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Emphasis on Adolescents and Young Adults

AN INVESTIGATION OF THE DEMANDS ON ORAL LANGUAGE SKILLS OF LEARNING DISABLED STUDENTS IN SECONDARY CLASSROOMS

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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 on-going 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 public school settings in both Kansas and Missouri. School districts in Kansas which are participating in various studies include: United School District (USD) 384, Blue Valley; USD 500, Kansas City; USD 469, Lansing; USD 497, Lawrence; USD 453, Leavenworth; USD 233, Olathe; USD 305, Salina; USD 450, Shawnee Heights; USD 512, Shawnee Mission, USD 464, Tonganoxie; USD 202, Turner; and USD 501, Topeka. Studies are also being conducted in Center School District and the New School for Human Education, Kansas City, Missouri; the School District of St. Joseph, St. Joseph, Missouri; Delta County, Colorado School District; Montrose County, Colorado School District; Elkhart Community Schools, Elkhart, Indiana; and Beaverton School District, Beaverton, Oregon. Many Child Service Demonstration Centers throughout the country have also contributed to our efforts.

Agencies currently participating in research in the juvenile justice system are the Overland Park, Kansas Youth Diversion Project and the Douglas, Johnson, and Leavenworth County, Kansas Juvenile Courts. Other agencies have participated in out-of-school studies--Achievement Place and Penn House of Lawrence, Kansas, Kansas State Industrial Reformatory, Hutchinson, Kansas; the U.S. Military; and the 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. 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.

AN INVESTIGATION OF THE DEMANDS ON ORAL LANGUAGE SKILLS OF LEARNING DISABLED STUDENTS IN SECONDARY CLASSROOMS

ABSTRACT

The demands placed upon students in mainstream secondary classrooms by the oral language behaviors of teachers were investigated by applying 12 categories of utterance types to audiotape-recorded class sessions. Data were analyzed for the total group of 32 teachers, for junior and senior high teachers as two independent groups, and for teachers of English, mathematics, science and social studies as four independent groups. Analysis of variance revealed significant differences in favor of lectures over questions, commands over checks of understanding of commands, and commands over feedback. Results support a conclusion that the lecture format of secondary core classrooms does not take into account the learning characteristics of learning disabled students.

In applying criteria for identification of the learning disabled, state and local educational agencies are charged with determining that an educationally significant discrepancy exists between potential and achievement in the areas of oral and written expression (Federal Register, November 29, 1976, p. 52405). However, the methodology for describing educationally relevant language behaviors of learning disabled students remains to be developed (Deshler, 1978). These data are not even available for normally achieving adolescents, as research in language over the past decade has not addressed the school-age child but has centered on the developing language skills of the preschool language learner (Byrne & Shervanian, 1977).

Because the field of learning disabilities has operated under a language-based definition for a decade (Wiederholt, 1978), the impetus for documentation of oral and written language problems of learning disabled students has been highly visible to practitioners and researchers. Yet a review of literature on language characteristics of categories of exceptionality reveals that descriptive data on the language behaviors of learning disabled subjects remains as a major research task. Language data on the learning disabled of any age are few. The available data on learning disabled adolescents are even more limited.

In a discussion of the language and speech difficulties of learning disabled adolescents, Sitko and Gillespie (1978) concluded the following from their comprehensive review of the literature:

> Reliable, valid, and educationally relevant measures of

> adolescents' language competencies do not exist. . . . There are few empirically oriented and methodologically sound investigations dealing with speech and language difficulties of learning disabled adolescents. . . . The literature is unclear as to the nature of the linguistic problems of learning disabled adolescents. . . . Evidence of effective language programming for learning disabled adolescents is lacking (pp. 156-157).

Sitko and Gillespie (1978) reported only three studies which employed learning disabled adolescents as subjects of language assessment procedures, all of them conducted by the same researcher (Wiig, Lapointe & Semel, 1975; Wiig and Roach, 1975; Wiig & Semel, 1975). Although these studies are described by the investigators as providing information on the productive language abilities of learning disabled adolescents, review of the procedures discloses that tasks measured were not directly related to spontaneous oral language. Instead, experimental tasks yielded information on immediate recall of sentences, timed labeling of pictures, defining words, and categorizing verbal labels. Findings are reported in terms which suggest a psycholinguistic orientation in that emphasis is placed upon "auditory processing" which experimenters measured as response latency in responding to auditory stimuli. Though syntactic analysis was applied to several tasks in these studies, the areas of semantics and pragmatics were not explored among learning disabled adolescents. Thus when Wiig and Semel (1976) summarized their findings from these studies by noting that their subjects needed an extended time in which to process a sentence, had difficulty in following oral directions, and demonstrated delay in retrieving words or imitating sentences on demand, their contribution did not include measures of productive

language as it might be used in a school or work setting.

Sitko and Gillespie (1978) have cautioned against generalizing language characteristics of younger children to adolescents. Nevertheless, findings from limited studies of syntactic and semantic language deficits of younger learning disabled subjects (Moran & Bennett, 1976; Moran & Byrne, 1977) provide impetus for investigation of oral language behaviors of learning disabled adolescents.

In the absence of empirical data on language skills of adolescents, and with a federal definition of learning disabilities which requires that deficits in oral and written language be measured to document the appropriateness of services, the need for descriptive language data is clear. Evidence from the research on the interrelatedness of language skills among school-age subjects (Hammill, 1975; Loban, 1963) argues for investigation of oral language expression as a basis for the study of related language skills of reading and writing.

Mainstream research in oral language is currently centered on semantics, the study of the meaning of utterances within linguistic and nonlinguistic contexts, and on pragmatics, the study of the appropriateness of language behaviors within given contexts. These emphases have arisen following a decade of intense research concentration upon syntactics, the study of the organization of structural elements to form sentences.

As speech-language pathologists and other practitioners attempted to apply the findings of research in syntactics to the communication problems of handicapped learners, they found that structures trained to criterion in the isolation of the clinical training setting too

frequently failed to generalize appropriately to natural language settings such as the classroom and the home (Rees, 1978). Contextual approaches to the study of language development arose from the repeated observation that language behavior in the controlled environment of the clinic or within the confines of a structured experiment differed significantly from the language behavior of the same subject in a different setting or with different language stimuli (Bloom, 1973). Early studies in the field of pragmatics established that the environment determines the utility of language acts so that what is first said to the subject by someone else, and the context in which it is said, becomes part of the interpretation of the appropriateness of the subject's own utterances (Bates, 1976). Thus the specific language structures which may be identified in the repertoires of learning disabled students must be interpreted in terms of how those structures interact with the language of the teacher within the context of the language demands of the secondary classroom.

Halliday (1975) described two major functions of language which can be applied to the context of the classroom. First, the information-gathering function, which he called ideational language, serves the purpose of obtaining information about the real world. The second function of language, termed interpersonal language, is a means of sharing human experience with others. The role of language in gaining understanding of the world thus exists with its function of establishing human relationships.

The classroom is primarily a forum for the imparting of information. What demands are placed upon the learner when information is presented in the classroom? What is the role of the question asked the student

by the teacher in determining what and how much the student will learn? One method of describing the process of conveying and obtaining information is included within the procedures of discourse analysis. The term discourse describes the alternating speaker-listener roles of two or more persons engaged in conversation. A system described by Keenan and Schieffelin (1976) includes the following requirements: the speaker must secure the attention of the listener, provide references to objects, persons or ideas, and suggest the intended relationships among referents. To understand the message, the listener must attend, perceive the utterance, recognize the referents, and identify the intended relationships among them by use of semantic and syntactic cues. If the message is to be grasped by the listener, the speaker and listener must have similar linguistic and conceptual contexts. That is, they must be about equally adept at using the language and they must have some of the same prior experience on the topic plus an overlapping vocabulary.

Studies of a listener's ability to "chunk" information limits effective length of sentences to about seven meaningful elements or morphemes (Miller, 1956). Though no specific data on rate of speech as a factor in discourse have emerged, the role of rate has been described as an element in the effectiveness of the message (Searle, 1969).

In addition to the elements of the message itself which must be mastered by a listener, the field of pragmatics has identified specific presuppositions (Bates, 1976) which are features of context

outside the utterance itself. Presuppositions include social conventions understood by both participants and shared experiences which need not be verbalized but are taken for granted as underlying the language exchange. When there is a difference between the speaker's and listener's perceptions of the world, or when the listener has not profited from social or other experiential background, the message is not conveyed.

Although it is primarily an instructional setting, the school is also a social environment in which students must interact with teachers, administrators, aides and other staff, as well as fellow students. Cook-Gumperz (1977) has argued that the shared contexts which operate in the home to provide cues for interpretation of events do not function within the more structured and more verbal school. Teachers' observations that learning disabled adolescents are sometimes outsiders in the social groups of a school, unaccepted or overtly rejected because of social behavior, may be related to inability to identify presuppositions in social situations.

Research on the social implications of language interactions within the classroom and school have implications for learning disabled adolescents because they are consistently described in the literature as demonstrating significant problems in social adjustment and social perception (Bryan and Pflaum, 1978; Lerner, 1976; Ysseldyke, 1978). Furthermore, as Deshler (1978) has pointed out, "Such problems are potentially more of a hindrance to success and adjustment in life than is the mastery of certain academic concepts" (p. 59).

A number of interaction analyses have been developed for purposes of observing in a structured way the interactions of teachers and pupils in the classroom. Flanders (1965), who is perhaps the most influential analyst of classroom interaction, developed a system which consists of seven categories for teacher utterances, two categories for pupil utterances and a tenth category for silence or unscorable events. Using this system, observors coded verbal utterances at three-second intervals. The distribution of the categories is used to identify teaching styles according to whether they tend to be teacher-centered or pupil-centered. Flanders' system has been widely used, but it is not designed as a method of analyzing language in detail. It is instead a procedure for identifying teaching style and its effect upon pupil performance. Similar systems which have been developed for purposes of specific studies, such as are described in Weinberg and Wood's (1975) review of alternative observational strategies, have in common an attempt to provide descriptors for both cognitive and affective activities of the classroom. However, they do not take as their main focus an analysis of the specific utterances of participants from the standpoint of discourse analysis.

