



Authentic Assessment as an Approach to Preschool Speech-Language Screening

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Authentic assessment procedures have been advocated to evaluate speech and language skills of preschool children from multicultural, low-socioeconomic backgrounds. In this article we discuss our use of minimal core competency methodology as an authentic assessment protocol for preschool screening. Despite the significant investment of time

required, this protocol has proven to be useful and can actually save time in screening compared to quicker, standardized measures that lack sufficient specificity.

Key Words: preschool, screening, authentic, assessment

Regulations stipulated in the Individuals With Disabilities Education Act (IDEA, 1997) require that children with communication disorders be identified before entering school. Historically, standardized procedures have been used by speech-language pathologists for this purpose (Sturner et al., 1994). More recently, questions have been raised regarding the role of standardized, norm-referenced instruments in the screening of children from low-income or diverse backgrounds, particularly at ages 3;0 (years;months) to 3;11. The rapidly increasing diversity of the pediatric population in the United States has catalyzed the exploration of alternatives to traditional standardized screening procedures (Taylor & Peters-Johnson, 1986). According to Sturner et al. (1994), “The percentage of children who fail a screening test varies greatly and often can be as high as 20–30% of the population” (p. 27). Do high referral rates result from the use of test procedures that are not valid measures of a speaker’s normal communication patterns?

Three major concerns are evident. First, the normative populations for most standardized tests have included a larger percentage of middle-income rather than low-income people, regardless of race. “Over- and under-diagnoses of language impairment are more likely in children from non-white, non-middle-class populations, due in part to their traditional lack of representation in the

standardized tests used” (McFadden, 1996, p. 4). Moreover, too few tests include data on the diagnostic accuracy of their scores. This step requires test authors to do more than just provide the mean scores of a normative sample. They also should show whether the obtained scores separate children with typical communication development from those with delayed or disordered communication. In the absence of such information, speech-language pathologists must decide what the cutoff score should be. A recent study (Plante & Vance, 1995) showed that predictive accuracy suffers when clinicians apply the same fail criterion (e.g., 1.5 to 2.0 standard deviations) to all tests. In their study, the Structured Photographic Expressive Language Test–Primary (SPELT-P; Werner & Kresheck, 1983) was compared with the Clinical Evaluation of Language Function–Primary (CELF-P; Wiig, Secord, & Semel, 1992). The predictive accuracy of the SPELT-P varied depending on the cutoff score used. To be effective, a screening measure should minimize both the number of false positive errors and the number of false negative errors.

Second, the interaction style dictated by standardized procedures has not matched the interaction style of children of ages 3;0 to 3;11. Is the validity of a screening procedure affected when it requires a child to engage in interactive behavior? Published reports suggest that children at this age typically engage in parallel rather than

interactive play (Crago, 1992). Would the cultural background of the child influence how he or she relates to an adult? Published reports suggest that children from different cultural backgrounds relate differently in adult-child interactions, particularly at the preschool ages (Adler, 1993; Schieffelin, 1994). The use of traditional norm-referenced screening protocols necessarily requires the child to respond to a new setting, an unfamiliar examiner, and novel material. When interaction is altered in these ways, it is imprudent to presume that a preschooler will communicate in a representative fashion. The performance may not be a reliable index of the child's capability in a real-life speaking situation.

Finally, over the last 2 decades, speech-language pathology has expanded its perspective of what constitutes a significant communication variable worthy of assessment. The development in the field is away from the exclusive use of standardized tests to examine linguistic skills (e.g., phonology and syntax) and processes (e.g., auditory processing and comprehension). Variables such as the interaction partner(s), conversational and discourse parameters, materials, setting, task, and information processing have become important aspects of a clinical evaluation (Crais, 1994, 1995; McCauley & Swisher, 1984; McFadden, 1996; Wetherby & Prizant, 1992).

Recognizing these facts, our clinical team was interested in examining the viability of an authentic assessment approach to preschool screening. Udvari & Thousand (1995) defined authentic assessment as occurring "when students are expected to perform, produce, or otherwise demonstrate skills that represent realistic learning demands...the contexts of the assessments are real-life settings in and out of the classroom without contrived and standardized conditions." Authentic assessment differs from language sample analysis because it adds contextual, performance dimensions and instructional linkages to the analysis of the child's communication competence (Rosin & Gill, 1997). We believed that an authentic assessment procedure applied to a preschool screening may be less biased because it could be conducted in a comfortable setting (e.g., the classroom) while children engaged in routine tasks using familiar materials and daily, real-life communication contexts.

