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The University of Kansas Institute for Research in Learning Disabilities is supported by a contract (#300-77-0494) with the Bureau of Education for the Handicapped, Department of Health, Education, and Welfare, U. S. Office of Education, through Title VI-G of Public Law 91-230. The University of Kansas Institute, a joint research effort involving the Department of Special Education and the Bureau of Child Research, has specified the learning disabled adolescent and young adult as the target population. The major responsibility of the Institute is to develop effective means of identifying learning disabled populations at the secondary level and to construct interventions that will have an effect upon school performance and life adjustment. Many areas of research have been designed to study the problems of LD adolescents and young adults in both school and non-school settings (e.g., employment, juvenile justice, military, etc.)

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Cooperating Agencies

Were it not for the cooperation of many agencies in the public and private sector, the research efforts of The University of Kansas Institute for Research in Learning Disabilities could not be conducted. The Institute has maintained an ongoing dialogue with participating school districts and agencies to give focus to the research questions and issues that we address as an Institute. We see this dialogue as a means of reducing the gap between research and practice. This communication also allows us to design procedures that: (a) protect the LD adolescent or young adult, (b) disrupt the on-going program as little as possible, and (c) provide appropriate research data.

The majority of our research to this time has been conducted in school settings in both Kansas and Missouri. School districts in Kansas which have participated or currently are participating in various studies include: Unified School District (USD) 437 Auburn-Washburn; USD 384, Blue Valley; USD 204, Bonner Springs; USD 308, Hutchinson; USD 500, Kansas City; USD 469, Lansing; USD 497, Lawrence; USD 453, Leavenworth; USD 480, Liberal; USD 233, Olathe; USD 290, Ottawa; USD 305, Salina; USD 450, Shawnee Heights; USD 512, Shawnee Mission; USD 464, Tonganoxie; USD 202, Turner; and USD 501, Topeka. Interlocal agencies in Kansas which have participated include: the Central Kansas Cooperative in Education, Salina; the East Central Kansas Special Education Cooperative, Paola; and the South Central Kansas Special Education Cooperative, Pratt. Parochial schools involved in our studies include: Bishop Miege High School, Shawnee Mission; Bishop Ward High School, Kansas City, Kansas; and O’Hara High School, Kansas City, Missouri. The Kansas State Department of Education also has been helpful in our research efforts.

Studies are also being conducted in several school districts in Missouri, including Center School District, Kansas City; the New School for Human Education, Kansas City; the Kansas City, Missouri School District; the Lee’s Summit School District; the Raytown School District; and the School District of St. Joseph. In addition, school districts in Beaverton, Oregon; Delta County, Colorado; Elkhart, Indiana; Houston, Texas; Jonesboro, Arkansas; Montrose County, Colorado; Omaha, Nebraska; and Ottumwa, Iowa, have also participated in our studies. The Iowa Department of Public Instruction also has been helpful in our research effort.

Agencies currently participating in research in the juvenile justice system are the Overland Park, Kansas Youth Diversion Project; the Douglas, Johnson, Leavenworth, and Sedgwick County, Kansas Juvenile Courts; and the judicial district serving the Pittsburgh-Parsons, Kansas area. Other agencies which have participated in out-of-school studies are: Penn House and Achievement Place of Lawrence, Kansas; Kansas State Industrial Reformatory, Hutchinson, Kansas; the U. S. Military; and Job Corps. Numerous employers in the public and private sector have also aided us with studies in employment.

While the agencies mentioned above allowed us to contact individuals and supported our efforts, the cooperation of those individuals—LD adolescents and young adults; parents; professionals in education, the criminal justice system, the business community, and the military—have provided the valuable data for our research. Our sincere appreciation is expressed to all those who have contributed information to our research effort. This information will assist us in our research endeavors that have the potential of yielding greatest payoff for interventions with the LD adolescent and young adult.
Abstract

The oral language characteristics of 20 learning disabled (LD), 18 low-achieving (LA), and 21 achieving (ACH) students in grades 7 through 10 were measured using one-minute elicited oral language samples. Following application of analytic scoring systems, data were compared by means of a distribution-free, non-directional two-sample rank test.

Tests of differences between the LD and LA groups on oral language revealed no significant differences on use of conventions and mean morphemes per T-unit. In addition, significant differences were not found between LD and ACH students in use of conventions and mean morphemes per T-unit. Analysis of performance by inspection discloses further similarities. LD adolescents are similar to LA and ACH adolescents on use of conventions (such as verb markers, plural markers, possessive markers, subject-predicate number agreement, and pronoun-referent agreement). These findings support a conclusion that LD students are similar to LA and ACH adolescents in formal aspects of oral language.
A COMPARISON OF FORMAL FEATURES OF ORAL LANGUAGE OF
LEARNING DISABLED, LOW-ACHIEVING, AND ACHIEVING SECONDARY STUDENTS

Introduction

Communication skills have been described as "the foundation upon which all educational experience rests and out of which emerges the only known evidence of academic success or failure" (McWilliams, 1969, p. 149). Though learning disability (LD) has been defined as primarily a language disorder (Federal Register, 1977), research on the oral language characteristics which may interfere with academic work for LD students has been extremely limited (Sitko & Gillespie, 1978). The contribution of oral language performance to overall academic functioning by learning disabled secondary students has not been described. However, the impact of language disorder which persists into adolescence is suggested by observations of the relationships between language and cognition, and of the role of language in both academic and social learning.

The cognitive strategies utilized for language learning have been described by Clark and Clark (1977) whose review of the literature includes work by developmental psychologists as well as linguists. Although most of this work has employed subjects under the age of seven years, the descriptions of thinking strategies required for language learning may apply to older learners who demonstrate developmental disabilities. Observational data have depicted learning disabled students as more impulsive, less able to select stimuli to which to respond, and less skillful in categorizing information to form concepts (Hallahan, Kauffman, & Ball, 1973; Parker, Freston & Drew, 1975; Wilcox, 1970). As summarized by Alley and Deshler (1979), "The research concerning the problem-solving and thinking strategies of LD students indicates
that they are inferior to their peers along a variety of dimensions" (p. 186). The trend of the research in linguistics appears to support a positive relationship between language skills and performance in problem-solving tasks (Clark & Clark, 1977).

