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ABSTRACT

Six years of studies on assessment and identification issues for learning disabled (LD) students are summarized, and implications for instructional intervention are noted. In chapter 1, findings on four topics are highlighted (sample findings in parentheses); instruction prior to referral (only about one-half of the school day is instructional time); individualized educational plans (subjective teacher evaluation has the greatest influence on daily instruction); interventions for special needs students (classroom teachers believe they are inadequately trained); and interventions for LD students (there are no differences in time allocated to instruction for LD and non-LD students). Implications of these findings for practice are considered in chapter 2 in terms of instructional time considerations, instructional decisionmaking, and interactions between regular education and special education. Chapters 3-6 present evidence from the studies for the major findings of the studies. A final chapter, chapter 7, summarizes the data sources and research procedures used in the previous chapters. (CL)

University of Minnesota

Research Report No. 143

INSTRUCTIONAL INTERVENTION RESEARCH: AN INTEGRATIVE SUMMARY OF FINDINGS

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IRLD

Institute for Research on Learning Disabilities

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During 1980-1983, Institute research focuses on four major areas:

- Referral
- Identification/Classification
- Intervention Planning and Progress Evaluation
- Outcome Evaluation

Additional information on the Institute's research objectives and activities may be obtained by writing to the Editor at the Institute (see Publications list for address).

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A collaborative endeavor by numerous individuals was responsible for the production of this integrative summary of IRLD research. Various students and staff members helped re-read publications, identify the major questions asked, and summarize the implications of the research findings for practice.

Chapter 1

Overview of IRLD Instructional Intervention Research

Over a six-year period, the Institute for Research on Learning Disabilities (IRLD) at the University of Minnesota has conducted research on issues in the assessment and identification of learning disabled students. Although initial IRLD studies concentrated on the types of assessment devices being used and the differences between learning disabled students and other students, our findings pointed to the need to examine instructional interventions being used with learning disabled students, as well as with non-handicapped students, and the relationship between assessment information collected on students and instructional interventions.

This report describes the results of IRLD studies that provide information on instructional intervention in today's schools, especially as they relate to students who are receiving special education services. Findings from separate studies have been integrated to address major issues and to produce recommendations for practice that are based on research results. The studies from which the findings and recommendations were derived used a variety of methodologies. Included among these were:

- Surveys and interviews
- Comparative studies
- Instructional time observations
- Test reviews
- Experimental comparisons
- Intervention studies

Highlights of Major Findings

The major questions that we asked and the major findings are presented here in very brief form. Implications of the findings for practice are discussed in Chapter 2. Details of the evidence that supports the findings are presented in Chapters 3-6. Information on the data sources and specific research procedures are presented in Chapter 7.

Instruction Prior to Referral

1. What is the nature of a typical instructional day?

   a. Most instructional time is allocated to academic activities, particularly reading and math. However, only about one-half of the school day is instructional time; the other half is taken by recess, lunch, physical education, etc.

   b. Students spend most of their instructional time within entire group structures and working with readers, other media, workbooks, or worksheets.

   c. Teacher activity most often involves making no response to the observed student and being located sitting or standing among students.

   d. Students engage in active academic responding (e.g., reading, writing) for a very small amount of time, which is approximately equal to the amount of time spent in inappropriate responding (e.g., looking around, working on an inappropriate task). Most time is spent in task management responses (e.g., waiting, listening, raising hand).

   e. The nature of instruction and student responding varies greatly among students; some students have much greater opportunities to make active academic responses than others.

2. What is the nature of a typical instructional day for students at different levels of academic competence?

   -- The nature of instruction and most student responses do not differ among students at different levels of teacher-perceived academic competence. Students rated high in academic competence do tend to engage in academic talk more than students rated low in academic competence.

3. What is the nature of a typical instructional day for students at different levels of behavioral competence?

   a. No differences in times allocated to various instructional groupings and teacher locations within the classroom occur for students at different levels of teacher-perceived behavioral competence.

   b. Students perceived by their teachers to be low in behavioral competence engage in more inappropriate behavior and receive more disapproval from their teachers.

4. What is the nature of a typical reading period for students in different reading groups?

   a. Across all reading groups, most students receive instruction in small groups with their teachers among them during a typical reading period. They use readers and workbooks most often; teacher-student discussions seldomly occur. The teacher makes direct teaching responses toward a student for about 20% of a typical reading period.

   b. On the average, students engage in active reading (oral and silent) for only 10 minutes of a scheduled 120-minute reading period. Active academic responses overall are made for only half as much time as are passive, task management responses.

   c. The student's reading group placement does make some difference in the nature of instruction received. Low group students, in general, receive less teacher lecture instruction, more individual instruction, and more teacher approval.

   d. High, middle, and low reading group students do not differ in their total active academic responding times (about 20 minutes). However, middle group students do engage in more writing than low group students, and low group students engage in more reading aloud than both middle and high group students.

   e. Low group students engage in active academic responses more often when under direct teacher supervision.

5. What interventions do regular educators try before referring a student?

   a. Classroom teachers use several typical classroom teaching techniques to assist a student having academic or behavioral problems.

b. Interventions that are tried prior to referral are not implemented systematically.

6. Can positive changes be made in typical classroom teaching techniques?

a. Active academic responding time can be doubled by providing the teacher with workshops or feedback on ways to increase students' academic responding times.

b. Referral rates can be reduced and teachers' attitudes regarding problem students changed by providing ongoing consultation on instructional changes.

Individualized Educational Plans (IEPs)

7. When is the IEP written?

a. The development of the IEP is one of the most frequently mentioned steps in school assessment practices; the development of plans varies according to educators' input, time, and location.

b. IEPs typically are written within one year for most eligible students.

8. What information is collected and used to develop the IEP?

a. Data collected by school psychologists for program planning often are not the data found most useful by classroom teachers.

b. Teachers of learning disabled students indicate that results from formal tests are most influential in determining students' long-term goals, whereas informal techniques, particularly observation, are used primarily in establishing short-term goals.

c. Subjective teacher evaluation has the most influence on daily instruction; consultation with previous teachers, parents, or other team members is of secondary importance.

Interventions for Special Needs Students

9. To what extent are regular education teachers prepared to deal with special education students in their classrooms?

a. Most classroom teachers believe they have not been adequately trained to teach special needs students in their mainstream classrooms.

b. Recently trained teachers express more positive

attitudes about their preparation for handling special needs students than do teachers trained over 10 years ago.

10. What kinds of interventions do teachers prefer for students exhibiting different classroom behaviors?

-- Regardless of student behavior, teachers prefer to be involved in the planning and implementation of appropriate classroom interventions.

11. What is the nature of instruction for students one month before, one month after, and two months after an IEP is written?

a. No consistent trends are evident in instruction as a result of the referral, evaluation, and placement process.

b. Although instructional changes generally are observed initially, these changes often disappear two months after the writing of the IEP.

c. Observed changes in students' classroom experiences generally do not affect students' responding behaviors.

Interventions for LD Students

12. What level of service and student-teacher ratio are most common in LD instruction?

a. Most LD students receive part time direct instruction from a resource room teacher.

b. More LD students are placed in full-time special education settings than are placed in monitoring or consultation service delivery modes.

c. Teachers providing indirect service are responsible for twice the number of students as those teachers providing direct instruction.

13. How much time is devoted to academic and non-academic areas?

a. LD teachers most often provide academic instruction in reading or math.

b. The amount of time devoted to academic and non-academic areas varies for individual students.

c. Spelling instruction most often is considered supplemental, while instruction in other academic areas

is split more evenly between replacement and supplemental work.

14. What are the critical factors considered when developing interventions?

    a. Subjective rather than objective data primarily are used in intervention planning.

    b. Student characteristics rather than family or school information are considered most important in making decisions about the components of students' programs.

15. How are changes in students' instructional programs characterized?

    a. Teachers most often change materials, methods, or motivational strategies for students.

    b. Teachers seldom change the instructional programs of students.

16. What strategies are used and believed to be effective with LD students?

    a. Instructional materials selected by LD teachers differ as a function of academic area and level of the student; teaching methods and motivational strategies do not differ for elementary and secondary students.

    b. Work on specific skills within academic areas and practice are the most commonly used teaching methods.

    c. Instructional procedures considered to be effective differ for specific academic areas; structured (task analysis) skills teaching frequently is identified as an effective procedure.

    d. Instructional materials and procedures viewed as effective for LD students also are viewed as effective for other special education students.

    e. Although not used very often, strategies that involve students in selecting instructional activities or teachers in continuously monitoring student performance seem to be effective with resource room students.

