1974

Evaluation of the Specific Learning Disabilities Program at the Floyd Elementary School

Thomas V. Daigle

EVALUATION OF THE SPECIFIC LEARNING DISABILITIES PROGRAM AT THE FLOYD ELEMENTARY SCHOOL

Abstract of a Thesis

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

University of Northern Iowa

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by

Thomas V. Daigle'

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For the school year 1973-1974, thirteen students at Floyd Elementary School were identified as having specific learning disabilities in grades one and two. They became the experimental group for this study. Another sixteen students in another elementary school in the same district at the same grade levels were also identified as having specific learning disabilities. This group did not have the benefit of a specific learning disabilities program in their school. These students comprised the control group for this study. The purpose of this study was to investigate the effectiveness of the specific learning disabilities program at Floyd in developing reading skills. The study lasted one school year. The research attempted to determine if the Floyd first and second grades students in the specific learning disabilities program obtained a significantly higher reading achievement level over similar but untreated students in the control group.

Data at the beginning of this research showed that the experimental and control groups were similar. Both groups were rural, both groups performed at approximately the same reading level, all the students in each group had average intelligence as measured on standardized tests, and all the students were enrolled at the first and second grade levels.

The remediation was attempted in four areas: Behavior, perceptions, motor and language.

Pre and post tests were administered to both the experimental and the control groups. The Gates-MacGinitie Reading Test, Form A, was the pre test. The Gates-MacGinitie Reading Test, Form B, was the post test. Data gathered from the test performances of the two groups

were analyzed using a one tailed t test at the 0.05 level of significance. Pre test data produced a t value of .34, well below the level of significance for a df of 27, or below 1.70. This assured that the experimental and control groups were academically similar in reading.

Post test data produced a t value of 1.03, still below the level of significance for a df of 26, or below 1.71. The data analysis did not show any significant gain in reading achievement for the students in the Floyd Specific Learning Disabilities program over the performance of the students in the control group.

There were four conclusions from this research:

1. The Slingerland Pre-Reading Screening Procedures identifies almost the same specific learning disabilities students as does the Valett's Psychoeducational Evaluation of Basic Learning Abilities, but takes only half as long to administer.
2. Data from the pre and post testing indicate that the Floyd program for specific learning disabilities does produce gains in reading achievement levels.
3. Data from the pre and post testing indicate that the students in the control group made gains in reading achievement, also, without benefit from a specialist or from a special program.
4. The Floyd program may be a help to specific learning disabilities students, but more improvement is needed before it can be considered as a completely developed program.

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This Study by: Thomas Vincent Daigle'

Entitled: Evaluation of the Specific Learning Disabilities Program at the Floyd Elementary School.

has been approved as meeting the thesis requirement for the Degree of Specialist in Education

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INTRODUCTION

The purpose of this study was to investigate the effectiveness of the Floyd Elementary School Specific Learning Disabilities program in developing reading skills with children identified as having Specific Learning Disabilities.

The Specific Learning Disabilities definition which is the basis for this study is a reinterpretation of comments by Beth Slingerland:[1]

> Specific Learning Disabilities (SLD) refers to the breakdown in the automatic association or linking of stimuli as they are carried over visual-auditory-sensory channels to the cerebral cortex, to be processed for integration, to be stored in association with concepts and past stimuli, to respond to recall in the form of motor patterns. This definition includes the terms "neurophysiological dysfunctioning" and "dyslexium developmental phasis."

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[1] Beth H. Slingerland. Specific Language Disability Children. Cambridge, Massachusetts: Educators Publishing Service, Inc. 1971. pp. 5 and 6.

RATIONALE FOR THE PRESENT STUDY

The problem of Specific Learning Disabilities at Floyd Elementary School first attracted attention through the observation that students in the Remedial Reading program were not demonstrating long term achievement gains in reading skills. The remedial reading program at the Floyd attendance center had been supported by Title I funds. Pretest and post test results were reported to the state Title I Committee each year. In the school year 1970-1971, the sixteen students in the remedial reading program demonstrated achievement gains in reading, as shown in Table 1. The next test performance, in September of 1971, by these same students showed that thirteen of the sixteen students had regressed, as shown in Table 2.

The purpose of gathering the data originally was to demonstrate to the funding agency that gains in reading, achieved through the remedial reading program, warranted continued funding by the Title I agency. The data did in fact guarantee continued funding. According to the data from April, 1971, nine of the sixteen students no longer needed remediation. Their performance placed them above the 35th percentile in reading achievement, an arbitrary achievement level within the Title I program which determined the need for remediation. The next test performance in September, 1971, requalified five of the nine students back into the remedial reading program. The conclusion was that while the remedial reading program was perpetuating the Title I funding, it was not solving the reading problems of most of the reading handicapped students. Data from

Table 1

Comparison of performances for 16 students on the Gates-MacGinitie Reading Test, expressed in grade scores, from September, 1970, to April, 1971, Floyd Elementary School.

September, 1970		April, 1971		Gain or loss	
Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension
2.5	2.4	3.4	3.4	.9	1.0
1.6	3.7	2.1	4.2	.5	.5
4.0	3.6	5.4	3.4	1.4	.2-
2.9	2.5	4.2	3.4	1.3	.9
2.8	3.9	3.1	6.9	.3	3.0
3.0	3.9	2.7	5.0	.3-	1.1
1.4	1.2	1.8	1.4	.4	.2
3.9	4.1	4.8	4.4	.9	.3
4.2	5.0	5.4	5.1	1.2	.1
4.2	3.6	4.7	5.2	.5	1.6
5.1	3.9	6.3	4.9	1.2	1.0
3.4	2.9	3.8	3.7	.4	.8
3.5	4.1	5.2	4.7	1.7	.6
3.9	3.8	5.1	4.6	1.2	.8
3.5	3.2	4.1	3.5	.6	.3
3.2	5.4	5.2	4.8	2.0	.6-
				14.2	11.4
		Mean gain, in years:		.9	.7

Table 2

Comparison of performances on the Gates-MacGinitie Reading Test, expressed in grade scores, from April, 1971, to September, 1971, Floyd Elementary School.

April, 1971		September, 1971		Gain or loss	
Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension
3.4	3.4	2.6	3.5	.8-	.1
2.1	4.2	2.3	3.9	.2	.3-
5.4	3.4	4.4	3.8	1.0-	.4
4.2	3.4	3.0	2.6	1.2-	.8-
3.1	6.9	3.6	4.6	.5	2.3-
2.7	5.0	3.9	5.1	1.2	.1
1.8	1.4	1.8	1.2	.0	.2-
4.8	4.4	4.7	4.0	.1-	.4-
5.4	5.1	5.2	5.3	.2-	.2
4.7	5.2	4.0	6.0	.7-	.8
6.3	4.9	5.9	4.5	.4-	.4-
3.8	3.7	3.8	3.8	.0	.1
5.2	4.7	4.0	4.6	1.2-	.1-
5.1	4.6	4.6	4.0	.5-	.6-
4.1	3.5	3.5	3.2	.6-	.3-
5.2	4.8	5.4	5.3	.2	.5
				4.6-	3.2-
		Mean difference, in years:		.3-	.2-

testing of similar Title I students in a nearby school where there was not a remedial reading program were almost identical, as shown in Table 3.

STATEMENT OF THE PROBLEM

The problem to be solved by this research is to determine if the new Specific Learning Disabilities program at the Floyd Elementary School increased the reading achievement gains significantly higher than the gains made by similar students who were not given special treatment at another attendance center in the same school district.

IMPORTANCE OF THE PROBLEM

In recent years authorities have produced a range of estimates of the incidence of Specific Learning Disabilities from 3% to over 25% of the student population. The lowest estimates were produced in researches by Myklebust,[2] 1-3%, Beck,[3] 7%, The National Advisory Committee for the Handicapped,[4] 2-4%, and by

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[2]Helmer Myklebust. A research on Special Learning Disabilities, with 3000 student subjects, Northern Illinois University, cited by Joan Beck, "Help for Children Who Can't Learn." Chicago, Illinois: Chicago Tribune, Sunday, March 14, 1971. Section D. pp.1.

[3]Joan Beck. " Help for Children Who Can't Learn." Chicago, Illinois: Chicago Tribune, Sunday, March 14, 1971. Section D. pp. 1.

[4]The National Advisory Committee for the Handicapped, as cited in the introductory section of a monograph titled "Learning Disabilities Program," Boone, Iowa: Boone Community Schools, 1970. pp. 4.

Table 3

Comparison of performances for 12 students on the Gates-MacGinitie Reading Test, expressed in grade level scores, from September, 1971, to April, 1972, Washington Elementary School.

September, 1971		May, 1972		Gain or loss	
Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension
1.3	1.6	2.0	2.4	.7	.8
2.9	2.8	3.7	3.7	.8	.9
1.7	2.0	1.9	2.6	.2	.6
2.6	2.5	3.8	3.5	1.2	1.0
2.0	1.7	2.5	2.3	.5	.6
3.4	2.9	4.8	4.6	1.4	1.7
1.6	1.2	2.1	1.7	.5	.5
3.5	3.1	3.9	4.2	.4	1.1
2.2	2.3	3.2	2.4	1.0	.1
4.3	3.0	5.5	4.9	1.2	1.9
2.7	2.4	3.6	3.8	.9	1.4
3.1	3.8	4.4	4.0	1.3	.2
				10.1	10.8
		Mean gain, in years:		.8	.9

Graber et al,[5] 7.5%. Higher estimates came from Rome,[6] 10%, Rawson et al,[7] 13%, Department of Health, Education and Welfare,[8] 14%, Morgan,[9] 20%, and from Walker and Cole,[10] 25.3%. Similar data from the Floyd Elementary School were a catalyst for this research. Of a student population at Floyd of 45 students in the kindergarten and first grades, 13 students, or 28%, were identified by the end of the 1972-1973 school year, as having Specific Learning Disabilities. The section "Selection of Students" will describe not only how the data on Floyd students were produced, but also how a parallel incidence of Specific Learning Disabilities was found in another school in the same school district, from which the students for the control group for this research were identified.

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[5]K. Graber et al. Learning Disabilities: A Handbook for Parents and Teachers. Des Moines, Iowa: Iowa Association for children with Learning Disabilities. 1970-1972.

[6]Paula Rome. "Toward a New Understanding of Youngsters with Reading Problems." Parents Magazine. New York: The Parent's Institute. pp. 44.

[7]Margaret B. Rawson, Roger E. Saunders and Rosa A. Hagin. "Perspectives of Specific Language Disability." Bulletin of the Orton Society, XXI. Townsend, Maryland. 1971. pp. 21.

[8]Department of Health, Education and Welfare, data quoted by Kenneth L. Woodward in an article titled "When Your Child Can't Read." Chicago, Illinois: McCalls, February, 1973. pp. 27.

[9]Clifford T. Morgan. "Brain Functions and Dysfunctions." Physiological Psychology. Manchester, Missouri: McGraw-Hill Book Company. 1965. pp. 129.

[10]Louise Walker and Edwin Cole. "Familiar Patterns of Expression of Specific Reading Disability in a Population Sample." Townsend, Maryland: Bulletin of the Orton Society. Vol. XV. 1965. pp. 3-15.

DELIMITATIONS

Duration of the Study

This research studied the performances of specific learning disabilities students from the beginning to the end of the 1973-1974 scholastic year. There was not an attempt to measure possible achievement regression by the students following a summer vacation period. This area of investigation will become part of the program evaluation for the school year following this research.

Selection of Students

The students selected for this study were from the first and second grade levels only. Specific learning disabilities students in the third grade were not included because they had been treated in the remediation program longer than one year. Most of these third grade students no longer received intensive remediation teaching.

The screening process began with teacher observation. A staff designed observation form outlined the observable student characteristics that helped identify children with specific learning disabilities. (See Appendix A). The observation form catagorized specific learning disabilities into four general areas, with appropriate sub-catagories:

I. Behavior
   - A. Hyperactivity
   - B. Distractability
   - C. Emotional Instability
   - D. Perseveration

II. Perception
   - A. Visual
   - B. Auditory

III. Motor
- A. Balance
- B. Lateral Dominance
- C. Fine Motor Coordination

IV. Language
- A. Limited Speech
- B. Lack of Verbal Concepts
- C. Poor Sentence Structure
- D. Articulation Difficulty

The next task was to design a system to include analysis, prescription and evaluation for each student. The analysis used was Valett's "A Psychoeducational Evaluation of Basic Learning Abilities." It had an outline that lended itself to teacher observation and evaluation in that it was based on behavior.[11] (See Appendix B).