The role of the language which is available to the learner in shaping what can be learned has been described with varying degrees of emphasis. According to Bruner (1964), the learner must internalize language in order to represent and organize experience. Experiments by Luria (1959) showed that learners use their more rapidly developing language system to give direction to slower developing motor skills by using mediational language to rehearse complex motor learning. Even Piaget (1959), who argued that learning is not dependent upon language in early childhood, contended that the stage of formal operations, which occurs in early adolescence, requires language for abstraction of concepts. Therefore, adolescents whose language skills are underdeveloped could be expected to experience difficulty mastering higher-order thinking.

Studies of the role of language in the classroom include measures of the demands which are placed upon learners by the language of their teachers. Barnes (1969) found that ninth-grade teachers overrelied upon verbal explanations of information, without reinforcing explanations with demonstrations, experiential activities or manipulations, and he concluded that results indicated "domination of lessons by language--and mainly by the teacher's spoken language" (p. 65). Bellack, Kliebard, Hyman and Smith (1966) found that secondary social studies teachers were engaging in verbal behavior directed toward students an average of 72% of the class time. Moran (1980) found that secondary teachers employed a lecture format, seldom checked for understanding of directions, failed to distinguish between fact and opinion, and presented
few advance organizers to help students discover the structure of verbal presentations in the classroom. In such a language climate, students with inadequate language skills are at a disadvantage. Descriptions of the language behavior of learning disabled students include anecdotal information from teachers that these students do not follow oral directions, appear to be inattentive during direct teaching, and do not volunteer responses or participate in oral discussions (Hammill, 1975; Lerner, 1981). These descriptions are substantiated by the observational findings of Schumaker, Sheldon-Wildgen and Sherman (in press).

Contextual approaches to the study of the role of language (Bates, 1976; Bloom, 1973) have brought about increased concern with the appropriateness of language for the setting and the audience. Thus, the specific language structures which may be in the repertoires of learning disabled adolescents are to be viewed in terms of how those structures are used in a specific context. The relatively recent research focus on pragmatics (Rees, 1978) has implications for learning disabled adolescents because they are consistently described in the literature as demonstrating problems in social adjustment and social perception (Hazel, Schumaker, & Sheldon-Wildgen, 1981; Kronick, 1976; Siegel, 1974). Luria (1961) has said that it is language which permits the development of social perception and the internalization of the mores of a culture. Halliday (1975) has theorized that language plays the pivotal role in socialization.

Because studies of the oral language skills of normally developing children have remained concentrated upon groups under the age of seven (Byrne & Shervanian, 1977), oral language skills of adolescents are not documented in the literature. No published empirical norms of random samples of adolescents are available with which to compare the oral language of learning disabled students.
The assumption has been that oral language skills reach essentially adult form at the close of the intensive language-learning period of the preschool years. However, limited evidence has accumulated to indicate that grammatical features of language may not reach mastery until well into the school years (Crystal, Fletcher & Garman, 1976). As Leonard, Prutting, Perozzi and Berkley (1978) have pointed out, "It is often noted that children acquire much of their language by four years of age. While this is certainly true, nevertheless a considerable number of linguistic features have been found to be in the process of development after the fourth year through adolescence" (p. 373). Even in the absence of empirical data on the oral language of normally developing adolescents, the literature supports investigating the language of LD adolescents as a special group of language users.

In contrast with the limited data available on the oral language of adolescents, considerable information has been published about the written language characteristics of achieving secondary students (Dilworth, Reising & Wolfe, 1978; Stewart, 1978). These studies have contributed analytic scoring systems based upon the T-unit, which Hunt (1970) defined as "one main clause plus any subordinate clause or non-clausal structure that is attached to or embedded in it" (p. 4). A considerable body of literature employing T-unit analysis has established that the number of words per T-unit increases as students mature, with an increase of about one word per grade on the average (Hunt, 1970; Loban, 1976).

The explanation for numerous reports of written language but limited information on oral language of adolescents appears to be related to the lack of appropriate evaluation measures. While analytic and holistic scoring systems for written language samples are readily available, no comparable means to measure the oral language samples of adolescents have appeared.
Standardized norm-referenced tests of oral language have been developed and used for screening purposes. However, the limitations of such tests in describing oral language skills applicable to classroom tasks, as delineated by Leonard et al. (1978), are formidable.

The inappropriateness of available measures was offered by Sitko and Gillespie (1978) as an explanation for the lack of information about the language skills of learning disabled adolescents. "Reliable, valid, and educationally relevant measures of adolescents' language competencies do not exist. There is a dearth of criterion-referenced instruments in language that are appropriate for the adolescent" (p. 156).

In the absence of generally accepted analytic scoring systems which might apply to elicited or spontaneous samples of connected oral language, the few researchers who have described the oral language skills of learning disabled students have elected to use imitation tasks, sentence-formulation items, measures of vocabulary in isolation, and a variety of subtests of standardized measures designed for adult aphasics. In a widely cited study employing adolescent subjects, Wiig and Semel (1975) used such a combination of tasks to compare the performance of 32 learning disabled and 32 achieving students between the ages of 12 and 16. On a verbal opposites subtest, requiring naming of antonyms, learning disabled subjects retrieved significantly fewer opposites. When asked to retrieve verbal labels in response to a picture-identification task designed for adult aphasics, the LD students did significantly less well than the contrast group in both speed and accuracy, demonstrating a considerable response latency on the task and averaging 3.4 errors to .8 errors for achievers. A word-definition task disclosed significantly lower scores for the learning disabled, who frequently failed to include central features of the object being described. On a sentence-formulation
task, requiring a grammatical sentence in response to various stimulus words, the learning disabled subjects produced primarily simple sentences with only three in 182 containing a subordinate clause. They demonstrated an average sentence length in words of 4.8. In contrast, achievers produced 27 coordinate and subordinate structures, exhibiting a mean sentence length of 6.0 words. These findings led Wiig and Semel to conclude that learning disabled subjects demonstrated a relationship between productive language deficits and reductions in the retrieval of verbal labels and syntactic structures.

