _____

J. Do the caregivers use one or more of the following techniques to foster communication?

- expectant looking?
- question?
- mand model?

K. What are the long-term plans and goals to improve _____'s opportunities for social interaction and to improve her or his communication?

3. Environmental Organization

A. Do different family members (or the same family member) use the same routine (i.e., the same sequence of actions) in activities such as waking up, meal provision, toilet use, bedtime? Is there consistency in the schedule of and procedure for daily routines?

always/ most of the times/ not especially

B. Are routines made visible for _____ in pictures or as picture schedules?

most/ some/ none

C. If you have visual displays of routines, how often are they referred to prior and during the actual routine?

systematically each time/ often/ sometimes/ seldom

D. Are routines accompanied by the caregivers' verbal comments toward _____?

always/ often/ seldom/ rarely

E. Do home/school routines or structure in the home/school setting create opportunities for requesting?

food or drinks? often/ seldom/ rarely

physical relieve? often/ seldom/ rarely

activities (playing, e.g.)? often/ seldom/ rarely

presence or assistance from people? often/ seldom/ rarely

Appendix B. Observation and Analysis of Communication Acts

Definitions of Observation Terms and Codes

Learner's Forms

Facial Expression: Learner smiles, frowns, acts surprised, acts fearful, etc. **F**

Gestural: Learner moves head, hands, arms, feet, legs, whole body. **G**

Eye contact: Learner looks at communication partner. **EC**

Pointing: Learner uses contact pointing (touches item of interest) **CP**; distal pointing (noncontact). **DP**

Eye pointing: Learner uses eyes to look at item of interest. **EP**

Approach: Learner moves closer to item of interest. **A**

Movement of another's body: Learner moves of head, hands, arms, feet, legs, whole body, movement routine of another person, etc. **M**

Use of object: Learner goes to, touches, gets/shows, points to, or uses an object. **O**

Vocal: Learner vocalizes: nontranscribable (clicks, raspberries, squeals, laughing, whining, crying, growls, yells, trills), - consonant (mono or multisyllabic vocalic utterances lacking a consonant), + consonant (mono- or multisyllabic utterances containing a pre-and/or postvocalic consonant). **V**

Gestural/Vocal: Learner combines gestural and vocal at the same time. **GV**

Problem behavior: Learner engages in self injury, aggression to others, destruction of materials, etc. **PB**

Symbolic form(s): Learner makes sign **S**, uses graphic symbol (picture, line drawing, written word) **GS**, or spoken word(s). **W**

Learner's Functions

- **Behavioral Regulation:** Acts used to regulate the behavior of another person to obtain an environmental end: Request object/action (**RQ**), request person (**RQP**), protest object/action (**PR**), protest person (**PRP**).
- **Social Interaction:** Act used to attract or maintain another's attention to oneself: Request social routine (**RQSR**), request comfort (**RQC**), call (**CA**), greet (**GR**), show off (**SO**), request permission (**RQPM**), acknowledgment (**ACK**).
- **Joint attention:** Acts used to direct another's attention to an object, an event, or the topic of a communicative act: Comment on object/action (**CO**), request information (**RI**), clarification (**CL**), repair of communication (**RP**).

Is the Learner Prompted?

Yes: Communication partner provides scaffolding such as joint attention and a pause, a verbal prompt (gives specific direction), a gesture prompt (points), a model prompt (demonstrated a sign), or a physical prompt (assists learner in making the desired response).

No: Communication partner does not provide any scaffolding to the learner.

Communicative Acts

CA1: Learner makes a gesture, vocalization, verbalization, or combination signal.

CA2: Learner directs signal to partner with coordinated attention or signal is quickly followed by coordinated attention to partner.

CA3: Learner waits for a response from partner and learner's signal serves a communicative function: behavior regulation, social interaction, joint attention.

Discourse Function

Initiated: The student initiates a topic or communicates spontaneously without a partner speaking prior to the student's act.

Respondent: The student maintains the topic by responding to a previous statement.

Repair: The student attempts to repair a breakdown in an interaction when a partner does not understand student, does not pay attention to student, does not fulfill student's request, etc.