Suggestions for systems of discourse analysis are offered by several writers in the field of linguistics. A comprehensive and practical set of descriptors was presented by Searle (1969) who classified utterances according to three categories (informative, elicitation, and directive), three situational categories, statement, question and command), and three grammatical categories (declarative,

interrogative, and imperative). Several writers have abstracted particular categories of speech acts in interaction by basing their analyses on early work of Wittgenstein (1958) who appears to have been the first to discuss discourse analysis in terms of "games" or "moves" in interaction. Keenan (1974), Dore (1976) and Ervin-Tripp (1976), among others, have used this type of analysis to investigate the language of preschool children.

Only three studies have been identified which employed school-age subjects and which analyzed the language of teachers as discourse or speech acts. One of these investigations analyzed elementary classrooms and two investigated language in secondary classrooms.

Sinclair and Coulthard (1975) analyzed a sample consisting of audio tapes of six lessons, all taught to 10-and-11-year-old students in groups of eight, in a single school in Great Britain. Recordings were in-vivo codings of behavior of the teacher, using an elaborate coding system devised by the investigators. The first level of the coding system consists of "moves" which are described as realizing distinct purposes. "Framing" and "Focusing" moves serve to set the stage for instruction, while "Opening," "Answering," and "Follow-up" moves realize exchanges which represent actual teaching. The second level of classification is "acts" which are 14 in number and which are represented by the following sample of labels and summary definitions:

Label	Definition
Elicitation	A question, a request for a linguistic response
Check	A closed class of questions which enable the teacher to ascertain whether there are any problems preventing the progress of the lesson
Directive	An imperative, a request for a non-linguistic response
Informative	A statement which functions solely to provide information
Nomination	A closed class consisting of the names of all the pupils and a limited number of statements which signal permission to or a request to speak
Evaluate	A comment on the quality of a pupil's utterance
Metastatement	A statement which refers to some future time when what is described will occur. Its function is to structure the lesson or a future lesson.
Aside	A comment unrelated to the lesson such as a reaction to temperature or a statement of feelings

Sinclair and Coulthard presented a number of verbatim analyses using this coding system, and the report, which they described as preliminary, offers examples of detailed analyses of exchanges rather than statistical or tabled data. Because findings are not summarized, they do not lend themselves to comparison in terms of the frequency of occurrence of categories of utterances by teachers.

Barnes (1969) used a five-item coding system to analyze audio recordings of a day of lessons of a first-year class in a comprehensive high school. His purpose was to specify areas of language difficulty encountered by students in moving from the junior to the senior high school. He hypothesized that the students' problems would

occur with social rather than academic uses of language. Instead, he found that students did in fact meet difficulty in following the language of teachers when academic material was presented.

Barnes identified two uses of language when academic material was presented in the classroom. The first is described as ". . . the means by which knowledge is handed over . . . in verbal form . . . with no recourse to non-verbal criteria. . . ." Under this type of instruction, Barnes argued, "Learning becomes heavily dependent upon . . . whatever linguistic constraints operate upon the teacher" (p. 68). The second use of language is described as an exchange which begins with "a shared activity in which the nature of what is going on is openly available to the participants. . . ." In this situation, language "has the function of making explicit . . . the nature of an insight already partly intuited" through the shared experience (p. 68).

Barnes did not table data nor subject findings to statistical analysis. Instead, he discussed findings in terms of pedagogical implications of summary statements. He found, for example, that pupils were asked to supply definitions three times as often as the teacher supplied them. Barnes criticized this procedure of engaging in technical language without explaining it. Barnes was most critical of his finding that teachers overrelied upon verbal explanations of information, without reinforcing their explanations with demonstrations, experiential activities or manipulations, or even the use of pictures. He commented, "The investigators were surprised at the predominance of language in the lessons" (p. 68). Pointing out that language was used neither to urge students to "think aloud" nor to

"make explicit what they have learnt." Barnes contended that "teachers fail to perceive the pedagogical implications of many of their own uses of language" (p. 75).

Reacting to the quantity of language which "washes over pupils in lessons," Barnes argued that "pupils must be faced with a difficult problem of selective attention" (p. 37). Furthermore, "pupils' ability thus to differentiate their attentiveness may have a marked effect upon their success in school" (p. 63). Barnes concluded:

> Yet this does not seem to exhaust the implications of the domination of lessons by language--and mainly by the teacher's spoken language. The domination seems to amount to an unintended restriction of the kinds of learning which can go on in the classroom (p. 65).

An investigation by Bellack, Kliebard, Hyman, and Smith (1966) provides the only basis for direct comparison of findings from analysis of teachers' utterances. Bellack et al. collected data from 15 high school teachers of social studies over four (Monday through Thursday) class sessions in a single week. The data were tape recordings from which verbatim transcriptions were made. The experimenters gave the 15 teachers a pamphlet on the topic of international trade and instructed them to teach from the first four chapters.

Data were analyzed by means of a coding system. "Moves" were defined as exchanges covering a specific topic or series of related statements having a single purpose. "Lines" were not specifically defined in the description of procedures, but it can be inferred that a line corresponds to a sentence or an utterance serving the function of a sentence. Among the items were the following, which

serve as representative samples:

Soliciting line - elicits verbal or physical response

Structuring line - sets context for subsequent behavior

Performing line - directing action

Empirical line - explaining and fact-stating

Opining line - judging an event, idea or state of affairs

ACV line - calling on a specific individual to speak

Rating line - evaluating the response to a soliciting move

Among findings reported by Bellack et al. was information on the relative frequency of each of these lines, presented in terms of percentages. Those which are relevant to the investigation are summarized below in rounded figures:

Soliciting - 28%

Structuring - 14%

Performing - 5%

Empirical - 60%

Opining - 2%

ACV - 4%

Rating - 7%

Because some categories overlap and others were included which are not shown here, the list does not total 100%.

Although there were differences in the degree to which teachers dominated the classroom language, with a range from 60% to 92.8% and a mean of 72.6% (p. 41), the investigators found that the teacher who spoke 80 to 90% of the time did so through all four sessions;

the one at 60% remained in that range for four sessions.

> This means that there are some teachers who are more active than others and this degree of teacher activity is a stable characteristic of the discourse in a given classroom. (p. 46)

Returning again and again to the point of the consistency of findings across four sessions, the investigators concluded,

> . . . teachers tend to be remarkably stable over class sessions in their pattern of discourse, so that one can reasonably speak of a teacher's pedagogical style as an internally consistent and temporally stable dimension of behavior. (p. 85)

Although few researchers have thus far focused upon analysis of teacher-student language patterns in secondary schools, results of preliminary studies confirm the value of investigating the functions of teacher language in the classroom. According to Hymes (1972):

> Studying language in the classroom is not 'applied' linguistics; it is really basic research. Progress in understanding language in the classroom is progress in linguistic theory. (p. 3)

Because Sinclair and Coulthard (1975) collected data in elementary, rather than secondary, classrooms, and since Barnes (1969) provided only anecdotal data from a single day of lessons in a high school, the empirical basis for this study is thus established primarily in the work of Bellack et al. (1966). In summary, these investigators established that the instructional language of 15 social studies teachers could be described by a code. Analysis of seven items of that code which are relevant to this study indicated that the subject teachers presented new information in more than half their utterances, used slightly more than one-fourth of their utterances to ask for a verbal or physical response from students, and included feedback

on performance and advance notice of future activities in the remaining one-fourth of their utterances. The performance of individual teachers was found to be stable over four class sessions.

Since the Bellack et al. study was published in 1966, conditions in secondary schools could be expected to have changed enough to raise the question of the applicability of the findings to current practices. No recent studies provided information on the language context in which secondary students function in the classroom. Because the clear trend in language research is to study not only the expressive language of the subjects under consideration, but also to measure the language of the speakers with whom those subjects interact (Rees, 1978), an investigation of the language of secondary teachers was considered to be a prerequisite to a series of studies of the oral and written language of secondary students. On the premise that the language of their teachers conditions the language opportunities open to students, this investigation was designed to analyze the oral language behaviors of teachers of secondary core courses.

Four objectives were formulated for the study: (1) to identify the demands placed upon the language skills of adolescents by teachers in mainstream secondary classrooms; (2) to extend linguistic analysis within school settings to include more teachers and more subject-matter content than has been reported in the literature; (3) to analyze the relative frequency of a variety of types of language demands so as to determine appropriate emphasis for instructional programs in language for adolescents; (4) to compare teachers' self-reports of frequency of types of discourse with observational data from their classroom behavior.

The following research questions were formulated to guide the investigation:

1. What is the relative frequency of 12 categories of verbal utterances among a group of secondary teachers? Between junior high and senior high teachers? Among teachers of each of four core subject-matter areas?
   a. What is the relationship between utterances which constitute lectures and those which evoke active responses from students?
   b. What is the relative frequency of oral directions to students and questions to check their understanding of or compliance with directions?
   c. What is the relationship between commands by teachers and their feedback to the students who respond to those commands?
2. What is the relationship between teachers' self reports of relative frequency of types of utterances and the observed frequencies?
3. What is the volume of teachers' language in a randomly selected sample of class sessions?
   a. What is the ratio of teacher utterances to student utterances?
   b. What is the mean number of morphemes in each teacher utterance?
   c. What is the mean number of morphemes per minute in teacher utterances?

METHODOLOGY

The investigation covered three main phases. In the first analysis, the oral language of teachers was subjected to classification according to a 12-category code. In the second phase, the results of the analysis according to the 12-category code were compared against teachers' self-reports of their perceptions of their oral language behavior in the classroom. The third analysis determined frequencies of teacher utterances and their length in morphemes.

Subjects

Subjects were 32 teachers of core subjects in secondary schools. The subject pool was identified by obtaining from the building principal a schedule of classes and names of teachers assigned to core courses during each of seven class periods of the day. All teachers of core courses, a pool of 89 teachers across four schools, were asked to participate in the study. Informed consent letters were sent to these teachers by asking the building principal to distribute them at the time the study was explained during a regularly scheduled faculty meeting. Signed consent letters were returned by 60 teachers.

