

INDIVIDUAL EVALUATIONS AND CURRICULUM GUIDE RECOMMENDATIONS
FOR TEN SLOW LEARNING FIRST YEAR PUPILS

by

DOROTHY ANN DALEY

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D.A.D.

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ABSTRACT

This study was an attempt to develop a curriculum guide for ten slow learning first year students in Bozeman, Montana. The children were given The Gesell School Readiness Test, The Lowenfeld Mosaic Test, The Illinois Test of Psycholinguistic Ability, and The Frostig Test of Visual Perception. Classroom teacher observations of the children's behavior were also noted. A curriculum guide, based on the results of the testing, was made. Specific behavioral goals and activities to help each child reach these goals were given. The program was designed to remediate deficiencies rather than to emphasize the children's strong points.

CHAPTER I

INTRODUCTION

Statement of the Problem

The purpose of this study was to develop a curriculum guide for use in the education of ten children who had been especially selected as likely to experience difficulty or failure in the mastery of beginning reading skills. The children were selected on the basis of reading readiness test scores from the first year groups at the Irving and Hawthorne Schools in Bozeman, Montana.

There has been considerable question as to whether children who have low reading readiness test scores are simply exhibiting an overall developmental lag or whether they are exhibiting specific deficiencies in abilities, skills, and judgments.

As the teacher prepares lessons for this special type of child, she might ask: (1) Why do these children have low scores on reading readiness tests? (2) In which specific abilities do they need practice? (3) Will the methods which I am using help these children to master reading skills?

These questions have been intensified as the teacher's daily observations showed that this type of child was able to learn. Furthermore, intelligence tests have often shown that this type of child had average or above average mental abilities. The children in this study were not considered mentally retarded.

In an attempt to answer these questions, the children in this study were given several tests. These tests investigated, in depth, areas in

which the children were possibly deficient. Measurements of immaturity were obtained from the Gesell School Readiness Test and the Lowenfeld Mosaic Test. Information about language ability was obtained from the Illinois Test of Psycholinguistic Ability. Visual discrimination abilities were measured by the Frostig Test of Visual Perception. Observations of the classroom teachers were also considered.

Discrepancies among chronological age (CA), behavioral age (BA), and language age (LA) were recorded for each child. The information obtained was used to suggest suitable learning experiences for the children involved.

Significance of the Study

The importance of this study to educational procedures and practices was the attempt to gather information about specific needs of individual children and to plan some guides for a more suitable curriculum for those children. The ability to read is important, and affects the child's entire school life. This study was an attempt to measure, in more detail, abilities and disabilities of ten children, and to project guides for suitable curricula for them which more accurately meet their individual needs.

Limitations of the Study

Some references were found in the Montana State University Library, and in the library set up as a result of The Title II (E.S.E.A.) program in the Bozeman Public Schools. Other references were obtained in the library maintained by the Bozeman Center for Mental Retardation.

The study was limited to ten children in the Bozeman Public School System. The curriculum guides had these particular children in mind, and while the proposed curriculum may be useful in suggesting suitable experiences for other children who are having difficulty in school, it was designed for these individual cases.

The study was exploratory in nature. The curriculum suggested would have to be carried out under experimental conditions before final conclusions about what was necessary for this type of child could be determined.

CHAPTER II

REVIEW OF LITERATURE

Introduction

During the last decade there has been a surge of interest in education. Factors causing this include international competition, symbolized by the Sputniks, newly available Federal funds, and recent discoveries in biological research. Special interest has been focused upon early childhood education. Most educators would agree that prospects for unlimited progress seem to lie in the development of strategies for meeting individual needs, and in the fostering of each child's potentialities.

Bateman (1966) discussed some of the factors which have served to crystalize interest in individualizing instruction for children with special learning needs. These included: (1) the possibility of devising strategies for children who have a proven learning capacity, but who do not progress in school under present methods, (2) increased communication among educators, psychologists, and medical specialists, which has opened up the development among educators of a more scientific approach to all learning situations, and (3) the creation of new diagnostic philosophies and instruments which have direct educational implications for curriculum and remedial planning.

Immaturity and Beginning Reading

Considerable effort has been put forth on the problem of immaturity. Gesell (1943) and Piaget (1964) have shown that children progress along definite patterns or stages which, they believe, cannot be by-passed.

Dewey (1915) in experimental education described the need for allowing the child to bloom. He believed that the child's own mind would, through curiosity, lead to all of the education necessary for that individual--that outside standards were not nearly as important as the fostering of innate curiosity and desire for knowledge. Some educators charged that only lip service was paid to Dewey's ideals. They believed that progressive education, as it was interpreted, misunderstood freedom for license. As of late, there has been renewed interest in studying the child and in allowing this child to discover knowledge for himself, with limits set by the teacher or parent only when there is a need for safety or when control becomes obviously necessary. This may represent a return to Dewey's philosophy in the light of new perspective, with much more respect for the individual child, and with more realistic goals for ourselves.

The School Readiness Behavior Tests were developed by Ilg and Ames (1965) in an attempt to place the individual child with regard to his development as compared to typical behavior as represented by children at different ages. This is an attempt to assess a biological level as apart from chronological age. The Lowenfeld Mosaic Test is another test which compares a child's behavior with other typical children.

Bruner (1961) projected the idea that we do not necessarily have to limit curricula for the early grades, but that we do need to consider the intellectual development in children which will systematically lead children from one stage of development to another. He believed that any subject could be taught effectively in some intellectually honest form to any child at any stage of development.

Harris (1961), after surveying literature on reading, came to the following conclusions:

- (1) There is a substantial relationship between mental age and the ease of learning to read; most children who fail in reading in the first grade have mental ages below six years. The more mature children not only learn more easily but also retain what they learn better than the less mature child.
- (2) Most children who have normal IQ's have MA's above six years, and are free from special handicaps, can be successfully taught to read in the first grade. However, a delayed start does these children no harm.
- (3) It is not possible to set a definite minimum mental age for learning to read because too many other factors are involved. Children with mental ages as low as five years can be taught to read first grade materials. There seems to be no lasting advantage in such an early start, however, and many of these children fail to make any headway when the pace of instruction is geared to the progress of older or brighter children.
- (4) A program of systematic readiness training preceding the beginning of reading instruction enables some children to make faster and easier progress in reading when they do start, but is not needed by all children; many are ready on the first day of school. A delayed start without specific efforts to improve readiness has little to recommend it. Readiness training of a specific kind can also be continued after reading instruction has started.

deHirsch and others (1966) pointed out that using intelligence factors alone to determine reading readiness is not advisable because reading disability cases have been shown in children of all levels of intellectual ability. While realizing that a variety of social, environmental, and psychological factors are significant in the acquisition of reading skills, they believed that learning to read requires the developmental timing and integration of both neurophysiological and psychological aspects of readiness. Their work has been limited to the preschool child's perceptomotor

and linguistic functioning.

