Speech-Language Assessment in the Clinical Setting

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Time constraints are a significant factor for clinic-based and school-based speech-language pathologists. Yet, with a planning process that incorporates parent information and accounts for child temperament, a comprehensive speech and language assessment can be completed within a 90-minute time frame. A parent questionnaire is completed prior to the assessment date, focusing on developmental history, including information about family history of learning difficulties and episodes of otitis media. Standardized and nonstandardized procedures are included in the assessment process in order to obtain clinically relevant information and provide parents and public service agencies with necessary qualifying scores. The Bankson-Bernthal Test of Phonology (BBTOP; Bankson & Bernthal, 1991) is the choice of instruments for standardized articulation/phonology testing, whereas the Preschool Language Scale–3 (PLS-3; Zimmerman, Steiner, & Pond, 1992) and a spontaneous language sample are recommended as language measures. A spontaneous sample also provides opportunity for clinical judgment regarding speech intelligibility, pragmatic skills, voice, and fluency. A recommendation session concludes the evaluation with a discussion of the child’s performance on speech and language measures, overall impressions, and recommendations. This discussion includes strengths and weaknesses, with focus on answering parents’ questions and addressing their concerns.

Key Words: assessment, articulation, standardized tests, language

The assessment of young children between three and five years of age can be stressful for both the child and caregivers. Young children can be reluctant to interact with examiners and/or parents in unfamiliar environments and caregivers can be anxious about a child’s overall performance, regardless of the acknowledgement of communication difficulties. In order to decrease both familial and child stress, to minimize additional testing, and to obtain a representative sample of a child’s skills, both standardized and nonstandardized procedures should be implemented. These procedures should encompass a multidimensional approach to obtain information regarding all factors that may be impeding a child’s abilities to learn.

As much as we believe nonstandardized tasks provide us with more useful information, we recognize that standardized instruments are important for the purpose of identifying if a problem exists, because they allow comparison to a normative sample. Scores provided by standardized tests are especially useful for parents and professionals. The usefulness of these tests extends to: (1) helping parents understand how their child is performing in relation to his/her same-age peers (a frequent question posed by parents); (2) procuring services through local school districts and public service agencies without the child needing to be retested for qualification purposes; and (3) acquiring payment from third party payers. Nonstandardized tasks, such as language sampling and stimulability, provide data that tell us about the nature of the child’s problem. We know that the group of children with speech and language impairments is a heterogeneous one; therefore, description of a child’s unique profile is paramount, particularly for planning intervention goals and selecting targets. Thus, with the time frame being the ultimate dictator of what can be reasonably accomplished, the combination of standardized and nonstandardized procedures meets our goals of identifying, describing, and predicting.

Although “Bobby’s” parents report concerns only about his speech, as communication specialists it is our job to determine if other aspects of his communication are within the normal range. Thus, our primary goal is to compare Bobby’s speech to that expected of his peer group in order to identify the presence or absence of a disorder. We must also determine if any other type of communication disorder exists. The parents should leave the assessment with clear answers regarding whether Bobby has a problem, the nature of that problem, what may be the cause of the problem, what can be done to help, and the prognosis for change.

The organization of our assessment will be based on
information we obtain about Bobby from his family. Although our primary objective is to evaluate the child’s articulation/phonology using an articulation test, there are other important tasks we should accomplish. These are eliciting a spontaneous conversational sample in the context of play and assessing language comprehension. We will quickly be able to determine whether Bobby’s speech is within normal limits by listening to a spontaneous conversational sample. This sample also provides information regarding Bobby’s interaction style, grammatical skills, and pragmatic skills, and allows us to make judgments about voice and fluency. The assessment of Bobby’s comprehension is an equally important task. Deficits in this area are less obvious from observation and parent report; caregivers are not typically aware of children’s comprehension strategies and their use of context to sometimes appear to understand when they actually do not.