The subject pool was subsequently reduced by two factors. First, when teachers were contacted to schedule taping, some reported that they were engaged in testing or the showing of a film for most of the hour. Because these circumstances would have limited the teachers' language and rendered data non-comparable, these teachers' classes were not taped. Second, technical problems with audiotape and recorders transported from building to building in extremely cold weather resulted in some unintelligible audiotapes. The subject sample was thus reduced

to 32 teachers, each of whom is represented in the data by 45 to 50 minutes of instruction. The final sample included 12 English teachers, 8 mathematics teachers, 6 social studies and 6 science teachers. The sample sex distribution was 19 female teachers and 13 male teachers. There were 25 senior high teachers and 7 junior high teachers in the sample. Thus the 32 teachers were not evenly distributed among the four buildings.

Setting

All data were collected in four school buildings in two districts in a metropolitan area. One school district is suburban. A broad range of socio-economic levels is represented in its single senior high school and in the junior high school selected for this study, which is one of two serving the district and which is located in the geographic portion of the district affording the more heterogeneous population. The second district is rural-suburban, located on the southernmost boundary of a large city. This district has a more homogeneous socio-economic level which was described by district representatives as middle class. This district has a single senior high and a single middle school, which served as settings for data collection.

Measurement systems

Utterance types. The measurement system devised for the first phase of this investigation is a code based upon principles of discourse analysis. The system was developed by the principal investigator who drew some categories and descriptions from suggestions of Searle (1969) and others from the coding systems of Sinclair and Coulthard (1975) with

modifications to accommodate the goals of the present study.

The coding system applied to transcripts of classroom language was a 12-item set of descriptors organized under five main classifications as Informatives, Elicitations, Checks, Commands and Expressives. A summary description of the coding system is in Appendix A.

A number of units have been proposed for measuring oral language (Lee, 1974). The clause, which consists of a subject and predicate relationship, represents a unit which contains both topic and comment. Thus each clause, whether dependent or independent, may contain new information subject to a different code. For purposes of scoring teacher language in this study according to the 12-category code, therefore, the unit of measurement was the clause.

Utterance length. For purposes of determining the length of a connected utterance, which might contain a number of clauses, boundaries were marked by falling intonation. As they listened to tapes, transcribers were instructed to mark falling intonation with a period. Falling intonation, usually followed by a pause, is the point at which the end of a sentence is marked for purposes of taking turns in conversation (Ervin-Tripp, 1976). The units bounded by falling intonation were considered to be appropriate units for the measurement of an utterance. The detection of a falling intonation is an inexact science, yet it is used with some regularity in linguistic research (Clark & Clark, 1977). Although the sentence as a unit may be meaningless in vocal language (Sinclair & Coulthard, 1975), the intonation cue offers a reasonable boundary for purposes of calculating the number of morphemes per utterance.

Mean length of utterance was measured in numbers of morphemes. Morphemes are defined as the smallest unit of meaning in a word (Byrne & Shervanian, 1977). Three types of morphemes were counted. Content morphemes are defined as lexical units or roots, which can stand alone. Derivational morphemes are prefixes and suffixes, which alter the meaning of roots. Inflectional morphemes are markers for tense, number and possession.

Utterance rate. Rate of speech of teachers was measured also in morphemes. The number of morphemes was counted in one minute of taped instruction from the beginning, middle and final one-third of sample tapes.

Procedures

Data collection. Informed consent was obtained from subject teachers by providing two copies of a letter explaining the procedures of the investigation and asking them to sign one copy and retain the second for their records. Confidentiality was maintained by using numbers to identify transcripts, with only one copy of the key in the possession of the principal investigator. Research assistants were instructed not to record names or identifying information on audiotapes.

Audiotape recordings of the language of the teachers were collected by research assistants who placed nondirectional microphones on the teacher's desk or in the area of the room where s/he was standing. Recordings were completed within one month, with an average of five one-half days spent in each building.

After all recording had taken place, audiotapes were screened for completeness, which was defined as 45 to 50 minutes of a class session.

Following screening, the teachers for whom one intelligible and complete tape was available were asked to complete a self-report of their perceptions of their own language behavior in the classroom. The instrument which was used for these self-reported data (See Appendix B) was accompanied by definitions and examples of each of the utterance types. Because of the difficulty of describing the distinction between direct and indirect Commands in a brief written communication to teachers, and because the distinction between types of questions in Checks was considered to be of minor importance on the teacher's self-report, the two categories were collapsed on this instrument. Thus teachers reported their behavior on 10 items while tape-recorded data were analyzed for 12 items. Teachers were asked to use a ranking scale with the numeral 1 representing the most frequently used utterance type and the numeral 10 representing the least frequently used utterance type. The 32 teachers in the final sample of audio-taped materials were represented by 30 self reports.

Interscorer reliability. Six types of reliability were established: a) accuracy of transcripts from tapes; b) agreement on scoring of transcripts using the 12-category code; c) correctness of counting and tallying sums of categories on summary sheets; d) accuracy of counting teacher and student utterances; e) agreement in counting morphemes per utterance from transcripts; f) agreement in counting morphemes per minute from tapes.

Accuracy of transcripts of tape-recorded data was determined utterance-by-utterance. Each utterance, defined above, was numbered as it was transcribed by a research assistant. Six typewritten transcripts

(18% of the sample) were randomly selected by the principal investigator who listened to the corresponding tape while following the transcript utterance-by-utterance. Where differences occurred, the utterance number was crossed out in pencil and the sum of such utterances was deducted from the total utterances in the sample. The number of utterances upon which both listeners agreed was then divided by the total number in the sample to yield percentage of agreement. The range of agreement was 93% to 97% with a mean of 95%.

To determine agreement on coding, seven randomly selected transcripts (21% of the sample) were exchanged by the principal investigator and one research assistant trained as a coder. Each sample was independently rescored before comparing the coding item-by-item using record sheets. Where differences occurred, a mark was placed beside the code and the sum of marked codes was deducted from the total for the sample. The number of codes upon which agreement occurred was divided by the total number of codes assigned to the transcript to yield a percentage. Agreement on coding ranged from 88% to 98% with a mean of 92%.

Agreement on counting and tallying of 12 categories of codes was established by two research assistants who exchanged seven randomly selected transcripts (21% of the sample), then counted and tallied categories independently. Again, the sum of totals on which agreement was reached was divided by the sum of totals for the complete sample to determine the percentage of agreement which ranged from 98% to 100% with a mean of 99%.

Agreement on the number of teacher and student utterances was measured by independent counts on three of the sixteen transcripts

(18% of the sample) analyzed for this portion of the study. Agreement was 88%, 95% and 98% for a mean of 93%.

Accuracy of counting of morphemes from transcripts was measured by independent counting of two of twelve transcripts (16% of the sample). Agreement was considered utterance-by-utterance, and where any difference occurred, that utterance was deducted from the total for the transcript. A percentage was computed by dividing the number of utterances upon which agreement was reached by the total number of utterances in the transcript. Agreement was 78% and 82% for a mean of 80%.

For purposes of determining accuracy of morphemes per minute, the same calculations were performed as are described above under Procedures. One-minute portions of the first, middle and final thirds of four tapes (33% of the sample) were played while reading along with the transcript and using a stopwatch for timing. Each one-minute segment was marked in pencil on the transcript. Then, the morphemes in that one-minute segment were counted manually. Where differences occurred, that utterance was marked in pencil and the total of disagreements deducted from the total number of utterances for which morphemes were counted in that sample. Thus, agreement was determined utterance-by-utterance. Agreement ranged from 80% to 84% with a mean of 82%.

Data analysis. For purposes of describing types of utterances according to the 12-category coding system to answer Research Question No. 1, 32 transcripts were analyzed. To describe teachers' perceptions of their own language behavior to answer Research Question No. 2, 30 self-reports were compared with the 32 transcripts of class sessions.

To answer Research Question No. 3, however, the sample of transcripts

of class sessions was arbitrarily reduced. In order to allocate a reasonable proportion of time to this phase of the study, a random selection of 16 transcripts (50% of the available transcripts) was used to analyze the proportion of teacher utterances versus student utterances. Because the time required to count morphemes is considerable, the number of transcripts analyzed for purposes of determining morphemes per utterance and morphemes per minute was further reduced. A random selection of 12 transcripts (37% of the available transcripts) was the basis for the determination of both morphemes per utterance and morphemes per minute.

Experimental Design

Data were analyzed for the 12 categories of utterance types across 32 secondary teachers as a group, for junior and senior high teachers as two independent groups, and for teachers of English, mathematics, science and social studies as four independent groups. Data for Research Question No. 1 were examined according to the following hypotheses:

Hypothesis one. There is no difference in frequency of Informatives (Representatives and Opinions) versus Elicitations (Yes/No Questions and Wh-Questions) for the total group or for junior high teachers versus senior high teachers.

Hypothesis two. There is no difference in frequency of Commands versus Checks for the total group or for junior high teachers versus senior high teachers.

Hypothesis three. There is no difference in frequency of Commands versus Feedback for the total group or for junior high teachers versus senior high teachers.

Hypothesis four. There is no difference in frequency of Informatives

versus Elicitations among teachers of English, mathematics, science and social studies.

Hypothesis five. There is no difference in frequency of Commands versus Checks among teachers of English, mathematics, science and social studies.

Hypotheses were subjected to two-way analysis of variance with repeated measures (Dixon, 1975). Level of significance was set at .01.

To answer Research Questions Nos. 2 and 3, data were tabled. Tables were then inspected to reveal relationships.

In addition to the procedures described above which yielded data for analysis of the oral language behaviors of teachers, one additional procedure was carried out. In order to collect preliminary information for planning a study of the written language behaviors of secondary students, five additional items were added to the Teachers' Self-Report form. Five categories of written language, representing the types of assignments which teachers might make for classroom or homework written assignments, were defined for teachers as Indication, Facilitation, Description, Narration, and Treatise. Teachers were asked to rank these types of writing from 1, the most frequent, to 5, the least frequent, according to the frequency with which students were asked to engage in these types of writing behaviors. The definitions of these items appear in Appendix A; the Teachers' Self-Report Form appears in Appendix B.

RESULTS

Results of statistical analysis

Hypothesis one. Comparison of relative frequency of Informatives (Representatives and Opinions only) versus Elicitations (Yes/No and Wh-Questions only) was significant for main effect across all 32 teachers ($p < .01$). However, interaction by level was not significant (See Table 1). The sample of teachers used significantly more content statements than questions, but junior high and senior high teachers did not differ significantly in relative frequency of these utterances.