Language Problems of Beginning Readers

In the teaching of reading to beginning children each child should be carefully evaluated, with attention given to visual or auditory perception problems and to motor skill weaknesses. Formerly emphasis was placed on waiting for children to become ready to read, and blaming failures on poor home environment or poor teaching. The reader is referred to the section on definitions in this chapter for help in distinguishing between physical disabilities and perceptual inadequacies.

The Illinois Test of Psycholinguistic Ability, hereafter referred to as the ITPA, was designed by Siever and others (1963) and was based on Osgood's hypothesis of human linguistic behavior. It attempts to assess learning disability, due to a psychological dysfunction which might have been caused by a possible cerebral dysfunction or emotional or behavioral disturbance. This disability would not have been the result of mental retardation. The test makes no assumptions with respect to neurological or neurophysiological behavior. It rather describes assets and deficits from a behavioral frame of reference and is more a diagnostic tool designed to help the teacher choose correct remedial methods.

In the original study the sample base for the ITPA was small, and much was left to be substantiated. Since the test was diagnostic, one way to check its validity would be to use it in planning a program for children which it designated as needing special training in a specific area. If later it could be shown that the children did indeed learn through the

method suggested, the test would have been helpful.

That the subtest of the ITPA does indeed assess psychological processes as apart from sensory processes or acuity was shown by the studies of Olson (1961) and Bateman (1963). McCarthy (1961) in an interview explained the usefulness of the ITPA and other factors in diagnosing learning problems for children within school populations. Haring and Redgey (1967) used the ITPA and other tests successfully to screen children in a summer reading program. Bateman, Ragland, Kass, and Ferrier, in research summarized by Bateman (1966), reported that automatic-sequential test scores were low for children who were remedial readers. This would indicate the need for developing techniques to improve integrative processes rather than focusing completely upon the representational process.

Durrell (1963), MacGinitie (1967), and McReynolds (1967) have done recent studies pointing out the significance of relationships between auditory perception and reading ability.

Bateman (1966) gave a comprehensive summary of literature on learning disabilities. Frierson and Barbe (1967), in the introduction to their book of readings on this subject, noted the many possible bases for learning disabilities. These varied from neurological disorganization, neurological lag, developmental lags, structural deviations in the human brain, congenital defects, and mild sensory impairment, to the newest idea, that of electrochemical activity of brain and nerve disorders. They concluded that while many learning disabilities could be discussed in terms of organic impairment, one must also consider the possibility of inappropriate education.

Reed (1967) found a relationship between right hand finger agnosia--

defined as the partial or complete loss of the ability to recognize familiar objects through sensory channels--and reading disability in ten year olds but not in six year olds. Stephens and others (1967) compared crossed eye-hand preference with the learning of reading skills as shown on a reading readiness test and found no relationship between crossed preference and readiness.

It would be well to compare these preferences with actual reading progress since readiness tests are not always capable of distinguishing those children who may encounter reading difficulties. It should be remembered that many of the studies done on visual perception, auditory perception, and laterality use children who are experiencing reading difficulty. If these studies were performed on the population at large, results might be different.

Review of Trends in Curriculum Design

Frierson and Barbe (1967) pointed out that there have been two general approaches toward understanding learning problems. The first approach has been cause oriented. Those with this view have looked at learning disorders with an attempt to identify the source or etiology of observed behaviors. The second approach has been effect oriented. Persons with this view have analyzed, described, and modified observed behaviors regardless of underlying causes. This difference is related to the background of the individual who is working with the child. Clinicians have preferred etiological descriptions, while school personnel usually favored terms associated with school learning abilities.

Niles (1967) found that it was possible to discover children likely to have reading problems before they entered formal reading programs. However, in attempting to discover which teaching methods would help these children, he failed to achieve any significant differences. This program dealt with children in groups rather than as individuals which might explain why no significant differences were found.

Scott and Petrie (1967) reported on a summer program in rural Iowa for children who were experiencing reading difficulty. They emphasized the necessity of screening children individually with tests such as the ITPA as the most significant step in the development of a compensatory program. They also attempted to note difficulties in certain areas and gave special help in these areas.

Chall (1963) conducted a study on the relationship of auditory blending ability and success in beginning reading. A positive correlation was connected with oral and silent reading ability in the first four grades. The test did not, however, distinguish between failure to synthesize sounds heard and inaccurate perception of the separate sounds.

Frostig (1964) created a program to develop visual perception. A pre-test discriminates between eye-motor coordination, figure-ground discrimination, form constancy, position in space, and spatial relationships. A follow-up program was designed for remediation of difficulties in these areas. The value of the Frostig Test has been its ability to distinguish which children have needed specially designed curricula.

Anapolle (1967) discussed particular eye difficulties and how they have related to reading readiness, although he does not discuss perception

problems at much length. Gould (1967) described a program used in the Brentwood, New York public schools for visual perceptive development. He related this program to Piaget's developmental sequence of child development. Carroll (1966) advised that particular attention be given to providing a rich source of stimuli in each learning situation so each child may focus upon the type of material which he can best learn.

Hunt (1965) from his work with learning situations and animals, found relationships with stimulating environments a favorable factor. Altman (1967) in work with rats, also found a "rich environment" favorable in the development of brain cells. While animal work is not always applicable to humans, the question must be raised as to how much effect the environment has.

Cruickshank (1961), Gallagher (1962), Gillingham (1960), Kephart (1960), Delacatto (1963), Fernald (1943), Strauss (1947), and Frostig (1964) are among the people who have described specific programs for children with learning disabilities.

Relation to Previous Studies

deHirsch (1966) represents a view in which previous conflicts of opinion might be resolved. Those who stress the importance of maturity would not oppose, for example, teaching the very young child to read if suitable materials were used. Material containing large print, for example, could be employed. Similarly, Bruner (1961) believed it very important to consider the development of the child when devising a curriculum. deHirsch (1966) would consider these factors and the

possibility of a specific language disability, which might retard even a child with high intelligence. Focus upon the individual child is a common bond.

The ITPA and the Frostig Tests have proved useful in diagnosing particular language abilities and disabilities. This study was limited to suggesting a more suitable set of activities for the children involved. These tests were used in describing the needs of the children. This study was unique in that the children were considered individually rather than as a group.

Definition of Terms

For the purposes of this study, clarification of the definition of two terms was determined to be necessary. Immaturity is a slow rate of development in psychological, physiological, and sociological areas of human growth. Psychological development refers to the characteristics by which the mind operates. Physiological development refers to body growth. Sociological development includes positive attitudes of self identity, identity of others, and the inter-relationships between them. The School Readiness Test (Gesell), the Lowenfeld Mosaic, and teacher observations were used to measure these attributes in each child.