Most of the available studies of the oral language of children variously described as learning disabled, reading disabled or dyslexic have employed subjects under the age of 13 years. Although findings indicate significant differences between these subjects and normally-achieving contrast groups (Moran & Byrne, 1978; Slegman, 1974, Vogel, 1974), only limited evidence suggests that such differences persist into adolescence (Wiig & Semel, 1975). Sitko and Gillespie (1978) concluded from a review of available studies that "only minimal research exists concerning speech and language characteristics of the adolescent learning disabled" (p. 139).

Summarizing findings from a number of studies employing experimental tasks administered to primarily elementary-age subjects, Wiig and Semel (1976) attributed the following characteristics to the oral language of learning disabled students:

Learning disabled children and adolescents characteristically substitute and use an unnecessarily large number of words in their oral language production. They produce grammatically incorrect and incomplete sentences and use only a small number of prepositional phrases, structures expressing comparative, spatial, and temporal relationships, and optional transformations. . . . Learning disabled children and adolescents have
been recognized to exhibit deficits or delays in the acquisition and use of both morphology and syntax. (pp. 195-196)

The nature of the tasks administered to the learning disabled subjects in these studies becomes a central issue because Wiig and Semel further stated, "Some investigators report that the oral syntax of learning disabled children does not differ significantly from that of academic achievers during spontaneous conversation, but that differences exist on structured linguistic tasks such as sentence repetition, completion and transformation" (p. 197).

The purpose of this study was to investigate the performance of achieving, low-achieving and learning disabled adolescent subjects in an oral language sample which was elicited rather than spontaneous, but which permitted connected discourse rather than responses to contrived test items.

Elicited language samples have been criticized because they present problems of stimulus, examiner and recording biases (Miller, 1981). They carry the added disadvantage of being too time consuming and too dependent upon the linguistic sophistication of interpreters to be practical for routine diagnostic use in a school setting (Lee, 1974). Nevertheless, the use of elicited language samples in research appears to be justified when the purpose is to investigate connected oral language under conditions which are similar across subjects so that results can be compared—a criterion which could not be met by collection of spontaneous samples in natural settings. Despite their disadvantages, elicited language samples approximate conversational connected discourse more closely than do standardized test items or contrived experimental tasks, which would appear to support few inferences about how speakers could be expected to use language in connected discourse.

In addition to employing elicited language samples, this study has applied an analytic scoring system to develop a detailed breakdown of formal features
of oral language. The system is based upon T-unit analysis, which permits identification of strengths in clause construction rather than sentence construction. Since the sentence may not be a meaningful unit in oral language (Sinclair & Coulthard, 1975), the T-unit is a reasonable alternative for analysis of elicited connected discourse.

Mean length of utterance in morphemes is a measure which is well established in preschool oral language studies (Dale, 1976), but it has not been extended to the oral language of adolescents. Since the frequency count of morphemes, the smallest unit of meaning in a language, permits description of the relative sophistication of vocabulary in terms of prefixes, suffixes and different forms of the same word used as an adjective or as an adverb, the use of a morpheme count permits more detailed description than does a word count.

Without comparative data on the oral language status of adolescents who do not demonstrate learning problems, research results from measurement of the oral language skills of learning disabled students lack a frame of reference. Nevertheless, limited comparison of even small samples of randomly selected normally-achieving students, more narrowly selected low-achieving students, and validated learning disabled subjects may provide impetus for more detailed analyses employing larger numbers of subjects.

Methodology

Subjects

Subject selection was based on criteria established by the University of Kansas Institute for Research in Learning Disabilities (Schumaker, Warner, Deshler, & Alley, 1980). In four cooperating schools in a midwestern metropolitan area, principals were asked to provide lists of students in grades 7 through 10 who met criteria for inclusion in either of two groups--learning disabled (LD) or low achiever (LA). For the LD group, principals were given
the following criteria: (a) receiving services on the basis of a school
district diagnosis as learning disabled; (b) exhibiting deficits in at least
one of eight areas--math calculation, math reasoning, reading recognition,
reading comprehension, oral expression, written expression, listening, or
spelling as measured by achievement tests; (c) having no evidence of mental
retardation, emotional disturbance, economic disadvantage, cultural disadvan-
tage or environmental disadvantage; and (d) having no physical or sensory
handicap. Low achievers met the following criteria: (a) receiving no special
services; (b) having received an F or a D grade in at least one academic core
course (English, social studies, science, math) during the previous semester;
(c) demonstrating no evidence of mental retardation, emotional disturbance,
sensory or physical handicap; and (d) having scored below the 33rd percentile
on at least one subtest of the most recently administered achievement battery.
For subjects who met the LD criteria, data from school records were submitted
to a validation team composed of two school psychologists and two experienced
secondary LD teachers. Subjects judged as LD by three of the four evaluators
became the final sample of 26 LD students from whom both written (Moran, 1981)
and oral language samples were elicited. An equal number of LA subjects was
randomly selected from a pool of 31.

The achieving group (ACH) was selected by providing principals with
letters of informed consent and asking them to distribute the letters randomly
to students who had earned no grade lower than C for the previous semester.
Sixty letters of informed consent were distributed, 15 in each building.
Students returned 44 signed letters. A random selection was made through a
blind drawing of consent letters so that the subject pool consisted of 30
students. After LD subjects were validated, the ACH sample was reduced to 26
by randomly discarding four protocols.
Following eliminations as described below under Procedures, oral discussion samples remained for 20 of the LD subjects, 18 of the LA subjects, and 21 of the ACH subjects. All subjects for whom oral samples were analyzed were also included in a related study of written language samples (Moran, 1981).

The mean age of the LD group was 15 years, 1 month. Mean grade placement was 8-5. The IQ range, using the highest figure listed for each subject on Verbal, Performance or Full-Scale measures on an individually administered test, was 86 to 113 with a mean of 100.8. The LD group was composed of 13 boys and 7 girls.

The mean age of the LA group was 14 years, 6 months. Mean grade placement was 8-1. On the basis of group tests administered in the classroom, the IQ range was 84 to 123 with a mean of 100.9. The LA group included 9 boys and 9 girls.