17. What is the nature of instruction for LD students compared to regular education students?

    a. There are no differences in time allocated to instruction for LD and non-LD students. However, there are significant differences in the type of instruction

received. LD students receive about 10 times as much individual instruction (34 min) and about 3 times as much approval (1/2 min) as non-LD students.

b. Despite differences in the nature of instruction, there are no differences in the total academic responding time of LD and non-LD students, which totals only about 45 minutes during a 390-minute school day. However, there are some differences in the type of academic responding.

c. LD students spend more time engaged in reading aloud, talking about academics, playing academic games, and asking and answering questions than do non-LD students, while non-LD students spend more time engaged in writing than do LD students.

d. Instruction received by LD students in the resource room and in the mainstream classroom differs in several ways; further, they make several specific active academic responses for greater proportions of time in the resource room. During regular classroom time, LD and non-LD students receive similar instruction and engage in similar amounts of academic, task management, and inappropriate responding.

3. What is the nature of instruction for students in different LD service delivery environments?

a. Several differences seem to exist in instruction as a function of the level of LD services. Differences are most evident in times allocated for academic activities and instructional groupings.

b. Almost no differences exist in students' responses as a function of service delivery level; students receiving consultation services in general seem to make more than special education placements.

c. Comparisons in terms of the severity of the learning disability also indicate differences in instructional approaches.

Implications for Practice

The IRLD research findings related to instructional intervention have several implications for educators. These implications are discussed in this chapter. They have been organized, for convenience, into three areas: (a) instructional time considerations, (b) instructional decision making, and (c) interactions between regular education and special education.

Instructional Time Considerations

Findings related to instructional time indicate that a relatively limited amount of time is allocated to instructional ativities, and that of the time allocated, only a fraction involves students making active academic responses. Further, there is a great deal of variability from one student to the next. Specific changes in a student's placement have only a small influence on the nature of instruction and on the opportunities for the student to make active academic responses.

The instructional time findings indicate that educators must focus on the diagnosis of instruction before focusing on diagnosis of the student. This is important for all students, but is even more important for students who are exhibiting difficulties in school. Information collected about the nature of instruction, and specifically about the time allocated to various instructional variables and the amounts of time that students are actively engaged in academic responding, has direct relevance to planning changes in instruction.

When confronted with a student exhibiting difficulties in school, attempts to increase the student's active academic responding should precede the referral of the student for psychoeducational evaluation, and probably should precede any other pre-referral interventions that might be attempted. Consultation sources for the teacher are recommended. Pre-referral interventions that are attempted by teachers typically depend on the teachers, without valuable input from others. Such input should be immediately available.

When it is deemed necessary to place a student within a special education program, the nature of instruction for the student should change in some obvious way. IRLD research results suggest that this does seem to occur. Students are allocated greater amounts of individual instruction and generally seem to receive a greater amount of positive reinforcement from their special education teachers. However, changes in academic responding times are not reflected in these environmental changes. Only minimal changes in students' active academic responding times occur. Changes are inconsistent from one student to the next as the students proceed through the referral to placement process. Time considerations must be given more attention by those designated to provide special education services to students.

Instructional Decision Making

Procedures are needed to make the selection of instructional methods and materials more formal. Instructional changes should be tied more closely to objective evaluation results.

Interactions Between Regular Education and Special Education

Students placed in special education continue to spend part of their school day in the regular education class. Yet, regular education teachers continue to believe that they are inadequately prepared to meet the needs of these students. Specific procedures are needed to ensure that interaction between the special educator and the regular educator occurs. The regular classroom teacher should be informed of the nature of the program provided to the student in the special class setting, as well as the goals of the instruction and the student's progress. The regular educator should be given specific ideas about how to deal with the student in the regular classroom.

Chapter 3

Instruction Prior to Referral

This chapter summarizes IRLD research findings related to the issue of what instruction is like for regular education students. Six specific questions are addressed in this chapter:

- What is the nature of a typical instructional day?
- What is the nature of a typical instructional day for students at different levels of academic competence?
- What is the nature of a typical instructional day for students at different levels of behavioral competence?
- What is the nature of a typical reading period for students in different reading groups?
- What interventions do regular educators try before referring a student?
- Can positive changes be made in typical classroom teaching techniques?

For each question, the major findings are summarized and the data sources from which the findings were obtained are listed (generally ordered in terms of recency). Specific evidence for the major findings then is presented.

1. What is the Nature of a Typical Instructional Day?

Findings:

a. Most instructional time is allocated to academic activities, particularly reading and math. However, only about one-half of the school day is instructional time; the other half is taken by recess, lunch, physical education, etc.

b. Students spend most of their instructional time within entire group structures and working with readers, other media, workbooks, or worksheets.

c. Teacher activity most often involves making no response to the observed student and being located sitting or standing among students.

d. Students engage in active academic responding (e.g., reading, writing) for a very small amount of time, which is approximately equal to the amount of time spent in inappropriate responding (e.g., looking around, working on an inappropriate task). Most time is spent in task management responses (e.g., waiting, listening, raising hand).

e. The nature of instruction and student responding varies greatly among students; some students have much greater opportunities to make active academic responses than others.

Data Sources:

- Instructional time observations (RR 73, 86)

Evidence:

An extensive observational study was conducted to provide data about the nature of instruction and student responding during a typical school day (RR 73, 86). For all students, the official length of the total school day was 390 minutes. Approximately 170 minutes were devoted to lunch, recess, moving between classrooms, music, and physical education. During the 220 minutes in which the students were in the classroom and observed, about 40 minutes were allocated to non-academic activities such as free time, business management, and transitions between subjects. Therefore, approximately 180 minutes of the 390-minute school day were allocated to academic instruction.

During the 220 minutes of observed time, reading and math were the specific activities to which most time was allocated, averaging about one hour and about 45 minutes, respectively. The major task for students involved the use of readers, followed by other media, workbooks, worksheets, and paper and pencil tasks. Students received almost all of their instruction within entire group structures. Most

frequently, the teacher was located among students or in front of the class. No response to the target student was the most frequent teacher activity, followed by teaching. Student responses most often involved task management responses, especially passive responses such as listening to the teacher, waiting to talk to the teacher, and raising hands. For those student responses that were actively academic in nature, most time was spent writing. Inappropriate student responses accounted for about 30 minutes of the student's school day. Across students, a typical school day was characterized by a limited amount of active academic responding (about 45 minutes).

The observational data also revealed significant variability among individual students. On the average, the observed student received specific teaching responses from the teacher for just over one hour per day; however, for one student the actual time was 37.8 minutes and for another the time was 116.8 minutes. The average amount of time allocated to reading for all students was 66 minutes, yet one student received only 12 minutes of reading while another received 113 minutes of reading. Similarly, while the average amount of time spent in business management (i.e., classroom organization) activities was 8 minutes, the range was from 0 minutes for one student to 58 minutes for another. These daily differences can amount to vast differences in the amount of instruction students receive over the course of the school year. For example, if the daily difference in time allocated to reading continued over the year, the student with the highest time would receive 277 more hours of reading instruction than the student with the lowest time. Variability in students'

active academic responding during one school day also has significant implications when considered in terms of a school year. For example, the range in time actually spent actively engaged in reading (oral and silent) was from 12 seconds for one students to about 31 minutes for another; the daily average for all students was about 10 minutes. If this daily difference were to continue between the highest and lowest student, the lowest student would have to read for 90 days to read for the same amount of time that the highest student read in one day.

2. What is the Nature of a Typical Instructional Day for Students at Different Levels of Academic Competence?

Findings:

-- The nature of instruction and most student responses do not differ among students at different levels of teacher-perceived academic competence. Students rated high in academic competence do tend to engage in academic talk more than students rated low in academic competence.

Data Sources:

- Instructional time observations (RR 86)

Evidence:

Observations of students who had been ranked by their teachers as high, middle, or low in academic competence revealed only one statistically significant difference among the groups (RR 86). Students in the high academic group engaged in academic talk for a greater amount of time than did students in the low academic group. Times observed for all activities, tasks, teaching structures, teacher locations, teaching activities, task management student responses, inappropriate student responses, and all other active academic student responses were similar to those reported for the typical instructional

day. Thus, the students' instructional experiences were similar regardless of their teacher-perceived academic competence. For all groups, the students' active academic responding time was low (i.e., about 45 minutes) relative to the amount of time spent in school (i.e., 6 ½ hours).

3. What is the Nature of a Typical Instructional Day for Students at Different Levels of Behavioral Competence?

Findings:

a. No differences in times allocated to various instructional groupings and teacher locations within the classroom occur for students at different levels of teacher-perceived behavioral competence.

b. Students perceived by their teachers to be low in behavioral competence engage in more inappropriate behavior and receive more disapproval from their teachers.

Data Sources:

- Instructional time observations (RR 73, 119)

Evidence:

Observations of students who had been ranked by their teachers as high, middle, or low in behavioral competence revealed few differences among the groups (RR 73). There were no differences between groups in time allocated to any of the instructional (e.g., reading, math) or non-instructional activities (e.g., free time), in time spent on various tasks, or in time spent in various types of instructional grouping. Regardless of the students' behavioral competence, teachers most often were among students or in front of the class. All times were similar to those reported for the typical instructional day.