Assessment Plan

Bleile does not appear to have a standard procedure for having parents complete history questionnaires. We, on the other hand, believe we can save valuable assessment time by having the parents complete a questionnaire prior to the assessment date. Approximately one week before the assessment date, we telephone the parents to ask some preliminary questions and to inform them that we will be sending a history questionnaire in the mail. We ask that the parents complete the history questionnaire and bring it with them to the evaluation appointment. This questionnaire includes information regarding their child’s speech-language development, motor development, social-emotional development, and medical history, as well as familial history concerning speech and language delays and other learning difficulties. By providing this questionnaire a week prior to the evaluation, the family has the opportunity to reflect on this information, thus providing us with a more complete profile of their child’s developmental history.

During the phone conversation, we ask the parents why they are bringing Bobby for the evaluation and what concerns they have about his speech. We inquire about Bobby’s favorite activities, how he relates to strangers and unfamiliar settings, and how outgoing/shy he is to get an indication of his social-behavioral style (temperament). We also ask questions relating to other aspects of Bobby’s development (i.e., peer relationships, play skills) to determine if there may be other communication problems or suspected developmental concerns. Our preliminary questions provide information that will assist us in planning activities and instruments to be used during the assessment, as well as the order in which to present them.

Our assessment plan is then made with consideration of what we already know and what we wish to know about Bobby, his environment, and his communication skills. We plan to administer a standardized test of articulation/phonology, perform stimulability testing for his major error patterns, conduct a cursory oral-peripheral examination, and if time permits, perform a hearing screening. In addition, one of our primary objectives is to obtain information about Bobby’s language skills. Language is an important area for complete assessment because we know that anywhere from 40 to 60% of children with phonological problems have co-occurring language problems (Bishop & Edmundson, 1987; Paul & Shriberg, 1982; Shriberg & Austin, 1998; Shriberg & Kwiatkowski, 1994; Shriberg, Kwiatkowski, Best, Hengst, & Terselic-Weber, 1986; Tallal, Ross, & Curtiss, 1989).

The information provided in the brief phone interview provides an indication about Bobby’s temperament and interaction style. We will use this information to determine the order in which to administer different instruments and tasks. For example, if the child is characterized as shy and reluctant to talk, we would plan to begin the evaluation with a nonverbal task such as administration of the auditory comprehension scale of the Preschool Language Scale–3 (PLS-3; Zimmerman, Steiner, & Pond, 1992). The administration of this scale would reduce performance pressure associated with talking and would allow the child time to “warm-up” and become more comfortable interacting with the examiner. Depending on Bobby’s tolerance for testing, we would follow the comprehension scale with the administration of a standardized articulation/phonology test. This task gradually increases the demands placed on the child to produce spontaneous speech and provides a smooth transition towards the collection of a spontaneous language sample.

If, in contrast, the child reportedly adapts easily to new situations and talks readily with strangers, we would plan to begin the evaluation with a play session as a context from which to collect a spontaneous language sample. When we obtain the spontaneous sample at the beginning of the evaluation we can quickly make judgements about Bobby’s articulation, expressive language skills, fluency, and voice. The spontaneous sample would be followed by administration of a standardized test for receptive language skills and a standardized test for articulation/phonology.

At the end of our assessment, we plan 15 to 20 minutes for a recommendation session with the parents. During this time we provide results of our assessments, our overall impressions, and our recommendations. We provide ample opportunity for the parents to ask questions and we discuss any and all issues that are relevant to them.

Evaluation Session

Background Information

When the parents arrive, we read the questionnaire before beginning the evaluation and make note of issues regarding the child’s communication history, birth and medical history, and social history. Similar to Bleile, during the evaluation we ask parents questions on any topics we wish to be clarified or expanded. These questions provide us with additional information regarding factors that may or may not be affecting the child’s communication skills, thus assisting in providing both a diagnosis and prognosis for change. For example, we clarify information provided about any family history of learning difficulties or speech-language delays, and about any recurrent episodes of otitis media. If the parents indicate that the child has had several episodes of otitis media, we address
questions regarding the placement of pressure equalization tubes and prior hearing screenings.