Evidence of Learner's Intentionality

- A. Learner alternates his/her gaze between a goal (something he/she wants) and you or another who is listening. **AG**
- B. Learner is persistent in signaling to you until that goal is achieved or failure is clear. **PS**
- C. Learner changes the quality of the signal (louder, bigger movement, more force) until the goal is achieved. **IQ**
- D. Learner improves quality of signal, makes his/her signal more conventional (closer to what others do to get the point across – like change from a looking at signal to a pointing towards signal). **CS**
- E. Learner waits for a response from partner when seems to want something and gives a signal. **WR**
- F. Learner stops his/her signal when a goal is met or accomplished. **SS**
- G. Learner displays satisfaction when a goal is met or accomplished. **DS**
- H. Learner displays satisfaction when a goal is not met or accomplished. **DD**

Learner's Repair Strategies

- A. Persistent in repairing misunderstandings when you/others do not understand what he/she is trying to express. **P**

- B. Reacts quickly to your/other's misunderstandings and initiates a repair effort **RQ**
- C. When unsuccessful on the first try, tries again. **TA**
- D. Tries again by repeating same signal. **SS**
- E. Tries again by using another signal, same intent. **ASSI**
- F. Tried again by using another signal, different intent. **ASDI**

Partner's Repair Strategies

- A. Repeats message in simplified form (fewer, less complex words, adds gestures).
- B. Repeating message unchanged.
- C. Increases volume/intensity/emphasis.
- D. Changes comment/task.
- E. Uses novel strategy: _____
- F. Gives up and changes the topic/activity.
- G. Gives up and ignores ___ or walks away.

Is the Partner Prompted?

Yes: Assessor provides scaffolding to prompt a partner's interactions with a learner. Prompts might be verbal reminders, position cues (moving needed communication pictures closer to partner's hand), models (a quick demonstration of a forgotten action), gestures (pointing to something the partner needs), etc.

No: The assessor provides no prompts to the communication partner during the interaction with the learner.

Partner's Facilitators to Communication

Proximity: Partner gets close to learner; on same level. **PX**

Eye contact: Partner establishes eye contact with learner. **EC**

Joint attention with point of interest: Partner looks at what is pointed toward. **JA**

Confirmation: Partner confirms intent verbally/gesturally. **C**

Praise: Partner praises learner's communicative act. **PR**

Fulfillment: Partner fulfills learner's request. **FR**

Imitation: Partner imitates learner's form (gesture, vocalization, sign). **I**

Co-active: Partner moves with learner; co-active; follows learner's lead; does not resist learner's pull. **CA**

Waits: Partner waits for learner to give/complete signal. **W**

Model: Partner provides model. **M**

Partner's Barriers to Communication

Distance: Partner is or remains distant to learner. **DI**

Failure of eye contact: Partner does not look at learner. **FEC**

Failure to establish joint attention: Partner does not notice learner's focus of attention. **FJA**

Failure to confirm or give feedback on intent: Partner does not comment on learner's intent. **FC**

Failure to notice request: Partner does not observe or react to learner's request. **FNR**

Failure to wait: Partner allows no time or insufficient time for learner to give/complete signal.

FW

Appendix C. Observation of Communication Acts Grid [Print in landscape orientation]

Name: _____ Partner: _____ Setting: _____ Date: _____
 Observer: _____

Context Description:

No.	Form/Comm. Act-1 (code & describe)	Learner Prompted?	Function	Comm Act 2	Comm Act-3	Discourse Function	Conte
1		Y N		Y N ?	Y N ?	Initiate Respond	
2		Y N		Y N ?	Y N ?	Initiate Respond	
3		Y N		Y N ?	Y N ?	Initiate Respond	
4		Y N		Y N ?	Y N ?	Initiate Respond	
5		Y N		Y N ?	Y N ?	Initiate Respond	
6		Y N		Y N ?	Y N ?	Initiate Respond	
7		Y N		Y N ?	Y N ?	Initiate Respond	
8		Y N		Y N ?	Y N ?	Initiate Respond	
9		Y N		Y N ?	Y N ?	Initiate Respond	
10		Y N		Y N ?	Y N ?	Initiate Respond	
11		Y N		Y N ?	Y N ?	Initiate Respond	
12		Y N		Y N ?	Y N ?	Initiate Respond	

CA1: Used gesture, vocalization, verbalization? CA2: directed to partner: Initiated or respondent? CA3: Serves a communicative function: BR, SI, JA?