The term Specific Language Disability is usually applied to those who have found it very difficult to learn to read and spell, but who are otherwise intelligent. Recently any language deficit--oral, visual, or auditory--is referred to by this term. The term, as used in this paper, implied a condition in which time alone would not have enabled

the child to perform appropriate learning tasks. Instead, time and the use of special educational procedures would have been necessary to help the child to overcome his deficiency. An attempt was made to measure encoding, associative, and decoding abilities with the Illinois Test of Psycholinguistic Ability (ITPA). The Frostig Developmental Test of Visual Perception (Frostig) was used to extend measurements of visual perception which are connected to language development and specifically to reading.

Descriptions of Tests Used

The Harrison-Stroud Reading Readiness Test was administered by classroom teachers to all first year students. Results of this test were used in grouping children in each school into three classes--above average, average, and below average. The basis of this grouping was not intellectual ability, but rather performance ability. Subtests included using symbols, visual discrimination, using the context, auditory discrimination, and giving letter names.

The teachers were encouraged to simply talk about each child's behavior in the classroom. In looking over what they had said, certain areas were mentioned more than once. These were chosen as being significant to the study.

The Frostig test was developed to evaluate visual perception. A pre-test discriminates between eye-motor coordination, figure-ground discrimination, form constancy, position in space, and spatial relationships. The relatively small standardization sample was composed of .

2100 unselected nursery school and public school children between the ages of three and nine years. The reliability study was done on a very small sample ($n=50$). The product moment coefficient of test reliability of 0.98 was based on the Perceptual Quotient rather than the individual subtests. Since this is a diagnostic test, it is better to examine each subtest rather than the total score. The value of the Frostig Test has been its ability to distinguish which children have needed specially designed curricula.

The Illinois Test of Psycholinguistic Ability (ITPA), as were all the tests except the Harrison-Stroud, was administered individually. The subtests of the ITPA included visual decoding, motor encoding, auditory vocal association, visual motor sequencing, vocal encoding, auditory vocal sequencing, visual motor association, auditory decoding, and auditory vocal automatic.

The School Readiness Test (Gesell) was administered in part. Those parts included the initial interview, the paper and pencil test, copy forms, and the incomplete man. These tests were developed by Ilg and Ames (1965) to assess biological level as apart from chronological age. Buros (1965) stated that the standardization was small and needed to be confirmed. Socio-economic factors may have influenced the original results. Tester and observer reliability coefficients are high even though scoring is sometimes vague, again according to Buros (1966). There is a high correlation between the Gesell Developmental Schedules for older children and the Stanford Binet ($r=0.87$, $n=195.0$). A number of items from the Gesell are taken from the Binet. Contingency

coefficient correlations vary between 0.45 and 0.52 for children tested in infancy with the Gesell and retested later at age five with a Stanford Binet or Wechsler.

The Lowenfeld Mosaic score supplements the developmental age score obtained from the Gesell. This test consists of giving the child a blank piece of white paper on which he arranges various plastic disks. There is no time limit. When the child has completed his picture, the examiner compares it to samples done by other children of various ages. Patterns of behavior have been found typical of these various ages and each child's work is compared with these patterns.

CHAPTER III

PROCEDURES AND METHOD

The teachers and principals involved were contacted in person and read the proposal for the paper during the fall before the study was begun. Suggestions which they made were considered and acted upon.

Ten first year pupils from the Hawthorne and Irving Schools in Bozeman, Montana were selected for this study. These children were placed in categories IV and V on the Harrison-Stroud Reading Readiness Test, which meant they were not recommended for beginning reading activities until they had mastered greater readiness skills. This test was administered during the first few weeks of September, 1967.

During the period of this study, September through February, the children were having an extended program of readiness activities which had been based on the Scott, Foresman and Company 1960 edition of the texts, We Read Pictures, We Read More Pictures, and Before We Read. Formal reading activities were introduced in January. The children were also doing body awareness activities in a daily gym class. These activities included patterned creeping, walking on balance beams, throwing and catching, and other similar exercises. Enrollments in these classes were small. One class had as many as 22 pupils part of the time. The other class had an enrollment of 17 children.

The chronological age (CA) of each child was obtained from the cumulative records of the school. The developmental age (DA) was obtained from the results of the Gesell and the Lowenfeld tests. Both were expressed in

years and months.

In both schools, testing was done in a room separate from the classroom. All testing was done during the morning hours of the school day. Teachers administered the Harrison-Stroud Reading Readiness Test. The Gesell and the Lowenfeld were administered by Mr. Warren Stone. Two of the children were given these tests in September and the others were examined in late November. The ITPA was administered in February by Mrs. Willa Barsness. The Frostig was given during January by the writer. All tests, except the Harrison Stroud, were given individually.

The children responded well to the testing procedures in every case except one. This child (J) was difficult for all three of the examiners to test. She was easily distracted and difficult to motivate. The other children were not as apprehensive and entered into the work with spirit.

The combined subtests from the ITPA and the Frostig provided information on receptive skills, associative skills, and expressive skills. These subtests represented the skills at low, medium, and high levels and also distinguished between auditory, visual, and motor skills.

The Frostig and ITPA subtest scores which were used were expressed in years and months. This made it possible to easily compare the following factors: (1) chronological age and developmental age, (2) language abilities and chronological age, (3) language abilities and developmental age, (4) visual perceptive abilities and chronological age, and (5) visual perceptive abilities and developmental age.

Teacher comments about certain characteristics of each child's behavior were gathered. The types of behaviors which were stated were those which

would hinder the child in his school progress.

All of the data obtained was analyzed and used as a basis for proposing procedures for classroom activities which would help to develop the areas of deficiency of each child. The analysis of the data is described in Chapter IV.

CHAPTER IV

ANALYSIS OF DATA

Interpretation of Individual Data

It was necessary to subtract several months from the chronological age for some of the children since the tests were given at different times.

Table 1 shows the various measures of the childrens' ages.

TABLE 1. MEASURES OF AGES OF THE CHILDREN STUDIED

Child	CA*	Gesell	Lowenfeld	DA**	CA***	Difference
A	6:8	5:0	4:0	4:6	6:6	2:0
B	6:8	5:6	5:0	5:3	6:6	1:3
C	6:7	5:6	4:0	4:8	6:7	1:11
D	6:6	5:0	6:0	6:0	6:3	1:3
E	6:7	5:6	5:0	5:3	6:5	1:2
F	6:11	6:0	5:6	5:3	6:9	1:6
G	7:3	6:0	5:6	5:8	7:0	1:4
H	6:9	5:0	5:6	5:3	6:4	1:1
I	7:1	5:6	5:0	5:3	6:10	1:7
J	6:4	5:6	4:0	4:8	6:1	1:5

*Age in years and months as of February, 1967.