The original testing identified fifteen students who scored in the "learning disabilities" rnage on Valett's psychoeducational evaluation form. The teachers had two negative reactions. The first was that it took a long time to administer the testing. The second reaction was that fifteen students were too many for a learning disabilities incidence in a group of only twenty five students.

The next pre-testing used was taken from Slingerland's "Pre-Reading Screening Procedures."[12] This test was designed to

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[11] Robert E. Valett. The Remediation of Learning Disabilities. Belmont, California: Fearon Publishers. 1967. pp. 22.

[12] Beth H. Slingerland. Pre-Reading Screening Procedures. Cambridge, Massachusetts: Educators Publishing Service, Incorporated. 1969.

find the students with average to superior intelligence who make errors in perception and recall of language symbols. Such errors often indicate specific learning disabilities, according to Slingerland. The test was designed to identify academic needs for children entering the reading readiness level. Slingerland said that children who, while appearing ready, show indications of a specific learning disability, should be tracked through "preventive" instruction. She gave as an example:[13]

> "Children who appear ready to begin but show potential language and perceptual difficulties should be watched in case they become serious problems later. For example: A child with satisfactory mental and chronological age and average readiness ratings, whose family has language disabilities, or whose Teacher Observation Sheet indicates persisting reversals, hesitation to volunteer or express himself, or avoidance of anything requiring fine muscular coordination. When there is doubt, the child should be given preventive help in a Specific Learning Disabilities program, if available, and then transferred to a conventional program when he is ready."

The Slingerland Pre-Reading Screening Procedures do not measure mental maturity. Its author indicated that it be used with other tests that determine "standardized levels of readiness and mental abilities."[14] The students were administered the Slingerland instrument with the S.R.A.-Primary Mental Abilities

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[13]Beth H. Slingerland. Pre-Reading Screening Procedures. Cambridge, Massachusetts: Educators Publishing Service, Incorporated. 1969. pp. 7.

[14]Ibid. pp. 10.

test, the Slossen Intelligence Test and the Stanford Early School Achievement Test. The comparison of student performances on the Slossen Intelligence Test and on the SRA Primary Mental Abilities Test showed a difference between the two performances, but the mean difference was only five score points. This was reasonable since the performance of the first test may have raised the performance of the second. (See Table 4.) Following the administration of the tests of mental abilities, the Slingerland Screening Tests were administered in the following areas:[15]

Visual Discrimination	- Discrimination of Letter Forms
	- With Motor Response
Visual Discrimination	- Discrimination of Word Forms
	- With Motor Response
Visual Perception	- Perception Memory
	- With Motor Response
Visual-Motor	- Copying
	- With Motor Response
Visual-Motor	- Visual Perception Memory
	- With Motor Response
Auditory	- Discrimination
	- With Motor Response
Letter Knowledge	- Letter Recognition
	- With Motor Response

The results of the Stanford Early School Achievement Test, when combined with the results of the mental abilities test, produced a rating in each of the Slingerland Screening sub-tests of either high, medium high, medium, medium low, or low. According to Slingerland,

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[15] Beth H. Slingerland. Pre-Reading Screening Procedures. Cambridge, Massachusetts: Educators Publishing Service, Incorporated. 1969. pp. 1-84.

Table 4

Comparison of Performances by Individual Students on the SRA Primary Mental Abilities Test and the Slosson Intelligence Test. Administered on January 16 and January 31, 1973 respectively, Floyd Elementary School.

Student:	P M A	S I T
1	88	96
2	112	103
3	101	112
4	115	125
5	84	85
6	107	115
7	100	94
8	107	110
9	111	104
10	119	129
11	111	130
12	107	111
13	102	117
14	128	137
15	116	99
16	112	125
17	119	125
18	106	121
Mean (n=18):	108	113

a performance of medium low or low was an indication of a specific learning disability.[16] For the eighteen students listed in Table 4, the following chart identified thirteen students with specific learning disabilities. (See Table 5.) The thirteen students identified by the Slingerland Screening Tests were all identified earlier among the fifteen who had been similarly identified by Valett's psychoeducational evaluation. The main difference between the two procedures was that the Slingerland Screening Tests took little more than half the time to administer then the Valett's psychoeducational evaluation took to administer.

The next stage of the identification process was to make referrals to the Specific Learning Disabilities Consultant from the Joint County office. Referrals were made on all thirteen students. The consultant administered the Illinois Test of Psycholinguistic Abilities, a diagnostic instrument to assess various components of cognitive ability.[17] It provided data for an individualized remediation program based on the low subtest scores in the following areas:

Auditory Reception
Visual Reception
Auditory Association
Visual Association
Verbal Expression
Manual Expression

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[16] Beth H. Slingerland. Pre-Reading Screening Procedures. Cambridge, Massachusetts: Educators Publishing Service, Incorporated. 1969. pp. 33.

[17] Harold A. Ruppert, Jr. A Sequentially Compiled List of Instructional Materials for Remediational Use with the I.T.P.A. Washington, D.C.: United States Government Printing Office. 1970.

Table 5

Slingerland Screening Tests
May, 1973

KEY:
L Low
M-L Medium Low

Student	Visual Discrimination Letter Forms	Visual Discrimination Word Forms	Visual Perception	Visual Motor Copying	Visual Motor Memory	Auditory Discrimination	Letter Knowledge	Remarks
1				M-L	L			
2			M-L	L				
3				L				Rotations and reversals
4			L		M-L	M-L		
5	L	L		L				Reversals
6								Reversals, inversions
7	L	L						
8								
9				M-L	L	L		
10								
11								
12			M-L					
13				L	M-L			
14						M-L		Confuses directions
15			M-L		M-L			Motor-kinesthetic
16								
17	L					M-L		Speech observed earlier
18		L	L					Reversals

Grammatic Closure
Visual Closure
Auditory Sequential Memory
Visual Sequential Memory
Auditory Closure
Sound Blending

The Specific Learning Disabilities consultant administered only the subtests that seemed appropriate to each student. The consultant used the test results, the observations of teachers, plus any other testing data, whether standardized or not, to make a judgment of whether or not each individual should be identified as a specific learning disabilities student.

Sources of References

References cited in this paper will come from a complete search of ERIC documents. Copies of the documents were supplied by the Iowa State Department of Public Instruction. Additional materials were searched from the professional library shelves in the elementary schools of the Charles City Community School District, the library of the University of Northern Iowa, professional journals of the author, and the in-service materials center in Marshalltown.

DEFINITIONS OF TERMS

The terminology of this study conforms to the following definitions. These definitions were from a single source, Valett,

except where noted.[18] The purpose of using predominantly the one source for definitions was to avoid the contradictions and overlapping of meanings possible when using multiple terminologies from many sources.

Auditory acuity. The ability to receive and differentiate auditory stimuli. The pupil responds functionally to watch tick, hidden sound toys, and general normal conversational directions. The pupil has no significant decibel loss.

Auditory decoding. The ability to understand sounds or spoken words. The pupil can follow simple verbal instructions, can indicate by gesture or words the meaning or purpose of auditory stimuli such as animal sounds, nouns, or verbs.

Auditory memory. The ability to retain and recall general auditory information. The pupil can act out (charades) Santa Claus, simple plots of common nursery rhymes ("Jack and Jill"), can verbally relate yesterday's experiences, meals, television and story plots.

Auditory sequencing. The ability to recall in correct sequence and detail prior auditory information. The pupil can imitate specific sound patterns, follow exactly complex series of directions, repeat digit and letter series.

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[18] Robert E. Valett. The Remediation of Learning Disabilities. Belmont, California: Fearon Publishers. 1967. 110 pages.

Auditory-vocal association. The ability to respond verbally in a meaningful way to auditory stimuli. The pupil can associate with verbal opposites, sentence completion or analyogous verbal responses.

Balance and rhythm. The ability to maintain gross and fine motor balance and to move rhythmically. The pupil is able to balance on balance board or rail. He can move rhythmically in playing jacks and in bouncing on trampoline or spring.

Body abstraction. The ability to transfer and generalize self-concepts and body localizations. The pupil can identify others by names and pictures. He can locate body parts on others, generalize to pictures, and complete body picture puzzles.

Body localization. The ability to locate parts of one's body. The pupil can locate eyes, hands, mouth, hair, nose, feet, eyebrows, fingernails, shoulders, elbows, knees, back, neck, chin, forehead, wrist, arms, legs, toes.

Body-spatial Organization. The ability to move one's body in an integrated way around and through objects in the spatial environment. The pupil can run maze on playground or in classroom without bumping. He can move easily through tunnels and use playground monkey bars. He can imitate body positions in space.

Directionality. The ability to know right from left, up from down, forward from backward, and directional orientation. The pupil can write and follow picture story or reading material from left to right, discriminate right and left body parts and those of other people, locate directions in a room and school.

Figure-ground perception. The ability to focus on a center of attention, yet see the object in relation to its background.[19]

Laterality. The ability to integrate one's sensory-motor contact with the environment through establishment of homolsteral hand, eye, and foot dominance. The pupil has consistent right or left-sides approach in use of eyes, hands, and feet in tasks such as kicking a ball, cutting paper, or sighting with a telescope.

Perceptual constancy. The ability to perceive an object as possessing invariant properties, such as shape, position, and size, in spite of the variability of the impression on the sensory surface.[20]

Reaction-speed dexterity. The ability to respond efficiently to general directions or assignments. The pupil can attend to the teacher sufficiently to comprehend total directions. He can proceed to organize self and respond adequately to complete the given assignment within a normal time expectancy.

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[19]Harold A. Rupert, Jr. A Sequentially Compiled List of Instructional Materials for Remediation Use with the I.T.P.A. Washington, D.C.: Department of Health, Education and Welfare. 1969. pp. 11 and 49.

[20]Ibid.

Specific learning disabilities (SLD). The break-down in the automatic association or linking of stimuli as they are carried over visual-auditory-sensory channels to the cerebral cortex, to be processed for integration, to be stored in association with concepts and past stimuli, to respond to recall in the form of motor patterns. This definition includes the terms "neurolophysiological dysfunctioning" and "dyslexiam developmental phasia."[21]

Tactile discrimination. The ability to identify and match objects by touching and feeling. With hidden toys and materials, the pupil can match objects with both left and right hands, name or classify materials or substances, differentiate weights, and discriminate temperatures.

Time orientation. The ability to judge lapses in time and to be aware of time concepts. The pupil is prompt in attending class, completing timed assignments, and following directions. The pupil is aware of day, month, year, time of day, and seasons.

Visual acuity. The ability to see and to differentiate meaningfully and accurately objects in one's visual field. The pupil sees without motable fatigue, holds material at appropriate working distance, has no significant loss of acuity on Snellen or Illiterate E chart.

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[21]Beth H. Slingerland. Specific Language Disability Children. Cambridge, Massachusetts: Educators Publishing Service, Inc. 1971. pp. 5 and 6.

Visual Coordination and pursuit. The ability to follow and track objects and symbols with coordinated eye movements. With the head steady, a pupil can move his eyes to fixate on stable objects in varied places, pursue moving objects such as finger positions, and follow picture and word stories left to right without jerky movements.

Visual figure-ground differentiation. The ability to perceive objects in foreground and background and to separate them meaningfully. The pupil can differentiate picture of himself and friends from a group picture, differentiate objects in "front" and "back" of pictures and mock-ups, differentiate his name from among others on paper or chalkboard, and perceive simple forms and words imbedded in others.

Visual-form discrimination. The ability to visually differentiate the forms and symbols in one's environment. The pupil can match identical pictures and symbols such as abstract designs, letters, numbers, and words.

Visual memory. The ability to recall accurately prior visual experiences. The pupil can recall from visual cues where he stopped in book, can match or verbally recall objects removed or changed in the environment, and he can match briefly exposed symbols.