Table 1

Source	F	P
Informatives/Elicitations	32.397	0.000
Informatives/Elicitations/Jr./Sr.	0.009	0.924

Hypothesis two. For the total sample of 32 teachers, differences between Commands and Checks was significant ($p < .01$). However, interaction effects by level were not significant at .01 (See Table 2). Teachers gave directions significantly more often than they asked for reports on the students' status relative to the assignment; however, junior and senior high school teachers did not differ significantly in this respect.

Table 2

Source	F	P
Commands/Checks	57.201	0.000
Commands/Checks/Jr./Sr.	3.934	0.057

Hypothesis three. Differences in frequency of Commands versus Feedback were significant for the total sample of 32 teachers ($p < .01$). Junior high teachers differed from senior high teachers at a level approaching significance (See Table 3).

Table 3

Source	F	P
Commands/Feedback	28.649	0.000
Commands/Feedback/Jr./Sr.	5.835	0.022

Hypotheses four and five. Teachers of English, mathematics, science and social studies did not differ significantly from one another in their use of Informatives (Representatives and Opinions only) versus Elicitations (Yes/No and Wh-Questions only) nor in their use of Commands versus Checks (See tables 4 and 5).

Table 4

Source	F	P
Informatives/Elicitations/ Subject Area	0.472	0.704

Table 5

Source	F	P
Commands/Checks/Subject Area	2.065	0.127

Results of Inspection of the Data

Research question 1. Relative frequency of 12 categories of teacher utterances were expressed in terms of means and mean percentages for each category. The percentage of all utterances by an individual subject represented by each category was also computed. These figures provide a variety of comparisons.

Comparisons across Total Group. Mean frequencies and mean percentages of 12 categories of utterances for the total group of 32 teachers are shown in Table 6. Representatives ($\bar{X}$=32) occurred with the greatest frequency; no other category approached that level. Opinions ($\bar{X}$=12.1), Wh-Elicitations ($\bar{X}$=11.4) and Direct Commands ($\bar{X}$=13.0) clustered at considerably less than half the frequency of Representatives. A second cluster including Yes/No Elicitations ($\bar{X}$=6.9), Feedback ($\bar{X}$=8.0) and Comments ($\bar{X}$=6.5) occurred at less than one-fourth the frequency of Representatives. Other categories were observed at considerably lower frequencies, down to a mean of .11 for Wh-Question Checks.

Table 6 also shows the range of observed frequencies for each category across 32 teachers. The highest and lowest percentage of observed frequency for each type of utterance is tabled. The highest frequency recorded for an individual was 52.5% for Representatives; the lowest was 0 frequency for Commissives, Yes/No Checks, Wh-Checks, and Indirect Commands. Two teachers are represented twice in the ranges in table 6; one produced the highest percentage of Representatives and the lowest percentage of Comments; a second produced the highest percentages of both Indirect Commands and Feedback.

Table 7 shows percentages for each of 32 teachers on the collapsed categories of utterance types which were subjected to statistical tests. Informatives (Representatives and Opinions) show the greatest variation, with Elicitations (Yes/No and Wh-Questions) showing the second widest range. Individual variances were as great as 71.8% for

Table 6

Range and Percentage

of Total Utterances for Twelve Categories

by the Total Group

N=32

	High	Low	Mean
Representatives	52.6*	7.5	32.0
Opinions	27.9	1.2	12.1
Commissives	6.3 (N=2)	0 (N=2)	2.1
Yes/No Elicitations	19.2	1.5	6.9
Wh-Elicitation	37.5	3.0	11.4
Imperatives	12.5	.3	4.0
Yes/No Checks	7.1	0 (N=3)	2.7
Wh-Checks	1.2	0 (N=26)	.11
Direct Commands	34.3	.9	13.0
Indirect Commands	5.2**	0 (N=10)	1.1
Feedback	21.6**	1.4	8.0
Comments	21.2	0*	6.5
Informatives	71.8	20.7	44.1
Elicitations	50.4	4.4	18.4
Checks	7.1	0	2.8
Commands	35.8	1.5	14.1

*Same teacher

**Same teacher

Table 7

Percentages for Four Collapsed Categories

By Individual Teachers

N=32

Informatives	Elicitations	Checks	Commands
42.3	9.8	6.9	20.8
23.5	20.7	.5	23.0
43.0	21.3	.3	15.0
54.7	25.8	.4	5.9
37.3	4.4	5.9	35.8
34.7	20.5	1.0	21.5
38.5	19.0	4.0	17.9
25.6	16.1	7.1	16.1
48.2	16.3	2.2	12.4
52.0	13.8	6.4	15.2
45.5	18.9	1.6	3.1
44.3	22.7	0	9.2
43.4	13.1	.5	31.7
35.9	20.9	5.7	17.2
45.4	32.1	1.3	7.1
48.8	17.7	4.9	9.0
47.1	19.7	4.7	11.7
68.0	16.3	1.3	3.9
60.7	22.1	1.2	3.5

Table 7 (cont.)

Informatives	Elicitations	Checks	Commands
43.2	22.1	3.5	11.9
24.2	50.4	0	8.9
61.3	15.6	1.9	4.7
34.3	10.4	3.5	19.7
54.0	17.6	1.1	7.4
52.4	20.8	6.6	4.8
29.1	21.2	3.8	7.6
63.9	7.9	2.1	7.9
20.7	12.9	6.0	35.3
71.8	15.1	1.9	1.5
32.4	20.2	2.4	14.6
50.6	13.3	.8	16.7
34.3	8.9	1.1	30.3

Informatives to 1.5% for all Commands. One teacher demonstrated consistency across three of the four groupings with 23.5% for Informatives, 20.7% for Elicitations, and 20.8% for Commands.

Table 8 lists mean percentages for junior high teachers and senior high teachers for 12 categories and four sets of collapsed categories. Although no statistically significant differences emerged, the table reveals the direction of some relationships. Junior high teachers appear to lecture as great a percentage of the time as do senior high teachers. Junior high teachers' Representatives and Opinions (R & O) outnumbered Elicitations almost four to one. This result, and all other comparisons between levels must, however, be interpreted with consideration for the limitation imposed by the small junior high sample.

Senior high teachers not only expressed a higher percentage of judgmental statements about content and asked more substantive questions, they also provided a slightly higher percentage of feedback. However, they called on specific students to speak and checked on compliance with or understanding of directions only half as frequently as did junior high teachers. The relative frequency of commands favors junior high teachers, indicating more specific directions for non-verbal responses. The relative percentages of 12 categories of utterances for teachers of four core courses are shown in Table 9. Comparison reveals that all teachers used about the same percentage of Representatives. English, science and social studies teachers expressed approximately the same percentage of Opinions. Mathematics teachers

Table 8

Percentage of Total Utterances

for Twelve Categories

by Junior and Senior High School Teachers

Category	Junior High (N= 7)	Senior High (N=25)
Representatives	34.1	31.5
Opinions	6.3	13.7
Commissives	2.5	2.0
Yes/No Elicitations	4.2	7.7
Wh-Elicitations	7.5	12.6
Imperatives	6.0	3.5
Yes/No Checks	4.0	2.4
Wh-Checks	.10	.12
Direct Commands	18.1	11.5
Indirect Commands	1.9	.94
Feedback	6.4	8.5
Comments	8.9	5.8
Informatives	40.5	45.1
Elicitations	11.6	20.2
Checks	4.0	2.5
Commands	20.0	12.5

Table 9

Percentage of Total Utterances

for Twelve Categories by Teachers of Four Core Subjects

Category	English (N=12)	Mathematics (N= 8)	Science (N= 6)	Social Studies (N= 6)
Representatives	29.4	34.8	33.9	31.6
Opinions	14.9	6.2	12.2	13.9
Commissives	2.4	1.3	3.0	1.5
Yes/No Elicitations	7.2	6.5	5.5	8.5
Wh-Elicitations	13.5	9.8	8.8	12.2
Imperatives	4.1	3.2	3.1	5.8
Yes/No Checks	1.6	5.3	2.0	2.4
Wh-Checks	.10	.13	.03	.20
Direct Commands	12.7	15.9	15.4	7.3
Indirect Commands	1.08	1.2	1.5	.93
Feedback	7.7	9.1	7.7	7.6
Comments	5.4	6.5	7.0	8.1
Informatives	44.4	41.0	46.1	45.6
Elicitations	20.7	16.3	14.2	20.7
Checks	1.7	5.4	2.0	2.6
Commands	13.8	17.1	16.8	8.1

expressed half the Opinions and provided more than twice as many Checks as teachers of other subjects. Mathematics teachers also provided a slightly higher percentage of Feedback. English and social studies teachers asked a higher percentage of Wh-questions than did mathematics and science teachers. Social studies teachers gave half the Commands given by mathematics and science teachers. Other discrepancies occurred in percentages too small to reveal meaningful differences.

Mean percentages of utterances for female and male teachers, shown in Table 10, reveal nearly parallel findings. Only Direct Commands (F=14.7; M=10.4) show a difference of more than three percentage points, with the difference favoring female teachers.

Research question 2. Comparison of the rank of observed mean frequencies against self-reported rankings (See Table 11) reveal differences. Though both observed and self-reported data placed Yes/No content questions in 6th position, all other rankings differed. Greatest differences occurred between rankings of Opinions (observed=3; reported=8) and Imperatives (observed=8; reported=3). Wh-Questions, which were ranked first by self-reported data, ranked fourth in observed data.