**Average DA derived from the Gesell and Lowenfeld scores.

***Corrected to the month in which the Gesell was administered.

The developmental age average is calculated from the two developmental measures, the Gesell and the Lowenfeld Mosaic. The CA was corrected to the month in which the DA measures were obtained. For example, child E had a CA of 6:7 in early February. The developmental tests were given in late November, so two months were subtracted from the CA to make the tests more

comparable. On figures one through ten, the CA given is for the month of February.

Test scores for each child were compiled as shown on figures one through ten (see pages 21 through 30). The age in years and months was recorded on the left side of each figure as a base for comparison. The scores received by the children on the measuring instruments--the Gesell, Lowenfeld, and subtest areas of the ITPA and Frostig--are shown in the appropriate columns of each figure.

The scores for each child indicated wide variations between CA and DA on all of the tests. As shown in Figure 5, child E received the age equivalent score of 4:2 on the ITPA subtest 6 while the age equivalent score for subtest 9 was 9:0. This was a difference of four years and ten months. No child had scores which were relatively similar for all tests. While many scores were well above CA, there were several scores which were below CA. Very few scores were below DA. Scores for child G tended to be lower than for any of the other children. Teacher observations indicated that child G also had the most difficulty in carrying out classroom assignments.

Figures one through ten show a range of 11 months in CA among the children in the study. This range is fairly typical of most classes. The median CA was 6:6. DA averages ranged from 4:6 to 5:8. The median DA was 5:3. This age was one year and three months below the average CA.

Median scores showed that age equivalent scores for ITPA subtests 1, 2, 3, 4, 5 and for Frostig subtests I, IV, and V were 7:6 or higher. This was considerably above the median CA of 6:6. Subtests 6 and 7 of the ITPA and III of the Frostig were near the 6:0 level. Average age equivalent scores

[illegible]

	Measuring Instrument								
	ITPA Subtest						Receptive Subtest		
	I	2	3	4	5	6	7	8	9
	V	IV	III	II	I				
CA	*								
Gesell	*								
Lovenfeld	*								
Age in Years	5	6	7	8	9				

Figure 2. Test Comparisons for Child B.

Measuring Instrument																	
Age in Years	CA	Gesell	Lorenfeld	ITPA Subtest								Picture Subtest					
				1	2	3	4	5	6	7	8	9	I	II	III	IV	V
9			*				*										*
8						*											*
7					*						*						
6	*																*
5		*	*				*										*

Figure 3. Test Comparisons for Child C.

MEASURING INSTRUMENT

Age in Years	Measuring Instrument									
	ITPA Subtest					Proctig Subtest				
CA										
Gesell										
Lowenfeld										
1										
2										
3										
4										
5										
6										
7										
8										
9										
I										
II										
III										
IV										
V										

Figure 4. Test Comparisons for Child D.

Measuring Instrument																	
Age in Years	CA	Gesell	Lovenfeld	ITPA Subtest									Prespic Subtest				
				1	2	3	4	5	6	7	8	9	I	II	III	IV	V
5		*	*													*	
6	*				*			*		*							
7						*					*		*			*	
8				*			*					*		*		*	
9											*	*					*

Figure 5. Test Comparisons for Child E.

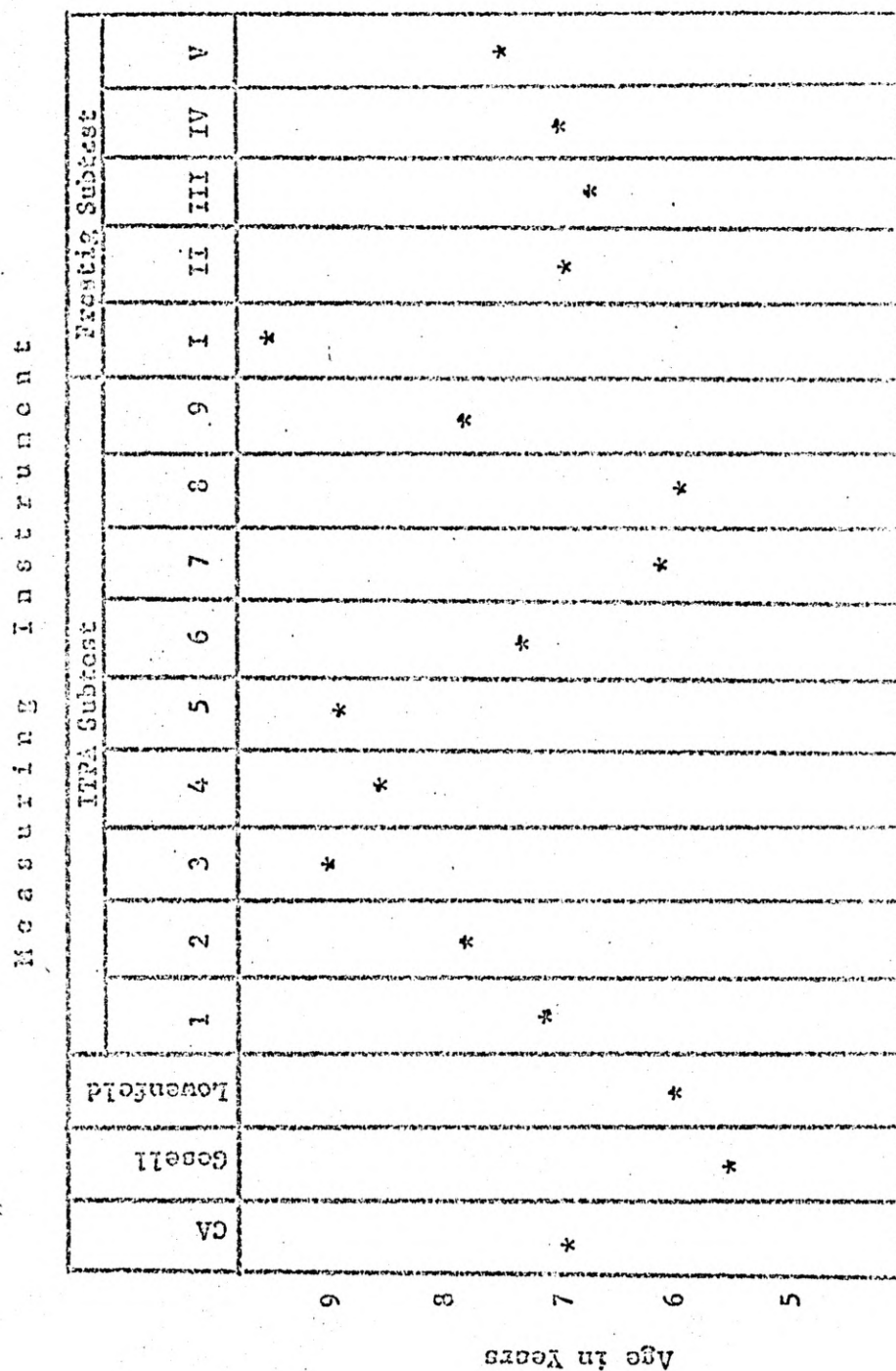


Figure 6. Test Comparisons for Child F.