No.	Intentionality	Learner Repair	Partner Repair	Partner Prompted?	Partner Facilitators
1	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
2	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
3	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
4	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
5	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
6	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
7	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
8	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
9	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
10	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
11	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M
12	AG PS IQ CS WR SS DS DD	P RQ TA SS AS	RS RU IE C N GUC GUI	Y N	PX EC JA C FR I CA W M

Snell & Loncke (2002)

Appendix D. Assessment Outcomes Report for Jack

Jack

Communication Report and Recommendations

Date: October 20, 1999

Participating Team: Parents, ABA teacher, Marti Snell, Filip Loncke, Soo Jin Cho

During July and August of 1999, a team of adults participated in a multi-step process to learn more about the ways Jack communicates. These activities in this process included interviews, observations of his interactions with others during daily routines, analysis of the taped interactions, a meeting to discuss the tape and plan a dynamic assessment, dynamic assessment, analysis of the assessment tape, and a meeting to discuss the findings and explore recommendations. This process was aimed at identifying (1) the communication strategies that are presently used by Jack and by significant individuals in his environment, (2) exploration of his current potential to extend and improve his communications forms and functions, and (3) recommendations of teaching directions and strategies for Jack and for his partners.

Current Communication Strategies Used by Jack and his Partners

What does Jack Communicate? (Communication Functions)

Through his communication Jack predominantly tries to control events that are significant for him: If he wants something, if he wants an event to start or to end, if he wants another person to do something. Thus, *requesting* is Jack's most frequently used communication function. We did not observe Jack *commenting* on events happening (also called joint attention), but there seemed to be several instances of using his communication for social interaction, specifically to request comfort (looking up and reaching to hug another), but not to call others, greet, or show off.

How does Jack Communicate? (Communication Signals)

Jack uses a variety of nonsymbolic forms or signals to communication. Some of these include approaching a person, taking their hand and moving it toward the source of needed assistance, eye contact, head shaking, covering his ears, contact pointing (pointing by reaching towards and touching), vocalizing, touching an object or presenting it to another, and hitting himself.

Jack also has learned to use symbols as communication signals. He has made the connection between pictures (particularly 2 inch square Picture Communication Symbols, black and white line drawings) and their meaning. He initiates the use of these graphic symbols, even with pictures that he has not been taught explicitly. We believe this new talent will be very important in Jack's immediate future as a central aspect of his communication. We did not observe Jack spontaneously use manual signing to communicate.

Occasionally, Jack will vocalize; at times when urged to imitate, he improved the vocalization so it approximated a word ("yup").

Part of Jack's communication is problem behavior: hitting himself with closed fists or open hands. It appears that hitting is associated with frustration and perhaps with excitement or anticipation of a desired event. Though we did not conduct a functional assessment of his self-hitting, an informal assessment seems to indicate that self-hitting was used to communicate escape from an unpleasant situation (I don't want to make these signs in order to get the balloon activity; I want help opening this gate/ jar/ pizza box) or a request for objects/activities (I want to swim in the pool, I want pizza). Other times when Jack was very tired after a night of little sleep, his self-hitting seemed to increase, suggesting that lack of sleep may be a "slow trigger" (setting event) for self-hitting. Unfortunately, this behavior is sometimes reinforced if Jack gets what he wants. Sometimes, it is even more difficult to react appropriately when Jack uses his self-hitting combined with another clear communication signal (e.g., graphic symbol).

How Effectively does Jack Communicate?

Jack's mom and teacher at school predicted that they are successful in their communication with Jack most of the time, for about three-quarters of his interactions with them. At present, Jack uses multiple communication forms, often combined. He frequently (but clearly not always) succeeds in making critical individuals in his

environment understand his messages, but his success is also related to the persistence of his partners at understanding him and their familiarity with his signals and routines. Because he is active and interested in his environment and actively engages in many routines (though often with some assistance), there are frequent opportunities for communication and Jack is an active, rather than a passive, participant.