Teachers did respond differently to students in the three groups. Low behavioral group students received significantly more teacher

disapproval than either middle or high group students. Although the average daily amount of teacher disapproval received was small for all groups, low behavioral group students received at least twice as much teacher disapproval as other students, or about two and one-half more hours of teacher disapproval per school year. In terms of student responses, low behavioral group students spent more time engaged in asking acadmic questions and in disruptive behavior than students in the high group. Low behavioral group students also spent more time making inappropriate responses overall than did either middle (14%) or high (12%) group students.

Differences among groups also emerged as a function of what the teacher was doing (RR 119). When the teacher was directly teaching the target student, students in the low behavioral group spent more time asking academic questions than students in other groups; however, when the teacher was making no response to the target student, students in the low group engaged in inappropriate play more often than other students. Teaching structure influenced teacher behavior. During both entire group and small group instruction, teachers directed more disapproval toward students in the low group; during entire group instruction, teachers provided middle group students with fewer direct teaching responses than they did high and low group students.

4. <u>What is the Nature of a Typical Reading Period for Students in Different Reading Groups?</u>

Findings:

a. Across all reading groups, most students receive instruction in small groups with their teachers among them during a typical reading period. They use readers

and workbooks most often; teacher-student discussions seldomly occur. The teacher makes direct teaching responses toward a student for about 20% of a typical reading period.

b. On the average, students engage in active reading (oral and silent) for only 10 minutes of a scheduled 120-minute reading period. Active academic responses overall are made for only half as much time as are passive, task management responses.

c. The student's reading group placement does make some difference in the nature of instruction received. Low group students, in general, receive less teacher lecture instruction, more individual instruction, and more teacher approval.

d. High, middle, and low reading group students do not differ in their total active academic responding times (about 20 minutes). However, middle group students do engage in more writing than low group students, and low group students engage in more reading aloud than both middle and high group students.

e. Low group students engage in active academic responses more often when under direct teacher supervision.

Data Sources:

· Instructional time observations (RR 79,119)

Evidence:

In an observational study of students during their scheduled 120-minute reading period, 30 minutes could not be observed because students were moving from one classroom to another or were waiting for instruction to begin (RR 79). During the average 81 minutes actually allocated to reading instruction, the tasks most frequently used included readers, worksheets, other media, and workbooks. Paper-pencil tasks and teacher-student discussions seldom were observed during reading instruction. About 5 minutes per reading period were allocated to getting materials ready or putting them away. The

majority of reading time was allocated to small group teaching, with teachers spending most of their time among students. The most frequent teacher activity involved the teacher not demonstrating any observable response toward the observed student. The average amount of direct teaching received by one student in a typical reading period was about 18 minutes. On the average, students received either approval or disapproval for less than one-half minute of a reading period.

In a typical reading period, students engaged in active academic responses, including silent and oral reading, writing, and answering and asking questions, for about 20 minutes. Of this time, students read silently for about 8 minutes and read aloud for less than 2 minutes. Task management responses comprised the major portion of students' time; on the average, the student engaged in these responses for about 41 minutes. Most of this time (about 29 min) consisted of passive responding (e.g., waiting for instruction, listening to another student read). Other task management responses included looking for materials, moving, or teacher-approved play. Students engaged in inappropriate behaviors for about 12 minutes of reading time. The majority of this time consisted of looking around or non-academic talk.

Some differences were found in the nature of instruction and student responses for students in high, middle, and low reading groups. For example, although all reading groups received most of their instruction through worksheets, readers, other media, and workbooks, middle and high groups received more instruction through

teacher lecture than did low group students. Further, middle and high reading group students received more small group instruction (80% of their class time) than low group students, while students in the low reading group received more individual instruction than middle and high group students. Logically, students in the low reading group also received more instruction with the teacher beside them (11 min) than the other students (1 min). During the reading period, middle and high group students received more time during which no specific teacher response was directed to them. On the other hand, low reading group students received more teacher approval than middle and high group students, although the amounts of approval received were less than 30 seconds per reading period for all groups.

Although students in low, middle, and high reading groups did not differ with respect to task management and inappropriate responses, they did differ in the amounts of time they engaged in writing and reading aloud. Middle reading group students engaged in writing more than low group students; however, low reading group students engaged in reading aloud more than did the other groups (although the times were low for all groups). Overall, students in the three groups did not differ in the amount of time engaged in total active academic responding, which averaged about 20 minutes of the 120-minute scheduled reading period.

Several differences were found for the low reading group students as a function of time spent in individual instruction and with the teacher at the student's side (RR 119). During individual reading instruction, low reading group students received more opportunities to

engage in reading aloud and talking about academics, yet they also spent more time having passive responses. When the teacher was at their side, which is likely to occur during individual teaching structures, low reading group students spent more time engaged in writing and talking about academics, but they also spent more time in passive responding (e.g., looking at the teacher). Students in low reading groups appeared to be more actively engaged under direct teacher supervision and also appeared to need direct teacher contact to produce academic responses.

5. What Interventions do Regular Educators Try before Referring a Student?

Findings:

a. Classroom teachrs use several typical classroom teaching techniques to assist a student having academic or behavioral problems.

b. Interventions that are tried prior to referral are not implemented systematically.

Data Sources:

- Survey of classroom teachers (RR 91)

Evidence:

In their responses to a survey, regular classroom teachers identified the classroom interventions they attempted prior to referring students for psychoeducational evaluation (RR 91). Over half of the attempted interventions appeared to be typical classroom teaching techniques, such as curriculum adjustment, individual attention, or behavior modification strategies. Three-quarters of the interventions were dependent on the classroom teacher for

implementation the stress involved input from the special education support staff. Although the teachers attempted an average of three interventions for each student referred, the interventions appeared to be implemented in an unsystematic fashion.

2. Can Positive Changes be made in Typical Classroom Teaching Techniques?

Find out:

a. Active academic responding time can be doubled by providing the teacher with workshops or feedback on ways to increase students' academic responding times.

b. Referral rates can be reduced and teachers' attitudes regarding problem students changed by providing ongoing consultation on instructional changes.

Data Sources:

- Intervention study on increasing academic responding (RR 139)
- Comparative study of pre-referral interventions (RR 140)

Evidence:

A one-year intervention study indicated that academic responding time could be increased significantly through teacher interventions, with some teachers more than doubling the academic responding time in their classrooms over the school year (RR 139). Further, teachers who received only workshop training appeared to increase academic responding time as much as teachers who also received individual feedback from observations in their classrooms. These data suggest that attention to specific interventions can be a cost-effective approach to increasing academic responding time in classrooms.

Another year-long intervention study examined the effects of providing teachers with consultation, observation, and alternative instructional interventions before a student enters the typical

referral-to-assessment phase (RR 140). Several teachers were able to implement the alternative to referral system successfully. While referral rates did drop considerably at first, it appeared that more attention still needs to be given to the recognition that by dealing with student problems in the regular classroom, special education placements can be avoided and students' instruction can be improved.

Chapter 4

Individualized Educational Plans (IEPs)

This chapter summarizes IRLD research findings on issues related to individualized educational plans (IEPs). Two specific questions are addressed in this chapter:

- When is the IEP written?
- What information is collected and used to develop the IEP?

For each question, the major findings are summarized and the data sources from which the findings were obtained are listed (generally orders in terms of recency). Specific evidence for the major findings then is presented.

7. When is the IEP Written?

Findings:

a. The development of the IEP is one of the most frequently mentioned steps in school assessment practices; the development of plans varies according to educators' input, time, and location.

b. IEPs typically are written within one year for most eligible students.

Data Sources:

- Survey of LD teachers (RR 80)
- Survey of special education directors (RR 14)

Evidence:

Learning disabilities teachers, who completed a survey on instructional program planning and implementation practices, indicated that IEPs were written within one year for 97% of the eligible students (RR 80). The majority of students' IEPs also were reviewed during the spring of the same school year.

Development of the IEP was one of the four most frequently mentioned steps in school district assessment and decision-making processes by special education directors; most directors indicated that placement decisions preceded development of IEPs (RR 14). Although many directors indicated that the IEP was developed at a meeting with parents present, some described considerable development of the plan preceding the parent meeting. In addition, the persons responsible for implementing the instructional plan most often were present at the meeting; however, about one-quarter of the directors indicated that staff members with implementation responsibilities often were not present when the IEP was developed.

8. What Information is Collected and Used to Develop the IEP?

Findings:

a. Data collected by school psychologists for program planning often are not the data found most useful by classroom teachers.

b. Teachers of learning disabled students indicate that results from formal tests are most influential in determining students' long-term goals, whereas informal techniques, particularly observation, are used primarily in establishing short-term goals.

c. Subjective teacher evaluation has the most influence on daily instruction; consultation with previous teachers, parents, or other team members is of secondary importance.