Visual-motor fine muscle coordination. The ability to coordinate fine muscles such as those required in eye-hand tasks. The pupil can write legibly, trace, and imitate precise body movements without difficulty, can cut, manipulate and judge fine physical responses without gross errors.

Visual-motor integration. The ability to integrate total visual-motor skills in complex problem solving. The pupil can play complex team sports, swim, draw accurate pictures including people, may play musical instrument, write extended letters move freely about neighborhood and community.

Visual-motor memory. The ability to reproduce motor-wise prior visual experiences. The pupil can draw designs and symbols following brief exposure, can reproduce letters, numbers, simple words on demand, can portray prior objects or events through gestures or drawings, and can reproduce varied patterns and identify hidden materials.

Visual-motor spatial-form manipulation. The ability to move in space and to manipulate three-dimensional materials. The pupil can build block houses and designs, draw three-dimensional pictures, complete shop and craft projects, integrate form and space puzzles.

Visual-motor speed of learning. The ability to learn visual-motor skills from repetitive experience. The pupil can respond with increasing speed to rope learning tasks such as copying digit or letter sequences, spelling, specific arithmetic processes, and gross motor skills such as jumping over a rope.

BASIC ASSUMPTIONS

There were four basic assumptions under which this research was begun:

1. The size of the sample was smaller than desirable for this kind of research. The problem had a sample size dictated by

the educational scene in which it developed. The total first and second grade specific learning disabilities students in the Floyd Center comprised the target group. All untreated first and second grade specific learning disabilities students in Washington made a slightly larger control group. The sample size could have been expanded by surveying students in a neighboring school district, but that would have introduced dissimilar educational goals and sociological characteristics.

2. The control group was assumed to be an untreated specific learning disabilities group. It was recognized that as the students demonstrated problems in their class work that some attempt was made to remediate the problems. The control group had access to aides, individualized attention from teachers and resource people. The students in the control group were not in a specific learning disabilities program.
3. The Hawthorne effect is germane to studies of remediation where one group has been given special attention and the control group has not.
4. The Gates-MacGinitie tests were given in two forms, Form 1 and Form 2. The Technical Manual for these tests indicated that the forms were statistically comparable with no significant difference in the means obtained by the students who piloted the tests.[22]

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[22]Arthur I. Gates and Walter H. MacGinitie. "Technical Manual" New York: Teachers College Press, Columbia University, 1965. pp. 4.

HYPOTHESIS

The Gates-MacGinitie Reading Test is the instrument used to measure reading performance at the primary levels in the Charles City Community School District. It is administered at the beginning and towards the end of each school year to students who perform low in reading areas on the Stanford Achievement Test. Test results from the school year 1973-1974 will be used to test the following hypothesis:

1. The Specific Learning Disabilities program at the Floyd Elementary School will show reading achievement gains for students identified as Specific Learning Disabilities students at the 0.05 significance level above the achievement gains for similarly identified Specific Learning Disabilities students in Washington Elementary School. There has not been a Specific Learning Disabilities program at the Washington center.

Students in the Washington Elementary School have been screened for Specific Learning Disabilities. The students identified as having learning disabilities have not been given special Specific Learning Disabilities remediation.

Test results from both the Floyd and the Washington attendance centers will be compared. The results of the comparison will be used to determine possible changes in programs at both schools. This is an important statement in that it eliminates the bias inherent in previous evaluations which were used to determine continued Title I funding support rather than program improvement.

Chapter 2

TREATMENT OF DATA

SELECTION OF EXPERIMENTAL AND CONTROL GROUPS

Students in the Charles City Community School District are screened for kindergarten readiness, kindergarten achievement, and reading readiness. They are further screened by the Area II psychologist prior to any special education treatment. If it is the psychologist's judgment that special services may be required, further testing is done. One type of such testing is done by the Area II Specific Learning Disabilities consultant. A list is produced each year of identified Specific Learning Disabilities students who are entitled to consultative services. Floyd Elementary School students identified by the psychologist and by the Specific Learning Disabilities consultant as Specific Learning Disabilities students enter a program whereby their needs are analyzed, an individual program is prescribed, and behavioral performances are evaluated. Each Specific Learning Disabilities student is processed through a set of objectives. Whenever a student does not succeed by the time his performance on an objective is evaluated, he is directed through a recycle phase. A group of 13 first and second grade students in such a Specific Learning Disabilities program at Floyd Elementary School represented the experimental group for this research.

Washington Elementary School students identified by the same Area II psychologist and Specific Learning Disabilities consultant as Specific Learning Disabilities students had not had the advantage of a Specific Learning Disabilities teacher nor Specific Learning Disabilities program in the past. About half of these students at first and second grade levels received no special treatment. These untreated students numbered 16. This group of students represented the control group for this research.

DATA GATHERED ON SPECIFIC LEARNING DISABILITIES STUDENTS

Floyd Elementary School students who had been identified as Specific Learning Disabilities students were administered the Gates-MacGinitie Reading Test to measure achievement levels at the beginning and end of the 1973-1974 school year. For the purpose of this research, the same test was given to the control group at Washington Elementary School. Both the experimental and control groups took the Primary A, Vocabulary and Comprehension, at the first grade level, and Primary B, Vocabulary and Comprehension, at the second grade level. Both groups took Form 1 at the beginning of the scholastic year. Both groups took Form 2 at the end of the scholastic year. All scores were reported as raw scores, equal to the number of correct responses.

DATA ANALYSIS PLANNED

The method that was used to compare the data was the one tailed t-test, with an allowance for the degrees of freedom (df).

The t-value was used to compute the group variance upon which was calculated the degree of significance. Scores from the Primary A and Primary B, Forms 1 and 2, were treated as a single group. The number of items on all forms was equal, 48 for vocabulary, 34 for comprehension, to make a possible score on all tests 82. The significance of statistics at the 0.05 level was taken from a standard table.[1]

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[1]Henry E. Garrett and R. S. Woodworth. Statistics in Psychology and Education. New York: David McKay Company, Incorporated, 1961. pp. 449.

Chapter 3

SURVEY OF THE LITERATURE

READING AND SPECIFIC LEARNING DISABILITIES

The correlation between Specific Learning Disabilities and reading achievement has been extensively researched. Bonnie W. Camp, in a research which examined forty six Specific Learning children, found that there was a positive correlation between learning rates in reading and learning disabilities.[1] A film on Specific Learning Disabilities includes a check list of symptoms for Specific Learning Disabilities, emphasizing the characteristic of students not hearing beginning letter sounds, ending sounds, and middle sounds, in that order.[2] Two of four pretests used in a study by Padalino were reading tests, the WRAT and the Slossen Reading Test.[3] Rawson, et al, reported in a study of 1,685 Specific Learning Disabilities subjects that they represented 13% of the population in the United States which lacks the reading ability "necessary for survival in our culture."[4]

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[1]Bonnie W. Camp. "Learning Rate and Retention in Retarded Readers". Journal of Learning Disabilities: February, 1973. pp. 11.

[2]Corrine Koss, et al. "Early Recognition of Learning Disabilities" 30-minute film. Marshalltown, Iowa: Cooperative Network of In-Service Resources. Print Number 7028. 1974.

[3]Jane P. Padalino. "A Program For The Identification and Remediation of Perceptual Deficiencies in Kindergarten and Primary Grade Students." Final Interim Progress Report, Union Township Board of Education, New Jersey: May 1971. pp. 6.

[4]Margaret B. Rawson, Roger E. Saunders and Rosa A. Hagin. "Perspectives of Specific Language Disability." Bulletin of The Orton Society, XXI. Townsend, Maryland: 1971. pp. 45.

Richard S. Eutis connected reading to specific learning disability in his observation that a basic aim in teaching specific learning disability children to read "is to establish early and firmly, in their minds, eyes and fingers, the correct left-to-right sequence, the shapes and sounds of the letters, and the ability to blend these sounds into words."[5] Hagin placed reading as the pivotal focus by stating that reading, as one facet of the disability, must be taught in relation to the total language pattern.[6] Lehman and Hall examined the neurological aspects of the reading process and concluded that the specific learning disabled child who had minimal brain dysfunction may be reversing incoming information, seeing "was" as "saw", b as d, and "girl" as "gril."[7] It is when these generalized comments are broken down into causative, observable behaviors, that the vocabulary of specific learning disabilities takes form. For example, Goodman, working as an associate with Gephart in a study of reading, developed an operational definition of reading. Any behavioral incapability which is listed in his disability outline which follows can be translated into words germain to specific learning disabilities, such as auditory reception, hand-eye coordination, visual memory, or verbal articulation:[8]

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[5]Richard S. Eutis, M.D. "SLD Information for Parents and Teachers." Bulletin of the Orton Society. XIX. Townsend, Maryland: 1969. pp. 59-65.

[6]Rosa A. Hagin. "Clinical-Diagnostic Use of the WPPSI in Predicting Learning Disabilities in Grade 1." Journal of Special Education, 1971. pp. 46.

[7]Eileen F. Lehman and Robert E. Hall. "Who Is This Child?" American Education. U. S. Department of Health, Education and Welfare, Office of Education. Washington, DC: April, 1966. pp. 2.

[8]William J. Gephart. "The Convergence Technique and Reading: A Progress Report." Phi Delta Kappa Research Service Center. Kansas City, Missouri: May, 1969. pp. 16-17.

1. Scanning--movement of the eyes left to right and down the page line by line.
2. Fixing--stoppage of major eye movement and refinement of focus on the visual stimuli.
3. Selection of cues--the entering into short term memory of some of the cues from the visual array.
4. Form image--the mental activity of establishing a perceptual image.
5. Search--the examination of long term memory for facts or structures that have the same composite as the perceptual image.
6. Compare--a processing in which the items identified in the search of long term memory are checked against the perceptual image.
7. Test cues--the selection of the cues which fit with elements from prior knowledge and the insertion of that structure either grapho-phonological, syntactical, or semantic, into medium termmemory.
8. Test choice--the examination of those chosen cues with previously stored cues to see <u>if</u> synthesis to some meaning can occur.
9. Decode--the snythesis of cues where possible and storage of the resulting meaning in long term memory.
10. Recycle--

Further evidence of how reading problems can sometimes lead to the "specific" identification of a "learning disability" was supplied

by various authors. Guralnick, writing on a Specific Learning Disabilities research, identified the alphabet as the best predictor of reading success.[9] He claimed that alphabet activities in specific learning disabilities programs may be present as the embrionic level of phonetics. Samuels linked visual memory problems to poor reading skills in a study in 1971.[10] Gibson, et al, in attempting to determine distinctive features of letters which are critical to specific learning disability students for letter discrimination, pointed out, "If we knew the set of such features, they could be incorporated in some of the reading readiness tasks which involve visual discriminations.[11]

The Floyd Elementary School specific learning disabilities program focussed on reading achievement as the measurement of program success.

SPECIFIC LEARNING DISABILITIES COMPONENTS

The authorities have reached at least partial agreement that specific learning disabilities students generally have a matrix of

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[9] Michael J. Guralnick. "Asphabet Discrimination and Distinctive Features: Research Review and Educational Implications." Journal of Learning Disabilities. August-September. 1972. pp. 55.

[10] S. J. Samuels. "Attention and Visual Memory in Reading Acquisition." Paper presented to the American Psychological Association, Washington, DC: September. 1971. pp. 2.

[11] E. J. Gibson, et al. "A Developmental Study of the Perception of Letter-Like forms." Journal of Comparative and Physiological Psychology. 1962. pp. 905.

perceptual difficulties around which their other handicaps are built. Lehman and Hall, writing on minimal brain dysfunction, stated that disabled learners differ from normal children in that their problems are related primarily to perceptual deficits.[12] The Frostig program was designed and tested by Frostig and Horne for its response to the assumption that visual perception is the area that most affects a specific learning disability student's progress in reading.[13] Liberman catagorized reading problems into two areas, a cognitive problem for normal children who "cannot segment words and syllables--into their constituent phonetic elements," or else a visual or auditory perception problem if the child has a specific learning disability.[14] Other views on primary causes include Merkley's listing of a hierarchy of development into four catagories, parallel to Frostig's: Sensory motor to 2½ years of age, language to 3½ years of age, perceptual to 7 years, and higher thought processes to 7½ years of age.[15] According to Merkley,

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[12]Eileen F. Lehman and Robert E. Hall. "Who Is This Child?" American Education. U. S. Department of Health, Education and Welfare, Office of Education. Washington, DC: April. 1966. pp. 1.