Several of Jack's communication characteristics decrease his effectiveness. Invariably, these communication characteristics are linked to his partners' ways of interacting with him. For example, Jack is very often *not persistent in seeking a response from his communication partner*. Often when a first (or a second) communication attempt fails, he waits or gives up. He gives up more easily if the target is perceived as being too far away or hard to reach in some other way. This lack of persistence is often covered by the fact that his partners often work hard at repairing the communication breakdown. At other times Jack's partners anticipate his intent and do not require him to repeat a signal or even to initiate a signal to request something (e.g., being sure all needed materials are present, opening doors for him, carrying out simple routines for or with him; making requests of him as in ABA training while rarely waiting for his initiations). While this practice may avoid self-hitting, it detracts from Jack's ability to learn to competently express himself.

Sometimes Jack's *use of multiple forms is often not well coordinated or strategically planned*. He sometimes uses several forms in a row in a non-strategic way, almost as trial and error. Jack often does not establish face-to-face contact with his partner. He utters a signal, and may turn away, decreasing the potential effectiveness of his communication attempt. In short, Jack would benefit from having better ways to repair communication breakdown, such as repeating a signal until the goal is met or recasting/improving the communication signal and trying again.

Communication Strategies Used by Jack's Partners

Jack's partners are highly attentive to his efforts to communicate usually stopping their other activities, establishing eye contact or joint attention with him on the object of interest, getting closer to him, asking him questions, performing actions that are thought to be those he is requesting, etc. Many of these behaviors can be helpful in facilitating his communication. Strategies his partners use that are less successful include: anticipating his needs, not waiting for him to initiate communication, being less consistent in prompting or expecting nonsymbolic signals, asking him too many questions when there is a communication breakdown, and using yes/no head gestures. Also when Jack's day is highly structured with requests such as in ABA sessions, he has less opportunity to initiate requests, though the Picture Exchange Communication System used now does allow for this.

The partners often engage in pleasant communicative interactions with Jack. These interactions appear to be a strong basis for further development. These interactions are often but not always successful.

In order to help Jack detect relevant elements in the message of the partner, it is important that the partner pays attention to avoiding an overload of message noise. For example, speaking to Jack contains a lot of "verbiage" which may distract Jack from the message.

The partners will also try to be attentive for "partial" signals that need to be shaped into use with a more specific and clear meaning. For example, "clapping" will in many contexts mean "I want more." However, as this clapping is probably a sign of excitement, it is not distinctive from other meanings related with excitement. Therefore, the use of a specific MORE signal (e.g., the manual sign MORE) can be encouraged.

The following table summarizes some of the ways in which Jack is more or less successful communicating with partners and includes partner strategies.

Jack's is Successful...	Jack is Less Successful...
<ul style="list-style-type: none"> ● Using picture symbols (familiar and new) in a PECS fashion ● Handing a symbol to partner's open hand; Jack initiates even with new symbols ● In being more persistent when he is prompted systematically ● When he is given assistance that ranges from none (just waiting) to joint attention, to modeling, and to physical prompts with time to respond allowed in between each type of assistance ● In initiating more communication when his environment is arranged (temptations) to promote communication ● When his partners do not anticipate his messages and wait ● When his partners encourage (by waiting, following his lead) and he shows more spontaneous communication in natural routines ● When partners wait, Jack can hand the problem item to adult for help if it is portable; Jack will put a partner's hand on an item he needs help with if it is close ● Occasionally when expected to reach for or point to what he wants ● Communicating requests for actions or objects 	<ul style="list-style-type: none"> ● In persisting in his effort to communicate by repeating his signal ● In improving his signal when his partners do not understand him ● In looking at his partners or facing them when requesting ● Using yes/no signals with consistent meaning ● In attending to his partner's modeled signal ● Initiating common routines such as putting his hand on a door handle to open it, getting something he wants ● Seeking or communicate his need for help ● Pointing at things he wants ● Using vocalizations meaningfully ● Communicating functions other than requesting (social interaction: call, greet, show off and joint attention: commenting)

Exploration of his Current Potential

During the dynamic assessment, we were able to explore ways he might improve his communication with familiar partners in daily routines.