Data Sources:

- Instructional planning survey (RR 27, 30)
- Survey of LD teachers (RR 80)

Evidence:

A nationwide sample of school psychologists indicated that most used standardized tests, rather than behavioral observations, teacher

input, or record reviews, as the means to collect information for program planning (RR 30). The Wechsler Intelligence Scale for Children - Revised, the Bender Visual-Motor Gestalt Test, and the Wide Range Achievement Test were listed with greater frequency than any other tests as useful in program planning. While regular education teachers from two separate samples identified standardized tests as most useful in making program planning decisions, there was much greater variability in their responses (RR 27, 30). Teachers, in contrast to school psychologists, more often identified informal measures, behavioral observations, and teacher input as useful in program planning. They also named many more different standardized tests, and the three that were named most often (Wechsler Intelligence Scale for Children - Revised, Key Math Diagnostic Arithmetic Test, Peabody Individual Achievement Test) were not the same three identified by school psychologists.

In another survey, LD teachers indicated that the primary sources of information used to determine IEP long-term goals and short-term objectives differed (RR 80). Results from formal tests, particularly achievement tests, were most influential in determining long-term goals for 64% of the teachers. Overall scores on achievement tests, patterns of scores on achievement tests, and discrepancies between ability and achievement tests were emphasized. Only one-quarter of the teachers indicated that informal techniques, including observation of student performance and informal assessments, had the greatest influence in determining long-term goals. Consultation with previous teachers, parents, and other team members was mentioned infrequently

as a primary source, but was mentioned as a secondary source. Internal constraints (materials, time, teachers) were not considered to be influential.

In contrast, the same teachers listed informal techniques, particularly observation of student performance, as the primary source of information in developing short-term objectives. Tests were mentioned as important by 40% of the teachers; however, the major emphasis was on criterion-referenced tests rather than standardized norm-referenced achievement tests. Again, consultation with other classroom teachers, parents, and other team members rarely was reported as a primary source, but was included more often as a secondary source. Similarly, internal constraints (materials, time, teachers) were not perceived to be influential in determining short-term objectives.

Chapter 5

Interventions for Special Needs Students

This chapter summarizes IRLD research findings related to the nature of educational interventions for special needs students. Three specific questions are addressed in this chapter:

- To what extent are regular education teachers prepared to deal with special education students in their classrooms?
- What kinds of interventions do teachers prefer for students exhibiting different classroom behaviors?
- What is the nature of instruction for students one month before, one month after, and two months after an IEP is written?

For each question, the major findings are summarized and the data sources from which the findings were obtained are listed. Specific evidence for the major findings then is presented.

9. To What Extent are Regular Education Teachers Prepared to Deal With Special Education Students in their Classrooms?

Findings:

a. Most classroom teachers believe they have not been adequately trained to teach special needs students in their mainstream classrooms.

b. Recently trained teachers express more positive attitudes about their preparation for handling special needs students than do teachers trained over 10 years ago.

Data Sources:

- Survey of classroom teachers (RR 68)

Evidence:

Responses to a survey of regular classroom teachers confirm that many teachers currently working in schools believe they have not been

adequately trained to deal with the special needs of many students now placed in their mainstream classrooms (RR 68). Teachers most often rated their preparation for recognizing students' problems in the areas of drugs, abuse, LD, and ED as poor; approximately 10% of the teachers rated their preparation as good for drug-abuse and ED-related concerns. Preparation for identifying learning disabilities was rated good by about one-quarter of the teachers. Only 8% of the teachers felt adequately prepared to handle special needs students in their classroom.

Teachers' opinions varied as a function of when they received their training. Teachers trained within the past five years had more positive opinions about their training than those trained over 10 years ago. Given the teacher cuts currently being made in schools, those teachers most likely to remain in classrooms seem to be less well prepared to teach handicapped students unless districts have implemented continuing education programs.

10. What Kinds of Interventions do Teachers Prefer for Students Exhibiting Different Classroom Behaviors?

Findings:

-- Regardless of student behavior, teachers prefer to be involved in the planning and implementation of appropriate classroom interventions.

Data Sources:

- Case study investigation (RR 76)

Evidence:

After reading a case study of a third grade boy demonstrating socially immature behaviors, perceptual difficulties, or unmanageable

behaviors, regular classroom teachers rated their preference for 40 interventions varying in the degree of responsibility required of the teacher for implementation (RR 76). Teachers preferred teacher-directed interventions, such as modifying materials, selecting different materials, or monitoring students' progress. The teachers' second choices were for interventions involving consultation with parents and/or specialists. Least preferred interventions were external-placement actions (e.g., resource room) and teacher-nondirected actions (e.g., private tutoring). Only one significant difference was found as a function of the type of child rated: consultative interventions were selected less often for the case study child demonstrating perceptual difficulties. In general, regardless of student behavior, teachers indicated a desire to plan appropriate interventions within the classroom.

11. What is the Nature of Instruction for Students One Month Before, One Month After, and Two Months After an IEP is Written?

Findings:

a. No consistent trends are evident in instruction as a result of the referral, evaluation, and placement process.

b. Although instructional changes generally are observed initially, these changes often disappear two months after the writing of the IEP.

c. Observed changes in students' classroom experiences generally do not affect students' responding behaviors.

Data Sources:

- Instructional time observations (RR 95)

Evidence:

Observations of four students during the referral-to-placement process revealed few consistent trends and extreme variability (RR 95). Changes in instructional programs that were observed from observation prior to IEP writing to one month following IEP often disappeared by the time of observation at two months following writing of the IEP. Further, while some changes were observed in the students' classroom experiences, these changes were not reflected consistently in changes in the students' responding times, including active academic responding times. The finding of variability among students was highlighted by the lack of consistency in instructional times and academic responding times even for students in the same school and for students at the same grade level.

Chapter 6

Interventions for LD Students

This chapter summarizes IRLD research findings related to the nature of educational interventions for school-identified LD students. Seven specific questions are addressed in this chapter:

- What level of service and student-teacher ratio are most common in LD instruction?
- How much time is devoted to academic and non-academic areas?
- What are the critical factors considered when developing interventions?
- How are changes in students' instructional programs characterized?
- What strategies are used and believed to be effective with LD students?
- What is the nature of instruction for LD students compared to regular education students?
- What is the nature of instruction for students in different LD service delivery environments?

For each question, the major findings are summarized and the data sources from which the findings were obtained are listed (generally ordered in terms of recency). Specific evidence for the major findings then is presented.

12. What Level of Service and Student-Teacher Ratio are Most Common in LD Instruction?

Findings:

a. Most LD students receive part time direct instruction from a resource room teacher.

b. More LD students are placed in full-time special education settings than are placed in monitoring or consultation service delivery modes.

c. Teachers providing indirect service are responsible for

twice the number of students as those teachers providing direct instruction.

Data Sources:

- Survey of LD teachers (RR 80)
- Survey of special education teachers (RR 35)

Evidence:

A national sample of elementary and secondary LD teachers indicated the amount of direct service time for one of their students (RR 80). The amount of direct service time defines the level of service. Most students were served through level 3 service: 70% of the teachers indicated that they worked directly with the students for up to four hours a day. The remaining teachers worked directly with the students in a self-contained setting (level 5), special residential school (level 6), or 4-6 hours per day (level 4); 7% provided indirect monitoring (level 1) or consultation (level 2) services. Another, more restricted, sample indicated that LD students often received from 30 to 60 minutes of resource room service (RR 35). This sample of teachers also indicated that they believed there was no direct relationship between the amount of time a student had been in a program and the amount of time the student currently was being seen by the resource room teacher. In response to a survey, another group of LD teachers reported providing direct service to an average of 14 students (RR 80). Those teachers providing indirect service indicated they had an average of 38 students each.

13. How Much Time is Devoted to Academic and Non-Academic Areas?

Findings:

a. LD teachers most often provide academic instruction in reading or math.

b. The amount of time devoted to academic and non-academic areas varies for individual students.

c. Spelling instruction most often is considered supplemental, while instruction in other academic areas is split more evenly between replacement and supplemental work.

Data Sources:

- Survey of LD teachers (RR 65, 80)

Evidence:

LD teachers reported that most time was devoted to reading, with the average time being approximately 45 minutes (RR 80). Math instruction was next, followed by written language and spelling (about 25 minutes each). Variability in times was great for each academic area; some students received 3 minutes of reading instruction while others received 2 hours. Instruction in reading, math, and written language was considered supplemental as often as it was considered to be a replacement for regular classroom work (RR 65). However, instruction in spelling was considered supplemental to regular class instruction rather than as a replacement for it. Teachers also reported that an average of 45 minutes per day was spent in areas other than reading, math, written language, and spelling (RR 80). The specific areas varied greatly including such topics as social studies, science, behavior, fine motor development, art, affective education, career education, thinking skills, and study skills. Again, the

amount of time devoted to these other areas varied greatly, ranging from 3 to 200 minutes.