An Authentic Assessment Protocol

To apply the authentic assessment model to the screening effort, it was necessary to identify a normative reference point for evaluating a child's performance in contexts that are natural but also expected to be highly variable across children. Stockman (1996) pointed out that use of spontaneous samples as a screening procedure has been hampered by this problem. To address this issue, Stockman proposed the concept of the minimal competency core (MCC) as a useful framework for constructing a criterion-referenced protocol to evaluate the oral language of preschool children.

In principle, the MCC refers to the least amount of linguistic skill or knowledge that a typical speaker should display for a given age and context. Stockman (1996)

argued that a diagnostic procedure should aim ideally to separate children with language delays or disorders from children with the least proficient age-appropriate communication profiles. This outlook contrasts with the typical emphasis on deriving an idealized average score from the entire range of scores or performances on a standardized test. Stockman showed that an MCC protocol could be derived empirically for a small sample of low-income African American speakers of African American English by (a) specifying a standard performance criterion for each aspect of language observed and (b) determining specific linguistic skills that met the criterion level for every child in the subject sample.

Stockman's protocol, based on a minimal core competency for 3-year-old preschoolers, seemed a promising option to apply in the preliminary study of authentic assessment. The core competencies identified fundamental features of English. According to Stockman (1996), they were the types of features that 3;0-year-old children were likely to use in most ordinary contexts of language use. They also were the types of features that vary the least across different English dialects. Consequently, the protocol, although derived from low-income African American children, should be applicable to other preschool populations as well (see Appendix).

We also were interested in conducting an evaluation of the Dane County Head Start three-tiered screening system. Consequently, we asked: (a) How effective was our traditional screening procedure applied to a low-income, multicultural population of children at ages 3;0 to 3;11? and (b) What is the potential of authentic assessment in identifying children in this population who have communication delays or disorders? We believe that our results are consistent with our initial clinical impressions. First, we believe that the existing three-tiered system was inadequate because it overidentified too many children in the population as requiring further evaluation. Second, our results support our view that authentic assessment can be adapted to significant advantage in the screening process. In this paper, we describe our existing system, we present our empirically based rationale for concluding that this system is inadequate, and we provide support for an adaptation of authentic assessment, using the MCC.

Three-tiered screening procedures have been implemented by agencies serving large numbers of children. Head Start is one such agency. Head Start programs are filled with children who demonstrate the greatest need (from the total pool of children who qualify) using a point-based itemized intake protocol. The protocol addresses the health, education, employment, and abuse and neglect concerns of the family as well as the health, social-emotional, motor, and cognitive development of the child. Dane County Head Start is an example of an agency that used a three-tiered screening program: First-level screening was conducted at a Head Start Center by a team of professionals that included Head Start teachers, parent volunteers, a medical physician, a dental hygienist, a certified public-school early-childhood educator, and an ASHA-certified speech-language pathologist. The procedure included a parent interview using the Pre-School Developmental Inventory

(Ireton, 1984) and administration of the Developmental Indicators of Assessment of Learning-Revised (DIAL-R; Mardell-Czudnowski & Goldenberg, 1990) to children whose first language was English. The Developmental Activity Screening Inventory (DASI-II; Fewill & Langley, 1984) was used for children whose first language was not English. All children received a physical examination, a dental screening, a vision screening, and a review of immunization records. Tympanometric and pure-tone hearing screening was done at the University of Wisconsin-Madison (UW-Madison) Speech and Hearing Clinic within 90 days of Head Start enrollment. Results were collated and evaluated by a professional team consisting of a speech-language pathologist, an early-childhood educator, and the Head Start program coordinator. They identified children who had no special needs, those who were clearly at risk in some area, and those who needed further evaluation or a review at the second screening level to determine whether there was reasonable cause to make a referral to a public school multidisciplinary team.