[13]M. Frostig and D. Horne. The Frostig Program for the Development of Visual Perception, Teachers Guide. Collett Company. Chicago, Illinois: 1964. pp. 11.

[14]Idabelle Liberman. "Speech and Lateralization of Language." Bulletin of the Orton Society, XXI. Townsend, Maryland: 1971. pp. 71-87.

[15]Elaine Merkley. Becoming A Learner. Columbus, Ohio: Charles E. Merrill Publishing Company. 1972. pp. 7.

these developmental processes can be impeded at any early point, with subsequent effects on later development areas. Padalino listed visual motor and gross motor areas as those which provide the most effective areas for training, but it was not clear whether or not Padalino considered these as primary areas of causation.[16] Kedd argued that learning disabled children enter school with more limited repertoire of discriminatory skills than normal children.[17] Presumably, he combined auditory and visual discrimination into the single statement. Oliphan tested 150 youngsters in the first grade. She concluded that the auditory component was the major area for learning disabled children in the areas of reading and spelling.[18] Eutis cited "poor visual memory for symbols" as the main underlying reason for learning disabled children. Kephart agreed with those who cited visual and auditory perception as the main areas, but criticized those who see reading only as a visual perceptual task; that reading has the

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[16]Jane P. Padalino. "A Program For the Identification and Remediation of Perceptual Deficiencies in Kindergarten and Primary Grade Students. Final Interim Progress Report." Union Township Board of Education, New Jersey: May 1971. pp. 127.

[17]John W. Kedd. "The Discriminatory Repertoire-The Basic of All Learning." Journal of Learning Disabilities, Volume 3, No. 10. October. 1970. pp. 530-533.

[18]Genevieve Oliphan. "A Study of Factors Involved in Early Identification of SLD." Bulletin of Orton Society, Volume 20. Townsend, Maryland: 1970. pp. 72-80.

cognitive components of vocabulary, syntax, memory and comprehension.[19] A study done by Silver and Hagin identified the perception areas as the areas to remediate first.[20] Silver and Hagin determined that perceptual stimulation is the vehicle for remediation of a problem which originates in "the neurological organization corresponding to cerebral dominance for language." A research of Satz, et al, supported the Silver and Hagin conclusion.[21] This research demonstrated that lesions restricted to the left inferior parietal cortex differentially impaired performance on a number of cross modal tasks, particularly auditory-visual. The same subjects showed impairment in reading ability. From this study, the authors also concluded that younger learning disabled children are more delayed in visual-motor integration and auditory-visual integration, but older children are delayed more in language integration skills. Last, Pellettieri emphasized that the type of child determines the type of disability and remediation.[22] He He gave two examples to clarify his position: A hyperactive child

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[19] Newell C. Kephart. "Let's Not Misunderstand Dyslexia," from The Instructor. Dansville, New York: The Instructor Publications, Inc. A subsidiary of Harcourt Brace Jovanovish, Inc. August/September, 1968. pp. 1-2.

[20] Archie Silver. "Diagnostic Considerations in Children with Reading Disability." Pomfret, Connecticut: Bulletin of the Orton Society. Volume XI. 1961. pp. 44.

[21] Paul Satz, et al. "An Evaluation of a Theory of Specific Developmental Dyslexia." Florida University, Gainesville, Florida: 1972. pp. 13-16.

[22] A. J. Pellettieri. "The Nuerophysiology of Learning and Pedagogy." Paper presented at the National Reading Conference, St. Petersburg, Florida: December. 1970. pp. 6-11.

in his experiments tended to become excited excessively when exposed to visual modes of instruction. Pellettieri's recommendation was to use auditory materials of instruction. Conversely, another student had a slight hearing impairment which resulted in some distortian of auditory input. The recommendation for this child was for increasing visual instruction materials.

Any learning disabled child can be expected to compensate for his problems. Some of these compensations can be used as an aid to remediation. The teacher can expect cooperation from the student because of the psychological motivation behind the compensation. For instance, a sight impaired child may appear to be tracking an airplane by sight, but it may possibly be more an auditory tracking than visual. To express it one way more, "---- the organism strives to maintain the highest level of integration at all times."[23]

SPECIFIC LEARNING DISABILITIES PROGRAMS AND THE FLOYD PROGRAM

An early question which arose in this study concerned whether or not the teacher for specific learning disabilities should be a resource teacher. The Iowa Department of Public Instruction stated that normally, most specific learning disability children "can be appropriately educated in a resource or itinerant teaching program. Self-contained classroom programs are probably most effective for

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[23]Frederick C. Thorne. Integrative Psychology. Brandon, Vermont: Clinical Psychology, Incorporated. 1967. pp. 8.

children with the more severe problems, especially those with concomitant moderate to severe emotional problems."[24] Development of this position was found in an article by Lehman and Hall, in which they stated:[25]

> "In some instances it may be desirable for the child with learning disabilities to be placed in a classroom with non-handicapped children and given the special assistance and attention of an itinerant specialist. In other instances it may be best for the child to be placed in a special classroom designed specifically for a group of children who have learning disabilities. The choice between these two situations depends on the extent of the child's need for individual attention. If a special class is indicated, there should be continuing opportunity for the child to associate with the non-handicapped. For the child, the first consideration should be a return to the normal classroom at the earliest opportunity."

Strong support for considering the environment within which remediation was to take place was voiced by Hagin. She recommended that some manipulation of the educational setting may be necessary. She was referring to a situation where students are moved in a cycle around learning stations.[26] Byron, et al., concluded a study with the caution:[27]

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[24] State of Iowa Department of Public Instruction. "Guidelines for the Development of Special Education Programs in Iowa." Des Moines, Iowa: 1969. pp. 11.

[25] Eileen F. Lehman and Robert E. Hall. "Who Is This Child?" American Education. U. S. Department of Health, Education and Welfare, Office of Education. Washington, D.C.: April. 1966. pp. 3.

[26] Rosa Hagin. "Some Practical Applications of Diagnostic Studies of Children with Specific Reading Disability." Cambridge, Massachussetts: Educators Publishing Service, Bulletin of the Orton Society. Volume XI. 1961. pp. 97.

[27] Tanis Schwartz Byran and Rosalyn Wheeler. "Perception of Learning Disabled Children: The Eye of the Observer." Journal of Learning Disabilities; 5; 8, October, 1972. pp. 41.

> "While great attention to the materials and methods of remediation are obviously necessary, the circumstances under which learning is to occur should not be ignored. Indeed, the school environment may prove to be the critical variable in the learning success of disabled children."

There is an indication that besides the seriousness of the disorder, the type of disability may have a bearing on the needs within the environment. Lehman and Hall noted that while many disabled learners need a great deal of stimulation and a variety of material in their surroundings, the child with minimal brain dysfunction needs to have all extraneous stimulation removed and generally needs a rigid pattern of instruction and routine. An isolation booth may help this type of highly distractible child to concentrate. Lehman and Hall's study indicated that the entire environment for these students should be austere, with plain walls and limited items of distraction, but not depressing.[28]

The Floyd Elementary School developed their specific learning disabilities program using the same approach as they had used with an earlier remedial reading program: The specialist worked with the child in his regular classroom environment much of the time. When special equipment or space was needed, such as a balance beam, or a gym, the student would leave the regular classroom. This caused no special attention, since there was constant movement at the Floyd center from classroom to the instructional learning center, the gym, the music room, the art room, the lunch room, a science room, a storage center, and to other spaces. In addition to the authorities's opinions on environment,

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[28] Eileen F. Lehman and Robert E. Hall. "Who Is This Child?" American Education. U. S. Department of Health, Education and Welfare, Office of Education. Washington, D.C.: April, 1966. pp. 2-3.

the idea of avoiding the labeling of specific learning disabilities students prompted the Floyd staff to reject the suggestion to use a room especially identified as a remedial room.

Once the decision had been reached to use a special resource teacher within the classroom working towards the objective of reducing disabilities in order for specific learning disabilities students to succeed in reading, the next task was to identify where to begin remediation. The staff considered and concurred with a statement by Rawson, that for any child, good teaching is appropriate teaching; inappropriate teaching, however skillful, is for him poor teaching.[29] They agreed with Dechant's comment, "Whatever you do, do not start a child in a reading program before he is ready for it. He learns not to read, which is worse than not learning to read.[30] This statement is typical of the type of comments which most influenced the final program design. Such statements dealt more with generalizations than specifically with types of handicap.

While the earlier remedial reading program had concentrated on a repetition of early phonics development, there were cautions from research regarding such an approach for specific learning disabilities students. Eutis claimed that children with specific learning disabilities need an entirely different approach, not a redoubling of effort

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[29]Margaret B. Rawson, Roger E. Saunders and Rosa A. Hagin "Perspectives of Specific Language Disability." Bulletin of the Orton Socity, XXI. Townsend, MD: 1971. pp. 29.

[30]Emerald V. Dechant. Improving the Teaching of Reading. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1970. pp. 52.

with no change in method or content.[31] Camp's research stressed drill and repetition as profitable experiences for these handicapped students, but added that children with severe disabilities should not be expected to show significant improvement as a result of increasing repetition alone.[32] The idea that success was a beneficial reinforcement for positive behavior and that reinforcements for positive behavior should have high priority in any program received support from more than one study.[33,34] Skinner's "operant conditioning," for example, was designed to take advantage of a response which has a known stimulus. He gave as one of his examples the jerk of a knee when the patellar tendon receives a blow. The conditioning can take place by first getting the subject to express himself in some observable way. Some reward, or reinforcement, is given for any behavior to be encouraged. There is no need to wait for a behavior if it is known that a specific stimulus will produce the behavior.

According to the literature, the curriculum for specific learning disabilities students should include assistance in basic

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[31] Richard S. Eutis, M.D. "Specific Reading Disability Information for Parents and Teacher." Townsend, Maryland: Bulletin of the Orton Society. Volume XIX. 1969. pp. 59-65.

[32] Bonnie W. Camp. "Learning Rate and Retention in Retarded Readers." Journal of Learning Disabilities; 6; 2, February, 1973. pp. 16-17.

[33] Corrine Koss et al., "Early Recognition of Learning Disabilities" 30-minute film. Marshalltown, Iowa: Cooperative Network of In-Service Resources. Print number 7028. 1974.

[34] B. F. Skinner. "Reinforcement Today." The American Psychologist Volume 13, March, 1958. pp. 94-99.

academic areas with the application of highly specialized instructional techniques.[35] Programs which were at first recommended did not always become a part of the Floyd program. The Frostig-Horne techniques and materials, as tools for the remediation of visual motor problems, did not become a part of the program. There was no evidence that they would solve the visual motor problems, nor that they even would help achievement scores in reading. Evidence to the contrary was found in readings, some of which were subsequently cited in a study by Hammill, et al.[36] The Hammill study mentioned "Arciszewski 1968, Bennett 1968, Forgone 1966, Fortenberry 1968, Jacobs 1968, Jacobs, Wirthlin and Miller 1968, Lewis 1968, Linn 1967-68, Mould 1965, O'Connor 1968, Rosen 1966, Sherk 1968, Wiederholt and Hammill 1971, Buckland and Balow 1973." All but one study had concluded that improvement in reading could not be expected as a result of systematic use of the Frostig-Horne program. The Floyd program, then, became one designed in response to specific disabilities rather than an adoption of a single program. The specialist teacher used materials and methods

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[35] State of Iowa Department of Public Instruction. "Guidelines for the Development of Special Education Programs in Iowa." Des Moines, Iowa: 1969. pp. 11.

[36] Donald Hammill, Libby Goodman and J. Lee Wiederholt. "Visual-motor processes: Can we train them?" The Reading Teacher. Champaign, Illinois: Garrard Publishing Company. February. 1974. pp. 469-478.

from various programs. The Floyd outline of disabilities and remediation is a composite assembled mostly from the Winter Haven program,[37] the De Witt Reading Clinic prohram,[38] the guide book of Behrmann,[39] Nine Traub's program,[40] the Frostig program,[41] the Peabody program,[42] and the Vallett approach.[43] Though the Orton-Gillingham program had been suggested by a reading specialist in the Charles City Junior High School, it was not seriously considered because it was out of date.[44] It prescribes methods for teaching reading to disability students through the three pathways of touch and feel, hearing, and sight. Nina Traub's methods are

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[37]Genevieve I. Curry. Winter Haven's Perceptual Testing and Training Handbook. Winter Haven, Florida: Winter Haven Lions Research Foundation, Inc. 1969. pp. 19-60.