Bleile is very flexible in allowing parents to stay or leave the clinic room during assessments and bases this on parental preferences and the child’s overall comfort level. Conversely, we encourage parents to remain with their child. Like Bleile, we find that some children are more comfortable with their parents in our clinic rooms and having the parent(s) present during the assessment provides us with the opportunity to continue an interactive dialogue with them as the session progresses. This often helps put parents at ease in the clinical setting, as they are often uncomfortable sharing personal information about their child or family with a stranger. Typically we begin by reviewing the information provided in the questionnaire. If, however, the child is immediately engaged in play and conversation at the beginning of the evaluation, we wait and ask questions later.

Articulation/Phonology

Our current choice for a standardized instrument of articulation/phonology is the Bankson-Bernthal Test of Phonology (BBTOP; Bankson & Bernthal, 1991). Not only is this test one of few with standard scores and percentile ranks, it is also one of the few that provides information about phonological error patterns. In his assessment, Bleile states that “he rarely administers normative tests.” We prefer, however, that parents be provided with standard scores at the end of an assessment. We believe that this gives parents a clearer understanding of how their child is performing in comparison to his/her same-age peers. The BBTOP provides a reasonably large citation sample (80 words) that is elicited through a spontaneous picture-naming task using a set of attractive pictures. Our clinical experience has shown us that the BBTOP can be administered to 4-year-old children in a relatively short period of time (15 to 20 minutes). The configuration of the BBTOP protocol allows for quick detection of phonological error patterns, sounds in error, and a phonetic inventory. The only major drawback of using the BBTOP in clinical settings for preschoolers is the time required for scoring. However, we believe that this drawback is outweighed by the benefit of a standardized score in conjunction with relevant information for intervention planning. Similar to Bleile, we choose not to use extra assessment time for computerized analysis of the BBTOP sample, as the BBTOP in conjunction with stimulability testing provides sufficient information for goal selection.

Children’s responses to the picture plate stimuli on the BBTOP are phonetically transcribed on-line and audio-recorded. We use these recordings as a back-up measure in case we have significant difficulty understanding the child’s productions and the child is unwilling to repeat a production. This also provides us with the opportunity to check our transcription reliability, if necessary. Scoring of the BBTOP will typically take place after the assessment has been completed; however, the protocol’s grid allows quick visual reference to specific sounds in error in both the initial and final word positions. This provides us the opportunity to detect specific error patterns, positional constraints, and inventory constraints. As Bleile suggested, we also compare these error patterns and constraints to normative data regarding the suppression of phonological processes in order to make a judgment about whether Bobby’s sound system is within the normal range for his age (Grunwell, 1982; Haelsig & Madison 1986; Khan, Dyson, Edwards, Hodson, & Preisser, 1985; Smit, Hand, Freilinger, Bernthal, & Bird, 1990).

We next devise a short stimulability task that consists of the following: (1) models of sounds that are not in the child’s inventory—in isolation first, and if correct, in CV and VC syllables; (2) models of sounds that are incorrect in a particular position in that position in syllables and words; and (3) models of sounds that are inconsistent at the word level in words and sentences. We typically administer the stimulability task toward the end of the evaluation when the child has had time to become comfortable with the examiners and setting. Information obtained in the stimulability task is crucial for making predictions about change because we know, for example, those sounds that are not in a child’s inventory and for which the child is stimulable are likely to enter the inventory without direct intervention (Powell, Elbert, & Dinnsen, 1991; Powell & Miccio, 1996). Furthermore, the relative ease or difficulty with which a child can produce a sound affected by a positional constraint in the required position tells us something about the therapy time required to correct the error.