MEASURING INSTRUMENT

Age in Years	ITPA Subtest										Excels Subtest				
	1	2	3	4	5	6	7	8	9	I	II	III	IV	V	
CA															
Gesell															
Lovenfeld															
5															
6															
7															
8															
9															
10															

Figure 7. Test Comparisons for Child G.

MEASURING INSTRUMENT

Age in Years				ITPA Subtest									Picture Subtest				
	CA	Gesell	Lowenfeld	1	2	3	4	5	6	7	8	9	I	II	III	IV	V
5		*	*		*	*			*					*	*		
6				*			*						*	*			
7	*							*		*	*						
8							*				*			*			
9									*				*				

Figure 8. Test Comparisons for Child H.

Measuring Instrument

Age in Years	CA	Gesell	Lowenfeld	TTA Subtest									Frostig Subtest				
				1	2	3	4	5	6	7	8	9	I	II	III	IV	V
9							*		*						*		
8								*		*						*	
7	*												*				*
6					*									*			
5		*	*														

Figure 9. Test Comparisons for Child I.

Age in Years	CA	Gebell	Lovenfeld	ITPA Subtest									Froggie Subtest				
				1	2	3	4	5	6	7	8	9	I	II	III	IV	V
5				*													*
6	*						*									*	
7					*												
8										*						*	
9											*						*

Figure 10. Test Comparisons for Child J.

for ITPA subtests 8 and 9 were just below the 6:0 level. This would indicate that subtests 6, 7, and III were somewhat difficult for the children and that subtests 8 and 9 were the most difficult for the children.

When age equivalent scores for the ITPA subtests were compared with DA, it was found that eight scores were below DA. The subtests that had these low scores were 2, 6, 8, and 9 of the ITPA. There were also five other scores which were below one measure of DA. Since the children's DA's were, on the average, close to a year below CA, the children were working under quite a handicap.

Age equivalent scores for the Frostig subtests showed that subtest III scores were below CA for eight children. Subtest II scores showed that six children were below their chronological age. Scores for subtests I and II each showed that three children had scores below their CA. None of the children had age equivalent scores which were below their CA in subtest V.

Only two children scored below their DA on the Frostig subtests, one in subtest II and one in subtest III. Two other children had scores which were below one measure of developmental age.

Interpretation of Group Data

The children were grouped, as shown in Table 2, according to their developmental level of skill (high, medium, low) as measured by subtests on the ITPA and Frostig. The subtests actually measured receptive, associative, and expressive skills which were further divided into auditory, visual, vocal, and motor areas.

Six children had difficulty at the low skill level, 32 at the medium difficulty level, and 24 at the high level. A child's name was recorded in

TABLE 2. CHILDREN WHO HAD SCORES BELOW CA AND/OR DA ON THE ITPA AND THE FROSTIG SUBTESTS

RECEPTIVE SKILLS			ASSOCIATIVE SKILLS		EXPRESSIVE SKILLS	
Auditory	Visual	Auditory	Visual	Vocal	Motor	
Auditory Decoding A I J	Visual Decoding E G I	Auditory Vocal Association A G J	Visual Motor Association J C	Vocal Encoding E G	Motor Encoding A B D E G H	
	Figure Ground A B D G I J	Auditory Vocal Sequencing A B C D F G I	Visual Motor Sequencing A C D G H I	Auditory Vocal Automatic A C E F G		
	Form Constancy A B C D F G H I J					
	Position in Space A G H				Eye-Motor Coordination G I J	
	Spatial Relationships (none)					

Developmental Level of Skill

each skill area in which he scored below his chronological age.

It was difficult to evaluate whether children were having more problems with visual, auditory, vocal, or motor channels because the Frostig concentrated measurement in visual areas. All of the children appeared to have visual difficulties since all rated low on at least one of the subtests. Several children rated below CA in several of the visual test areas.

Eight of the children were designated by these tests as having difficulty in auditory association. Eight had difficulty with motor expressive skills, seven with visual associative skills, and five with vocal expressive skills. Only three children were listed as having problems in auditory receptive skills. There was only one subtest at this level.

Interpretation of Classroom Observations

The teachers of these children were interviewed informally by the writer. The teachers were encouraged to give their impressions of the child's behavior, general health patterns, and any home conditions which would have a bearing on the work the child did at school. Table 3 lists these observations.

The problems listed by the teachers are common to slow learning classes. As shown in Table 3, child E seemed to have many behavior problems, yet did not have as much difficulty with the test items as did the other children. It was also noted that she had problems in visual decoding on subtest 2 of the ITPA but none were detected by the Frostig subtests. She had problems acting out things in class and on the motor encoding subtests of the ITPA. It would be necessary to observe and test her more thoroughly before one

TABLE 3. TEACHER OBSERVATIONS OF BEHAVIOR PROBLEMS WHICH THE CHILDREN EXHIBITED.

[illegible]

could adequately explain her difficulties. In contrast, child A was not reported with many behavior type problems but did have trouble with many of the subtests from the Frostig and the ITPA.

Grouping Children for Classroom Activities

The difficulties of the children were often quite complex as has been reported previously. In order to be of further assistance to the children it was believed necessary to establish some logical procedures for classroom organization. This organization would need to fulfill two requirements: (1) each child must receive help in the areas in which he is deficient, and (2) children needing the same type of activity must be grouped together so that the teacher's time will be efficiently utilized. To aid in grouping the children, Table 4 was prepared.

Even though the children indicated in each area have been shown to have corresponding deficiencies, their abilities to overcome the deficiencies are varied. The teachers will have to observe each child carefully as he completes exercises in these areas. Whenever the child reaches the behavioral goal given, he should be provided with activities for the next area. The teachers will have to constantly monitor current needs of the children.

The reader is referred to Appendix A for activity suggestions related to each area tested. Many of these activities were taken from the sources listed in Appendix B.