The mean age of the ACH group was 14 years, 1 month. Mean grade placement was 9-7. The IQ range, as measured by group tests, was 99 to 128 with a mean of 108.1 for 18 students for whom these scores were available. The ACH group was made up of 7 boys and 14 girls.

Discrepancies in mean grade level and chronological age across the three groups are accounted for by records of retention in earlier grades. Both the LD and LA samples included subjects who had repeated a grade. Since the skills tapped by this experiment are widely reported in the literature as having reached adult level before the age of 12 years, the age of the youngest subjects, the higher mean grade placement for the ACH group was not considered a limitation on the study.

Two LA subjects in the original pool were judged after testing to be speakers of Black English; because the analytic scoring system was based entirely upon standard English, these two samples were omitted before the
final sample was formed. Since the letter of informed consent included a question about the language spoken in the home, any subject indicating that a language other than English was spoken by the family was eliminated from the pool. The final sample included one black student and three Hispanic students who were judged by the principal investigator, on the basis of written paragraphs and transcripts of oral language, to be speakers of standard English.

Setting

Subjects were drawn from one senior high school and one junior high school in an urban district with a heterogeneous population in terms of socioeconomic and racial characteristics, and from one senior high and one middle school in a suburban-rural district with a broad socioeconomic base but few minority students.

The experiment was conducted in each subject's school, in a room designated by the principal. In two buildings, subjects were released from core classes with consent of the instructor; in two other buildings, students were scheduled only during resource room time or during gym class or study hall.

Measurement system

Materials. Stewart (1978) pointed out that when spontaneous language formulation is studied the influence of the subject matter upon the structures produced must be taken into account, as the subject may control the sentence structures chosen as much as do the age and syntactic capabilities of the subject. Thus, Stewart said, it may be invalid to compare narrative writing about a subjective experience or a fantasy with, for example, expository writing such as objective description or enumeration of facts.

The stimulus materials developed for the study were designed for application to marginally motivated students with low reading ability. Topics were intended to represent general-information subject matter which would be within
the experience of students between the ages of 12 and 16. Non-academic subject matter was selected because of the broad variability in scope and sequence of materials across schools and also because underachievers could not be expected to demonstrate optimal skills on material which may be emotionally charged because of association with school failure. Stimuli consisted of two forms, A and B, of four 4" by 6" index cards, hereafter called topic cards, each of which displayed one typewritten topic devised for this experiment as follows:

- Argue that one kind of music is best (Form A)
- Argue that one sport is best (Form B)
- Describe the steps in playing one game (Form A)
- Describe the steps in making a sandwich (Form B)
- Compare soccer with one other sport (Form A)
- Compare rock with one other type of music (Form B)
- Explain why roles for men and women are changing (Form A)
- Explain why energy is a problem (Form B)

Scoring. The scoring system, drawn from a variety of analytic systems described in the literature, was devised for this experiment. Components are described below.

Conventions are those features which are governed by oral and written language rules, (e.g., tense, possessives) as opposed to mechanical rules which are scorable only for written forms of language (e.g., commas, periods, capital letters). All Conventions items were analyzed on the basis of percentage correct. That is, correct occurrences of these items were counted, then divided by the total of correct and erroneous or omitted items to yield a percentage correct. Subgroups within Conventions were:

- a. Verb markers for tense and aspect - played, playing ...
- b. Noun markers for plurality - cards, watches, children ...
- c. Possessive forms of nouns and pronouns - John's, your, his, my ...
- d. Subject-predicate number agreement - The batter hits; batters hit ...
- e. Pronoun-referent number agreement - Batters run their bases
Fluency is a measure of productivity and flexibility of the subject's language. Although some researchers have made a distinction between correctness of sentence structure and variety of sentence structure, this scoring system considers both syntactic measures as aspects of fluency. Subcategories under Fluency are defined for scoring purposes as stylistic options rather than basic language conventions. That is, items under Conventions are constrained; having chosen a plural subject, the speaker or writer is constrained to provide a verb which agrees in number. In contrast, Fluency items are free to vary; a writer may choose to use a simple or a complex sentence, to speak 50 words or 80, to insert three adjectives or none. Fluency items are subdivided into productivity items and flexibility items. All are measured in simple frequency counts or percentage correct with the exception of Mean Morphemes per T-unit (MMTU) which involves calculation of an average. Productivity items were the following:

a. Frequency count of total words in a one-minute sample
b. Frequency count of total morphemes in a one-minute sample - un/cover/ed = 3 morphemes
c. Mean morphemes per T-unit - 124 morphemes divided by 8
   T-units = 15.5 MMTU

Flexibility in formulation of T-units was analyzed as follows:

a. Percentage of simple T-units - "Many fans like basketball some don't." = 2 simple T-units; No. simple + No. simple + No. complex = % of simple T-units
b. Percentage of complex T-units - "Some people like basketball (pause) Because it is a fast game." = 1 complex T-unit; No. complex + No. simple + No. complex = % of complex T-units
Eight categories of words comprised a measure of flexibility in Word Selection. Words in each category were simply counted to yield a frequency of use for each category. The categories were:

a. Descriptive adjectives - small, round, black, funny . . .
b. Adverbs of time, place, manner - later, down, slowly . . .
c. Secondary verbs - participles: the fallen leaves
   gerunds: running is fun
   infinitives: to play baseball . . .
d. Modal auxiliaries - can, may, might, could, should . . .
e. Auxiliaries have and be - times have changed, they were playing . . .

f. Prepositions - in, on, under, around, between . . .
g. Conjunctions - but, so, until, because, whether . . .
The word and was omitted from the frequency count because coordination with and is considered an immature form which is overused by young language users (Hunt, 1965).

h. Determiners - Only the articles a, an, the were counted

Training of test administrators and scorers. The task materials and scoring system were developed by the principal investigator who was assisted in the administration and scoring by four research assistants who participated at different stages of the study. The two research assistants who collected data in the schools were enrolled in programs leading to the Master of Science degree in Education, one in Special Education and the other in English Education. These assistants were trained to administer the task by the principal investigator in approximately four hours by asking them to practice administration of the task with the principal investigator serving as the subject. Prior to these practice sessions, the materials had been studied by the examiners for approximately four hours.
Two research assistants scored the oral samples. One student was a doctoral aspirant whose work in deaf education included language coursework; the other had taught English for three years and was completing a Master's Degree in learning disabilities. These assistants were trained by the principal investigator who provided a detailed written set of scoring guidelines, modeled the application of the guidelines through two samples step-by-step, then assigned the scorers to complete at least two practice samples step-by-step. As the practice items were scored, the principal investigator rescored them independently, then provided feedback to the scorers and had them score additional samples until interscorer reliability had reached acceptable levels on all categories. Training time for scoring was approximately 10 hours.