[38]John Arena. Teaching Through Sensory-Motor Experiences. Belmont, California: Fearon Publishers/Lear Siegler, Inc./DeWitt Reading Clinic, Inc. 1969. pp. 3-41.

[39]Behrmann, Polly. Activities for Developing Visual-Perception. San Rafael, California: Academic Therapy Publications. 1970. pp. 19-50.

[40]Nina Traub, Recipe for Reading. Cambridge, Massachussetts: Educational Publishing Service, Inc. 1972.

[41]Marianne Frostig and David Horne. The New Frostig Program for the Development of Visual Perception. Chicago, Illinois: Follett Publishing Company. 1967.

[42]Kathryn B. Horton. Peabody Language Development Kit, Level P. Circle Pines, Minnesota: American Guidance Service, Incorporated. 1967.

[43]Robert E. Valett. The Remediation of Learning Disabilities. Belmont, California: Fearon Publishers. 1967.

[44]Kenneth L. Woodward. "When Your Child Can't Read." McCalls. February. 1973. pp. 27.

similar, but are based on more recent research data.[45,46]

The outline that follows does not include all of the remediation or developmental activities of the Floyd program, but rather samples of activities for the areas of specific learning disabilities. The purpose of the outline is to describe the types of activities of the program, and in so describing the activities, to describe the nature of the program. The activities have been constantly revised and refined, making a total description of the program obsolete as soon as it is described. Also, prescription has been individualized since the beginning of the program. There has been no set program for any group of students.

I. Behavior:
   A. Hyperactivity:
      This was considered by the school psychologist to be a problem that requires the intervention of a trained psychiatrist. The Mason City Mental Health Center was the referral agency for hyperactivity. Therapy and sometimes medication were used to modify behavior. Evaluations sent to the school usually recommended caution against stress in the student above his stress threshold. 47

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[45] Kenneth L. Woodward. "When Your Child Can't Read." McCalls. February. 1973. pp. 27.

[46] Paula Rome. "Toward a New Understanding of Youngsters with Reading Problems." Parents Magazine. New York: The Parent's Institute. October. 1971. pp. 24.

[47] Lyle Kelly. Mason City Mental Health Center, in his introductory remarks to educators, Mason City, Iowa. September 14, 1973.

B. Distractibility:

Authors dealing with this area concentrated on the level of perception. Silver and Hagen recommended that objectives be isolated but that diversity of approaches towards mastery of skills leading to the objective be emphasized. 48 Buckland and Balow advised the use of auditory activities rather than visual if the student does not test especially low in auditory areas. 49 Rome suggested that both auditory and visual clues should be used to a maximum. 50 An article by Serio and Faelchle included a statement to the effect that where deficiencies are at the perception level, the child becomes bewildered by the sounds in the environment. He has difficulty "selecting or even attending to relevant and purposeful sounds." 51 According to Lasky and Tobin, the presentation of new concepts, or of concepts which are difficult for disabled children, should be accomplished in a separate room in order to avoid competing lingustic stimuli. 52 Lasky and Tobin also pointed out that disabled learners find it especially difficult to shift their attention from auditory to visual sensory channels. Teaching towards the visual sensory channels can be switched to the auditory channels much more easily. Following the suggestions of Byron and Wheeler, the Floyd staff prescribed task oriented activities as much as possible. 53 The remainder of the teachers' concern in the area of distractibility focused on the suggestions of Chaney: Approach the child with a positive attitude. Use a deliberate tone

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[48] Archie Silver and Rosa Hagin. "Strategies of Intervention in the Spectrum of Defects in Specific Reading Disability." Pomfret, Connecticut: Bulletin of the Orton Society, Volume XVII, 1967. pp. 42.

[49] Pearl Buckland and Bruce Balow. "Effect of Visual Perceptual Training on Reading Achievement." Exceptional Children. January. 1973. pp. 303.

[50] Paula Rome. "Toward a New Understanding of Youngsters with Reading Problems." Parents Magazine. New York: The Parent's Institute. pp. 44.

[51] Martha Serio and Jane Faelchle. "Tuning In." From Teaching Through Sensory-Motor Experiences, John I. Arena, ed. Belmont, California: Fearon Publishers/Lear Siegler, Incorporated. 1969. pp. 96-97.

[52] Elaine Z. Lasky and Henry Tobin. "Linguistic and Nonlinguistic Competing Message Effects." Journal of Learning Disabilities. April, 1973. pp. 249.

[53] Tanis Byran and Roslyn Wheeler. "Perception of Learning Disabled Children: The Eye of the Observer. Journal of Learning Disabilities. October. 1972. pp. 40-41.

of voice. Teach at the level of the child's ability. Extra movements of the hands or body should be avoided. Permit frequent times for relaxation. Intersperse humor wherever appropriate. Watch the student's reactions and change techniques accordingly. 54

C. Emotional Instability:

This was another area that required the attention of a psychologist or psychiatrist for diagnosis and treatment. The teacher's responsibility was to make a referral when there was an indication that emotional instability was present. The ability of each child to stand stress varied. The level at which a child reacted to stress with deviant behavior indicated the seriousness for making the referral. The decision to make a referral was generally subjective, though the psychologist sometimes formally tested and interviewed the student for a more accurate analysis. 55 In the reports from the school psychologist which the Floyd staff received, the recommendation invariably was for the teacher to react to evidence of emotional stress by at least temporarily removing the task from the child, and to continually evaluate tasks to make certain they were not too difficult for the child.

D. Perseveration:

Psychologists have researched this mechanism for over thirty years. 56 Lawrence claimed that it is technically a problem for psychological analysis and prescription. A child who has difficulties, especially in skill areas, attempts to preserve some adequacy of behavior in spite of his frustration. Proportional to the shrinkage of his behavior repertoires, there is an increase in the repetition of those habitual forms of response that remain. The responses are considered satisfactory by the child to a degree. The remediation of the problem was in providing the child with more responses to the same stimuli, and to provide the child with responses

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[54] Clara M. Chaney and Newell C. Kephart. Motoric Aids to Perceptual Training. Chapter 2, "How to Structure and Control Behavior." Columbus, Ohio: Charles E. Merrill Publishing Company. 1968. pp. 29-53.

[55] Archer C. Barnes. Abnormal Behavior in the Classroom. New York: Pergamon Press. 1971. pp. 23-24.

[56] Lawrence I. O'Kelly. Introduction to Psychopathology. New York: Prentice-Hall, Incorporated. 1950. pp. 429-430.

that were more satisfactory to him. 57 Skinner's "operout conditioning" was often used. 58

II. Perception:

A. Visual: These activities were not prescribed without concomitant reinforcement. For example, if a child was asked to identify an object among other objects in a picture, he may have been asked to see the object and draw it. This provided tactile-motor reinforcement for the visual perception. This multi-sensory approach was the method recommended in the activities from the program of Behrmann, 59 Winter Haven, 60 and Valett. 61 The activities were described in various programs under different skills titles, often in conjunction with other skills which are not visual. For example Behrmann divided the topic of visual perception into eleven parts:

Visual Stimuli-Motor Response

Tracking

Tactile-Visual Motor

Auditory-Visual Integration

Kinesthetic Visual Motor

Whole and Parts of Whole

Visual Sequencing

Figure-Ground Discrimination

Vertical Games

Visual Integration and Comprehension

Visual Motor-Kinesthetic

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[57] Lawrence I. O'Kelly. Introduction to Psychopathology. New York: Prentice-Hall, Incorporated. 1950.

[58] B. F. Skinner. "Reinforcement Today." The American Psychologist, Volume 13. March, 1958. pp. 94-99.

[59] Polly Behrmann. Activities for Developing Visual-Perception. San Rafael, California: Academic Therapy Publications. 1970. pp. 5-6.

[60] Genevieve I. Curry. Winter Haven's Perceptual Testing and Training Handbook. Winter Haven, Florida: Winter Haven Lions Research Foundation, Inc. 1969. pp. 3-4.

[61] Robert E. Valett. The Remediation of Learning Disabilities. Belmont, California: Fearon Publications. 1967. pp. 81-83.

Each of these was further sub-divided into skills. "Whole and Parts of Whole, "for instance, was divided into "Visual, Sequential, Spatial, Conceptual-Perceptual, Integration, (and) Motor Coordination." 62

Curry had a simpler outline: Eye movement and Focusing, Form Perception, Visual Memory, Visual Comparison, Visual Conceptualization, and Eye-Hand Coordination. 63 Hardy and Casebeer focused on reading preparation, referring to their activity as encompassing "visual recell and motor control." 64 The activities described by the Rocky Mountain Special Education Instructional Materials Center were separated into "visual reception" in isolation, then "visual motor sequencing" in another set of activities. 65 Valett divided the activities into nine skills areas:

Visual Acuity

Visual Coordination and Pursuit

Visual Form Discrimination

Visual Figure-Ground Differentiation

Visual Memory

Visual-Motor Memory

Visual-Motor Fine Muscle Coordination

Visual-Motor Spatial-Form Manipulation

Visual-Motor Speed of Learning

Visual-Motor Integration

Samples of the various activities:

1. Prepare a series of abstract mazes and follow-the number picture completion designs. Have the pupil first follow cues and then copy the design from memory.

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[62] Polly Behrmann. Activities for Developing Visual-Perception. San Rafael, California: Academic Therapy Publications. 1970. pp. 19-49.

[63] Genevieve I. Curry. Winter Haven's Perceptual Testing and Training Handbook. Winter Haven, Florida: Winter Haven Lions Research Foundation, Incorporated. 1969. pp. 47-52.

[64] Donald W. Hardy and Beverly B. Casebeer. "Visual Perception and Discrimination." From Teaching Through Sensory-Motor Experiances. John I. Arena, ed. Belmont, California: Fearon Publishers/Lear Siegler, Incorporated/De Wutt Reading Clinic, Incorporated. 1969. pp. 88.

[65] Harold A. Rupert, Jr. A Sequentially Compiled List of Instructional Materials for Remediation Use with the I.T.P.A. Washington, D.C.: Department of Health, Education and Welfare. 1969. pp. 11 and 49.

2. After a child recognizes such forms as squares or triangles, the forms can be cut into two or three pieces to make puzzles for the child to paste onto a dittoed pattern.
3. Human figures can be drawn by the teacher on the chalk board and each part compared to the related part on the child's body. Partially drawn figures can be completed by the child.
4. Attach tracing paper with paper clips over a drawing, a picture or a map. Have the child use continuous marking as he traces what is underneath.
5. Draw an X straight forward from the tip of the child's nose, on the chalk board. Have the child hold a piece of chalk in each hand. Have him look at the X and draw large circles using both hands; using full arm movements.
6. Start a drawing, a partial picture. Have two or more children take turns adding parts. A variation of this is to have the children start with an oval and add parts of a head, copying from what they see on each other's heads. 66

B. Auditory: As in the section above on visual perception, this auditory perception section and all subsequent sections of the outline are described in various programs with nomenclature unique to each author. This paper will not include a description of each set of skills titles, since the importance of the specific titles is less than the importance that the difference exists, which has already been established. Each area will only include samples of activities prescribed:
   1. Read a description of a scene to the child. Use no cues other than auditory. Have the child draw a picture of the scene from what he has heard.
   2. Give directions and have the child follow them. Begin with simple directions and increase the difficulty as the child responds. "Walk to me," can be augmented to, "Walk to me, shake hands with me, walk back to the table and sit down."
   3. Arrange assorted objects or pictures on a table. Have the child point to the appropriate object or picture in response to questions by the teacher, such as, "What is big, round and bounces?" "What is shiny, long and sharp?"
   4. For a more advanced activity, teach verbal association to analogies, such as: "In the morning it is light; in the evening it is _____." "Birds are in the sky; fish are in the _____." "Fire is hot; ice is _____."