14. What are the Critical Factors Considered When Developing Interventions?

Findings:

a. Subjective rather than objective data primarily are used in intervention planning.

b. Student characteristics rather than family or school information are considered most important in making decisions about the components of students' programs.

Data Sources:

- Survey of LD teachers (RR 80)
- Test review (RR 5)

Evidence:

Over half of a national sample of LD teachers indicated that "personal observation of student performance" was their primary consideration for making program changes for their students (RR 80). About one-fifth of the teachers said objective performance data were the primary influence for making instructional program changes. Thus, subjective teacher judgments appear to play the major role in determining interventions for LD students. External constraints, such as scheduling or changes in classroom curriculum, were not seen as having a major effect on intervention planning. The minimal effect of standardized tests during intervention probably is related to the lack of instructionally-relevant information obtained from global performance scores and the relative difficulty in modifying standardized tests so that they provide information from which to begin to plan meaningful educational programs (RR 5).

The LD teachers also identified factors that influenced various components of students' programs, specifically, the amount of time services were provided, the materials used, the methods used, and the motivational strategies used. Student characteristics such as attention span, motivation, and social skills, rather than family or classroom information, school district constraints (e.g., materials, caseload), or tests, appeared to be the most important factor for most teachers when making decisions about the various components of the students' program. Student characteristics was the primary factor influencing teachers' decisions about time, methods, and motivational strategies. For determining the materials used with students, the teachers were influenced by student characteristics, student performance on informal measures, and the materials available.

15. How are Changes in Students' Instructional Programs Characterized?

Findings:

a. Teachers most often change materials, methods, or motivational strategies for students.

b. Teachers seldom change the instructional programs of students.

Data Sources:

- Comparative study of formative evaluation effects (RR 88, 96, 111)
- Survey of LD teachers (RR 80,137)
- Comparative study of teachers' goals (RR 61)

Evidence:

Resource room teachers using direct measures to monitor students' progress made an average of only 1-2 changes in the instructional

program per year per student (RR 61, 88, 96, 111). In a survey of LD teachers, teachers who relied on test-based information in their on-going instructional evaluations were more likely to make program changes than were teachers who primarily used observational techniques (RR 137). The areas most likely to be changed included materials, methods, and motivational strategies; changes in time allocation and the student-teacher ratio were rated unlikely by the teachers (RR 80). Most teachers used subjective judgment rather than objective performance data as the basis for instructional program changes.

16. What Strategies are Used and Believed to be Effective with LD Students?

Findings:

a. Instructional materials selected by LD teachers differ as a function of academic area and level of the student; teaching methods and motivational strategies do not differ for elementary and secondary students.

b. Work on specific skills within academic areas and practice are the most commonly used teaching methods.

c. Instructional procedures considered to be effective differ for specific academic areas; structured (task analysis) skills teaching frequently is identified as an effective procedure.

d. Instructional materials and procedures viewed as effective for LD students also are viewed as effective for other special education students.

e. Although not used very often, strategies that involve students in selecting instructional activities or teachers in continuously monitoring student performance seem to be effective with resource room students.

Data Sources:

- Surveys of LD teachers (RR 65, 66, 80)
- Survey of special education teachers (RR 36)
- Experimental comparison of self-management strategies (RR 115, 117)

- Instructional time observations (RR 72, 78)
- Comparative study of formative evaluation effects (RR 96, 97, 116, 121)
- Observation of management strategies and misbehavior (RR 133)

Evidence:

A survey of LD teachers indicated that their choice of instructional materials differed for specific academic areas (RR 80). While the regular classroom text was used most often for math and spelling, a commercial program (e.g., Distar) was the primary material for reading instruction. Other choices included consumables and locally developed programs. In describing instructional methods, two-thirds of the teachers primarily emphasized work on subskills in both reading and math; two-thirds of the teachers used work on subskills and practice. Practice was the second most frequently used method for all academic areas; modality training, modeling, and games/machinery were used infrequently. With regard to motivational strategies, social and indirect reinforcers were used most often by the LD teachers. Other strategies (e.g., concrete reinforcers, contracts, self-management strategies) were used by less than 10% of the teachers.

Elementary and secondary level teachers did not differ in methods and motivational strategies used with students (RR 65). Some differences were noted in choice of materials. Secondary teachers relied more on commercial programs in reading and consumables in spelling than did elementary teachers. Elementary teachers used more varied materials to teach reading; they used the classroom text most often to teach spelling.

When indicating the main reason for a student's progress by the time of the annual review, variability among the LD teachers was apparent (RR 80). Materials used with the student was never considered to be the main reason for student progress. Four of six provided reasons were mentioned by at least one-fifth of the sample; these included additional instructional time, constant monitoring of student progress, student motivation, and a lower student/teacher ratio. The instructional approach used was mentioned by 1..5% of the teachers. Thus, teachers in this sample attributed student progress to practice, student effort, and on-going teacher evaluation, rather than to the methods and materials employed.

A sample of LD teachers indicated that effective instructional procedures differed for the academic areas of reading, math, and written language (RR 66). Specific programs or approaches were listed most frequently as "working" when teaching reading to LD students. Although a total of 11 strategies were identified for teaching reading, each of the other strategies (e.g., multi-sensory, high interest materials) was mentioned by less than 10% of the teachers. Manipulative materials, repetition/practice, and a task analytic/structural approach frequently were indicated as successful when teaching math to LD students; a specific program/approach was mentioned infrequently. Structured (task analysis) skills teaching was indicated most often as an effective way to teach written language to LD students; high interest materials, specific programs, and a modality approach also were deemed effective.

For all academic areas, the teachers identified experience as the major source of information about the procedures effective in teaching

academic skills to learning disabled students (RR 66). Although training was cited second most often, it was mentioned much less often. The experience of the teacher (i.e., years of teaching) did not result in differences regarding the identified effective strategy for reading and written language; only one difference was found for math, that is, teachers with more experience listed specific programs or approaches to teaching mathematics with greater frequency than did teachers with less experience.

Samples of LD, ED, and EMH teachers showed few differences in their goals for their students, with all groups believing it important to have the child learn in the basic education program, to reduce inappropriate types of behavior, and to provide interventions based on affective needs (RR 35). The three groups showed few differences in the major teaching activities they selected for their students.

Experimental comparisons of three treatments involving teacher vs student selection of instructional activities (RR 115, 117) indicated that when students select their own instructional activities from among several options, their achievement is greater than when the teacher selects for them, even though the activities selected by teachers are characterized by greater structure. Similarly, teachers who have implemented a repeated measurement and evaluation system have made more appropriate decisions about changing students' programs (RR 96, 97, 116). Further, their students have made better progress than students whose teachers did not successfully implement the system.

Some research has indicated that academic engaged time variables are highly related to student achievement, although the directions of

the relationships are not always as expected (RR 72, 78). Other research has indicated that certain process-product variables that have been considered important in regular education may not be as effective in special education (RR 121, 133).

17. What is the Nature of Instruction for LD Students Compared to Regular Education Students?

Findings:

a. There are no differences in time allocated to instruction for LD and non-LD students. However, there are significant differences in the type of instruction received. LD students receive about 10 times as much individual instruction (34 min) and about 3 times as much approval (1/2 min) as non-LD students.

b. Despite differences in the nature of instruction, there are no differences in the total academic responding time of LD and non-LD students, which totals only about 45 minutes during a 390-minute school day. However, there are some differences in the type of academic responding.

c. LD students spend more time engaged in reading aloud, talking about academics, playing academic games, and asking and answering questions than do non-LD students, while non-LD students spend more time engaged in writing than do LD students.

d. Instruction received by LD students in the resource room and in the mainstream classroom differs in several ways; further, they make several specific active academic responses for greater proportions of time in the resource room. During regular classroom time, LD and non-LD students receive similar instruction and engage in similar amounts of academic, task management, and inappropriate responding.

Data Sources:

- Instructional time observations (RR 72, 90)

Evidence:

Observations of LD and non-LD students in terms of activity, task, structure, teacher location, teacher behavior, and student

response indicated relatively few differences (RR 72). There were no differences in the amounts of time allocated to activities; for both groups about 85% of the instructional day (22% of the 390-minute school day) was allocated to academic activities. Most time was allocated to reading, math, and language; an average of less than 15 minutes each day was allocated to other activities such as science, spelling, and social studies. Both groups most often used readers and least often were involved in listening to teacher lectures. Both groups spent most of their time in entire group structures. There were no differences in total active academic responding times for the two groups.