Although it was recognized that teachers have already used many of these activities, it was the purpose of the writer to relate activities to behavioral goals which were in turn related to the specific areas tested during this

TABLE 4. DEFICIENCIES OF CHILDREN BASED ON ITPA AND FROSTIG SUBTESTS

[illegible]

study. It is possible that these guides may stimulate innovative approaches on the part of teachers towards developing other activities which would reach these same behavioral goals.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

An exploratory probe was made into causes of reading difficulty in ten first year pupils in Bozeman, Montana. To help evaluate these causes, several tests were given to each child. These tests were the Harrison-Stroud Reading Readiness Test, Gesell School Readiness Test, Lowenfeld Mosaic Test, Illinois Test of Psycholinguistic Abilities, and the Frostig Test of Visual Perceptive Ability. Procedures for the gathering and treatment of data were developed and carried out. After the data were studied, curriculum activity guides which would be helpful in remediating the deficiencies of the children as indicated by the test results were proposed.

The review of literature summarized trends in reading readiness. In the past only a passive philosophy prevailed wherein one simply waited for a problem student to mature. Specific activity programs designed to remediate difficulties are now coming into their own. Efforts today are directed towards individualizing curricula, developing better methods of diagnosing each child's peculiar learning problems, and devising strategies to complement and extend each child's efforts.

The testing procedures used in measuring abilities and disabilities of the ten children were described. Wide discrepancies between CA, DA, and language abilities were shown. When subtest results from the ITPA and the Frostig were grouped together, it was shown that more children had more difficulty with medium skill level tasks than with low or high level tasks.

The subtest scores obtained during the study indicated the following:

1. All of the children's measured developmental ages were below their chronological ages.

2. Nine of the children experienced some difficulty with at least one of the first four subtests of the Frostig. The last subtest (V) of the Frostig was not difficult for any of the children.

3. All of the children experienced some difficulty with language processes as measured by the ITPA. Scores from subtests 6, 7, 8, and 9 of the ITPA were the most difficult for the greatest number of children.

Conclusions and Recommendations

From this research it may be hypothesized that the curriculum for these children must indeed be different from that usually prescribed for the first year of regular schooling. The writer recommends that the activities suggested in Appendix A be used as a guide for setting up behavioral goals and actual classroom experiences.

Many questions concerning slow developing children still remain. It would be interesting to compare the home histories of the children who were involved in this study. For example, the child who scored the lowest on the language tests had not been encouraged to talk at home until his school difficulties became apparent to the parents. The teacher of this child reported significant improvement when the parents began to stress talking at home. Because of this experience, the writer recommends a more complete study of the home history of these children to determine if similar factors are involved and, if so, what the school and parents can do cooperatively to

help the children overcome their difficulties.

Much more work needs to be done towards the development of activities specifically geared to each child's unique needs. It is recommended that experimental groups be established to test the feasibility of using the various techniques and activities suggested in this study.

APPENDIX

Appendix A

Curriculum Guide Recommendations

APPENDIX A

CURRICULUM GUIDE RECOMMENDATIONS⁺

RECEPTIVE SKILLS	CHILDREN DEFICIENT											BEHAVIORAL GOAL
Auditory:	A	B	C	D	E	F	G	H	I	J		The child is able to understand words which are spoken to him.
Auditory Decoding	*								*	*		

Suggestions and Activities:

1. The teacher should treat these children as if they did not know how to speak the English language. She should take nothing for granted about their ability to understand directions, stories, or words.
2. Administer the Wepman Auditory Discrimination Test. This checks abilities at simpler levels than does the ITPA.
3. A purely phonetic approach to reading would not be recommended for these children. On the other hand, help in the early stages of reading instruction in auditory perception may help them to overcome their handicap.
4. Used IBM punch cards make sturdy pages for little booklets. Children can cut pictures from catalogs and magazines, paste them on to the cards, and assemble them into booklets. The teacher writes the words on the pages and pronounces them often for the child. He is encouraged to pronounce these words. A tape recorder may take the place of teacher repetition.
5. Develop the pupils' responsiveness by having them imitate actions: sit down, touch nose, touch mouth, clap hands, stamp feet, hit a drum. Be very receptive to the children. Make these happy times.
6. Show pictures of farm animals. Play a record or tape recording of animal sounds. Have the children match the pictures to the sounds.

⁺The list of sources used in preparation of these recommendations is included as Appendix B.

Use only two or three sounds at first, gradually adding more as the children show they are ready.

7. Have the children act out action words ("bang", "zoom", "wow", "ugh", "beep", "help"). Basic rhythm records may also be helpful. Play the record, and have a child act out what he hears and give a word or words for his action.
8. Take snapshots of each child. Have name cards for each child. Let each child match these together, saying aloud the names.
9. Collect common objects such as a shoe, cup, spoon, button, nail, pencil, paper, book, etc. Keep these in a "Pirate Chest". Allow the "pirates" to take out their treasures and say the name of each aloud.
10. Use a "feely" bag. Place small objects which are quite different from each other in a dark cloth bag. Let children reach their hands into the bag, feel an object, and tell what it is. Remove the object and see if the pupil is correct.
11. Record tapes to match given books. Have the children listen to these tapes, repeating the words or phrases on the tape. A Language Master would be very helpful if one were available.
12. Extend these procedures to abstract words like "love", "help", "good", "like", "ugly".
13. Try using some sentences. Use short ones at first. Say a sentence, then say it again, leaving out a word. Let the children tell what is missing. Example: The girl is walking. ____ girl is walking. Child responds: The girl is walking.
14. Have a child note the ticking of a watch as it is placed near his ear. As the watch is moved away from the child's ear, have him raise his hand when he can no longer hear it.
15. Have the child walk away from you. Before he turns around, make some noises (tap three times, scuffle your feet) and then have the child turn around and do whatever you did.
16. Have the child tell all the things he thinks of when he hears the word "movie".
17. Have the child hold his head straight and move only his eyes. Then let him look at the door, ceiling, and floor.
18. Tape recordings: Record pupils engaged in the following activities

and play back frequently for identification: clapping hands softly, shaking a sand rattle, dropping marbles in a jar, pouring water in a glass, rustling and crumpling paper, heart beat sounds using a stethoscope, hard breathing with a stethoscope, different sound frequencies using several tall, narrow glasses containing different amounts of water.

19. Relaxation game: Teach children to place their heads on their arms on the desk, shut their eyes, relax, and listen to "quiet sounds". Tape record this relaxation time. Follow this up by having children relate what they heard, and by playing back the tape.

Visual:	A	B	C	D	E	F	G	H	I	J	The child is able to
Position		*					*	*			apply information
in Space											from space to orient
											himself.