Second-level screening was conducted by 108 undergraduate and 84 graduate students who were enrolled at UW-Madison as communication disorders majors and had at least 25 hours of supervised clinical experience. Before conducting the second-level screening, the student examiners were given a 60-minute training session on the administration of the SPELT-P followed by 2 weeks to become familiar with administration procedures. During the 2-week familiarization period, the SPELT-P and a 20-minute audiotape of the training instructions were available to students at the UW-Madison Department of Communicative Disorders Lending Library. Students were encouraged to check out the SPELT-P and audiotape for further clarification and independent practice. The phone number and email address of an investigator were included with the cassette tape so that students with questions could get them answered easily. ASHA-certified speech-language pathologists employed as clinical instructors in the UW-Madison Department of Communicative Disorders supervised the students as they conducted the screening.

Children were bused in groups of 20 to the UW-Madison Speech and Hearing Clinic, where they were given the SPELT-P in isolated treatment rooms on an individual basis. The procedure took approximately 30 minutes. Language was assessed via 25 items in which the examiner presented a photograph and asked the child a question. Items elicited production of the following language forms: locative, plural marker, pronoun, possession, copula, present progressive verb, past tense verb, subject-noun agreement, and negation. Targeted responses were recorded on the scoring sheet, and one point was given for each correct language form demonstrated. For the articulation section, the examiner elicited an imitation of the target if the spontaneous response did not match the adult form. Minimal scores per 6-month age interval were indicated. The children who did not pass the SPELT-P were re-administered the same test at their respective Head Start centers by an ASHA-certified speech-language pathologist within 90 days of the first administration. This

second test was done to ensure that a referral was justified and not the result of inexperienced judgments by student examiners.

Children who did not pass the SPELT-P screening administered by the students and by the Head Start speech-language pathologist were referred to the public school district. The school district sent a school speech-language pathologist to the home to conduct a parent interview, to explain the legal process involved in a full multidisciplinary team evaluation, and to obtain required signatures. As a third tier of the screening program, the school speech-language pathologist administered two formal tests: the Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981) and The Goldman-Fristoe Test of Articulation (GFTA; Goldman & Fristoe, 1972). The school district speech-language pathologist reported to the multidisciplinary team, who then determined whether there was reasonable cause to conduct a complete multidisciplinary team evaluation.

Evaluation of the Second-Tier Screening

The most problematic aspect of the three-tiered process, in our view, was the second tier, which involved the SPELT-P. The investigators randomly selected 30 children (from the total pool of children who did not pass the first-level screening) and followed them through the three-tiered process. None of the 30 children passed the SPELT-P administered by UW-Madison students. These 30 children again failed the SPELT-P when it was administered a second time by an ASHA-certified speech-language pathologist. All 30 children were referred to the public-school speech-language pathologist who conducted the third-tier screening. As a result of the third-tier screening, 8 of the 30 children were recommended for a complete multidisciplinary team evaluation. Of the eight children, four were ultimately enrolled in a speech-language program. Consequently, the second-level SPELT-P screening turned out to be accurate for just four or 13% of the 30 referred children. Thus, our impressions were confirmed. We were over-identifying children and sending too many into the costly third tier of the process.

Evaluating the Minimal Competency Core Approach

As an initial test of the MCC approach, we once again selected 30 children from the group of children who did not pass the first-level mass screening. UW-Madison student examiners were given a 60-minute training session on the authentic assessment screening model and the MCC described by Stockman (1995, 1996). To facilitate uniform judgments about semantic category performance, the students also were given a handout that provided definitions of semantic categories (Lund & Duchan, 1993). After the training session, the students had 2 weeks to become familiar with the assessment protocol. During the 2-week familiarization period, the MCC, a copy of the handout that defined the semantic categories, and a 20-minute audiotape that reviewed the training instructions were available to

students at the UW–Madison Department of Communicative Disorders Lending Library. Students were encouraged to check out the MCC and audiotape for further clarification and independent practice. The phone number and e-mail address of an investigator were included with the cassette tape so that students with questions could get them answered easily.