Significant differences were found between the two groups in the amount of time allocated to the use of other media such as flashcards and films (with LD students using other media for a greater amount of time), as well as in the amount of time allocated to individual and entire group structures. LD students received more individual instruction (16% of instruction) than non-LD students (1.4%), and less entire group instruction (60%) than non-LD students (75%). LD students received significantly more time with the teacher beside them than did non-LD students, and also received significantly more teacher approval than did the non-LD students (although the amount of time was very low for both groups).

While there were no differences in the total academic responding times of LD and non-LD students, non-LD students spent significantly more time writing, while LD students spent more time engaged in playing academic games, reading aloud, talking about academics, and

asking and answering academic questions. However, total academic responding time for both LD and non-LD students was low. Both groups spent most of their time making passive responses, such as listening, waiting, and raising hands.

In a second analysis, LD students' instruction in the resource classroom was compared to non-LD classmates' instruction in the regular classroom during the same time period (RR 90). The average observation period was 95 minutes per day. No significant differences were found in the times allocated to activities and tasks, or in students' overall academic, task management, or inappropriate responding times. The groups differed in the amount of time allocated to individual teaching structures; LD students in the resource classroom were allocated nearly 25 times as much individual teaching as non-LD students in the regular classroom. LD students received significantly more approval and teaching responses, and significantly more time with the teacher beside them. Although no differences emerged for the amount of time the two groups were engaged in active academic responses overall, LD students engaged in academic games, reading aloud, academic talk, and asking academic questions for greater amounts of time than non-LD students (however, all times were very low).

In another analysis, instruction for LD and non-LD students was compared when both were in the regular classroom (RR 90). No differences between the groups were identified for times allocated to activities, tasks, teacher locations, teacher activities, or student responses.

Comparisons of the experiences of LD students in regular and resource rooms indicated that their placement in a resource room setting for part of the day altered the nature of instruction for them in some ways. In the resource room, they were allocated more small group instruction and more teacher approval. In the mainstream classroom, more time was allocated to entire group structures and other talk. Although the nature of instruction in the two settings appeared to influence the LD students' opportunities to respond in specific ways, it did not seem to influence their overall opportunities to make active academic responses.

18. What is the Nature of Instruction for Students in Different LD Service Delivery Environments?

Findings:

a. Several differences seem to exist in instruction as a function of the level of LD services. Differences are most evident in times allocated for academic activities and instructional groupings.

b. Almost no differences exist in students' responses as a function of service delivery level; students receiving consultation services in general seem to make more inappropriate responses than do students in full time special education placements.

c. Comparisons in terms of the severity of the learning disability also indicate differences in instructional approaches.

Data Sources:

- Instructional time observations (RR 78)

Evidence:

Observations of LD students in five levels of service delivery indicated there were several differences in instructional approaches

(RR 78). Students in levels 2 and 3 were allocated more time for academic activities than were students in full time special education placement. For students in all service levels, most time was allocated to reading and math; these activities accounted for over 40% of the observed school day for students in each level. For students in full time special education placement, more time was allocated to language than math. No differences were found for time allocated to non-academic activities. In terms of teaching structures, students in levels 1-3 (i.e., less than half the school day in special education) received more entire group instruction than students in levels 4-5. Students in level 4 services (i.e., over 4 hours per day with some mainstream instruction) were allocated more individual instruction than students in all other levels. Times in individual structures increased from level 1 to level 4 but then decreased for full time special education placement.

Regarding students' responses, no differences were found in active academic responding overall or task management responses overall for students in the various service delivery levels. However, students receiving consultation services (level 2) spent more time making inappropriate responses (about 45 minutes per day) than did students in full time special education placements (about 15 minutes per day).

In a second analysis, the students in different levels were combined and compared; several differences were found in instructional approaches for the less and more severely learning disabled. Less severely learning disabled students engaged in silent reading for

greater amounts of time than more severely learning disabled students, but they also spent more time in inappropriate student responses. Less severely learning disabled students were allocated more time for academic activities, entire group teaching structures, and no teacher response than were more severely learning disabled students, who were allocated more time for other media, individual teaching structures, and teacher approval.

Table 1

Instructional Intervention Research Data Sources

Data Source	Research Reports	Questions
Survey of LD teachers	65,80,137	7,8,12,13,14,15, 16
Instructional time observations	72,73,78,79, 86,90,95,119	1,2,3,4,11,16,17, 18
Survey of special ed teachers	35	12,16
Comparative study of formative evaluation effects	88,96,97,111 116,121	15,16
Survey of classroom teachers	91	5
Intervention study on increasing academic responding time	139	6
Comparative study of pre-referral interventions	140	6
Survey of special ed directors	14	7
Instructional planning surveys	27,30	8
Survey of classroom teachers	68	9
Case study investigations	76	10
Test review	5	14
Comparative study of teacher goals	61	15
Survey of LD teachers	66	16
Experimental comparison of self-management strategies	115,117	16
Observation of management strategies and misbehavior	133	16

Chapter 7

Data Sources

This chapter provides a summary of the data sources and research procedures used to obtain the research findings presented in the previous chapters. An overview of the data sources is provided in Table 1. The IRLD research reports in which more detailed explanations may be found are listed in the table, as are the numbers of corresponding research questions. The data sources are ordered within this chapter (and the table) according to the frequency with which they are cited as sources of evidence for various research questions.

Survey of Classroom Teachers' Instructional Program Planning and Implementation Practices (RR 65, 80, 137)

During 1980-1981, 128 teachers of learning disabled students completed a survey on instructional program planning and implementation practices. The survey was sent to teachers randomly selected from the national membership list of the Council for Learning Disabilities (CLD) of the Council for Exceptional Children; a follow-up reminder was sent. The responding teachers were from 42 states distributed fairly evenly among rural, suburban, and urban school districts. The majority of teachers were female, held graduate degrees, taught in elementary schools, and provided direct service instruction to learning disabled students. The average number of years of experience teaching special education students was 6.3 years.

After interviewing 25 learning disabilities teachers, a

comprehensive eight-section survey was designed. Each responding teacher randomly selected one student (according to specific guidelines provided by investigators) from his/her caseload and provided information about this student's program, including school and teacher information, student information, selection of IEP goals and objectives, program description, determinants of the program, changes in the original instructional plan, evaluation of progress, and other topics (e.g., teacher satisfaction, general comments). Teachers were provided with a repertoire of responses for some questions; however, the investigators did not view the list as exhaustive and encouraged the teachers' use of "other" as a response.

Instructional Time Observations (RR 72, 73, 78, 79, 86, 90, 95, 119)

During 1980-81, students were observed systematically to examine the nature of instruction and academic responding time for various groups of students. Data were recorded on 53 variables within six categories in 10-second intervals by experienced observers over entire school days for each student observed. The six categories included activity, task, teaching structure, teacher location, teacher activity, and student response. At the end of the school year (spring 1981), students for whom parental permission was given were administered an individual achievement test.

The nature of instruction and academic responding times were examined in eight different studies. The subjects included in these studies and specific procedures are described below.

LD and non-LD students (RR 72). Thirty-four third and fourth grade students from 17 classrooms in nine elementary schools in a

suburban school district were observed over two entire school days to examine the nature of instruction and academic responding for LD and non-LD students. LD students were selected first by randomly picking from third and fourth grade students receiving LD instruction. A non-LD peer for each LD student then was selected randomly from the names of same-sex students in the LD students' homerooms. Twenty-four of the students were boys and 10 were girls; their homeroom teachers included 12 females and 5 males. The LD students were in resource rooms for an average of 77.4 minutes per day. Student pairs (LD and non-LD) always were observed on the same days.

Teacher-perceived behavioral competence (RR 73). Thirty third and fourth grade students (15 boys, 15 girls) from 10 classrooms in five suburban elementary schools were observed over two entire school days to examine the nature of instruction and academic responding time for students of high, middle, and low teacher-perceived behavioral competence. Students within the participating classrooms had been rated by their teachers (8 females, 2 males) in terms of their behavioral competence in the classroom, from top (most competent) to bottom (least competent). One student was randomly selected from each behavioral group (high, middle, low) in each of the 10 classrooms, with the restriction that all students from one classroom be of the same sex.

Different LD service delivery environments (RR 78). Twenty-six LD students were observed over two entire school days to examine the extent to which students in different service delivery levels were provided with varying instructional approaches and opportunities to

learn. Five levels of LD service were defined on a continuum in terms of the amount of specialized help received by the student. Level 1 students received indirect LD specialist help in the form of follow-up monitoring and some consultation while level 5 students received all instruction within a special classroom. Students were selected randomly from each level of service, with 3 students each from levels 1, 2, 4, and 5, and 14 students from level 3 (this distribution was reflective of the general distribution in the population). Seventeen of the students were boys and 9 were girls; their homeroom teachers included 17 females and 6 males. Students receiving LD services at levels 1-4 were from 24 classrooms in 10 elementary schools in a suburban school district; level 5 subjects were from two classrooms in one elementary urban school (level 5 services were not offered in the suburban school district).