To complete our assessment of articulation/phonology we perform an oral peripheral examination. Our oral peripheral examination is short and includes rating of structures and function as normal, uncertain, or abnormal. Areas of investigation include observations of size and symmetry of structures, caregiver reports or observation of reduced sensation (e.g., drooling, texture preferences), imitation of nonspeech and speech movement, and evaluation of diadochokinetic rate for the production of syllabic sequences. We also present the oral exam as an exploratory game in which the child gets to look in the examiner’s mouth. We agree with Bleile in that only gross abnormalities significantly affect speech sound production; thus, in reality, we often omit this task if cursory observation suggests that the structures and function of the oral mechanism are within the required range to support normal speech production.

Language

Information regarding both expressive and receptive aspects of language is important. We consider obtaining the receptive portion of a standardized test most important, however, because we can obtain information about production from the language sample. Although Bleile recommends administration of the PPVT-III (Dunn & Dunn, 1997) as a means of obtaining information about children’s receptive vocabulary skills, we do not have one language test that we consider ideal. We more often choose the PLS-3 because: (a) it provides both an auditory comprehension and expressive communication score
without administration of numerous subtests; (b) it can be administered in a relatively short period of time; (c) it is used more frequently in our school district than other language measures; (d) it is not too difficult for children in the 4-year-old range; and (e) it seems to have a high level of concurrent validity. We can also score the PLS-3 quickly at the time of the evaluation so results can be provided to the parents. We would administer the auditory comprehension scale first and, depending on time and Bobby’s attention/tolerance for testing, we would complete the expressive communication scale towards the end of our evaluation.

In contrast to Bleile who notes that he “doesn’t have time to obtain a 50-utterance speech sample for all children,” we like to transcribe on-line a minimum 50-utterance spontaneous language sample from each child we assess. Preferably, we record a 100-200 utterance sample, if the child is talkative. Although a 50-utterance language sample can provide adequate information regarding children’s language skills, longer samples provide more contexts for the production of specific morphosyntactic structures. A play session between the examiner and Bobby—perhaps including his parents as well—serves as the context for our spontaneous conversational sample. We include the parents if Bobby has been reticent to talk and if they can encourage a conversation that is representative of his typical interactions at home. The play would be centered around the Playmobil house and related accessories. A wordless picture book from the Carl series by Alexandra Day is provided for eliciting a narrative sample as well. We use these specific items because they provide familiar contexts for young children (e.g., beds, cars, house, dogs, babies), thus increasing the likelihood of obtaining a representative language sample. If Bobby is comfortable in the setting and is talkative, we can expect to get a 100 to 200 utterance sample in 15 to 20 minutes. This sample is audio-tape recorded using a lapel microphone. If we determine during the course of the assessment that Bobby’s speech and language skills are not within normal limits, we can use the recorded sample at a later time for further speech and language analysis. From our on-line transcription of 50 representative utterances we tabulate a preliminary mean length of utterance (MLU) for comparison to Miller and Chapman’s (1981) reference data. We also listen for the production of specific finite morphemes (e.g., past tense -ed, third person singular regular, auxiliary and copula BE), pronouns, and complex sentences in order to make a judgement about morphology and syntax. We listen for finite morphemes in particular because it has been shown that the finite system is especially vulnerable, in comparison with other grammatical markers, in children with specific language impairment (SLI; Bedore & Leonard, 1998; Rice, Wexler & Cleave, 1995).

**Other: Voice, Fluency, and Hearing**

Comparable to Bleile’s assessment procedure, ours uses the spontaneous conversational sample as a context from which to make clinical judgements about voice and fluency. We attend to pitch, resonance, loudness, and overall quality of voice. We make note if we observe a disfluency frequency that exceeds the expectation of approximately 2% or if the types are not characteristic of normal nonfluencies (Conture, 1990).

Information regarding prior audiological testing and history of otitis media is obtained through the caregiver questionnaire and interview process. If Bobby’s hearing has not been previously tested and his parents report concerns about his hearing, a significant family history of congenital hearing loss, or recurrent bouts of otitis media we will screen Bobby using a portable audiometer. In accordance with ASHA’s guidelines, we will screen Bobby’s hearing at 20dB at 500, 1000, 2000, and 4000Hz. If Bobby fails to respond to any one frequency we will refer him to an audiologist for further examination.