Research question 3. Table 12 illustrates the relationship between the number of teacher utterances and the number of student utterances for each of 16 randomly selected transcriptions from the sample of 32. The teacher who involved students in discussion to the greatest extent (295 student utterances) spoke twice as many utterances (599) as did the students during that class period. The smallest number of student utterances (39) contrasted with

Table 10

Percentage of Total Utterances for Twelve Categories

for Female and Male Teachers

Category	Female Teachers (N=19)	Male Teachers (N=13)
Representatives	31.0	33.5
Opinions	12.2	11.8
Commissives	2.5	1.4
Yes/No Elicitations	7.1	6.7
Wh-Elicitations	11.0	12.0
Imperatives	3.8	4.4
Yes/No Checks	2.7	2.7
Wh-Checks	.06	.19
Direct Commands	14.7	10.4
Indirect Commands	1.1	1.2
Feedback	7.0	9.5
Comments	6.7	6.2

Table 11

Frequency Ranking of Observed Data

and Self-reported Data

Category	Observed Ranking (N=32)	Self-reported Ranking (N=30)
Representatives	1	2
Commands	2	5
Opinions	3	8
Wh Questions	4	1
Feedback	5	4
Yes/No	6	6
Comments	7	10
Imperatives	8	3
Checks	9	7
Commissives	10	9

TABLE 12

Frequency of Teacher and Student Utterances

for 16 Randomly Selected Classes

Frequency of Teacher Utterances	Frequency of Student Utterances
599	295
487	122
478	76
459	126
435	162
342	117
341	63
321	59
320	76
303	115
302	72
270	39
253	47
201	60
181	55
177	40

seven times as many utterances (270) by the teacher during that class. One teacher spoke six times as frequently as students, three spoke five times as often and three spoke four times as frequently. Overall, the average ratio for the 16 transcriptions sampled was four teacher utterances to one student utterance.

The mean number of morphemes per utterance for 12 randomly selected transcriptions is shown in Table 13, which also lists the maximum number of morphemes for a single utterance and the total number of teacher utterances for the class session. In every case, the minimum per utterance was one, as in "Yes" or "No." The highest mean for an individual teacher was 12.1 morphemes over 196 utterances. The lowest mean was 7.0 morphemes per utterance across 121 utterances. The highest maximum for an individual was 56 morphemes in a single utterance. The mean for that teacher was 11.3 morphemes per utterance. Across the 12 transcriptions sampled, the mean number of morphemes per utterance was 10.2.

Table 14 illustrates the relationships among 12 randomly selected transcriptions in terms of mean morphemes per minute. Sampling of each tape during the first third, middle third, and final third of the class session resulted in an individual high of 203.0 morphemes per minute with a range of 222 to 93. Across 12 teachers, the mean was 155.4 morphemes per minute.

Results of teachers' self-reports of relative frequency with which they assign five categories of written work are shown in Table 15. Among 30 teachers, 14 ranked Indication, or filling in blanks or marks, and

11 ranked Facilitation, or taking notes, as the most frequent types of written work assigned in their classes. The least frequently assigned types of written work were Narration, or storytelling, and Treatise, or argumentation.

Table 13

Mean Morphemes Per Utterance

for 12 Randomly Selected Teachers

Maximum Morphemes Per Utterance	Total Number of Utterances	Mean Morphemes Per Utterance
45	196	12.1
53	225	12.0
40	144	11.5
42	262	11.4
44	264	11.3
56	292	11.3
51	305	10.6
39	247	10.4
32	311	10.0
26	150	7.6
35	257	7.1
30	121	7.0

Table 14

Mean Morphemes Per Minute

for 12 Randomly Selected Teachers

First Third	Middle Third	Final Third	Mean Morphemes Per Minute
190	210	209	203.0
167	215	222	201.3
181	211	150	180.25
152	200	165	172.3
174	167	140	160.3
207	122	142	157.00
124	146	175	148.333
175	120	139	144.7
135	144	116	131.7
102	121	163	128.7
125	97	140	120.6
122	93	135	116.7

Table 15

Composite Teachers' Rankings of

Relative Frequency of Written Language Assignments

(N=30)

	Totals for Each Rank				
Categories	1*	2	3	4	5
Indication	14	7	6	2	1
Facilitation	11	14	3	2	0
Description	6	6	13	3	2
Narration	0	2	2	13	13
Treatise	7	5	8	3	7

*Most frequently assigned

DISCUSSION

Research Question 1

Relative frequency of utterance types for the total group reveals that secondary teachers lectured significantly more often than they involved students in discussion through questioning. Teachers presented factual statements about content almost three times as frequently as they asked questions about subject matter content. The extent to which secondary teachers lecture has implications for learning disabled students. If nearly half of teachers' utterances in class constitutes content material presented orally, this places strong demands on students' auditory storage and retrieval systems. If students are expected to hold this volume of information in short-term memory, to process the information and use it for homework assignments and tests, they must have excellent attention and listening skills. Moreover, if they are expected to take notes over this volume of verbal material, strong demands are placed upon skills in translating auditory input to written language.

The low frequencies reported for Commissives, which are statements of what the teacher will do in the future, indicates that teachers present few advance organizers which might help students listen more efficiently. Low figures for this category also might suggest that teachers do not provide structure for their classes by setting up explicit expectations in terms of, "If you do this, I'll do that. . . ." Contracting for specific performance was not observed in these records.

For students whose strengths lie in verbal skills as opposed to skill with written language, the findings of this study imply special problems. The percentage of class time afforded for verbalization by students is extremely limited. The low frequency of direct requests by name or other descriptor for specific students to speak (Imperatives-4%) implies further that teachers do not rely on compelling individual students to demonstrate knowledge during class sessions. Instead, it is possible to speculate, they rely completely on written products to evaluate the knowledge of specific students and assign grades. A corresponding assumption might be, then, that teachers may not keep records of oral responses by name. The student who doesn't write well but can express himself orally thus may not receive credit for oral responses in class.

Although the range was greater than for any category other than Representatives, the absolute frequency of oral directions in terms of direct commands was relatively low. Nevertheless, teachers much more frequently gave commands than they checked to determine whether instructions were understood. This finding has implications for learning disabled students who experience difficulty in following directions. It implies that such students cannot rely on teachers to monitor whether students are on the right page or are otherwise proceeding in a manner likely to lead to success on an assignment. This finding also implies that students must be taught to take the initiative in asking questions if they don't understand a concept, a direction or an assignment. According to our data, secondary teachers do not often ask for questions about the clarity of an instruction. Yet findings reported

by Wiig and Semmel (1976) as well as reports by experts on characteristics of learning disabilities (Lerner, 1976) indicate that following directions is a consistent problem among the learning disabled.

Furthermore, results show that commands occur almost twice as often as teachers provide evaluative statements about student performance. This means that, when teachers give directions, they don't subsequently tell students whether they are following them correctly. They don't, in effect, very often reinforce appropriate behaviors or correct inappropriate activities.

When percentage of Elicitations is compared with percentage of Feedback, it appears that teachers do ask students for answers or discussion, but only half the time do teachers then tell the students whether their responses have met expectations. The gap between Commands and Feedback and between Elicitations and Feedback raises some serious questions about teaching practices in terms of how well teachers communicate and clarify expectations.

This finding also implies that secondary students are on a very lean reinforcement schedule. If existing appropriate behaviors are not reinforced, they can be expected to become less frequent. If new responses are being established, students may not receive enough verification that their practice attempts are acceptable to ensure learning. Since it is common practice in special education to use continuous reinforcement schedules to establish new behaviors, the very limited reinforcement schedules of these secondary classrooms provide a strong contrast for learning disabled students who have spent time in special classrooms prior to junior high.

The extent to which teachers lectured as opposed to engaging students in discussion or other experiential activities confirms Barnes' finding of the predominance of language in the lessons. Barnes' further finding that language was not frequently used to force students to think aloud or to paraphrase what they had learned seems to be confirmed as well, since students were questioned only one half as often as they were given information to process. The finding by Bellack et al. that factual statements constituted 60% of teachers' utterances is higher than the comparable figure in this study. Opinions about content were, however, much more frequent in this study than in that by Bellack et al. Comparison of these two studies indicates that both groups of teachers tended to lecture rather than to evoke active responses from learners. Although Bellack et al. found that their teachers asked a higher percentage of questions than did those in the present study, the relationship between lecture and evoking active response in the form of questions was the same.

Teachers in the study by Bellack et al. offered Structuring statements more frequently than teachers in this study presented Commissives. Though these categories are not identical, both can be interpreted as forms of advance organizers. The extent to which teachers called on specific students to speak was remarkably consistent across the two groups of teachers, with both groups calling on students by name in about four percent of their utterances. Bellack et al. provided only the percentage figure for comparison purposes.

The relative frequency of oral directions to students varied across the two studies, indicating that teachers in the present study

offered more directions to students about how to proceed or gave more direct assignments. The category which Bellack et al. called Rating was coded for 7% of utterances, which compares with 7.3% coded as Feedback in the current data.

Of the available studies of classroom language, only the Bellack et al. study offered the summary data allowing direct comparisons. Despite slight differences in categories, results of the two studies were parallel. The direction of the relationship among categories was the same throughout, though the extent of the difference varied on some comparisons. Two findings, the extent to which teachers call on students by name and the extent to which teachers provide feedback for performance, were so close as to confirm the present findings precisely.

The finding that junior high teachers lecture as much as senior high teachers was an unexpected result. If this relationship holds up over replication, this finding has strong implications for the difficulties which could be encountered by learning disabled students in the move from elementary school to junior high. It also implies strongly that specific instruction in listening skills and notetaking should be a high priority in the initial months of junior high or preferably the final months of 6th grade.

Other findings revealed by comparison of junior and senior high teachers could be interpreted to mean that in general, greater demands are placed on students in senior high. Apparently, they must do more sorting out of fact and opinion when listening to teachers lecture, and must work with fewer explicit directions which are seldom checked for clarity. Furthermore, they are seldom asked by name to respond to a

question or a comment by a teacher. Therefore, they have fewer structured opportunities to try out statements to see if teachers accept them, or to check whether their understanding of a concept is correct before they risk placing their response in a written paper which will be graded. Clearly, senior high students must take more initiative if they are to contribute to discussion, since teachers call on them by name less frequently than do junior high teachers. On the other hand, the fact that senior high teachers seldom put a specific student on the spot to answer a question may mean reduced pressure on those students who lack oral language skills or whose response latency makes classroom recitations difficult. These data would seem to indicate that a student who doesn't volunteer may sit unquestioned in a senior high classroom.