Reading group placement (RR 79). Twenty-seven second grade students were observed during reading periods for two days to examine the nature of instruction and academic responding times for students in high, middle, and low reading groups. Three students from each of nine suburban schools were selected randomly from the high, middle, and low second-grade reading groups within each school. The students included 16 boys and 11 girls; their reading teachers included 25 females and 1 male. Students were observed only during the two hours designated for second-grade reading instruction by the school district. In most cases, this was continuous observation; in a few cases, the two hours were divided in some way (1 hour in the morning and 1 hour in the afternoon).

Teacher-perceived academic competence (RR 86). Thirty third and fourth grade students were observed over two entire school days to examine the nature of instruction and students' responding times for students who had been ranked by their teachers as high, middle, or low in academic competence. The students were from 10 classrooms in five elementary schools in a suburban midwestern school district; 15 were male and 15 were female. Their teachers included eight females and two males. Before observations were started, each teacher had ranked all students within the class in terms of academic competence; one student was randomly selected from each third of the ranked list with the restriction that the three students from one class be of the same sex.

Regular classroom vs. resource room (RR 90). Eight pairs of LD and non-LD students from eight classrooms in eight suburban elementary schools were observed over two entire school days. The students were in grades 3-4; five of the pairs were males and three were females. Their homeroom teachers included five females and three males. The LD students were receiving services in levels 3 and 4, with scheduled time in the resource room ranging from 30 minutes to 225 minutes per day. LD students were selected from third and fourth grade students who were on the schools' LD rolls; a non-LD peer then was selected for each LD student by randomly selecting from the names of same-sex students in the LD students' homerooms. Observational data were analyzed in three ways: (a) percentage data were used in comparisons of LD students' times in the regular classroom with their times in the resource room; (b) actual times were used in comparisons of LD

students times' with non-LD students' times when the LD student was in the regular classroom, and (c) actual times were used in comparisons of LD students' times with non-LD students' times when the LD students were in the resource room.

Referred students (RR 95). Four students were observed for two entire school days each at three different times within the referral-to-placement process. The students were from four classrooms in three elementary schools in a suburban midwestern school district; three were male and one was female. They were in grades 1-3. The students had been referred by their teachers (all female) to their school's child study teams for consideration for special education evaluations. The first two days of data were collected before the child study team met to consider the referral. The next two days of data were collected approximately one month after an IEP had been written for the student. The last two days of data were collected approximately two months after the IEP had been specified.

Academic responding as a function of instructional ecology (RR 119). The academic responding times of 54 elementary students were examined during various activities, tasks, teaching structures, teacher locations, and teacher activities. The students were in 10 classrooms third or fourth grade classrooms in five elementary schools, and were observed for two days each. The students included 26 boys and 28 girls; their teachers were 8 females and 2 males.

Survey of Special Education Teachers' Classroom Perspectives (RR 35)

During 1979-80, an associate of Minnesota's Institute asked teachers of learning disabled, educable mentally retarded, and

emotionally disturbed children to provide information regarding the children in their classes and some of their program activities. The responses of 75 special education teachers were analyzed; 25 of these were teachers of LD students. All teachers were from a school system in Florida. The survey included three sections. The first presented statements about objectives of resource room planning; teachers indicated how important each objective was to their current programming efforts. The second section requested information about the student population served by the teachers. The last section included questions about the actual resource room program.

Comparative Study of Formative Evaluation Effects (RR 88, 96, 97, 111, 116, 121)

An experimental-control comparison was conducted during 1981-82 to determine the effects of training teachers in the use of continuous direct measures in reading on student achievement and the structure of the learning environment. The subjects included three different samples; these are described below. After extensive training in the use of direct measurement procedures, teachers were directed to measure experimental students daily using one-minute timed samples of reading from the student's curriculum, to develop IEP long-range goals and short-term objectives, and to use the data to evaluate the instructional program, over the entire school year. Visits by observers and frequent phone contacts provided feedback to the teachers on the accuracy of their implementation of the measures.

Both experimental and control subjects were administered two achievement measures (timed samples and subtests from a standardized

test) and the Structure of Instruction Rating Scale. In addition, the Accuracy of Implementation Rating Scale was completed for experimental subjects. The Structure of Implementation Rating Scale (SIRS) was designed to measure the degree of structure of the instructional lesson that a student received. The observers rated 12 factors on a scale of 1 (low) to 5 (high). Inter-rater agreement was high (.92); in addition, the reliability of the SIRS as indicated by measures of homogeneity was .86. The Accuracy of Implementation Rating Scale (AIRS) was designed to assess the degree of implementation of the continuous direct measures. The AIRS consisted of 12 items rated on a 1 (low) to 5 (high) scale. Parts of the scale require direct observation whereas other items on the checklist are completed by inspection of student reading graphs and reading IEP forms. The reliability of the AIRS as indexed by internal consistency of items was .62, which is adequate for research purposes.

Sample 1 (RR 88, 116, 121). The subjects were 40 grade 1-8 students in a rural educational cooperative, representing 20 experimental-control matched pairs. Three fourths of the students were boys and the mean grade level of the students was 3.8. All subjects were functioning dramatically below their peers in reading. The students were studied in the resource room setting; their teachers were seven special education resource teachers whose experience ranged from two to six years.

Sample 2 (RR 96, 97). A total of 39 special education teachers and their students, from a large urban school district in the eastern part of the U.S., participated in the study. Most of the teachers

were female; students selected from their caseloads read about three years below grade level (fifth grade). Students were in programs for the emotionally handicapped, or the brain-injured, or were placed in resource rooms.

Sample 3 (RR 111, 116, 121). The subjects were 38 elementary grade 1-6 students in a suburban school district. Most of the students (84%) were male.

Survey of Regular Education Teachers Who Had Referred Students for Psychoeducational Evaluation (RR 91)

During 1980-81, 105 elementary regular classroom teachers completed referral surveys at the time they referred students for psychoeducational evaluations. Ninety-one percent of the teacher sample was female; the average number of years of teaching experience was 11.4 (range = 1-35 yrs.). The average class size per teacher was 25 students. The teachers were from 14 public school districts within 10 states distributed across the four regions of the United States. Suburban, urban, and rural school districts were included. School district administrators served as contact liaisons between researchers and schools. Principals asked teachers to read a letter describing the study at the time they initiated a referral, and if interested in participating, to complete the survey and return it directly to the investigators.

A two-page survey form was used to elicit information about the referred students. In addition to rating the referred student relative to his/her reading group classmates, each teacher provided information regarding six factors: (a) reasons for referral, (b)

causes of the student's school difficulties, (c) interventions attempted within the classroom before referral, (d) desired outcomes from the referral, (e) desired outcomes from the assessment, and (f) desired changes in the referred student's behavior. Ratings of students relative to reading group peers were made on a scale of 1 to 5 across several dimensions: functioning within the group, functioning as typical of the group, ability to learn, speed of learning, motivation, behavior, maturity, and judgment. A free-response format was used to obtain information on the six factors.

Intervention Study on Increasing Academic Responding Time (RR 139)

During 1982-83, eight teachers in two suburban elementary schools participated in a year-long intervention project on increasing students' academic engaged time. In each school, four teachers were selected by the building principal from teachers volunteering to participate in the project. Of the four teachers in each school, two attended inservice presentations and also were observed after the inservice to monitor their students' academic responding time. The other two teachers in each school attended the same inservice presentations and their classrooms were observed following the inservices; additionally, they received feedback consultation based on the classroom observation results. Thus, four teachers participated in the treatment condition of inservice only, and four participated in the treatment condition of inservice plus feedback consultation. Six of the teachers taught in the primary grades (first through third) and two taught in the intermediate grades (fourth through sixth). Seven teachers were female.

Comparative Study of Pre-Referral Interventions (RR 140)

During 1982-83, three schools (2 elementary, 1 junior high) participated in a study on the effects of implementing a pre-referral intervention system. In this system, consultation, observation, and intervention occurred before a student entered the typical referral for assessment phase.

A survey assessing teachers' beliefs about special services and teachers' experiences and preferences about the referral-to-placemente process was completed in the fall and spring of the school year. In addition referral rates were tabulated at the beginning of the school year, midway through the school year and at the end of the school year for both the current year (1982-83) and the previous year (1981-82). Data were analyzed to determine both (a) the effect of the prereferral intervention on referral rates as compared to the previous year, and (b) the extent to which changes in teachers' attitudes occurred over the school year.