When we arranged his environment so he needed to communicate in familiar and interesting situations, Jack demonstrated the ability (a) to be more consistent in using his nonsymbolic signals to request assistance, (b) to use signs to request more of an activity, and (c) to combine signals (sign for want more plus handing partner PCS for item wanted). At these times his partners used a four step prompting system to teach him the predetermined communication signal. More assistance was given only as needed:

- Wait for 5 seconds (no assistance, just waiting)
- Establish joint attention by moving closer to Jack and alternating gaze between him and the activity/item of interest (at least 5 seconds)
- Provide a model of the signal you want him to make
- Physically assist him in making the signal using as little help as is needed

When we required Jack to combine signals in request situations (to get more bubbles blown by partner, to have a balloon blown up and let go, to turn the hose on) he often needed the most assistance, but gave evidence of being able to respond with less assistance. Unfortunately, at these times (especially when he was tired), he also engaged in self-hitting which may have been his way of communicating escape from the difficult communication demands we were making of him. Jack was also able to make manual signs with models and physical assistance. Again there was often self-hitting, though this day was one when he had not slept well and his mother was away. As signs can be used at all times (you don't need to carry a folder of picture symbols) it may be advisable to explore

expanding this skill, though the teaching situations will need to be motivating and approximations of the sign should initially be acceptable.

The fact that Jack shows the ability to use a picture to request an object or an activity is very encouraging. His seemingly easy learning of several new picture symbols (for familiar items used regularly) when they are available and his partners enthusiastically respond to his requests is perhaps the most exciting evidence about his communication potential. More pictures that relate to his daily needs and routines should be taught in a systematic way.

Recommendations for Teaching Strategies and Goals

Teaching Strategies

Jack's team should regularly update his communication dictionary so it reflects the nonsymbolic and symbolic signals and the communication functions he uses. All Jack's partners (including family members, staff, and peers) should have some familiarity with the content of this communication dictionary. For younger kids, photos of Jack making his common signals might be easier to use than a written grid. It is important that partners be consistent in promoting appropriate communication signals and functions that are not too challenging for him, that are appropriate behavior (not self injurious behavior), and that are gradually made more and more conventional in their form. Further it is important that his existing nonsymbolic signals be encouraged and improved while also building his repertoire of symbolic signals.

Because Jack's day is highly structured with requests such as in ABA sessions, there needs to be frequent opportunities for encouraging his initiations through communication. This can be accomplished through offering choices, pausing in familiar routines to seek his request for continuation or assistance, creating communication temptations (see attached handout) but not to the point of frustration

It will be important to find ways for Jack to make frequent choices about his activities (clothing, chair to sit in, toy/book, and an individual to play with, etc.) without limiting choice making to food and drink. Choice making has been shown to reduce problem behavior, provide the student with more control, be an easy way to improve motivation for an activity, and promote communication. Choices should be structured for ease: Ask "Do you want this?" (label and show), pause, "or this?" (label and show), pause, present both together and wait. He should get the one he chooses even if this is not what his partner thinks he actually wants. Prompting a choice is possible, though it is better when he chooses; one might repeat the choice options, wait a little longer, move the options closer, rather than prompt. Start with a choice between two objects or two activities options rather than using open-ended choices without options ("What do you want to do?") which require more communication and may result in communication breakdown or a choice that is not available. It will be easier to expect him to use nonsymbolic gestures than to use distal pointing or symbols (signs or Picture Communication Symbols). But the picture symbols that are familiar to him now can also become the choice options and presenting the PCS to the partner is the signal he uses to request a choice (PCS for several toys are presented).

Establishing visual contact when communicating is crucial. Lack of visual contact is typical when Jack gets excited. Structure and waiting periods can help in making sure Jack starts with visually checking if his message has been received, and from there pursuing maintenance of eye contact during the communication exchange. When partners positioned themselves in face-to-face positions and used waiting, Jack was more attentive.

It is recommended to try to calm Jack down when he displays self-hitting behavior. One technique that can be used is to sign CALM and physically and gently direct his hand(s) down or perhaps together in a position in front midline. Generally minimal physical contact is used, little grasping and no forcing, little will be said, and little attention is given to the self-injurious behavior; it is just calmed or stopped to create a moment without any occurring and prevent reinforcing it as a communication signal. Almost immediately after it is calmed, the partner prompts the appropriate signal. Prompting in this instance may begin with a prompt that will be successful (physical, gestural/model) rather than use the 4-step procedure. Partners want Jack to make the appropriate signal quickly following a moment of calm, so he can connect the appropriate signal with the reinforcing consequence (escape, help, getting object). Team members will want to determine how they do this and be consistent (e.g., sign CALM plus gently putting Jack's hand down and then release and teach the appropriate signal).