Reliability of the task. Temporal and alternate-form reliabilities were obtained for the task prior to use in this experiment by administering it to a sample of 20 students from the same two districts from which the experimental samples were to be drawn. The reliability sample consisted of all students who returned informed consent letters, 40 of which were distributed in two physical education classes and two study halls in two buildings. Subjects ranged in age from 12 through 16 and were enrolled in grades 7 through 10. Because the reliability sample included more achievers than low-achieving students, and only one learning disabled subject, the range of scores was narrow. Reliability was determined by placing subjects into performance ranges on the basis of scores for which a percentage could be calculated. The performance ranges were: 100% to 90% - (mastery); 89% - 60% - (emerging); 59% to 0% - (remedial). The percentage of students staying in the same range across both test administrations was calculated for both test-retest reliability and alternate-form reliability.
Test-retest reliability was calculated by comparing scores of eight students resulting from two administrations of the same form of the task at a 10-day interval. Over both Conventions items and Fluency items, 75% (six of eight) of the students remained in the same performance range when scores were compared for two samples with ten days intervening between the two tasks.

Alternate-form reliability was calculated by comparing scores of 12 students from administration of Forms A and B either on the same day or on successive days. The order of administration was randomized. Over Conventions items, eight of twelve students (67%) remained in the same performance range. For Fluency items, 75% (nine of twelve) of the students remained in the same performance range over two forms of the task.

**Procedures**

*Task administration.* The one-minute oral sample which was analyzed according to the scoring system was collected during the same session in which each subject wrote a paragraph on a topic selected by the subject from the topic cards described above. The procedures for collection of the written sample are described by Moran (1981). At the conclusion of the paragraph-writing task, an additional instruction was presented as follows: "Here's the topic you wrote about (the topic card was placed on the table and read aloud by the examiner). I'll give you some time. Think about what you could say about this topic. You need not say exactly what you wrote. Tell me what I've asked you to do." Upon the subject's correct paraphrase of the instruction, the examiner turned on the stopwatch and looked away or examined papers as the subject was allowed 30 seconds to think about the topic. After 30 seconds, the examiner said, "Now tell me about that topic. Try to keep talking until I say stop." The tape recorder and stopwatch were turned on for two minutes, during which time eye contact was maintained between examiner and subject.
The examiner's comments were limited to non-leading offerings such as "Uh-huh," "Yes," "Tell me more," "That's interesting," or similar statements. Examiners were instructed not to ask direct questions. At the end of two minutes, the examiner said, "Our time is up," turned off the stopwatch and marked the subject's number on the tape label.

Procedures for administration of the experimental task represented an attempt to minimize the effects of some of the behavioral characteristics associated with learning disabled students which might limit inferences from the data. Oral directions were repeated or paraphrased by all subjects to ensure that comprehension of the tasks was not compromised by inattention or misperception. Instructions were read verbatim by examiners so sentence length could be controlled at nine words or less.

Senior high subjects were scheduled for one 50-minute period, junior high subjects for one 45-minute period. This time proved sufficient for all subjects to complete both written and oral tasks.

At each testing site, schedules for students were made up by a secretary or the principal, with no identifying information other than the student's name. As each student reported for testing, the examiner assigned a number, which was placed on all products generated by the student. This procedure resulted in random assignment of numbers so that students in the three groups had an equal chance of drawing a specific number. There was a single series of numbers for three groups from four buildings. The list of names and assigned numbers was given to the principal investigator after data had been collected in each building and was subsequently used only for the purpose of compiling demographic data. The scorers never saw student names and they could not identify from the assigned number the group to which a given subject belonged.
Transcript preparation. Oral discussion tapes were transcribed by the examiner who administered the task. Transcripts were typed in a standard format based upon T-unit segments consisting of one independent clause plus any dependent clauses embedded or attached. No attempt was made to segment oral language into sentences. Comments made by examiners during the oral discussion by subjects were typed into the transcripts. One LD, three LA and four ACH transcripts which contained inadvertent wh-questions or yes/no questions by the examiner were eliminated from the data on the ground that such utterances placed constraints upon the oral sample. After each transcript was completed, the typist listened to the tape and timed it with a stopwatch. One-minute and two-minute segments were marked on the typed transcript. Word endings such as past tense markers and plural markers were underlined to cue the scorers that the transcriber had heard the markers rather than provided them.

Dysfluencies, defined as false starts, filled pauses and repetitions of words, were bracketed on the transcripts and disregarded in the word and morphemes counts. This was done for two reasons: (a) such dysfluencies would have inflated word and morpheme counts artificially, giving dysfluent speakers higher word and morpheme counts than fluent speakers; and (b) application of T-unit analysis precluded the use of non-clausal units. Although dysfluent utterances were excluded from scoring of morphemes and words, they were noted on the transcripts. Transcripts later were reviewed and the speaker's number was entered under one or more of three columns--False Starts, Filled Pauses, Repetitions of Words--if there was even one instance of the dysfluency type.

Fluent non-clausal utterances (lacking a subject or predicate) which could not be absorbed logically into a preceding or following T-unit were similarly marked with a double bracket and disregarded for purposes of counting.
scorable items. Since the scoring unit was the T-unit, any non-clausal utterance was disregarded for word and morpheme counts and for Conventions, Fluency and Word Selection items.