The screening took place at each child's respective Head Start Center and lasted from 45 to 60 minutes. Examiners were instructed to observe or use materials and the ongoing activities in the Head Start classrooms. Examiners were instructed to obtain at least 50 complete and intelligible spontaneous utterances for computing the mean length of utterance (MLU). Panasonic cassette tape recorders (Model #TC90A) were available from the university. However, students reported that ambient noise and children's physical activity rendered the tape recorders useless. Therefore, data collection involved placing a check mark by those behaviors on the MCC protocol (Stockman, 1995, 1996) that were observed. The student examiners also wrote, verbatim, spontaneous utterances produced by the children. The students were instructed to consider each item of the MCC as a communicative strength if it was observed at least once within the interaction session, although in most cases the students gave multiple examples of the observed core behaviors.

Students were instructed that a child who was developing typically should exhibit most, if not all, of the core features on the MCC. After computing the MLU and examining the data, the student examiner wrote a one-page, three-paragraph report. The first paragraph described the environment in which the interaction and observation occurred. The second paragraph summarized the child's communicative strengths. The third paragraph summarized the child's communicative challenges and stated whether there was reasonable cause to make a referral to a multidisciplinary team. To ensure interexaminer reliability, the results obtained from the student examiners' screening were cross-checked by an ASHA-certified speech-language pathologist who re-administered the MCC by collecting a new sample during an additional observation. The results were the same. The ASHA-certified speech-language pathologist referred those children who did not pass the MCC to the public school district.

The school district sent a school speech-language pathologist to the home to conduct a parent interview, explain the legal process involved in a full multidisciplinary team evaluation, and obtain required signatures. The school speech-language pathologist then administered two formal tests, the PPVT-R and the GFTA. The school district speech-language pathologist reported to the multidisciplinary team, who then determined whether there was reasonable cause to conduct a complete multidisciplinary team evaluation.

Of the 30 children who were screened using the MCC, nine were judged as not passing and therefore in need of further evaluation. A detailed follow-up analysis of the MCC results indicated that the 21 children who passed exhibited at least 80% of the semantic, pragmatic, and phonologic core features. Based on the one-page reports

submitted by the students, MLU appeared to be the deciding factor. The performance of the individuals who did not pass the core differed noticeably from the other 21 children who did pass. Their MLU averaged 2.2 and ranged from 1.0 to 3.84. For those children who did pass, the average MLU was 3.79 and ranged from 3.1 to 4.43. The passing group performed above the minimum 2.74 MLU criteria of the MCC, whereas the nonpassing group performed below this standard on the average.

All nine children who did not pass the MCC administered by the student examiner also failed when it was re-administered by the ASHA-certified speech-language pathologist. Each of these children also scored at least 1.5 standard deviations or more below the mean on at least one of the two standardized tests administered by the public school speech-language pathologist (PPVT-R and GFTA). Thus, the referral for the nine children based on the MCC was not likely due to the inexperience of the student examiners.

Follow-up of the nine children referred for the multidisciplinary team assessment revealed that all nine, or 100%, were identified by the team as demonstrating a reasonable cause to initiate a complete evaluation. Of the nine who received a comprehensive evaluation, seven, or 78%, were identified as having a need in speech and language that warranted intervention. Consequently, the prediction of who would need services based on the second-level authentic screening matched the findings of a complete assessment for more than 75% of the referred children.

Children who had been screened with the MCC and the SPELT-P were tracked for 2 years. The seven children in the MCC group who were identified as needing speech or language services were receiving those services. None of the children who passed the MCC were later enrolled for language services. The four children in the SPELT-P group who were identified as needing speech and language services were receiving those services. None of the other children in the SPELT-P group appeared on enrollment lists for speech and language services 2 years after the screening took place.

Discussion

The results of these preliminary studies are significant for several reasons. First, authentic assessment is appealing because it may help the speech-language pathologist arrive at a valid diagnosis of communication behavior, thus reducing the number of false positives and the costly exams they require. In this study, the authentic assessment results matched 100% the results obtained by the third-tier screening and matched 78% the results obtained by a complete multidisciplinary team evaluation. Second, authentic assessment permits efficient use of resources. It can be used to assess children of different cultural backgrounds. This is a practical benefit for speech-language pathologists who serve multicultural populations. Third, the service outlook is optimistic because it appears that students-in-training can be easily trained to administer an authentic assessment screening tool. In this study, the screening results of the students-in-training matched precisely the

results of an ASHA-certified speech-language pathologist. Finally, speech-language pathologists must be cautious about using a test like the SPELT-P, at least with a low-income multicultural population such as the one studied here. The overreferral rate yielded by the SPELT-P in this study suggests that we are wasting already-shrinking resources for professional services that children may not need.