In many of these instances of self-hitting, it will be important to follow the general rules of a positive behavior support program:

- Determine the function of the self injury (request escape from unpleasant/hard situation; want a tangible/activity).
- Do not follow a self-injurious response with fulfillment of the function.
- Instead, stop or calm the self-hitting and use the opportunity to teach him an easy appropriate way (response already in his repertoire) to signal the same function (request escape, request object).
- It is best that the team decides these signals together and based on a functional assessment of his self-hitting.
- Use a series of teaching steps to teach his use of the signal.

Sometimes, Jack's moments of excitement or frustration may be taken as opportunities to teach him to comment. Jack may comment nonsymbolically (smile with “happy” vocalizations, frown with “mad” vocalizations), or learn to use a sign or a graphic symbol for GOOD or NICE and BAD.

At this point, it is unlikely that his vocalizations will lead to distinctive spoken words, but approximations can be encouraged. The team will want to identify one or several word approximations that will be most functional for him and also decide how good the approximation should be to be accepted. Vocalization, simultaneous and in combinations with other communication forms, can be approximations of recognizable spoken words and should therefore be encouraged. However, it is most likely that Jack will continue to rely predominantly on non-spoken signals, which are also easier to prompt if he does not initiate.

Encourage the commenting function by introducing commenting activities he seems to like (looking at books, picture albums, crafts) and signals for commenting (nonsymbolic: pick up a picture and show another, point by touching to a picture in a book and then look at partner) (symbolic: PCS to match to the item pictured or to the objects involved in the activity).

Engage in turn-taking activities or social routines (tickling, taking turns: I-blow-the-pinwheel-you blow-the-pinwheel). Take your turn, let him have a turn, prompt as needed, take another turn, pause for him to initiate his turn, etc. Turns should be short and involve activities that are simple for him to do and interesting. After the turns are going, pause and wait to see if he moves the materials to you to take your turn or if he reaches for the materials to take his turn. When he signals this, continue the game. These activities set up opportunities for the social interaction communication function of requesting a social routine.

We did not test ways to enable Jack to understand upcoming events, but feel that given his use of PCS he may be able to learn the use of schedules and spatial representations of events (Jack is going to school, Dad is going to work, We are going to the store/pool). These visual representations (home, car, school, stores, etc.) could be simple, introduced one at a time, available in accessible areas such as on the refrigerator at home. They can also be made more portable, e.g. on a clipboard, or even on a belt Jack would be carrying (facilitating the coordination between school and home). Indeed, coordination about the type of schedules (and, of course, the symbols) used between school and home is highly recommended, and will certainly enhance the effectiveness. Developing a way for Jack to visualize future events is aimed at increasing his understanding of (a) where people are when they are not present and (b) the activities that will (or could) occur in his upcoming day (week).

Other potential teaching strategies are listed in the table that follows:

Potential Strategies
<ul style="list-style-type: none"> ● Teach Jack to face partner when communicating. ● Encourage Jack to initiate by waiting and not “doing for him.” ● Encourage Jack to use his communication by creating communication opportunities that are embedded in his daily routines (temptations or environmental arrangements). ● Complete a functional assessment to identify the function of his self-hitting and the fast and slow triggers that seem to set the occasion for it and to develop a positive behavior support program .

- Teach Jack several simple ways to express the functions he uses his self hitting to communicate (probably Escape: I want a break from this; help me; and Request Tangible/Activity: I want more).
- Teach several highly functional signs for BREAK or HELP and WANT MORE because they are portable and might be good alternatives to his self-hitting; PCS symbols also might provide good ways to express these same functions and may be easier for him to use (PCS for Break and/or Help and Want).
- Consider teaching him to use an easier signal already in his repertoire (than the signs) initially that can be used to request the same functions as his hitting serves (usually escape, sometimes want tangible/activity). These signals should be ones he already can make and/or may be ones that are incompatible with self hitting (i.e., holding both hands up to partner or to grasp partner's hands, using both hands to take partner out of area for a break or to take partner to item needing assistance or more of).
- Identify a small set of useful words that Jack could use several time daily at school and home. Teach Jack to use the picture symbols (PCS) for these words, one or two at a time, using the PECS approach.
- Teach Jack to use his nonsymbolic signals more effectively to communicate HELP (get adult/take problem to adult) and WANT MORE (eye contact adult + vocalization; alternating gaze between item and partner, hold out hands, point to self, point by touching item).
- Teach pointing by starting with item close and prompting him to look at and reach towards and then moving further away and shaping a hand then a finger point.
- Because Jack likes to express feelings to others and takes part in some social routines (tickle games), take advantage of engaging in these activities and then pausing and using the prompt system (expectant looking or joint attention, model, physical prompt) to encourage him to use the social interaction function of requesting a social routine.
- Later teach Jack to combine the signs he uses with PCS symbols: express function (want/help) with a sign and then either take partner to the item or hand partner symbol for object/item (food, drink, activity).