**Recommendation Session**

During the recommendation session we provide results of standardized language tests and clinical judgements based on nonstandardized information and normative data, as well as opportunity for discussion. We give Bobby’s parents his percentile ranks from the PLS-3 and based on his standard scores, explain his performance with respect to the normal range, or the middle 68% of the normative sample. We also provide his MLU, or “the average length of his sentences” and tell the parents whether or not his use of grammatical markers falls within the expected range for his age. We will not be able to provide Bobby’s parents with scores from the BBTO because we will need to score this test after the evaluation; however, we will describe his error patterns and our evaluation of whether or not these patterns would be expected for a child of Bobby’s age, based on normative data (Grunwell, 1982; Khan, Dyson, Edwards, Hodson, & Preisser, 1985; Smit et al., 1990). We also discuss the results of stimulability testing and provide a prognosis for change based on these results. We give the parents an intelligibility estimate based on our judgement of Bobby’s speech intelligibility when the context is both known and unknown. We make note of any concerns with respect to voice, fluency, or hearing. We then provide an opportunity for questions and encourage parents to express concerns regarding their views about the cause of the problem.

We provide information regarding service delivery options, as well as potential intervention goals and targets. If they are interested, we provide the parents with activities they may do at home to encourage Bobby’s speech development. For example, we recommend auditory stimulation for target sounds in the form of reading books with alliteration or rhyming patterns involving those sounds, and we provide book suggestions. We also recommend that the parents provide recasts of the child’s incorrect productions of target sounds during normal conversation, in the form of a correct production in a single word response. This response should as closely as possible follow the incorrect production. We do not recommend that the parents “drill” the child or teach target sound productions at this point in time.
After the Evaluation: Data Analysis and Report Writing

We have some additional work after the evaluation before we begin to write the report; we must score the BBTOP. We find that the routine use of a particular test creates familiarity with the scoring process and decreases the time required. We can score the BBTOP in approximately 15 minutes. We use the BBTOP standard scores from the Consonant Inventory, Word Inventory, and Phonological Process Inventory in the report. We write a description of those processes that are most significant for Bobby, including information about the sounds affected by each process, the contexts, and estimated frequency of occurrence. We also report a phonetic inventory, as well as an intelligibility rating. Similar to Bleile, our intelligibility rating is based on clinical judgment. Unlike Bleile, however, we do not apply a percentage because this implies a numerical calculation. We consider several factors when making an intelligibility rating such as good, fair, or poor. These factors include: (a) parent report on how well they are able to understand their child with and without context; (b) other professional judgments that may how well they are able to understand their child with and without context; (c) our own judgment of Bobby’s intelligibility with and without context. Since Bobby has no language concerns, we will use the information from our on-line transcription of 50 utterances and our clinical observations in the report.

What We Did Not Include

We chose not to include a test of phonological awareness. This is an area in which children with phonological impairments typically experience difficulty of varying degrees. The likelihood of a problem and the extent of the problem appear to be related to the overall severity of the phonological problem and whether or not there is a co-occurring language problem. For example, the more severe the phonological impairment the greater the likelihood that there will be a marked deficit in phonological awareness (Bird, Bishop, & Freeman, 1995; Catts, 1993; Larrivee & Catts, 1999). Similarly, if there is a co-occurring language problem, the likelihood of phonological awareness difficulties is greater (Bishop & Adams, 1990; Catts, 1993). Our reasons for not including a phonological awareness measure are: (a) this is an area that requires both standardized and nonstandardized assessment that is quite extensive; (b) these assessments can be completed as part of early “diagnostic” therapy sessions; and (c) we know that we can easily incorporate beginning phonological awareness activities in our therapy sessions without any harm, prior to having a complete diagnosis in this area.

Conclusion

Typically there is a limited amount of time in clinical settings for the examination of children’s speech and language skills. Despite this, each examination should encompass a multidimensional approach to identify all factors impeding a child’s performance. In order to accomplish this task, standardized and nonstandardized proce-

References


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