Suggestions and Activities:

1. Directionality involves the application of information into external space. Since there are no directions in space, directions must first be applied to the self as a reference, and then applied objectively between external objects. The person uses visual, kinesthetic, auditory, and tactile clues for direction in space learning. These internal experiences are applied to external stimuli for development of perception of spatial relationships and positions in space. Training for directionality may consist of oral statements: walk forward, walk backward, walk sideways; or walk over an object, under, or beside the object. Body movements are made where the upper extremities or objects are moved. Use games involving the drawing of circles, lines, or other figures on a chalkboard; or describing routes to and from school and plotting maps of the routes; watching a swinging ball; using peg boards; connecting dots on paper; doing pencil pursuits on graph paper; copying peg boards; playing with tiles; stringing beads; using the "Play-skool" village; and painting with the fingers.
2. Use matching games, block designs (on patterns), peg boards, string games, folding activities, dot exercises, and puzzles.
3. Awareness of parts of the body is important. Have children lie on a flat surface. Instruct them to think about their bodies as they stretch, lie still, and move various parts against the floor or table. These same procedures can be repeated when the child is in

different positions. It may be helpful in some cases to blindfold the child so that visual stimuli are excluded.

4. The use of play equipment such as jungle gyms and climbing ropes will help the child to master space.
5. Have the children lie on large pieces of paper while another child traces around them. Cut these figures out and then cut them into various pieces. Have the child reassemble "himself".
6. Show the children simple pictures of other children in various positions. Have them duplicate the positions with their own bodies.
7. Use games such as "Looby Loo" to teach the children the concepts of right and left sides.
8. Extend their knowledge to three dimensional figures. Give the child an assortment of blocks. Have him duplicate the picture of a block patterning (two dimensional) with real blocks (three dimensional).
9. Creating the concept of one's body can be developed from visual, kinesthetic, tactile, proprioceptive, and visceral sensations, and from observations of movements of body parts in relation to each other and to external stimuli. The knowledge one has of his body relates to his self image as a worthy or unworthy person. Some activities which help to develop awareness of one's own body are knowing what the body looks like, knowing where parts are, knowing how much space one's body takes up, knowing how to move a part toward a goal. Body image serves as a reference for laterality, directionality, and spatial relationships. Activities which help to develop body imagery are balance board exercises, walking on an up-turned two by four, hopping, jumping, rope jumping, and skipping. Games useful here include "Simon Says", walking patterns, and going through obstacle courses. Rhythms and imitations of animal walks are helpful. Simple folk dances help children to move their bodies gracefully. If manikins are available, children can assemble them.
10. Teacher preparations may include a gadget board with extensive varieties of items such as locks, latches, plugs, zippers, levers, buttons and snaps. Pupils are encouraged to manipulate these objects.
11. Prepare a series of abstract mazes and "follow the number" picture completion designs. Have the pupil first follow clues and then copy the design from memory.
12. Games such as Etch-a-Sketch, pick-up-sticks, and marbles are useful.

13. Have children string colored clothes pins on a line.

Visual:	A	B	C	D	E	F	G	H	I	J	The child is able to comprehend pictures and written words.
Visual Decoding					*		*		*		

Suggestions and Activities:

1. The study assumes the child has had his vision checked by a visual specialist. The author feels the usual Snellen Eye Test given in schools is not adequate.
 2. Have the children tell what they see in their immediate environment.
 3. Have the children match up similar pictures. Use the same issue of two magazines or catalogs.
 4. Have children sort and classify objects according to function, size, shape, etc.
 5. Teach the children to distinguish which objects are above, under, behind, or beside other objects in pictures.
-

Visual:	A	B	C	D	E	F	G	H	I	J	The child is able to perceive an object as possessing invariant properties such as shape, position, and size, in spite of the variability of the impression of the sensory surface.
Form Constancy	*	*	*	*		*	*	*		*	

Suggestions and Activities:

1. Give each child an object, such as a disk, stick, or ball. Place other objects of the same shape, but of a variety of sizes, at various distances from the children. Some of these objects should be larger and some smaller than the ones they have in their hands, and some should be the same size. Ask each child to identify the

objects that are the same size as the one he holds.

2. Use Piaget's discrimination tasks, in which a child is asked to pour water into various glasses, and then to tell if the water is the same volume in the glasses.
3. Sorting exercises are good for improving this skill also.
4. Show the children a geometrical shape. Have them identify all of the things in the room which have this shape.
5. Take photographs of the children in the classroom. Have them enlarged, if possible. Let the children match objects in the room with those in the photograph.
6. Use worksheets suggested in the Frostig Program or those suggested by the Continental Press. (Addresses in Appendix B).

Visual:	A	B	C	D	E	F	G	H	I	J	The child is able to
Figure	*	*	*	*		*	*	*		*	distinguish objects
Ground											from surrounding back-
											ground material.

Suggestions and Activities:

1. Read The Teacher's Guide for the Frostig Program for the Development of Visual Perception (pages 29 through 33). Things to watch for in the classroom are suggested.
2. Have the children point out various categories of objects in the room such as all the red things, all the round things, the heavy things, etc.
3. Have the children sort such things as nails, screws, blocks, buttons, and dishes.
4. Show the children a box of objects. Name one of the objects, and have the child point it out.
5. Encourage parents to help the child notice and describe his environment in detail.

ASSOCIATIVE SKILLS	CHILDREN DEFICIENT										BEHAVIORAL GOAL
Auditory:	A	B	C	D	E	F	G	H	I	J	The child is able to correctly recall and repeat a sequence of symbols.
Auditory											
Vocal	*	*	*	*		*	*		*		
Sequencing											

Suggestions and Activities:

1. Have the children repeat digits.
2. Have the children repeat lists of words or letters.
3. Have the children repeat nonsense words.
4. Give simple instructions: "Billy, explain to Johnny what we usually do at this time of the day."
5. Ask general questions: "What did you do over the weekend?"
6. Have the children follow directions furnished by the teacher.
7. Use detailed stories such as tape recorded stories of considerable length. Train the children to listen carefully, as they will be asked to relate the story in detail. Tape record immediate verbal recall of the class, and follow up with the taped recall one day, and one week later.
8. Sing songs, especially those songs with verses slightly different from each other.
9. Have the children learn their telephone numbers.
10. Present the letters of the alphabet both forward and backward.
11. Have the children repeat sentences after the teacher.
12. Have the children learn poetry by heart.
13. Have the children tell jokes to each other.

Auditory:	A	B	C	D	E	F	G	H	I	J	The child is able to
											relate spoken words
Auditory		*					*			*	in a meaningful way.
Vocal											
Association											

Suggestions and Activities:

1. The ITPA subtest uses analogies. "Soup is hot."
2. Teach children to use sentences which explain. "We must wear our boots today because it is raining."
3. Let children tell fairy stories or other familiar stories on tape. Play each tape back. Check to see if the child remembered his story.
4. Let children describe objects in the room for other children to guess.
5. Tell a story which is familiar to the children. Add something which does not belong. Let the children decide what was added.
6. Have children write an experience story at the end of each school day. Have them remember what happened during the day.
7. Encourage place association such as, "For the next minute, tell me all the things you can think of that belong in a grocery store."
8. Use word associations such as, "Tell me all the words you can think of when I say 'boy'."
9. Work with sentence completion. Teach the pupil to listen to beginning sentence stimulus, and then to complete it by association. "The color of this book is _____."
10. Apply prepositional analysis. "Is my hand under the desk?"
11. Using descriptive analysis, tell a brief, one-paragraph story, and then ask questions about the story.
12. Use logical analysis. Play question games with leading questions, such as "Twenty Questions."