Communication Priorities and Goals

Apart from what is already mentioned in this report, the following goals/ priorities were set by those who participated in this process:

1. On a regular basis, it will be important to assess Jack's further communication development (use of communication forms/functions). Also the effectiveness of partners' feedback and coaching should be reviewed and analyzed. Communication can become clearer and less ambiguous.
2. Making and regularly updating a dictionary/ inventory of Jack's communication forms and their meaning is highly recommended. Such a dictionary should be used in a flexible way and can be also be an instrument in the interaction between school environment and home environment. Photos of Jack making the signal with its meaning written simply across the bottom can help peers better understand Jack's ways of communicating. The draft dictionary that follows does not reflect all the ways we would like to react to his signals and will need to be expanded.
3. Decrease ineffective communication, by not responding to it but by prompting alternate forms.
4. Decrease problem behavior by teaching him simple ways to communicate the same function.
5. Create communication temptations and other "gentle" problems challenging Jack's communication needs.
6. Add a "request" and a "commenting" section in Jack's program at school and encourage him to initiate communication.
7. Help Jack understand the structure of the day by making it more predictable and visible through visualizations (schedules, representations of daily routines and upcoming routines/events).
8. Find ways to add peers to his day from the neighborhood or from groups the family spends times with (church, pool, etc.). Currently he has primarily adults in his life, besides his sister. The biggest challenge of autism typically is social interaction, while communication is a close second. Adding carefully selected children his age (perhaps 2 or 3 who already are friends with each other and one of whom is interested in Jack from the pool or from church) can create motivating and age-appropriate opportunities for learning. Consider working with the public school to build this into his program using the ABA coach option that has been used with younger students in community preschools. These planned play times could be organized

around things Jack likes and the other also like (pool play, the hose, and other in and out of door activities for fall and winter). The peers would need to have some “lessons” on how Jack communicates, maybe mostly in the context of play.

9. Include all partners in these recommendations, including Jack's sister Mary.

Draft
Jack's Communication Dictionary
Date: August 1999

What Jack does (signals)	What it means (functions)	What we do
Covers his ears	Too loud	Comment and turn noise down
Looks away	Not interested?	
Comes close, looks in your eyes	Interested	Comment, offer a choice, give a hug, explore what he wants
Makes "happy" noises while also looking at you	Interested wants something wants more?	Comment, offer a choice, give a hug, explore what he wants
Takes your hand and pulls it to something	Wants help	Comment and offer help
Hands you something	Wants help?	Comment and offer help
Looks at something, reaches for and maybe get something, points and touches	Wants to hold/have the item	Comment and offer help
Makes sounds and looks unhappy	Dissatisfied with something	Try to figure out why he is unhappy
Hits himself; may also make unhappy noises	Wants activity to stop, wants to leave the situation, wants help; sometimes wants an object or activity?	Comment and offer help or stop/remove from activity; provide object/activity; ideally, we calm him, then prompt signal that means the same thing and fulfill request
Is aggressive to another person (scratches, pulls their hair)	Does not want the activity to continue; does not want the person to be there	Tell him no, possibly a very short time out, but when calm prompt better way to make request and fulfill it
Shakes head as if saying yes	May mean yes but also may be give me help or want more	Try to learn what he means
Picks up a picture or a symbol and hands it to you	He wants that item or more of that item	Comment and fill his request
Cries	Unhappy, does not feel good, tired, medication effect	Try to learn why he is unhappy