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[66] Robert E. Valett. The Remediation of Learning Disabilities. Belmont, California: Fearon Publishers. 1967. Chapters 27-37. pp. 81-108.

5. Time activities: "What comes after Wednesday?" "After Friday?" "Before March?" "After October?" Give practice exercises in days of the week, months of the year.
6. Teach the child how to listen to a nursery rhyme or story such as "Jack and Jill," and then to recall and act out the basic plot.

III. Motor:

A. Balance

1. There are many exercises for developing balance that utilize a balance beam. Consult Gettman for a variety of exercises described in a sequence based on difficulty. 67
2. Have the child simply walk a balance beam carrying a bamboo pole for added balance.
3. Have the child gallop by running forward with both hands on the floor and the knees slightly bent.
4. Have the child walk, run, hop or skip around geometric forms taped to a wood floor or painted on a gym or playground surface.
5. Make a maze with boxes, obstacles, ropes, and other such materials. Have the child run the course. Use a stopwatch for timing. Keep a record so that the child can see the progress over a period of time.
6. Pair children of similar abilities. Run relays with plastic glasses half filled with water, which are passed from runner to runner.

B. Lateral Dominance:

1. Reinforce the foot on the same side as the dominant hand by having the child push a wood block with the dominant foot along a taped course to a target.
2. Reinforce the eye on the same side of the dominant hand by having the child follow with his dominant eye a pencil target moved by the teacher and then by himself while blocking the subdominant eye.
3. Have the child use his dominant hand to identify objects, scribble on a chalkboard, erase the board, manipulate finger plays and puppets, wind mechanical toys, compare thread to rope or string.
4. Have the child use a cross-pattern crawl to reach a target. His right hand and left knee, then his left hand and right knee, should touch the floor simultaneously.
5. Have the child connect dots of a dot picture using his dominant hand, while holding the paper with his subdominant hand.
6. Have the child use his dominant hand to embroider geometric shapes using yarn and burlap material.

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[67] G. N. Gettman, et al. The Physiology of Readiness Programs. Chicago, Illinois: Lyons and Carnahan, Incorporated. 1966. pp. 28.

C. Fine Motor Coordination:
   1. Prepare a gadget board with extensive series of locks, latches, plugs, zippers, levers, buttons, snaps, nuts and bolts. Have the child manipulate objects, perhaps timed and with a written record of progress.
   2. Have the child string beads, needles, buttons, maccaroni, and decorations.
   3. Draw geometric shapes on the chalkboard. Have the child trace the forms on the board with his finger. Then have the child duplicate the design with a length of yarn.
   4. Provide templates of geometric forms. Have the child trace each shape with his finger, then trace precisely with crayon.
   5. Have the child write his name both in cursive and manuscript if possible. Then have him trace, enlarge, color over, cut out and paste his name.
   6. Have the child make a mosaic with beans and seeds. This exercise can be done with or without tweezers.

IV. Language:
   A. Limited Speech:
      1. Use tapes or records of rhymes. Have the child repeat rhymes after the teacher. Develop recitation of simple ehymes. Expand this exercise to include simple songs.
      2. Place varied pictures or small objects into a box. Pull them from the box one by one, saying the name of each. Have the child repeat the names. Extend the vocalizing by developing simple sentences that identify each.
      3. Show slides of people participating in activities. Have the child describe each activity.
      4. Have the child describe the sequence of events in a comic strip, moving from the first frame to the last. When this skill has been developed, have the child make up a story from pictures or from a book.
      5. Use toy phones, or real ones if avilable, to carry on conversations with the child. Talk about subjects about which the child is very familiar.
      6. Start with very simple stories. Involve the child with various roles in dramatization. Begin with roles the child can handle easily.
   B. Lack of Verbal Concepts:
      1. Involve the students in the activities in the last four exercises of the section titled "Limited Speech," above.
      2. Discuss cause and effect ideas in television stories and stories that the teacher reads to the child.

3. Health, safety, and diet are subjects that can be explored at length on an individualized basis. Films and film strips can be narrated with the child's help.
4. Give the child three related ideas. Have him put the three ideas together to make a story.
5. Have the child describe and explain any phenomenon he can understand, in complete detail. Look for proper sequence.
6. Have the child make up and relate a story built around his puppet, doll, or an action picture.

C. Poor Sentence Structure:
1. Make a collection of cards, some with simple subjects, some with simple predicates. Have the child put them together in pairs to make sentences.
2. Make the exercise above more difficult by making another set of cards for phrases. Begin with prepositional phrases, then develop adverbial phrases, then noun clauses.
3. If the child appears to be slow to recall words he needs to make sentences, he may need this skill developed before other remedies will work well. Form a group. The teacher gives words verbally or makes a list of words. The students are timed, as they try to name as many synonyms for each word as they can.
4. Scramble the words or phrases of a sentence. Have the student rearrange the words or phrases properly to make sentences. The students can record answers to get verbal reinforcement.

D. Articulation:
1. Start with single vowel words. "Nonsense" words demand concentration on auditory reception. Have the child repeat the words, concentrating on all vowel and consonant pronunciation.
2. Make lists of prefixes and suffixes. Focus only on the child learning to pronounce the affixes, not on the meanings.
3. Have the child keep his own collection of words he frequently mispronounces. Allow for periodic independent study of those words. Such study should be monitored each time with instant remediation and reinforcement.
4. Use three syllable words to focus a child on beginning, ending and middle sounds, in that order. Make the lists of words by families, using for each group of cards words with the same ending sounds, beginning sounds, or middle sounds.

5. Have the child sit opposite the teacher, with the teacher's face well illuminated. The child can imitate correct pronunciation through imitation of the facial and oral muscle movement of the teacher.
6. Rhyming activities of all kinds can be used for pronunciation. It is important that the student constantly try to pronounce well. Some rhyming activities utilize humor to stimulate the student positively, such as listening or reading a story about the fat cat who could scat, or Tote, the goat with a boat and a moat.

Frequently, the Area Specific Learning Disabilities Consultant recommended remediation for a student in an area not mentioned by the name used in the outline above. Most of these disabilities were sub-catagories of each one of the areas in the outline. For example, some students have been remediated for visual memory. Visual memory was considered by Valett to be a catagory within the area of perceptual motor skills.[68] Other students were remediated in vocal association and encoding, considered by Merkley as part of auditory perception.[69]

With the system used at Floyd Elementary School remediation was based on analyssi and prescription of individual disabilities, not on an outline from a particular program. The multi-sensory character of the remediation minimized the possibility of establishing one area of remediation as more important than any other. This avoided the problem of determining a hierachy of remediation.

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[68] Robert E. Valett. The Remediation of Learning Disabilities. Belmont, California: Fearon Publishers. 1967.

[69] Elaine Merkley. Becoming A Learner. Columbus, Ohio: Charles E. Merrill Publishing Company. 1972. pp. 11-12.

Chapter 4

ANALYSIS OF THE DATA

The objective in this analysis was to determine if the Floyd Specific Learning Disabilities students performed better on the Gates-MacGinitie Reading Test after treatment in a Specific Learning Disabilities program, than the Washington Specific Learning Disabilities control group performed without a Specific Learning Disabilities program.

Pre test

The first stage of comparison was by obtaining pre test comparability to see to what degree the group performances were different in reading.

The first test was administered in September, 1973. Table 6 shows the computation of the means for the Floyd experimental group and the Washington control group.

A group variance was computed from the mean of each test performance. These data, Table 7, were used to calculate the degree of difference between the performances by the two groups. A t test proof at the 0.05 level of significance, Table 8, showed no significant difference between the two pre test performances. A df of 27 requires a t value of 1.70 or higher to conclude that the difference is significant. The t value obtained from the pre tests was .32, less than a significant difference.

Table 6

Computation of Means for the Experimental Group And the Control Group on the Gates-MacGinitie Test, September, 1973

Experimental Group:

Student	Raw Score: X_1	X_1^2
1	35	1225
2	34	1156
3	32	1024
4	31	961
5	30	900
6	30	900
7	29	841
8	26	676
9	23	529
10	23	529
11	22	484
12	17	289
13	14	196
$\sum X_1 =$	346	$\sum X_1^2 =$ 9710

$$\bar{X}_1 = \frac{\sum X_1}{N_1} = \frac{346}{13} = 26.61$$

$N_1 = 13$

$\sum X_1 = 346$

$\sum X_1^2 = 9710$

$\bar{X}_1 = 26.61$

Control Group:

Student	X_2	X_2^2
1	41	1681
2	41	1681
3	40	1600
4	39	1521
5	35	1225
6	32	1024
7	31	961
8	31	961
9	28	784
10	24	576
11	23	529
12	19	361
13	19	361
14	17	289
15	16	256
16	7	49
$\sum X_2 =$	443	$\sum X_2^2 =$ 13859

$$\bar{X}_2 = \frac{\sum X_2}{N_2} = \frac{443}{16} = 27.69$$

$N_2 = 16$

$\sum X_2 = 443$

$\sum X_2^2 = 13859$

$\bar{X}_2 = 27.69$

Table 7

Computation of Group Variance for the Experimental and Control Groups on the Gates-MacGinitie Test, September, 1973

Experimental Group:

$$s_1^2 = \frac{(N_1)(\Sigma X_1^2) - (\Sigma X_1)(\Sigma X_1)}{(N_1)(N_1 - 1)} =$$

$$\frac{(13)(9710) - (346)(346)}{(13)(12)} =$$

$$\frac{126230 - 119716}{156} =$$

$$\frac{6514}{156} = 41.76$$

Control Group:

$$s_2^2 = \frac{(N_2)(\Sigma X_2^2) - (\Sigma X_2)(\Sigma X_2)}{(N_2)(N_2 - 1)} =$$

$$\frac{(16)(13859) - (443)(443)}{(16)(15)} =$$

$$\frac{221744 - 196249}{240} =$$

$$\frac{25495}{240} = 106.23$$

Table 8

Computation of the 0.05 Level of Significance for the Experimental and Control Groups Using the t Test, September, 1973.

(1) $$\frac{(N_1 - 1)(S_1^2) + (N_2 - 1)(S_2^2)}{N_1 + N_2 - 2} =$$

$$\frac{(12)(41.76) + (15)(106.23)}{13 + 16 - 2} =$$

$$\frac{501.12 + 1593.45}{27} =$$

$$\frac{2094.57}{27} = 77.58$$

(2) $$\frac{N_1 + N_2}{(N_1)(N_2)} = \frac{13 + 16}{(13)(16)} = \frac{29}{208} = .1394$$

(3) $(77.58)(.1394) = 10.8146$

(4) $\sqrt{10.8146} = 3.28$

(5) $\bar{X}_1 - \bar{X}_2 = 26.61 - 27.69 = -1.08$

(6) $t = \frac{1.08}{3.28} = .32$

(7) $df = N_1 + N_2 - 2 = 13 + 16 - 2 = 27$

27 @ 0.05 is 1.70; therefore the t value of .32 is not significant.

Post test

The Specific Learning Disabilities students in the experimental group and the control group took a post test in April, 1974. The data from the post tests were again analyzed to determine the degree of difference between the performances of the two groups. Table 9 shows the calculation of the means on the post tests.

The means were used to determine the group variance, Table 10. The group variance data were treated in the same manner as in the pre-test, in a computation of the t test proof of significance at the 0.05 level, Table 11. One student in the control group did not take the post test, which made the N_2 on the post test one less than on the pre test.

The results of the analysis of the data showed no significant difference on the post test performances of the experimental and control groups. A df of 26 requires a t value of 1.71 or higher to conclude that the difference is significant. The t value obtained from the post tests was 1.03, less than a significant difference.