Comparison of findings across four core subject-matter areas reveals few substantial differences. The finding that mathematics teachers express opinions at about half the frequency of other teachers is probably due to the precision of the subject matter rather than to characteristics of the teachers. Mathematics teachers' use of Checks may be a factor of the hierarchical nature of the subject matter. If students do not grasp one step along the way, they cannot build to the next step. However, the same might be said of the physical and biological sciences, yet these teachers did not use Checks as frequently. Science teachers did, however, provide more advance organizers than did other teachers. The only other noteworthy difference is in the relative use of Commands. Social studies teachers' use of about half the commands used by other teachers may be a reflection of less rigid

structure and more options in dealing with this subject matter. Such lack of structure can be a problem for some learning disabled students who find that precise instructions are preferred over imposing their own structure on their assignments. For other learning disabled students, however, the opportunity to work without having to follow precise directions would be an advantage.

Research Question 2

Differences between self-reported and observed data were striking only in three categories. Though teachers perceived their use of Wh-questions about content as their most frequent behavior, their observed behavior more frequently demonstrated Representatives, Opinions and Commands. Teachers' perceptions that they most frequently ask Wh-Questions, use Imperatives to request responses from specific students, and express infrequent Opinions or Comments would appear to accord with an ideal of teaching practices which is at some variance with observed behaviors. Using the arbitrary criterion that a difference of two or more places in the rankings might represent a meaningful difference, only Representatives, Feedback, Yes/No Questions, and Commissives were perceived by teachers in accord with observed data.

Research Question 3

The ratio of four teacher utterances to one student utterance, which was the overall mean for 16 transcriptions, exceeds the ratio of three to one which was reported by Barnes (1969, p. 75). Presumably, students who speak only once for every four teacher utterances are not being asked regularly to paraphrase what the teacher has told them, nor to demonstrate that they understand what they have read. They are

not frequently using language to think aloud nor to problem solve through overt use of language as the teacher monitors their process. These uses of language, which Barnes also found absent in his studies, are not consistent with the teacher-student ratio of utterances demonstrated in this sample. Instead, the lecture mode of instruction characterizes the teaching style of this sample, a style which does not teach students how to use oral language as an active instrument for reorganizing their perceptions, inferences, and conclusions. In a lecture format, language is used to teach. But, in not demanding that students verbalize their learning, teachers are not encouraging the use of language to learn.

Although there are limitations on this finding due to the small sample, the mean number of morphemes per utterance in this study exceeds the recommended number when information is to be processed by adults. According to Miller (1956) nine is the maximum number of morphemes per utterance which can be processed without loss of data. The mean of ten in this study implies that excessive demands may be placed on the information-processing abilities of secondary students.

The analysis of mean morphemes per minute was computed for approximately one-third of the available transcriptions. Although there are no comparable data in the literature on the language of classroom teachers, the mean of 155 morphemes per minute can be compared with the standard for a stenographer taking shorthand. According to the Occupational Outlook Handbook (1979), designed to describe opportunities

in government work, stenographers who apply for jobs in the federal government must be able to take shorthand at 100 words per minute (p. 103). The average of 155 morphemes per minute in this study is not directly comparable, since there may be up to three morphemes per word. Nevertheless, the morpheme unit is counted in preference to the word because each morpheme is a separate unit to be processed, and therefore, the student must register it and deal with it in a lecture situation. If teachers are expecting students to take notes over lecture material delivered at this rate, they are making demands which may exceed those on trained stenographers. Learning disabled students who lack writing skills could not produce usable notes at this rate. If teachers do not assign note-taking, but are asking students to process this information, the learning disabled student who demonstrates response latency, as found by Wiig and her associates (1976), can be expected to experience considerable difficulty with this teaching style.

The findings of this study raise some serious questions about the appropriateness of the teaching style in core courses of secondary schools for learning disabled students. The lecture format, limited checks for understanding of directions, and low rate of responses by students are contrary to usual practices in special programs for the learning disabled. If such teaching style is stable over time, as Bellack et al. (1966) argued, mainstreamed learning disabled students may be subjected to a teaching style which is not conducive to learning.

Those students whose strengths lie in oral language skills with deficits in written language skills have few opportunities to demonstrate understanding of material during a class session. Students who experience problems in conceptual thinking apparently do not have the chance to try out their grasp of material through questioning by the teacher before they must be assessed on their written responses to questions. Though the teaching style demonstrated in this study may meet the needs of the achieving student, there are major disadvantages for the learning disabled student. Demands placed on the learning disabled student in mainstream classes by the oral language behaviors of teachers appear to fail to take into account the special learning characteristics of this population.

Results of preliminary information on assignment of written work indicates that teachers in this sample appeared to employ a number of objective tests or worksheets which would require students to write no more than one or two words to fill in a blank. A question which was not addressed by this study is the amount of reading which the student must successfully perform in order to be able to supply the correct written insertions. Although the writing task is minimal, there may be strong demands on another language skill.

The extent to which teachers expect students to take notes, either from class lectures or from reference sources, has implications for teaching skills of outlining and recording key words or phrases. This finding may also have implications for writing rate since task completion could be expected to be a factor in classroom success.

The finding that teachers assign narration with the lowest frequency has implications for the manner in which writing is assessed. This ranking by teachers suggests that asking students to write a story in order to assess their writing may not tap the skills which are most in demand in the classroom.

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APPENDIX A

Coding System

Informatives

The purpose of informatives is to report, describe, explain or persuade the listener of the truth of an assertion.

Representatives. Representatives are statements (never questions) which are straightforward reports of events which occurred or which habitually recur in objective reality. These statements can be verified by a second observer or by consulting standard reference works such as textbooks, dictionaries, encyclopedias, atlases or almanacs. They are factual statements.

Examples:

Napoleon was defeated at Waterloo.

Twenty-four students are enrolled in this class.

Opinions. This category represents interpretations by the teacher of academic content which has just been presented or is about to be presented. The statements are similar to statements of fact but they are not objectively verifiable. They represent the teacher's judgments.

Examples:

Improper fractions aren't any more difficult than what you've done.

A constitutional convention wouldn't be a good idea.

Commissives. Commissives are statements (never questions) which commit the teacher to a specific course of action in the future, sometimes conditionally. They also serve to structure future lessons.

Examples:

Tomorrow I'll give you your grades for the essay.

If you earn 100% on the quiz, you won't have any homework.

Elicitations

Elicitations function to evoke linguistic responses about subject-matter content.

Yes-No Questions. This is a question which can be answered either yes or no; it demands no further explanation. The information requested might be from previous lectures or assigned readings.

Examples:

Does water boil at 212° F. at sea level?

Does this selection illustrate the elements of a lyric poem?

Wh-Questions. These are questions which begin with what, when, who, why, where, how, or how many. These questions may be requests for information from lectures or readings, or they may ask a student to integrate or draw inferences or conclusions from what he has heard or read.

Examples:

What is the boiling point of water at sea level?

Why did the United States enter World War II?

Imperatives. This category represents direct requests for the student to give a language response. It includes calling on a specific student to make a contribution.

Examples:

List the major causes of water pollution.

Anne, answer the first question on page 5.

Checks

Checks differ from elicitations in that checks are requests for information about the status of the student in the class rather than about the content of the lesson. The purpose of a check is to determine whether the lesson can proceed or not.

Yes-No Questions. This is a question which can be answered either yes or no; it demands no further explanation.

Examples:

Does everyone have the book open at page 15?

Are there any questions?

Wh-Questions. These are questions which begin with what, when, who why, where, how, or how many.

Examples:

How many of you have finished copying the list?

What questions do you have before we begin the test?

Commands

The purpose of commands is to direct the non-verbal behavior of a listener, to evoke a motor response. Commands thus differ from Imperatives, which request a language response.

Direct Commands. This is an unequivocal order, which specifies the behavior expected.

Examples:

Turn in your papers.

Copy the first four problems on page 21.

Indirect Commands. This is a request by implication only. It

requires the listener to infer the expected behavior.

Examples:

The noise in the hall is getting worse (Close the door).

I have to move these books to the closet (Help me carry them).

Expressives

Expressives function to ventilate feelings, states of being or judgments of the adequacy of performance of another.

Feedback. These are statements produced in direct response to an answer or other behavior from a student. Feedback provides an evaluation of the student's statements or actions.

Examples:

That's right. You did a good job on that assignment.

I really like the way all of you are working today.

Comments. This category represents statements by the teacher of how s/he feels in relation to an environmental condition or an event occurring in the room. These are subjective statements unrelated to a specific answer or behavior from a student.

Examples:

This is a beautiful day.

I'm in no mood for nonsense today, so I hope you're on your best behavior.

CATEGORIES OF WRITTEN LANGUAGE BEHAVIORS IN THE CLASSROOM

The following definitions and examples describe some of the types of written assignments made by teachers in secondary classrooms. Please determine which of these types of assignments you present most frequently to your classes.

Indication

This type of writing requires no more than a partial response; the student doesn't have to write a complete sentence but only fills in an item or marks a selection from several choices.

Examples:

True/false quiz
Multiple choice quiz
Vocabulary or spelling list
Worksheet
Library call slip

Facilitation

This category includes writing for the purpose of assisting the writer or another person with a subsequent or present task. Facilitation includes those behaviors usually called study skills which help to plan and organize work.

Examples:

Note-taking during a lecture
Outline for a paper
Directions for homework
Daily Schedule
Taking notes from encyclopedia or other reference work

Description

This category includes any task which explains what an object, person, place or service is like, in terms of physical or functional features. The sequence of reporting is logical order. The items being described

are relatively static in space and time or they habitually move in a predictable way.

Examples:

Report on photosynthesis

Creative essay on life in the year 2000

Description of art works in a museum

Rules for use of the chemistry lab

Narration

This category includes stories which are told in chronological order. Stories may be records of factual events or fictional writings. The people, places and events are depicted as dynamic and in the process of change or conflict.

Examples:

Short story

Biography or autobiography

Essay on field trip

Treatise

Treatise writing expresses an idea or discusses an issue. This is a mature form in that the writer must present statements followed by supportive evidence from reference sources, textbook or life experience. This category typically requires students to state their position on a topic or to formulate decisions or make value judgments.

Examples:

Interpretation of literature

Comparison/contrast of nations, governments, philosophies, etc.