Visual:	A	B	C	D	E	F	G	H	I	J	The child is able to reproduce a sequence of visual stimuli from memory.
Visual											
Motor	*		*	*			*	*	*		
Sequencing											

Suggestions and Activities:

1. Show the child a sequence of beads. Cover these as he tries to make the sequence. Match the beads. Vary factors such as color, shape, size, and kind. Use several of these factors in the same sequence.
2. Show the children a geometric design on the overhead projector, using overlays. Cover the design. Let the children make the design and compare their result to the original. Progressively increase the difficulty of the designs.
3. Show the child a sequence of beads. Have him close his eyes while you remove one of the beads. Let him attempt to tell you which one is missing.
4. Make paper airplanes and fly them. Have the children keep them in sight. Also construct and fly kites.
5. Place a coin, pencil, tack, button, clip, nail, or other objects on a table. Let the pupil watch for a controlled length of time, after which he turns his back, and one object is removed and placed in a box already containing several other objects. The pupil then turns around and attempts to identify the missing object.
6. Practice immediate recall by having the pupil close his eyes and describe his clothes, the bulletin board, and other objects.
7. Arrange assorted objects in front of the child. Project one object on a screen, and then remove it. Have the pupil find a duplicate object. Use basic forms and designs for similar practice.
8. Arrange dotted perception cards in the chalkboard tray. Briefly expose a model. Then remove the model and have the pupil point out the duplicate. Repeat, covering each eye in turn.
9. Use large dominoes for exposing and recalling visual patterns.
10. Place deck of cards face down. Let two pupils turn over one card at

a time and recall duplicate cards, which are then removed. Record each pupil's score, and reward improved performance.

11. All of these activities can be made harder by setting time limits.

Visual:	A	B	C	D	E	F	G	H	I	J	The child is able to
Visual											relate visual symbols
Motor			*					*		*	in a meaningful way.
Association											

Suggestions and Activities:

1. Place several pictures on the flannel board. These should be simple pictures of one thing. Have the children remove the object which does not belong to the group.
2. Have the children assemble a sequential puzzle series or cartoons. They should then tell the story aloud.
3. Have two telephones in the room. Walkie-talkies will appeal to the boys. Have the children describe exciting events to each other.
4. Use hand puppets with the children. Accept whatever they have to say at first, gradually helping them to make longer and longer statements.
5. Set up a house corner, a block corner, etc. in the room. Have a free period of time to encourage the children to enter into role playing.

EXPRESSIVE SKILLS	CHILDREN DEFICIENT	BEHAVIORAL GOAL
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Vocal:	A B C D E F G H I J	The child is able to
Auditory		predict future lin-
Vocal	* * * * *	guistic events from
Automatic		past experiences.

Suggestions and Activities:

1. Instruct the child to complete a sentence that is left unfinished.
 "Here is an apple. Here are two _____. I am at school. I _____
 down town. Here is a book. _____ is a book."
-

Vocal:	A B C D E F G H I J	The child is able to
Vocal		express ideas in
Encoding	* * *	spoken words.

Suggestions and Activities:

1. Place a flower, dish, ball, and rock on a table. Say to the children, "I see something smooth and it is able to bounce. What is it?" Have the children make up their own riddles.
2. Set up a store in one corner of the room. Have the children tell the grocer what they wish to buy.
3. Take the children on field trips to a dairy, store, bakery, etc. Make experience chart stories of the events. Let the children make booklets about the trip for their parents.
4. Use the Peabody Language Kit.
5. Let a child tell the other children how he made something. See if they can follow his directions.

Motor:	A	B	C	D	E	F	G	H	I	J	The child is able to
Eye											move his body grace-
Motor							*		*	*	fully and execute all
Coordination											manner of body con-
											trol and dexterity.

Suggestions and Activities:

1. Work on improving gross motor control. Have the child lie on his back with arms over the head, and feet together. Have him slowly roll over to the right, and then to the left. Have the child hold a towel, sponge, or ball between his legs, and practice increasing his smoothness of movements.
2. Have the children do a forward somersault.
3. Let the children count to ten while having feet flat on the floor, sitting up straight, with hands folded.
4. Have the children sit on the floor Indian-style, with legs crossed and arms folded, while the instructor counts to ten.
5. Encourage each child to walk forward in a straight line, putting one foot directly in front of the other, touching the heel of one foot to the toe of the other foot.
6. Repeat the above procedure, walking backward, and holding the arms out. Then have the child close his eyes and repeat the exercise.
7. Let the children throw yarn balls into waste baskets.
8. Have the children stand on their tiptoes and run in a circle.
9. Let each child balance himself on one foot while standing on a brick.
10. Using a deck of playing cards, turn them all face up and group them together by number.
11. Make a scrapbook by cutting pictures out of selected materials.
12. Kick a ball across the room.

Auditory:	A	B	C	D	E	F	G	H	I	J	The child is able to
Motor		*					*			*	express his ideas in
Encoding											meaningful gestures.

Suggestions and Activities:

1. Show the children pictures of musical instruments, tools, kitchen equipment, and vehicles. Let them show without words what to do with each item.
2. Play the game "I want to be....." Let children act out being a fireman, policeman, nurse, etc. as the other children try to guess what each child wishes to be.
3. Let children demonstrate to other children how to do something without using words. Examples could include how to hit a ball, how to sew on a button, how to bake a cake, and how to hammer a nail.
4. Have children walk on a balance beam.
5. Have children walk like a wooden soldier.
6. Have children copy figures on the chalk board.
7. Let the children make impressions in new snow as follows. Each child carefully lies on his back, and places his extremities in various positions into the snow, before carefully getting up. The result is an "angel". This can be repeated on the gym floor.
8. Keep individual pupil time records for completing various puzzles. Furnish a reward for significant improvement in performance.
9. Time the children as they sort nuts and bolts by size.
10. Assign simple copy work to be copied from the chalkboard. Reward significant improvement in accuracy and time of completion.
11. Let the children perform paper folding exercises.
12. Permit pupil participation in cooking simple foods using recipes.

Appendix B

Sources for Classroom Activities

APPENDIX B

SOURCES FOR CLASSROOM ACTIVITIES

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