Table 9

Computation of Means for the Experimental and Control Groups on the Gates-MacGinitie Test, April, 1974

Experimental Group:

Student	Raw Score: X_1	X_1^2
1	58	3364
2	50	2500
3	50	2500
4	53	2809
5	46	2116
6	49	2401
7	51	2601
8	41	1681
9	40	1600
10	29	841
11	33	1089
12	32	1024
13	26	676
	$\sum X_1 =$ 558	$\sum X_1^2 =$ 25202

$$\bar{X}_1 = \frac{\sum X_1}{N_1} = \frac{558}{13} = 42.92$$

$N_1 = 13$

$\sum X_1 = 558$

$\sum X_1^2 = 25202$

$\bar{X}_1 = 42.92$

Control Group:

Student	Raw Score: X_2	X_2^2
1	55	3025
2	52	2704
3	53	2809
4	50	2500
5	-	-
6	44	1936
7	46	2116
8	37	1369
9	38	1444
10	31	961
11	34	1156
12	35	12225
13	29	841
14	39	1521
15	20	400
16	16	256
	$\sum X_2 =$ 579	$\sum X_2^2 =$ 24263

$$\bar{X}_2 = \frac{\sum X_2}{N_2} = \frac{579}{15} = 38.60$$

$N_2 = 15$

$\sum X_2 = 579$

$\sum X_2^2 = 24263$

$\bar{X}_2 = 38.60$

Table 10

Computation of Group Variance for the Experimental and Control Groups on the Gates-MacGinitie Test, April1, 1974

Experimental Group:

$$S_1^2 = \frac{(N_1)(\sum X_1^2) - (\sum X_1)(\sum X_1)}{(N_1)(N_1 - 1)} =$$

$$\frac{(13)(25202) - (558)(558)}{(13)(12)} =$$

$$\frac{327626 - 311364}{156}$$

$$\frac{16262}{156} = 104.24$$

Control Group:

$$S_2^2 = \frac{(N_2)(\sum X_2^2) - (\sum X_2)(\sum X_2)}{(N_2)(N_2 - 1)} =$$

$$\frac{(15)(24263) - (579)(579)}{(15)(14)} =$$

$$\frac{363945 - 335241}{210} =$$

$$\frac{28704}{210} = 136.68$$

Table 11

Computation of the 0.05 Level of Significance for the Experimental and Control Groups using the t test, April, 1974.

$$(1) \quad \frac{(N_1 - 1)(S_1^2) + (N_2 - 1)(S_2^2)}{N_1 + N_2 - 2} =$$

$$\frac{(12)(104.24) + (14)(136.68)}{13 + 15 - 2} =$$

$$\frac{1250.88 + 1913.52}{26} =$$

$$\frac{3164.40}{26} = 121.71$$

$$(2) \quad \frac{N_1 + N_2}{(N_1)(N_2)} = \frac{13 + 15}{(13)(15)} = \frac{28}{195} = .1436$$

$$(3) \quad (121.71)(.1436) = 17.4775$$

$$(4) \quad \sqrt{17.4775} = 4.18$$

$$(5) \quad \bar{X}_1 - \bar{X}_2 = 42.92 - 38.60 = 4.32$$

$$(6) \quad t = \frac{4.32}{4.18} = 1.03$$

$$(7) \quad df = N_1 + N_2 - 2 = 13 + 15 - 2 = 26$$

26 @ 0.05 is 1.71; therefore the t value of 1.03 is not significant.

Chapter 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

There had been a remedial reading program at the Floyd Elementary School for some years. Lack of success in solving reading problems for students within the program stimulated a search for a more effective method of remediation. The product of the search was the development of a specific learning disabilities program in the primary grades. For the school year 1973-1974, thirteen students were identified as having specific learning disabilities in grades one and two. They became the experimental group for this study. Another sixteen students in another elementary school in the same district at the same grade levels were also identified as having specific learning disabilities. This group did not have the benefit of a specific learning disabilities program in their school. These students comprised the control group for this study. The purpose of this study was to investigate the effectiveness of the specific learning disabilities program at Floyd in developing reading skills. The study lasted one school year. The research attempted to determine if the Floyd first and second grades students in the specific learning disabilities program obtain a significantly higher reading achievement level over similar but untreated students in the control group. The investigation was based on evidence in the literature that there was a strong correlation between learning rates in reading and specific learning disabilities.

Students in the school district were first screened by the Stanford Achievement Test. Low performances on this test, teacher observation, testing by the school psychologist, and testing by the Area II Specific Learning Disabilities Consultant completed the identification of all the students in this study.

Data at the beginning of this research showed that the experimental and control groups were similar. Both groups were rural, both groups performed at approximately the same reading level, all the students in each group had average intelligence as measured on standardized tests, and all the students were enrolled at the first and second grade levels.

Of the four basic assumptions, the first was the most limiting. It stated that the size of the sample was smaller than desirable for this kind of research. The other three assumptions were: That the control group was untreated; that the Hawthorne Effect was germane to this type of educational research; and that the two forms of the pre and post tests were statistically comparable as indicated in the Technical Manual of the test publisher.

Students in the Floyd program were administered two tests of mental abilities, the Slossen Intelligence Test and the SRA Primary Mental Abilities Test. The test results supported the psychologist's report that all the students in the experimental group had at least average intelligence. The Floyd program utilized a resource teacher who was certified to teach specific learning disabilities students. The students were treated through individualized cycles of analysis, prescription and evaluation. At the level

of analysis, three test instruments were used to identify each student's learning disability, The Slingerland Screening Tests, Valett's Psycho-educational Evaluation of Basic Learning Abilities, and the Illinois Test of Psycholinguistic Abilities. The program was behavioral at the prescription and evaluation levels. The techniques and materials were from various commercial programs such as the Winter Haven Program, The DeWitt Reading Clinic Program, Nina Traub's program, The Frostig Program, The Peabody Program, and the Valett Program. The total remediation program rocussed on the perceptual difficulties. This was consistent with the recommendations of many authorities in the literature, though not all of the authorities agreed that perceptual problems form the matrix around which the other handicaps are built. The specific learning disabilities teacher worked with the students within their regular classroom except when special material or space was required. Remediation for learning disabilities was not attempted for any child who had not demonstrated reading readiness. The remediation was attempted in four areas: Behavior, perceptions, motor and language.

Pre and post tests were administered to both the experimental and the control groups. The Gates-MacGinitie Reading Test, Form A, was the pre test. The Gates-MacGinitie Reading Test, Form B, was the post test. Data gathered from the test performances of the two groups were analyzed using a one tailed t test at the 0.05 level of significance.

Pre test data produced a t value of .34, well below the level of significance for a df of 27, or below 1.70. This assured that the experimental and control groups were academically similar in reading.

Post test data produced a t value of 1.03, still below the level of significance for a df of 26, or below 1.71. The data analysis did not show any significant gain in reading achievement for the students in the Floyd Specific Learning Disabilities program over the performance of the students in the control group.

Conclusions

Valett's "A Psychoeducational Evaluation of Basic Learning Abilities" was one instrument used to identify students with specific learning disabilities. The teachers criticized this testing procedure for the length of time it took to administer. Slingerland's "Pre-Reading Screening Procedures" was later administered. Valett's instrument had identified fifteen students with specific learning disabilities. The Slingerland instrument identified thirteen students, all of whom had been identified by the Valett evaluation. The main difference was that the Slingerland procedures took only about half the time to administer as did the Valett procedures. Since both instruments gave parallel information, it was more economical in terms of time to give the Slingerland tests to screen for specific learning disabilities.

The program developed at Floyd for specific learning disabilities was not radically different from what had been recommended by the authorities in the literature. The method for prescription was more individualized than any of the programs surveyed. The components of the program were taken from different programs, thereby permitting multiple prescription for any specific disability. The prescriptions

were behaviorally oriented. This reduced dependence upon increased repetition and upon standard phonics instruction. The program was multi-sensory, which facilitated prescribing to each individual student's learning mode. The data from the pre and post test did demonstrate that the program produced gains in reading achievement for the students in the experimental group.

The control group was chosen because it had been identified as a group of students who did not have access to a special remediation program. The data from the pre and post tests showed that the normal cycling of these students through whatever remediation used by the regular classroom teachers produced reading achievement gains for these students also. This indicates that students with specific learning disabilities in normal learning situations may be receiving help with their problems in certain environments and from certain teachers.

The dominant fact demonstrated by the data analysis was that the Floyd program for specific learning disabilities did not significantly improve the reading achievement of the experimental group above the reading achievement of the control group. The extra cost for a specialist and for materials for the Floyd specific learning disabilities program is not defendable if similar achievement gains can be realized as demonstrated by the control group. Though the program may be a help to the students, it still needs to be improved if the program is going to stand the tests of accountability.

The conclusions of this research, then, can be summarized as:

1. The Slingerland Pre-Reading Screening Procedures identifies almost the same specific learning disabilities students

as does the Valett's Psychoeducational Evaluation of Basic Learning Abilities, but takes only half as long to administer.

2. Data from the pre and post testing indicate that the Floyd program for specific learning disabilities does produce gains in reading achievement levels.
3. Data from the pre and post testing indicate that the students in the control group made gains in reading achievement, also, without benefit from a specialist or from a special program.
4. The Floyd program may be a help to specific learning disabilities students, but more improvement is needed before it can be considered as a completely developed program.

Recommendations

The problems encountered in this research and the conclusions from the data analysis suggest that further action and study are needed as follows:

1. The assumption that specific learning disabilities programs are the panacea for remediation of learning disabilities still needs to be challenged. If the elementary school where the control group was housed is typical of any number of other schools handling remediation of reading problems, there may be solutions to such problems that can profitably be introduced into the specific learning disabilities program development. The suggestion here is to use a questionnaire to ascertain which schools of a region have found that their normal classroom remediation process has had an effect on the reading improvement of learning disabled students at the

primary level. A follow up study to compare factors common to these programs then would be in order. A consequence of such a study could be a more defendable program in terms of accountability for specific learning disabilities remediation.

2. One phenomenom encountered in this study still needs to be examined. The incidence of specific learning disabilities in the Floyd school is higher than in the rest of the district, and higher than the estimated percentages cited in the literature. One possible hypothesis is that the causative factors are in the home environment. A program with extensive home involvement is planned for the Floyd school during the 1974-1975 school year. The specific learning disabilities specialist will have the responsibility to make the home contacts and to coordinate the program. Further study needs to be done to determine the effectiveness of the home involvement. Since this is the only major change planned in the past year's program, data from this research could be compared to data from next year's program. The research could be refined by catagorizing the type of learning disability and the type of parent involvement while testing for correlation with any significant progress.

3. Unless the program at Floyd can demonstrate significant reading achievement progress above normal classroom progress for specific learning disabilities students, the recommendation dictated by this research must be to consider radical change or abandonment of the Floyd specific learning disabilities program.

BIBLIOGRAPHY

BIBLIOGRAPHY

Arena, John I. Teaching Through Sensory-Motor Experiences. Belmont, California: Fearon Publishers, Lear Siegler, Inc., De Witt Reading Clinic, Inc. 1969.

Barnes, Archer C. Abnormal Behavior in the Classroom. New York: Pergamon Press. 1971.

Beck, Joan. "Help for Children Who Can't Learn." Chicago, Illinois: Chicago Tribune, Sunday, March 14, 1971.

Behrmann, Polly. Activities for Developing Visual-Perception. San Rafael, California: Academic Therapy Publications. 1970.

Buckland, Pearl and Bruce Below. "Effect of Visual Perceptual Training on Reading Achievement." Exceptional Children. January, 1973.

Byran, Tanis Schwartz and Roslyn Wheeler. "Perception of Learning Disabled Children. The Eye of the Observer." Journal of Learning Disabilities. October, 1972.

Camp, Bonnie W. "Learning Rate and Retention in Retarded Readers." Journal of Learning Disabilities. February, 1973.

Chaney, Clara M. and Newell C. Kephart. Motoric Aids to Perceptual Training. Chapter 2, "How to Structure and Control Behavior." Columbus, Ohio: Charles E. Merrill Publishing Company. 1968.

Curry, Genevieve I. Winter Haven's Perceptual Testing and Training Handbook. Winter Haven, Florida: Winter Haven Lions Research Foundation, Inc. 1969.

Dechant, Emerald V. Improving the Teaching of Reading. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1970.

Department of Health, Education and Welfare, data quoted by Kenneth L. Woodward in an article titled "When Your Child Can't Read." Chicago, Illinois: McCalls. February, 1973.

Eutis, Richard S., M.D. "Specific Reading Disability Information for Parents and Teachers." Bulletin of the Orton Society. Townsend, MD: 1969.

Frostig, M. and D. Horne. The Frostig Program for the Development of Visual Perception, Teacher's Guide. Chicago, Illinois: Follett Company, 1964.