Still, the results of this preliminary study must be embraced cautiously due to some procedural flaws. There would have been merit in administering both screening procedures to a single group of children. However, when the preliminary investigation was initiated, the Head Start program policy mandated that the SPELT-P be used for second-level screening purposes and that each child must be screened within 90 calendar days of initial enrollment. To satisfy these constraints, the Head Start program agreed to the preliminary study with the stipulation that only one tool be administered per child.

If one group of children had been given both screening procedures, a problem would likely arise: namely, performance would lead to different judgments, as the comparative results of this study suggest. This problem would likely occur because of the expected nonreciprocal relationship between outcomes of the procedures. A child who does not pass a norm-referenced criterion procedure such as the MCC also may not pass a norm-referenced standardized test. This was borne out in this study. But the converse is not necessarily true. A child who does not pass a standardized test such as the SPELT-P may be less likely to show the same lack of performance on an authentic assessment procedure such as the MCC. Our results support this impression.

Another problem is the issue of time. The SPELT-P took 30 minutes to administer and the MCC took 45 to 60 minutes. Improved decisions made based on the MCC could well have resulted from the additional time it took to administer rather than because of any inherent superiority in the instrument. Could the clinicians who administered the SPELT-P have improved their decisions with an additional 15 to 30 minutes worth of testing? If so, this would be time well spent, because this additional time and expense would seem to be justified given the reduction in false positives it would yield, at least for the Head Start population we worked with.

The procedural flaws in this preliminary study do not invalidate the data regarding the ineffectiveness of the standardized tool. Recall that in the first study, 27% of the children who were given the SPELT-P did not pass. Also, recall the findings of Sturner et al. (1994): "The percentage of children who fail a screening test varies greatly and often can be as high as 20–30% of the population" (p. 27). Professionals cannot afford referral rates of 20–30% when faced with shrinking resources.

The longitudinal follow-up data obtained in this study were important because they provided independent validation of how well the authentic assessment approach identified children who were judged as developing normal communication. The fact that none of the children who passed the MCC were enrolled in speech-language services

2 years later and that all seven children identified for services at age 3 remained in speech and language services over that time indicate that an authentic assessment tool such as the MCC holds promise for identifying which children need services or intervention. We believe that authentic assessment procedures that apply the MCC are useful and efficient as a second-level screener for 3-year-old children from low-socioeconomic multicultural backgrounds. We are continuing to use it and evaluate it clinically. We expect better controlled studies of its effectiveness and efficiency will further confirm our early favorable impressions.

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Appendix

Minimal Competency Core for 3;0-Year-Old
(Ida J. Stockman, PhD, June 1995)

Categories of Language Form

Morphology/Syntax

- _____ MLU (2.7–3.6)
- _____ Elaborated Simple Sentence (subject + verb + complement)
- _____ Noun Modifiers (the, a, an, that, this, other)
- _____ Inflections (ed, ing, other)

Semantic Categories (Major)

- | | |
|-----------------|-----------------------|
| _____ Existence | _____ Locative Action |
| _____ State | _____ Locative State |
| _____ Action | _____ Dative |

Semantic Categories (Coordinated)

- | | |
|------------------|-------------------|
| _____ Specifier | _____ Attribution |
| _____ Possession | _____ Quantity |
| _____ Negation | _____ Recurrence |
| _____ Time | |

Superordinate

- _____ Coordination
- _____ Causality

Pragmatic Categories

- _____ Initiates Interaction (greet—Hi)
- _____ Elicits Language
 - _____ comments on objects/events
 - _____ asks questions
 - _____ requests objects actions
- _____ Responds to Language
 - _____ relates comment to prior speaker turn
 - _____ answers questions
 - _____ imitates spontaneously
- _____ Clears Communication Channel
 - _____ requests repetitions (huh?)
 - _____ repeats words on request
 - _____ closes interaction (“bye-bye”)

Phonology

- _____ nasals /m/ /n/
- _____ stops /p/ /t/ /k/ /b/ /g/ /d/
- _____ fricatives /f/ /s/ /h/
- _____ glides /w/ /j/
- _____ final consonants
- _____ initial blends