Although a two-minute sample had been collected, random review of samples indicated that productivity of subjects declined sharply during the second minute. Many samples in all three groups included no language at all during the second minute and would have had to be eliminated if two-minute segments were to be compared. Therefore, 50% of the samples for which language occurred during both the first minute and the second minute were subjected to computations to determine the reliability between the one-minute and two-minute segments. Comparison of mean morphemes per T-unit, percentage correct for Conventions and percentage correct for Word Selection yielded a table of scores. Inspection of the table determined that a one-minute sample yielded percentages which placed these students within the same performance range as did the two-minute sample, without exception. Differences between mean morphemes per T-unit did not exceed two morphemes. The decision was made to compare one-minute segments so that more samples could be used. Five LD, five LA and one ACH transcript that contained less than one minute of discussion were removed from the sample. All samples were scored before being placed into groups according to membership in LD, LA or ACH populations.

Interscorer reliability. Reliability studies began with comparison of the typed transcript against the tape. The principal investigator listened to 20% (12/59) of the tapes while reading the transcript verbatim. Any differences were marked. The number of T-units so marked was deducted from the total of the T-units for that sample, and the percentage of agreement was calculated by dividing the total T-units into the number of T-units for which no difference was marked. Agreement between the tapes and the transcripts ranged from 86%
to 95% with a mean of 90%. For the same tapes, a stopwatch was used to check agreement on one-minute segments. An agreement was scored when both timers indicated the one-minute segment ending on the same word. Only one timing was found to differ, yielding 91% agreement. Independent scoring of 20% (12/59) of the typed transcripts yielded agreement on Conventions ranging from 86% to 97% with the mean of 92%, on MMTU from 76% to 95% with a mean of 87%, and on Word Selection from 78% to 94% with a mean of 85%.

**Research Design**

It was hypothesized that there would be no differences between the LD group and the LA group, or between the LD group and the ACH group, on percentage of conventions correct or on Mean Morphemes per T-unit. Results were compared by both statistical tests and inspection.

A distribution-free, non-directional two-sample rank test based on the Mann-Whitney U Test (Ryan, Joiner, & Ryan, 1978) was used to test differences between medians. Alpha level was set at .01.

**Results**

**Statistical Comparison of Scores**

Results of statistical tests comparing performance on Conventions and MMTU for LD versus LA groups and LD versus ACH groups showed no significant differences. The three groups performed in a similar manner on these two measures of oral language.

**Conventions.** Table 1 shows the comparison of the total percentage correct over five subcategories of Conventions for the LD group versus the LA group. The range of percentage correct on Conventions for the LD group was 82% to 100%. For the LA group, the range was 83% to 100%.
Table 1
Comparison of Median Percentages Correct on Conventions for LD and LA Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Median</th>
<th>U Value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD</td>
<td>20</td>
<td>95.0</td>
<td>315.5</td>
<td>.3062</td>
</tr>
<tr>
<td>LA</td>
<td>18</td>
<td>94.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 presents the outcome of testing differences on Conventions between LD and ACH groups. The range of Conventions correct for the ACH group was 81% to 100%.

Table 2
Comparison of Median Percentages Correct on Conventions for LD and ACH Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Median</th>
<th>U Value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD</td>
<td>20</td>
<td>95.0</td>
<td>446.5</td>
<td>.8962</td>
</tr>
<tr>
<td>ACH</td>
<td>21</td>
<td>96.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fluency. Comparison of mean morphemes per T-unit (MMTU) for LD versus LA students and for LD versus ACH students did not reveal significant differences. The range for the LD group was 7.1 to 18.3 MMTU. For the LA group the range was 7.6 to 18.2 and for the ACH group it was 7.5 to 22.2 MMTU.

Table 3 presents the results of the test of differences in median scores for LD and LA subjects.
Table 3
Comparison of Median Scores on Mean Morphemes per T-unit for LD and LA Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Median</th>
<th>U Value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD</td>
<td>20</td>
<td>10.95</td>
<td>353.0</td>
<td>.965</td>
</tr>
<tr>
<td>LA</td>
<td>18</td>
<td>11.45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 shows the comparison of the LD group and the ACH group. Again, the differences were not significant.

Table 4
Comparison of Median Scores on Mean Morphemes per T-unit for LD and ACH Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Median</th>
<th>U Value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD</td>
<td>20</td>
<td>10.95</td>
<td>519.5</td>
<td>.0419</td>
</tr>
<tr>
<td>ACH</td>
<td>21</td>
<td>13.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comparison by inspection

Conventions. Table 5 shows mean frequencies of correct items on five subcategories for three groups. In the subcategory of subject-predicate number agreement, the LD group scored a lower mean than the LA group. On plural markers, the LD group earned a mean lower than that of the ACH group; in other categories, the LD group mean was higher. The ACH mean was higher than the LD mean for all categories except possessive markers.
Table 5
Mean Frequencies of Correct Conventions for Three Groups

<table>
<thead>
<tr>
<th></th>
<th>LD</th>
<th>LA</th>
<th>ACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verb Markers</td>
<td>3.4</td>
<td>2.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Plural Markers</td>
<td>5.6</td>
<td>5.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Possessive Markers</td>
<td>1.6</td>
<td>1.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Subject-Predicate Number Agreement</td>
<td>14.4</td>
<td>16.9</td>
<td>15.6</td>
</tr>
<tr>
<td>Pronoun-Referent Number Agreement</td>
<td>5.2</td>
<td>4.8</td>
<td>5.6</td>
</tr>
</tbody>
</table>

N = 20          N = 18          N = 21

Inspection of error patterns revealed that for all groups, the highest number of errors in oral conventions occurred in pronoun-referent number agreement, with 20 errors among the LD students, 24 among LA students, and 19 errors among the ACH subjects. One ACH subject accounted for eight errors in that group; in other groups, the errors were evenly distributed. In the category of noun plurals, there were two errors in the LD group, nine in the LA group, and nine in the ACH group. Only two LD students made errors in verb markers, and two used incorrect possessive markers. The two students in the group who used the highest frequencies of the total of verb, plural and possessive markers (22 and 19, respectively) made one error each. In the LA group, two students made verb errors, nine made plural errors, and one made a possessive error. Among ACH students, one made a verb error, nine made plural errors and three made possessive errors. Subject-predicate number agreement errors totaled four for the LD subjects, nine for the LA subjects, and five for the ACH subjects.
Fluency. Table 6 shows the total morphemes and words spoken by three groups within a one-minute taped sample. Mean morphemes and words were highest for the LA group, second-highest for the ACH group, and lowest for the LD group. The ACH group produced a median of 15 more morphemes and 7 more words than did the LD group.