Garrett, Henry E. and R. S. Woodworth. Statistics in Psychology and Education. New York: David McKay Company, Incorporated. 1961.

Gates, Arthur I. and Walter H. MacGinitie. "Technical Manual." New York: Teachers College Press, Columbia University. 1965.

Gephart, William J. The Convergence Technique and Reading: A Progress Report. Kansas City, MO: Phi Delta Kappa Research Service Center. May, 1969.

Gettman, G. N, et al. The Physiology of Readiness Programs. Chicago, Illinois: Lyons and Carnahan, Incorporated. 1966.

Gibson, E. J., et al. "A Developmental Study of the Perception of Letter-Like Forms." Journal of Comparative and Physiological Psychology. March, 1961.

Graber, K. et al. Learning Disabilities: A Handbook for Parents and Teachers. Des Moines, IA: Iowa Association for children with Learning Disabilities. 1970-1972.

Guralnick, Michael J. "Alphabet Discrimination and Distinctive Features: Research Review and Educational Implications." Journal of Learning Disabilities. August-September, 1972.

Hagin, Rosa A. "Clinical-Diagnostic Use of the WPPSI in Predicting Learning Disabilities in Grade 1." Journal of Special Education. 1971.

_____. "Some Practical Applications of Diagnostic Studies of Children with Specific Reading Disability." Bulletin of the Orton Society. Educators Publishing Service. Volume XI. Cambridge, Massachussetts: 1961.

Hammill, Donald, Libby Goodman and J. Lee Wiederholt. "Visual-motor processes: Can we train them?" The Reading Teacher. Champaign, Illinois: Garrard Publishing Company. February, 1974.

Hardy, Donald W., and Beverly B. Casebeer. "Visual Perception and Discrimination." From Teaching Through Sensory-Motor Experiences. John I. Arena, ed. Belmont, California: Fearon Publishers, Lear Siegler, Incorporated, De Witt Reading Clinic, Incorporated. 1969.

Horton, Katheryn B. Peabody Language Development Kit, Level P. Circle Pines, Minnesota: American Guidance Service, Incorporated, 1967.

Kedd, John W. "The Discriminatory Repertoire - The Basic of All Learning." Journal of Learning Disabilities, Volume 3. October, 1970.

Kelly, Lyle. Mason City Mental Health Center, in his introductory remarks to educators, Mason City, Iowa, September 14, 1973.

Kephart, Newell C. "Let's Not Misunderstand Dyslexia." The Instructor. Dansville, Nes York: The Instructor Publications, Incorporated. August/September, 1968.

Koss, Corrine, et al. "Early Recognition of Learning Disabilities." 30-minute film. Marshalltown, Iowa: Cooperative Network of In-Service Resources. Print Number 7028. 1974.

Lasky, Elaine Z. and Henry Tobin. "Linguistic and Nonlinguistic Competing Message Effects." Journal of Learning Disabilities. April, 1973.

Lehman, Eileen F. and Robert E. Hall. "Who Is This Child?" American Education. Washington, D.C.: U.S. Department of Health, Education and Welfare, Office of Education. April, 1966.

Liberman, Isabelle. "Speech and Lateralization of Language." Bulletin of the Orton Society, XXI. Townsend, Maryland: 1971.

Merkley, Elaine. Becoming A Learner. Charles E. Merrill Publishing Company. Columbus, Ohio: 1972.

Myklebust, Helmer. A research on Special Learning Disabilities, with 3000 student subjects, Northern Illinois University, cited by Joan Beck, "Help for Children Who Can't Learn." Chicago, Illinois: Chicago Tribune, Section D. Sunday, March 14, 1971.

Morgan, Clifford T. "Brain Functions and Dysfunctions." Physiological Psychology. Manchester, Missouri: McGraw-Hill Book Company. 1965.

The National Advisory Committee for the Handicapped, as cited in the introductory section of a monograph titled "Learning Disabilities Program," Boone, Iowa: Boone Community Schools. 1970.

O'Kelly, Lawrence I. Introduction to Psychopathology. New York: Prentice-Hall, Incorporated. 1950.

Oliphan, Genevieve. "A Study of Factors Involved in Early Identification of SLD." Bulletin of Orton Society. Townsend, Maryland: 1970.

Padalino, Jane P. "A Program For The Identification and Remediation of Perceptual Deficiencies in Kindergarten and Primary Grade Students. Final Interim Progress Report." Union Township Board of Education. New Jersey: May, 1971.

Pellettieri, A. J. "The Neurophysiology of Learning and Pedagogy." Paper presented at the National Reading Conference, St. Petersburg, Florida: December, 1970.

Rawson, Margaret B., Roger E. Saunders and Rosa A. Hagin. "Perspectives of Specific Language Disability." Bulletin of the Orton Society, XXI. Townsend, Maryland: 1971.

Kome, Paula. "Toward a New Understanding of Youngsters with Reading Problems." Parents Magazine. New York: The Parent's Institute.

Rupert, Jr., Harold A. A Sequentially Compiled List of Instructional Materials for Remediation Use with the I.T.P.A. Washington, D.C.: Department of Health, Education and Welfare. 1969.

Samuels, S. J. "Attention and Visual Memory in Reading Acquisition." Paper presented to the American Psychological Association, Washington, D.C.: September, 1971.

Satz, Paul, et al. "An Evaluation of a Theory of Specific Developmental Dyslexia." Gainesville, Florida: Florida University.

Serio, Martha and Jane Faelchle. "Tuning In." From Teaching Through Sensory-Motor Experiences, John I. Arena, ed. Belmont, California: Fearon Publishers, Lear Siegler, Incorporated. 1969.

Silver, Archie. "Diagnostic Considerations in Children with Reading Disability." Bulletin of the Orton Society. Pomfret, Connecticut: Volume XI. 1961.

Silver, Archie and Rosa Hagin. "Strategies of Intervention in the Spectrum of Defects in Specific Reading Disability." Bulletin of The Orton Society. Volume XVII. Pomfret, Connecticut: 1967.

Skinner, B. F. "Reinforcement Today." The American Psychologist. Volume 13. March, 1958.

Slingerland, Beth H. Pre-Reading Screening Procedures. Cambridge, Massachussetts: Educators Publishing Service, Incorporated. 1969.

_____. Specific Language Disability Children. Cambridge, Massachussetts: Educators Publishing Service, Incorporated. 1971.

State of Iowa Department of Public Instruction. "Guidelines for the Development of Special Education Programs in Iowa." Des Moines, Iowa. 1969.

Thorne, Frederick C. Integrative Psychology. Brandon, Vermont: Clinical Psychology, Incorporated. 1967.

Traub, Nina. Recipe for Reading. Cambridge, Massachusetts: Educational Publishing Service, Incorporated. 1972.

Valett, Robert E. The Remediation of Learning Disabilities. Belmont, California: Fearon Publishers. 1967.

Walker, Louise and Edwin Cole. "Familiar Patterns of Expression of Specific Reading Disability in a Population Sample." Bulletin of the Orton Society, Incorporated. Volume XV Townsend, Maryland: 1965.

Woodward, Kenneth L. "When Your Child Can't Read." McCalls. February, 1973.

APPENDIXES

Appendix A

Observation Forms
Specific Learning Disabilities
Floyd Elementary School

I. BEHAVIOR
   A. Hyperactivity
      1. Random and purposeless movement
      2. Fidgets with clothes, taps pencil, foot, fingers
      3. Talks out of turn and inappropriately
   B. Distractability
      1. Cannot stick to one topic or attend to one activity
      2. "Caught up" by any new stimuli--light, sound, movement
      3. Extremely short attention span
   C. Emotional Instability
      1. Characterized by lack of predictability
      2. Easily upset or "over-reacts" emotionally
      3. Inappropriate emotional reaction or incomsistent display of emotion (laugh one minute; cries the next)
   D. Perseveration
      1. Inability to alter a response
      2. Repeats a previously correct response rather than risk failure.
      3. Cannot shift from an idea or task to another more appropriate

II. PERCEPTION
   A. Visual
      1. Though acuity is normal, may display difficulty in copying forms or symbols (letters and figures)
      2. Able to recognize all letters alone but not in context
      3. May not know left to right progression
      4. May reverse letters or words in writing
      5. Unable to find specific location on a page
      6. Common reversals in words such as was/saw, no/on, top/pot; and letters b/d, p/d, b/g
   B. Auditory
      1. May be unable to sound out word though hearing is normal
      2. Unable to recognize or associate letters and sounds or remember sequence of sounds
      3. May show difficulty comprehending verbal directions or sequence of verbal commands
      4. May be better on visual tasks than on auditory or listening skills

III. MOTOR
   A. Balance
      1. May display over-all awkwardness
      2. Deviant walking pattern
      3. Bump into objects, fall easily

B. Lateral Dominance
   1. May lack preference for hand usage
   2. One hand is used more often but may attempt to write, cut or draw with either hand

C. Fine Motor Coordination
   1. Weak grasp of pencil or chalk, or conversely, grasp too strong
   2. Frequently breaks lead, crayons because of excessive pressure
   3. Holds writing utensils in awkward position

IV. LANGUAGE

A. Limited Speech
   1. May use little or no speech
   2. Language characterized by extremely short, simple sentences

B. Lack of Verbal Concepts
   1. May be unable to verbalize or comprehend certain concepts
   2. Noticeable with respect to direction (such as up, down, over, under, beside, above, corner, top)
   3. Noticeable with respect to time (today, yesterday, tomorrow, soon, before, after)

C. Poor Sentence Structure
   1. Lack of awareness of verb forms, pronouns, plurals ("me do it" for "I do it")
   2. Faulty syntax and grammar

D. Articulation Difficulty
   1. Substitutions, omissions and distortions of consoO nant sounds
   2. Remnants of delayed speech and language development

Appendix B

A PSYCHOEDUCATIONAL EVALUATION OF BASIC LEARNING ABILITIES

Valett

Name _____ Date _____ Age___ Evaluator_____	Performance Level	Learning Disanilities			Learning Strengths	
		Very Weak 0	Weak 5	Average 25	Strong 75	Very Strong 95 100
Gross Motor Development: Rolling (controlled)						
Sitting (erect)						
Crawling (smoothly)						
Walking (coordinated)						
Running (course)						
Throwing (accurately)						
Jumping (obstacles)						
Skipping (alternately)						
Dancing (eurythmy)						
Self-Identification (name/awareness)						
Body Localization (part location)						
Body Abstraction (transfer/generalize)						
Muscular Strength (sit, leg-ups/bends)						
General Physical Health (significant History)						

	0	5	25		75	95	100
Sensory-Motor Integration:							
Balance and Rhythm (games/dances)							
Body-Spatial Organiz (mazes)							
Reaction-Speed Dexterity (motor-accuracy)							
Tactile Discrimination (object identification)							
Directionality (right-left/etc.)							
Laterality (hand-eye-foot)							
Time Orientation (lapse and concept)							
Perceptual-Motor Skills:							
Auditory: Acuity (functional hearing)							
A-Decoding (following directions)							
A-Vocal association (imitative response)							
A-Memory (retention)							
A-Sequencing (patterning)							
Visual: Acuity ("Snellen")							
V-Coordination and Pursuit (tracking)							
V-Form Discrimination (association)							
V-Figure/Ground (differentiation)							
V-Memory (visual recall)							
Visual-Motor: Memory (designs)							
VM-Fine Muscle Coord. (designs)							
VM-Spatial-Form Manipulation(Blocks)							
VM-Speed of Learning (coding)							
VM-Integration (draw-a-man)							

	0	5	25		75	95	100
Language Development:							
Vocabulary (word knowledge)							
Fluency and Encoding (use and structure)							
Articulation (initial/medial/final)							
Word Attack Skills (phonic association)							
Reading Comprehension (understanding)							
Writing (expression)							
Spelling (oral/written)							
Conceptual Skills:							
Number Concepts (counting)							
Arithmetic Processes (+ - x ÷)							
Arithmetic Reasoning (problem solving)							
General Information (fund of knowledge)							
Classification (relationships)							
Comprehension (common sense reason)							
Social Skills:							
Social Acceptance (friendship)							
Anticipatory Response (foresight)							
Value Judgments (ethical-moral sense)							
Social Maturity (gross problem solving)							