Survey of Special Education Directors on Assessment and Decision-Making Practices (RR 14)

During 1979, 100 directors of special education from 49 states provided information on assessment and decision-making practices in their school districts. Their school districts were located in rural, urban, and suburban settings, and varied widely in total population served and number of pupils attending elementary classes. Elementary class enrollment ranged from less than 100 pupils to over 50,000 pupils. The average per-pupil expenditure for regular education services was $1391.24; the average expenditure for special education services was $2205.50.

In addition to obtaining background information about the school district, the survey elicited information on (a) the typical composition of the teams involved in making screening, placement, and instructional programming decisions, (b) the sequence of steps in the assessment and decision-making process, (c) factors thought to influence the outcome of the team decision-making process, and (d) general concerns regarding placement team decision making and the development of the individualized educational plan (IEP).

Instructional Planning Surveys (RR 27, 30)

Two samples of teachers and school psychologists were surveyed during 1979-80 regarding the use of assessment procedures in planning instructional programs for handicapped students. The first sample was considered to be a pilot study sample.

In the pilot study, a group of 79 LD lead teachers, coordinators and supervisors, and a group of 36 school psychologists were asked to (a) identify the types of information they considered useful for instructional planning for handicapped students, and (b) indicate the greatest need of LD students. All participants were from Minnesota. The majority of the teachers were female and the average years of teaching experience was 13.2. The majority of school psychologists were male and the average number of years as practicing psychologists was 6.3; about one-third indicated they had an average of three years teaching experience. Half of the teachers completed a one-page survey that asked them to rank order a list of assessment procedures in terms of their usefulness for instructional planning. The remaining teachers and all school psychologists completed a one-page free-

response survey on which they listed 10 assessment procedures in rank order according to their usefulness. All teachers and psychologists also ranked four listed needs of LD students (academic skills, classroom behavior, self-image, and "other").

The second sample included a national sample of 53 school psychologists and 34 regular education teachers. The school psychologists' names were randomly selected from the membership list for the National Association for School Psychologists. Since a nationwide list of elementary school teachers was unavailable, the names of elementary schools were randomly selected from a directory of U.S. schools, and a letter was sent to the principal directing him or her to randomly select a classroom teacher to complete the survey. Follow-up letters were employed. The school psychologists were from 24 different states; the teachers were from 27 different states. School psychologists were instructed to list 10 devices or data collection procedures they most often use in assessments conducted to plan instructional programs for handicapped students. Teachers were instructed to list the 10 devices or data collection procedures they find most useful for planning instructional programs for handicapped students. Both teachers and school psychologists were instructed to think about the previous school year when they developed their lists, to be specific, and to list devices in order, beginning with the one of greatest value.

Survey of Classroom Teachers about Professional Education Training Programs (RR 68)

During the fall of 1980, elementary and secondary teachers from one metropolitan school district attending a workshop were asked to

provide their opinions about the educational programs in which they were trained. While attendance at the workshop was mandatory, completion of the "Teacher Survey" during the workshop was voluntary. The greatest percentage of the 148 responding teachers (45%) were certified in elementary education. The level of education ranged from a bachelor's degree (63%) to a specialist or doctorate (1.4%); about one-fifth of the teachers held a master's degree.

A one-page survey was developed to examine the extent to which teachers' training prepared them to recognize and teach students with special problems. Items were presented in a multiple-choice format, with the choices being good, fair, or poor. The survey was distributed to the participants at the beginning of the workshop and turned in on a voluntary basis at the conclusion of the workshop. In addition to analyses conducted on the total group of subjects, responses from two groups of teachers (5 or less years of teaching experience vs. 10 or more years of teaching experience) were compared.

Case Study Investigation (RR 76)

During 1980-81, 174 elementary teachers reviewed a case study on a third grade male student exhibiting either unmanageable behavior, socially immature behavior, or perceptual difficulties within the classroom. Eighty-six percent of the sample was female and 65% were between the ages of 26 and 44. Most (92%) of the teachers taught in public schools; the distribution of participants from various types of communities (e.g., suburban, urban, rural) and grade levels (1-7) was relatively even. Teachers from each state, with the exception of Alaska, were represented. Two-thirds of the subjects had completed

bachelor's or master's degrees and 40% had completed coursework in special education.

The teachers were assigned a specific student summary (i.e., immature, unmanageable, perceptual) according to the order of receipt of their signatures agreeing to participate in the study. The materials were sent in two separate mailings. The first set of materials included the student case study and an Actions to Be Taken survey. In this survey, teachers' responses to each of 40 statements about intervention were solicited. Each treatment alternative was presented in a sentence to which the teacher was to indicate degrees of agreement (i.e., 5), or disagreement (i.e., 1) on a 1 to 5 scale. The 40 intervention choices ranged from those in which the classroom teacher would have primary responsibility, to those suggesting shared responsibility, to those where the teacher would have no responsibility in implementation. The teacher then was sent a Disturbing Behavior Checklist II, Rotter's Internal-External Scale, and a demographic information form.

A two-week time limit was suggested for completing each set of materials; both a follow-up letter and postcard were used to encourage the subjects to return completed materials. The final sample included approximately equivalent numbers of teachers who received and evaluated the immature (N=57), unmanageable (N=58), and perceptual (N=59) students.

Test Review: Extending a Test for Diagnostic Purposes (RR 5)

During 1978-79, an associate of the Institute analyzed the mathematics subtest of a popular standardized test and then

represented its content in a format similar to that used in diagnostic math tests. An error analysis matrix was developed; it was applied to the mathematics performance of a sixth grade student.

Comparative Study of Teachers' Goal Setting Strategies on Student Achievement (RR 61)

During 1979-80, 20 special education resource teachers from a midwestern metropolitan area participated in a 12-week study to examine the effects on student reading achievement of (a) goal size and data-utilization rule, and (b) measurement frequency. The majority of teachers were female; they had an average of 9.6 years teaching experience. Each teacher selected four to six students from his/her caseload, resulting in a student sample of 88 boys and 20 girls. The students' mean age was 10.3 years; their mean grade level was 3.9.

Teachers were randomly assigned to one of two experimental treatment groups for the purpose of measuring student progress: Long-Term Goal Measurement (LTGM) or Short-Term Goal Measurement (STGM). In LTGM, teachers tested students' oral reading performance by administering a 30-second word recognition test comprised of 25 words randomly selected from the large set of words to be introduced within the 12-week study. Teachers in this condition were required to make an instructional intervention every 10 days. In the STGM group, teachers tested a student's reading performance by administering a 30-second word recognition test comprised of 25 words that included vocabulary words introduced in the current instructional period plus words sampled from preceding stories. Teachers compared the student's

performance against a short-term aimline related to the current short-term goal and made program adjustments accordingly. Both groups of teachers randomly assigned their students to one of three frequency of measurement conditions: daily, weekly, or pre-post measurement. During the first, seventh, and twelfth weeks of the study, teachers administered curriculum-based measures (both word recognition and oral reading passages) to all students in the study.

Survey of LD Teachers on Their Beliefs About LD Students (RR 66)

During 1980-81, a national sample of 127 LD teachers provided information on several factors related to their beliefs about LD students and instructional procedures that work with them. The teachers were from 36 states, the District of Columbia, and Canada, and were employed in urban, suburban, and rural communities. Most of the teachers were working with elementary students, and most were female.

A two-page survey form elicited information on the teachers' beliefs about LD students and effective instructional interventions. Six free-response items asked for descriptions of: (a) major characteristics of LD students, (b) major reasons children become LD, (c) information most useful in determining level and amount of service needed by LD students, (d) what works best for teaching reading to LD students, (e) what works best for teaching mathematics to LD students, and (f) what works best for teaching written language to LD students. For each response to these items, subjects were instructed to indicate the major soruce of their information (experience, books and journals, training, or other). The survey also presented seven statements about

of them on a four-point scale from "strongly agree" to "strongly disagree." In addition, subjects were asked to indicate the extent to which 15 student characteristics were a problem in working with LD youngsters, using a four-point scale from "very significant problem" to "not a problem." Finally, the survey asked subjects to provide information about their backgrounds, the programs in which they were teaching, the children served, and their school district criteria for classification of a student as LD.

Experimental Comparison of Self-Management Strategies (RR 115, 117)

During 1981-82, the effects of student charting and student selection of instructional activities were examined. In addition, the nature of student-selected activities was compared to the nature of teacher-selected activities. Forty-two elementary resource room students from a rural special education cooperative participated in the study. They were selected from the caseloads of 8 resource teachers who had agreed to participate in the study.

Observation of Management Strategies and Misbehavior (RR 133)

During 1982-83, observations were conducted to assess the type of management techniques used to control behavior. Subjects were six teachers in a program for children who had been referred for inappropriate behavior in the classroom. Observations occurred three times during the fall. Correlational analyses were used to determine the relationships among teacher behaviors, and between teacher behavior and measures of student misbehavior.

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