Statement of position with supportive documentation

Argument for or against an ideology or an issue

APPENDIX B

TEACHER SELF-REPORT INSTRUMENT

Directions

Please read carefully through the attached descriptions of Categories of Oral Language Behaviors and Categories of Written Language Behaviors. Consider your own classroom in terms of the kind of language you use and the type of assignments you give. Rank the frequency with which you use the oral language behaviors described and the frequency with which you require students to complete the types of written assignments described. Use the numeral 1 to show the most frequent behavior or assignment, and the numeral 2 to show the next most frequent behavior or assignment and the numeral 3 to indicate the next most frequent behavior or assignment, and so forth. Use ten numerals to rank oral language behaviors and five numerals to rank assignments for written work.

CATEGORIES	RANK	RANKING SCALE 1 - 10
Oral Language Behaviors		1 Most Frequent — 10 Least Frequent
Yes-No Questions	____	
Wh-Questions	____	
Imperatives	____	
Checks	____	
Commands	____	
Representatives	____	
Commissives	____	
Feedback	____	
Opinions	____	
Comments	____	
Assignments for Written Work		1 Most Frequent — 5 Least Frequent
Indication	____	
Facilitation	____	
Description	____	
Narration	____	
Treatise	____	

The University of Kansas

Institute for Research in Learning Disabilities
Emphasis on Adolescents and Young Adults

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The University of Kansas IRLD now has a number of reports available that describe studies conducted by, or under the auspices of, Institute researchers. In addition, several papers have been prepared by Institute staff members which address issues related to research on learning disabilities in adolescents. The following Research Reports and Research Monographs are now available (on a prepaid basis) for the cost of postage, reproduction, and handling ($2.00 each, unless otherwise noted) from: Coordinator of Research Dissemination, Institute for Research in Learning Disabilities, 313 Carruth-O'Leary Hall, The University of Kansas, Lawrence, Kansas 66045.

RESEARCH REPORTS

No. 1. An Investigation of the Demands on Oral Language Skills of Learning Disabled Students in Secondary Classrooms--Mary Ross Moran (January, 1980)

The demands placed upon students in mainstream secondary classrooms by the oral language behaviors of teachers were investigated by applying 12 categories of utterance types to audiotape-recorded class sessions. Data were analyzed for the total group of 32 teachers, for junior and senior high teachers, and for teachers of various subject areas. Analysis of variance revealed significant differences in favor of lectures over questions, commands over checks of understanding of commands, and commands over feedback. Results support a conclusion that the lecture format of secondary core classrooms does not take into account the learning characteristics of learning disabled students.

No. 2. Identification of Learning Disabled Adolescents: A Bayesian Approach--Gordon R. Alley, Donald D. Deshler, and Michael M. Warner (January, 1980)

The identification of learning disabled adolescents for program placement is a major concern of school personnel. An array of problems are associated with the identification of learning disabled populations ranging from the use of the best differentiating characteristics to the types of measures used. The identification model discussed in this article attempts to address some of these problems. The Bayesian approach is an alternative to traditional methods that rely primarily on psychometric data or classroom/clinical observation for identification decisions.

No. 3. Identification Decisions: Who is the Most Consistent?-- Gordon R. Alley, Donald D. Deshler, and Daryl Mellard (January, 1980)

In an attempt to analyze the assumption that a multidisciplinary team approach is necessary for identification and evaluation of LD students, this study was designed to: (a) examine the type of judgments on LD characteristics rendered by different team members and

(b) explore which of the groups typically represented on a staffing team was most homogeneous in making decisions on LD students. The consistency of judgment among groups were comparable when making judgments on LD and non-LD characteristics. Thus, the findings were supportive of the multidisciplinary approach to identification and evaluation of LD children and youth.

No. 4. Development and Validation of an Occupational Skills Assessment Instrument--R. Mark Mathews, Paula L. Whang, and Stephen B. Fawcett (January, 1980)

The development and validation of an occupational skills assessment instrument designed to describe accurately a participant's actual level of occupational skills in a variety of job-related situations is reported. The results show that: (a) the situations involved in the assessment were considered by participants and employment experts to be important and representative, (b) the satisfaction ratings of employment experts were correlated with the observed performance of participants, and (c) participant performance as observed with the behavioral assessment instrument was correlated with observations using another method of measuring job-related behavior.

No. 5. Behavioral Assessment of Occupational Skills of Learning Disabled Adolescents--R. Mark Mathews, Paula L. Whang, and Stephen B. Fawcett (January, 1980)

This study, using direct observation and measurement techniques, analyzed the differences in occupational skills among learning disabled youths and their non-learning disabled peers. The results showed low levels of employment-related skills for both groups of high school adolescents. However, the non-LD high school students performed significantly better on the job-related skills. These differences were more marked for non-social interaction skills.

No. 6. Behavioral Assessment of Job-Related Skills: Implications for Learning Disabled Young Adults--R. Mark Mathews, Paula L. Whang, and Stephen B. Fawcett (January, 1980)

This study, using direct observation and measurement techniques, analyzed the occupational skills of unemployed and successfully employed adults. The results showed that the employed adults performed significantly better on each of the thirteen job-related skills involved in the occupational skills assessment. These differences were consistent across job-finding and job-retention skills.

No. 7. Formal Reasoning Abilities of Learning Disabled Adolescents: Implications for Mathematics Instruction--Thomas M. Skrtic (January, 1980)

This investigation sought to determine the level of formal reasoning in mathematics of LD adolescents. The results of the study suggest that LD junior high school students are functioning at the concrete operations stage of Piaget's developmental sequence. The need for mathematics interventions which use enactive and iconic, as well as verbal/symbolic, representations is stressed.

No. 8. The Regular Classroom Interactions of Learning Disabled Adolescents and Their Teachers--Thomas M. Skrtic (January, 1980)

This study examined the interactions of LD students and their teachers through direct observation in regular classrooms. Results indicated that teachers were equitable in their interactions with LD and non-LD students and did not perceive LD students as more hyperactive, defiant, or dependent than non-LD students. Even though LD students were treated like non-LD students, they perceived less approval and more disapproval from their teachers and were happy in their regular classrooms significantly less often than non-LD students.

No. 9. The Homogeneity of Identification Decisions by Different Groups on LD Adolescents--Donald D. Deshler, Gordon R. Alley, Daryl F. Mellard, and Michael M. Warner (January, 1980)

No. 10. Reliability and Validity of the Bayesian Identification Procedure for Learning Disabled Adolescents--Gordon R. Alley, Donald D. Deshler, Daryl F. Mellard, and Michael M. Warner (January 1980)

No. 11. A Multi-Trait, Multi-Method Analysis of the Bayesian Screening Instrument and Test Battery for LD Adolescents--Gordon R. Alley, Donald D. Deshler, Daryl F. Mellard, and Michael M. Warner (January, 1980)

Three related studies were designed to address some key issues confronting the learning disability field concerning the identification of learning disabled adolescents. The first study (No. 9) addressed the question of which group(s) of professionals or parents make the most homogeneous identification decisions on learning disabilities' criteria. In the second study (No. 10), the temporal and interscorer reliability as well as the construct and content validity of the Modified Component Disability Instrument was investigated. The reliability and validity of the Modified Component Disability Checklist and Secondary Test battery were investigated in the third study (No. 11).

No. 12. An Epidemiological Study of Learning Disabled Adolescents in Secondary Schools: Details of the Methodology--Jean B. Schumaker, Michael M. Warner, Donald D. Deshler, and Gordon R. Alley (January, 1980)

No. 13. An Epidemiological Study of Learning Disabled Adolescents in Secondary Schools: Achievement and Ability, Socioeconomic Status, and School Experiences--Michael M. Warner, Gordon R. Alley, Jean B. Schumaker, Donald D. Deshler, and Frances L. Clark (January, 1980)

No. 14. An Epidemiological Study of Learning Disabled Adolescents in Secondary Schools: Academic Self-Image and Attributions--Donald D. Deshler, Jean B. Schumaker, Gordon R. Alley, Michael M. Warner, and Frances L. Clark (January, 1980)

No. 15. An Epidemiological Study of Learning Disabled Adolescents in Secondary Schools: Health and Medical Aspects--Gordon R. Alley, Donald D. Deshler, Michael M. Warner, and Jean B. Schumaker (January, 1980)

No. 16. An Epidemiological Study of Learning Disabled Adolescents in Secondary Schools: Behavioral and Emotional Status From the Perspective of Parents and Teachers--Gordon R. Alley, Michael M. Warner, Jean B. Schumaker, and Donald D. Deshler (January, 1980) $3.00

No. 17. An Epidemiological Study of Learning Disabled Adolescents in Secondary Schools: The Relationship of Family Factors to the Condition of Learning Disabilities--Jean B. Schumaker, Donald D. Deshler, Gordon R. Alley, and Michael M. Warner (January, 1980)

No. 18. An Epidemiological Study of Learning Disabled Adolescents in Secondary Schools: Social Status, Peer Relationships, Time Use and Activities In and Out of School--Donald D. Deshler, Jean B. Schumaker, Michael M. Warner, Gordon R. Alley, and Frances L. Clark (January, 1980)

No. 19. An Epidemiological Study of Learning Disabled Adolescents in Secondary Schools: Use of Support Systems In and Out of School--Donald D. Deshler, Gordon R. Alley, Michael M. Warner, Jean B. Schumaker, and Frances L. Clark (January, 1980)

No. 20. An Epidemiological Study of Learning Disabled Adolescents in Secondary Schools: Classification and Discrimination of Learning Disabled and Low-Achieving Adolescents--Michael M. Warner, Gordon R. Alley, Donald D. Deshler, and Jean B. Schumaker (January, 1980)

The University of Kansas Institute for Research in Learning Disabilitits has collected a broad array of data to form an epidemiological data base on LD adolescents and young adults. Data have been collected from learning disabled, low-achieving, and normal-achieving adolescents as well as from their parents and teachers. In addition, information from the environmental setting of the LD adolescents which pertains to interventions applied on behalf of the student, relationships with others, conditions under which he/she operates and support systems available for his/her use has also been collected. These data have been considered in relation to data on specific learner characteristics to gain a more complete profile of the older LD individual. Research results presented in Research Reports 12 through 20 detail findings from this comprehensive epidemiology study conducted during 1979-80 by the Institute. It is important for the reader to study and view each of these individual reports in relation to this overall line of research. An understanding of the complex nature of the learning disability condition only begins to emerge when each specific topic or finding is seen as a partial, but important, piece of a larger whole.