Table 6
Total Morphemes and Words for Three Groups

<table>
<thead>
<tr>
<th></th>
<th>LD</th>
<th>LA</th>
<th>ACH</th>
<th>LD</th>
<th>LA</th>
<th>ACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphemes</td>
<td>Mean 120.7</td>
<td>Mean 138.2</td>
<td>Mean 131.8</td>
<td>Median 118</td>
<td>Median 146</td>
<td>Median 133</td>
</tr>
<tr>
<td>Words</td>
<td>97.7</td>
<td>110.8</td>
<td>106.1</td>
<td>100</td>
<td>113</td>
<td>107</td>
</tr>
</tbody>
</table>

The range of number of words spoken in a one-minute sample was 51 to 142 for the LD group, 59 to 167 for the LA group and 58 to 147 for the ACH sample. The range of morphemes was 71 to 171 for the LD sample, 76 to 205 for the LA subjects, and 85 to 190 for the ACH students.

Subtracting the mean for words from the mean for morphemes permits examination of the extent to which each group employed polymorphemic words. The difference was 23.0 for LD students, 27.4 for LA and 25.7 for ACH students. Both LA and ACH students spoke slightly more polymorphemic words than did the LD group.

Table 7 shows the comparison of percentage of complex T-units spoken by the three groups within the one-minute sample. The range of percentage of complex T-units was 0% to 63% for the LD group, 0% to 67% for the LA group, and 8% to 55% for the ACH group. The mean differences between the LD and LA groups and between the LD and ACH groups were within six percentage points, with the ACH group earning a higher mean and median percentage than the LD and LA groups.
Table 7

Percentage of Complex T-units for Three Groups

<table>
<thead>
<tr>
<th></th>
<th>LD</th>
<th>LA</th>
<th>ACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Percentage</td>
<td>33.1</td>
<td>29.7</td>
<td>38.7</td>
</tr>
<tr>
<td>Median Percentage</td>
<td>32.0</td>
<td>27.0</td>
<td>42.0</td>
</tr>
</tbody>
</table>

In the LD group, 18 of 20 students used at least one complex T-unit, and three used them for more than 50% of their constructions. In the LA group, 17 of 18 students used complex T-units, with two students using a combination of independent and dependent clauses for more than 50% of their T-units. Among ACH subjects, all students used at least one complex T-unit and three used them for more than 50% of their constructions.

Analysis of non-clausal utterances revealed that fragments (lacking a subject or predicate) and dysfluencies (false starts, filled pauses, repetitions of words) occurred in all groups. Six fragments appeared in the LD samples, representing five subjects. Eight fragments were produced by five LA subjects, and ten by seven ACH subjects.

Dysfluencies were distributed more widely. At least one of the three measured types occurred in all but one of the transcripts in each group. That is, only one member of each group was totally free of such dysfluencies. The number of speakers demonstrating each type of dysfluency is shown in Table 8. In each group, some students demonstrated more than one type. In the LD group, two students exhibited all three types and eight students used two types of dysfluencies. Among LA students, none demonstrated three types and three exhibited two types. No ACH students used three types, but five demonstrated two types of dysfluencies. The number of each type of dysfluency demonstrated by a specific student was not tabulated.
Table 8
Number of Speakers Demonstrating Dysfluencies in Three Groups

<table>
<thead>
<tr>
<th>False Starts</th>
<th>Filled Pauses</th>
<th>Repetition of Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD</td>
<td>LA</td>
<td>ACH</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>16</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 9 summarizes the percentage of each of eight classes of words used as a measure of flexibility in Word Selection. For both the LD and ACH groups, Adverbs occurred with the highest frequency, followed by Prepositions. ACH students averaged one more of both than did LD speakers. Both LA and ACH speakers used more Adjectives than did LD students. For all three groups, Secondary Verbs were sixth in frequency; LD students averaged one more than did either the LA or the ACH group.

Table 9
Mean Number in Each Word Class Appearing in a One-minute Language Sample

<table>
<thead>
<tr>
<th></th>
<th>LD Mean</th>
<th>LA Mean</th>
<th>ACH Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverbs</td>
<td>8.1</td>
<td>8.2</td>
<td>9.2</td>
</tr>
<tr>
<td>Prepositions</td>
<td>8.0</td>
<td>8.9</td>
<td>9.1</td>
</tr>
<tr>
<td>Determiners</td>
<td>6.9</td>
<td>9.3</td>
<td>7.7</td>
</tr>
<tr>
<td>Conjunctions</td>
<td>6.3</td>
<td>7.0</td>
<td>7.6</td>
</tr>
<tr>
<td>Adjectives</td>
<td>6.1</td>
<td>9.5</td>
<td>8.9</td>
</tr>
<tr>
<td>Secondary Verbs</td>
<td>4.2</td>
<td>3.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Have/Be Auxiliaries</td>
<td>2.8</td>
<td>1.7</td>
<td>2.6</td>
</tr>
<tr>
<td>Modal Auxiliaries</td>
<td>1.8</td>
<td>3.2</td>
<td>3.0</td>
</tr>
</tbody>
</table>

N = 20 N = 18 N = 21
Discussion

Results which indicate that comparisons of Conventions and Mean Morphemes per T-unit yield no significant differences support a conclusion that LD students are similar to LA and ACH adolescents in formal aspects of oral expression. Analysis of performance by inspection discloses further similarities.

Conventions

The use of verb tense and aspect, plural and possessive markers by the LD group supports a conclusion that LD students are equal to achieving students in applying inflectional morphemes. Minor differences appear to occur not in correctness but in the frequency with which the groups use such markers. LD students averaged one fewer correct plural marker, for example, and also made fewer plural errors than did the ACH group, so that total productivity of such markers is slightly lower for the LD group.

In any case, LD students used inflectional markers correctly in the same relative proportions as did the ACH students. Furthermore, LD students were similar to ACH students in their maintenance of number agreement between subject and predicate and between pronoun and referent.

These findings contradict Wiig and Semel's (1976) report of agrammatical morphology as a characteristic of the language of the learning disabled. The deficits and delays in the acquisition and use of morphology as described by Wiig and Semel (p. 196) are not confirmed for this sample of LD adolescents. Since the task which measured morphological competence in the Wiig and Semel study was formulation of a single-sentence response to a stimulus word, the difference between their findings and those of the present study can be ascribed to different demands upon the speaker. Connected oral language addressing a general information topic selected by the speaker is arguably closer to a
natural language experience than is formulating a sentence to fit a word provided by the examiner. Therefore, superior performance in affixing morphological inflections in connected speech as opposed to contrived language production could explain the difference in findings.

**Fluency**

In addition to the findings for Conventions, one of the findings for Fluency suggests further competence in morphological affixes on the part of LD students. The LD group's use of polymorphemic words was only slightly lower than the LA and ACH groups' (Table 6). LD students demonstrated a similar ability to elaborate root words by applying prefixes and suffixes, an indication that they can use derivational morphemes as well as inflectional morphemes.

Since comparison of Mean Morphemes per T-unit, a measure of productivity, yielded nonsignificant differences, the productivity of LD, LA and ACH students can be said to be similar. LD students elaborate clauses as much as do ACH students. When productivity is measured in terms of total morphemes and total words spoken, the LD group emerges as within 15 morphemes and 7 words of the median for the ACH group, but exhibits lower productivity.

These findings contradict Wiig and Semel's (1976) statement that LD adolescents "use an unnecessarily large number of words in their oral language production" (p. 195). Although LD students may use unnecessary words in complying with contrived language tasks, they did not do so in a task which allowed them to select their own words and to speak in connected clauses.

The LD group's mastery of syntax also contradicts Wiig and Semel's findings. Rather than exhibiting deficits in the use of syntax, the LD students in this sample produced a slightly higher mean percentage of complex T-units than did LA students and very nearly the same mean percentage as did the ACH group. Furthermore, the finding that all but two LD students used at least one complex T-unit suggests that the skill may be widely distributed among LD students.
The relative production of fragments by LD and ACH students was an unexpected finding as ACH students produced a higher number of utterances lacking a subject or predicate. This finding fails to confirm Wiig and Semel's contention that LD speakers produce grammatically incorrect and incomplete sentences (1976, p. 196).

On the other hand, the number of LD subjects who produced more than one type of oral dysfluency (Table 8) indicates that false starts and repetition of words may combine to present an impression of incomplete sentences. Indeed, it is only when a scorer sees the transcribed oral language that the difference between false starts or repetitions and use of fragments becomes apparent.

The finding that ACH students employed more false starts than did LD speakers was an unexpected result. It may be that achieving students engage in self-correction strategies which result in a high proportion of false starts. In any case, on this feature of oral language, LD students appear to be at least as fluent as achieving students.

Although the data do not permit inferences about the causes of the high number of filled pauses among the LD speakers, it is possible that this type of dysfluency is related to reports of word-retrieval problems among this group. Wiig and Semel's (1975) findings of low scores and response latency on tasks which required retrieval of specific labels for pictured objects or of antonyms for named objects suggest word-retrieval problems on contrived tasks. Word-retrieval problems could also explain filled pauses in the connected language of LD speakers.

The nature of the task which Wiig and Semel used to yield vocabulary scores for LD adolescents differs considerably from the task which yielded vocabulary measures in this study. The finding that LD students used all the
same word classes in approximately the same proportions as did ACH speakers (Table 9) argues that LD students do not lack vocabulary. When they were given the opportunity to select their own words, LD speakers demonstrated the same variety in vocabulary as did ACH students and even used one sophisticated class—secondary verbs—more frequently than did achievers.

At the same time, production across six word classes was slightly lower for LD students than for ACH students. While results showed that LD students demonstrated variety of vocabulary and used obligatory classes such as prepositions, determiners and conjunctions as frequently as did achievers, LD students slightly less frequently employed optional classes such as adjectives and model auxiliaries which could permit richer description in noun phrases and more subtlety in verb phrases.

In general, results of this study contradict previous reports of the formal aspects of oral language production of learning disabled adolescents. The LD students in this sample demonstrated oral language strengths not previously reported. Findings from this study suggest strongly that LD students perform better in formal aspects of language tasks which permit selection of language and connected discourse as compared to peer groups, than they do on contrived language tasks. Results support a conclusion that learning disabled students can be expected to produce oral language formally similar to that of achieving students in open-ended classroom discussion or in spontaneous conversation.

These findings do not, of course, reveal whether or not the oral language of the groups might differ on measures of content as opposed to form. That question was not addressed by this study. However, these results combine with findings from earlier studies to indicate that instruction in formal aspects of oral language is not a high priority for LD adolescents for two reasons.
First, the lecture format of secondary classrooms places limited demands upon oral language skills (Moran, 1980). Second, differences between achieving and learning disabled adolescents on measures of written language were significant (Moran, 1981), indicating that instruction in written language skills should have a higher priority for the limited instructional time available in secondary resource rooms or learning centers.

Comparison of results of this study with the Wiig and Semel data (1975; 1976) suggests that measuring formal oral language skills of LD students using contrived tasks underestimates their skills. Since such contrived tasks as sentence imitation or sentence completion or providing antonyms on demand do not represent natural language situations, it could also be argued that contrived test items violate the first principle of communication—the speaker must have something to say to the listener.

Findings from this study indicate that atomistic procedures developed to measure elicited written language can be applied to elicited oral language, permitting detailed description of connected discourse. Since connected language apparently permits LD students to demonstrate their strengths more effectively than does response to contrived language tasks, language sampling followed by detailed atomistic scoring offers useful information for researchers. At the same time, the procedures employed in this study represent considerable investment of time; therefore, they place constraints on the number of subjects which can be employed. Indeed, the small sample analyzed for this study constitutes a limitation even though results of this pilot study encourage similar investigations employing more subjects. While the procedures used in this study are suitable, then, for research purposes, the time required to transcribe and analyze oral language samples accurately would appear to limit application to the assessment battery of the secondary resource-room or learning center teacher.
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