No. 21. The Current Status of Young Adults Identified as Learning Disabled During Their School Career--Warren J. White, Jean B. Schumaker, Michael M. Warner, Gordon R. Alley, and Donald D. Deshler (January, 1980)

This study sought to examine among learning disabled and non-learning disabled (NLD) young adults a broad array of factors known to be indicative of personal, social, and vocational success. The results indicate that the LD young adults sampled appear to be adjusting as well as the NLD sample in a number of important areas (e.g., getting and maintaining employment, having friends, etc.). However, LD young adults reported they were significantly less satisfied with their employment situation and their contacts with parents and relatives. They were much less involved in recreational and social activities and few had plans for further education and training.

No. 22. An Observational Study of the Academic and Social Behaviors of Learning Disabled Adolescents in the Regular Classroom--Jean B. Schumaker, Jan Sheldon-Wildgen, and James A. Sherman (January, 1980)

This study examined the classroom performance of LD adolescents and the performance of their peers who are successful participants in the classroom environment. Data from live observations of 47 pairs of students (one LD and one non-LD student) were analyzed. The data reveal that the majority of student time was spent attending to work material and that very little interaction occurs between students and teachers. LD students spent more time in reading, writing, and note-taking and spent greater lengths of uninterrupted time in these behaviors. LD students engage in somewhat more rule violations in the classroom than non-LD students and interact as frequently and with as many peers as non-LD students. Results of this study suggest that there are many similarities and few differences between LD adolescents and their non-LD peers with regard to study, social, and classroom behaviors overtly observed in their regular classroom.

No. 23. An Application of Attribution Theory to Developing Self-Esteem in Learning Disabled Adolescents--Nona Tollefson, D.B. Tracy, E. Peter Johnsen, Sherry Borgers, Meridith Buenning, Art Farmer, and Charles Barke (January, 1980)

The study found that LD adolescents did not differ significantly from non-LD adolescents in their responses to general self-esteem and attribution questionnaires. Effort attribution training brought no significant increase in effort attributions for the experimental group of LD students. Effort attributions were high prior to the training and remained high after training, but no significantly higher scores were obtained. For LD students data from the general attribution measures and the task specific attribution measure were contradictory. LD students would report that effort was a factor that explained success or failure in achievement tasks, but report that factors other than effort explained their personal success or failure on a specific spelling task.

No. 24. Performance of Learning Disabled High School Students on the Armed Services Vocational Aptitude Battery--G. Mack Harnden, Edward L. Meyen, Gordon R. Alley, and Donald D. Deshler (January, 1980)

This study examined the performance of 24 LD high school students on the Armed Service Vocational Aptitude Battery. A total of 29.2% of the LD subjects were found to qualify for enlistment in the Army based on the requirements for high school graduates, while 16.7% qualified based on the non-high school graduate requirements. Based on high school graduate requirements, 33.3% qualified for the Marine Corps, 37.5% qualified for the Navy, and 4.2% qualified for the Air Force. The vocational areas in which the students qualified most frequently were Skilled Technical, Clerical, Combat Arms, Machine and Vehical Operators and Food Service, and General Maintenance.

No. 26. Analysis of Cognitive Abilities of Adolescents Learning Disabled Specifically in Arithmetic Computation--Edward L. Pieper and Donald D. Deshler (January, 1980)

The purpose of this investigation was to identify a group of adolescents homogeneously defined as exhibiting a "specific learning disability in arithmetic" and to determine if cognitive processes as measured by visual-spatial, visual-reasoning, and visual-memory tasks are related to the academic task failure exhibited by this population. The results of this study indicate that there is a relationship between two of the major components in the learning disabilities definition--academic task failure and specific cognitive abilities. There is validity to the above two components of the LD definition when a very specific population of students disabled in arithmetic have been identified.

No. 27. A Comparison of Learning Disabled Adolescents with Specific Arithmetic and Reading Disabilities--Edward L. Pieper and Donald D. Deshler (January, 1980)

Forty-three junior high learning disabilities program were surveyed to identify students who were either specifically disabled in arithmetic or specifically disabled in reading. The results indicated that students with a specific disability in arithmetic were found in larger LD programs. There was no difference between the two groups on WISC Verbal scores. However, those students specifically disabled in arithmetic were significantly lower on WISC Performance scores. An analysis of all candidates for the study reveals inconsistencies on previously administered arithmetic and reading tests in comparison to the WRAT Arithmetic and Reading subtests.

No. 28. Parental and Staff Expectations for the Future Achievement of Learning Disabled Students--H. Kent Sinning, Floyd G. Hudson, and Donald D. Deshler (January, 1980)

The results of this study indicated (a) that the difference between the expectations of mothers and fathers of learning disabled youth was generally insignificant in most areas of achievement; (b) in most areas of achievement under the effects of all established criteria, school staff members expectations were found to be insignificantly different from each other; (c) in most areas of achievement under the effects of all established criteria, school staff members' expectations were significantly lower for LD children than their parents; and (d) that the child's birth order had a significant effect upon parental expectations for the future achievement of their LD child. Significant differences were found between parents in the areas of Total Achievement Potential and Social-Personal Adequacy. No significant differences were found in parental expectations in the Academic Adequacy and Economic Adequacy areas of future achievement.

RESEARCH MONOGRAPHS

No. 1. Studying the Learning Disabled Adolescent Through Epidemiological and Intervention Research Tactics--Reuben Altman (January, 1980)

This paper examines the relationship between epidemiological and intervention research with learning disabled adolescents. Several historical trends and contemporary issues which effect research in learning disabilities are discussed. With this background, Dr. Altman advocates the simultaneous and interactive pursuit of epidemiology and intervention research.

No. 2. An Approach for the Design and Implementation of Nonacademic Interventions with LD Adolescents--Reuben Altman (January, 1980)

This paper presents an alternative approach to research in learning disabilities among adolescents and young adults. The author proposes that adolescents labeled "learning disabled" can and should play a role in research efforts in which they are involved. While much research focuses on educational interventions following basic research formats, research described in this paper would focus on psychosocial concerns within a largely natural or nonartifical context.

No. 3. A Model for Conducting Research with Learning Disabled Adolescents and Young Adults -- Edward L. Meyen, Richard L. Schiefelbusch, Donald D. Deshler, Gordon R. Alley, Jean B. Schumaker, and Frances L. Clark (January, 1980)

Issues from the field of learning disabilities and the field of education in general which impact the learning disabled individual are discussed as they relate to research with learning disabled adolescents and young adults. Based on this knowledge of the context in which the LD adolescent is required to function, a research model that allows a commitment to programmatic research leading to the validation of interventions as well as the generation and investigation of new research questions is presented. Critical questions within the three research areas of the Institute -- epidemiology, intervention, and generalization -- are discussed as they relate to this research model.

No. 4. Instructional Practices that Promote Acquisition and Generalization of Skills by Learning Disabled Adolescents--Donald D. Deshler, Gordon R. Alley, Michael M. Warner, and Jean B. Schumaker (January, 1980)

The authors identify procedures to promote acquisition and generalization of skills. Exemplified within a learning strategies model, the procedures outlined here stress acquisition of specific strategies through learning it in isolation and then applying it to controlled materials. Specific procedures to promote generalization across settings and over time are identified and described.

No. 5. Assumptions and Strategies for Conducting Research with Learning Disabled Adolescents and Young Adults--Edward L. Meyen, Richard L. Schiefelbusch, Donald D. Deshler, Gordon R. Alley, Mary R. Moran, and Frances L. Clark (January, 1980)

This paper details assumptions about learning disabled adolescents and young adults as well as assumptions about conducting research with this population held by researchers at the Kansas Institute. Strategies developed to facilitate the development and implementation of programmatic, institutional research are presented. The relationship among the research assumptions, goals and objectives, and strategies is an interactive process with each contributing to the development of and also evolving from the others.

No. 6. A Research Strategy for Studying Learning Disabled Adolescents and Young Adults--Jean B. Schumaker, Gordon R. Alley, Michael M. Warner, and Donald D. Deshler, (January, 1980)

Unique problems related to adolescents and young adults which researchers must consider in designing interventions for LD populations are discussed. These unique factors associated with the condition of learning disabilities in adolescents and young adults require the development of a comprehensive and systematic research strategy. The authors present an argument for an epidemiology data base as a research strategy. In addition, a brief synopsis of major findings from the IRLD's epidemiology research on LD adolescents and young adults is presented.

No. 7. Career Preparation for Handicapped Adolescents: A Matter of Appropriate Education--Gary M. Clark (January, 1980)

A complete individualization concept is presented as the avenue to achieve "appropriate education" for handicapped adolescents. Exemplified within the context of the educational goal of career preparation, this concept involves individualization of both content and instructional approach. The need for career preparation is supported by data which suggest that high school youth lack critical information in the areas of occupational development, daily living skills, and personal-social skills important to one's functioning in today's society.

No. 8. A Response to Evolving Practice in Assessment and Intervention for Mildly Handicapped Adolescents--Edward L. Meyen and Donna H. Lehr (January, 1980)

This paper examines the developmental history of programs for mildly mentally retarded and learning disabled adolescents. Curriculum/instructional alternatives are discussed and a rationale presented for consideration of a student's educational history when making instructional decisions. This rationale is predicated on the perspective that many mildly handicapped students have not been subjected to intensive instruction during their school years despite having received special educational services. Characteristics of intensive instruction and options for the implementation of such instruction is presented.

No. 9. Research Approaches to Studying the Link Between Learning Disabilities and Juvenile Delinquency--J. Stephen Hazel, Jean B. Schumaker, and Donald D. Deshler (January, 1980)

A relationship between learning disabilities and juvenile delinquency has been hypothesized for a period of time. Research on this relationship has been clouded with methodological difficulties. These problems include the definitions of learning disabilities and juvenile delinquency, the use of appropriate experimental designs, and the difficulty of obtaining informed consent in the court system. A current study through The University of Kansas IRLD which is intervening with learning disabled youth in the juvenile court is described. Finally, key questions in the field are proposed with suggestions for future research.