



Development of a productive thinking approach for effectively teaching slow learners in the intermediate grades
by Timothy Edward Sullivan

A thesis submitted in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION
Montana State University
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Abstract:

This study was concerned with the development of a Productive Thinking Approach for teaching slow learners in the intermediate grades.

Although the slow learner problem appeared to be common to many school districts, what constituted a sound slow learner curriculum flexible enough to meet local needs had not yet been completely established. Based on the need for further study, the approach was considered to be adaptable and flexible enough to meet local needs. The writer advocated the specific steps for program development and demonstrated that the approach could be utilized by both teachers in their in-service planning sessions and with slow student in unit planning. The approach was not suggested as a cure-all for the problems often encountered in all school districts. It was intended to provide a set of procedures' that would give the individual teacher or the particular school district a sense of direction and purpose in working to develop a program for slow learners.

The writer indicated a preference for the approach after conducting the research procedures of: (1) clarification of the concept "slow learner;" (2) documentary research; (3) a developed questionnaire; and (4) personal interviews and observations. The research provided information for implementing the approach and developing a class activities manual.

The writer considered the term "slow learner," the intelligence quotient, intellectual abilities, and the various divisions of the intellect before concluding that the five-phased Productive Thinking Approach was one appropriate approach for slow learner education.

The major recommendations made as the result of this study were the following: (1) Some uniformity should be formulated as to what students were classified as "slow learners" in Montana. (2) The Productive Thinking Approach should be advocated as one strategy of remediation for classes of children or for tutoring. (3) A period of time for the approach to be piloted in a number of select classes should be allowed. (4) The approach advocated could not only meet the needs of individual districts but could serve as a tool for teacher planning and continued on-going training programs. (5) Involved educators familiar with the approach could increase their own ability to produce original and quality ideas as leads to solutions for problems, in addition to enhancing and encouraging student productivity,.

DEVELOPMENT OF A PRODUCTIVE THINKING APPROACH
FOR EFFECTIVELY TEACHING SLOW LEARNERS
IN THE INTERMEDIATE GRADES

by

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A thesis submitted in partial fulfillment
of the requirements for the degree

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ABSTRACT

This study was concerned with the development of a Productive Thinking Approach for teaching slow learners in the intermediate grades.

Although the slow learner problem appeared to be common to many school districts, what constituted a sound slow learner curriculum flexible enough to meet local needs had not yet been completely established. Based on the need for further study, the approach was considered to be adaptable and flexible enough to meet local needs. The writer advocated the specific steps for program development and demonstrated that the approach could be utilized by both teachers in their in-service planning sessions and with slow students in unit planning. The approach was not suggested as a cure-all for the problems often encountered in all school districts. It was intended to provide a set of procedures that would give the individual teacher or the particular school district a sense of direction and purpose in working to develop a program for slow learners.

The writer indicated a preference for the approach after conducting the research procedures of: (1) clarification of the concept "slow learner;" (2) documentary research; (3) a developed questionnaire; and (4) personal interviews and observations. The research provided information for implementing the approach and developing a class activities manual.

The writer considered the term "slow learner," the intelligence quotient, intellectual abilities, and the various divisions of the intellect before concluding that the five-phased Productive Thinking Approach was one appropriate approach for slow learner education.

The major recommendations made as the result of this study were the following: (1) Some uniformity should be formulated as to what students were classified as "slow learners" in Montana. (2) The Productive Thinking Approach should be advocated as one strategy of remediation for classes of children or for tutoring. (3) A period of time for the approach to be piloted in a number of select classes should be allowed. (4) The approach advocated could not only meet the needs of individual districts but could serve as a tool for teacher planning and continued on-going training programs. (5) Involved educators familiar with the approach could increase their own ability to produce original and quality ideas as leads to solutions for problems, in addition to enhancing and encouraging student productivity.

Chapter 1

INTRODUCTION

Programs for children with recognized educational handicaps had been instituted in many school systems, and courses of study had been developed to meet these students' particular needs. At the same time, many children whose handicaps were not easily recognized did not have appropriate programs developed to meet their educational requirements. The problem concerning the child characterized as being a "slow learner" existed as one of the most pressing problems facing the public schools (Glasser, 1969).

McCarthy and McCarthy (1970) believed that, despite the progress made in services for children with recognized handicaps, there still remained a sizeable group of children who had severe problems in learning to talk, to think, to perceive and/or who often failed to learn the basic subjects in school. Reese (1968) observed that these children with problems not easily recognized had been labeled slow learners. She added that the increasing number of slow learning children in the public schools of the nation were compounding public school problems, and believed further that children with subnormal learning capabilities were rapidly becoming a majority among youngsters enrolled in public schools.

In an effort to meet this problem, administrators faced demands to create a battery of strategies designed to assure more effective

education for these slow students. Johnson (1963:xv) in considering this problem and its educational implications stated:

The fundamental problem is related to the provision of appropriate and satisfying school experiences for the slow learner in the area of curriculum development. Yet, of the hundreds of articles and pamphlets related to the education of the slow learner, few have approached the problem from a curriculum standpoint--except in a fragmented fashion.

What constituted a relevant slow learner curriculum was the correspondence of the curriculum to the conditions and patterns of experiences of the slow learner. The closer such correspondence, the more relevant the curriculum (Fantini and Weinstein, 1968).

In the past, the concept of curriculum building did not appear to be compatible with the ideas of Fantini and Weinstein as far as a curriculum for slower children was concerned. Johnson (1963) seemed concerned with the fact that, although "watering down" of the curriculum was usually scorned by educators as being unacceptable, such a process actually took place. Difficult material being presented in a watered down fashion was not compatible with the existing conditions and experiences of the slow learner. Johnson (1963:6) added further:

Innumerable articles have appeared in professional periodicals, but they have done little to indicate a solution to or clarification of the slow learner problem. Rarely do they provide the basic help, information, or guides required to develop educational programs for the slow learners. As a result of the limited treatment of the problem, these articles have tended to confuse and discourage rather than clarify and point out directions toward solutions.

In order to make adjustments, Spodek (1972:52) noted that we must realistically look at the present state of things. He stated that:

The average school curriculum, which is geared for the average student, is conceived of as the careful working out in advance of goals and procedures for educating students. Often the more pre-determined the activities, the more specific the goals, and the more detailed the educational evaluation, the better the program is considered. In such a program, individual differences with average students may be dealt with through differentiated pacing. In this method, the rate at which new experiences are provided to students is increased or decreased.

Quay (1963) was concerned with the fact that we really did not know what the specific needs of the slow child were in terms of either a method or a curriculum. He believed that we really did not know what the slow child could learn nor how best to teach him. He contended that we had not fully explored whether the avenues of learning were different for IQ 50 than for IQ 100 for all types of learning. He raised the question as to whether the slow child failed in input, output, retention, any two of these factors, or all three. He maintained that, as a result of lack of basic knowledge of learning processes, slow learner programs could not be clearly defined and scientifically based.

So varied were the problems of the slow learner that it appeared we were by no means professionally ready to develop a curriculum which would provide an effective method for children with learning problems in every community. What seemed to be needed was a method or design which at least in part could be adapted to the specific needs of

slower children in particular school districts. It also appeared that advancement with slow children could be made only as we adopted programs geared to our particular communities, and experimentally tried, tested, and improved these programs.

Authorities pointed out that to fit every child (the slow learner particularly) into a preconceived mold was as detrimental as having all children trying to achieve at the same level; therefore, the standard model of curriculum did not seem viable (Johnson, 1959; Torrance, 1962). What appeared to be needed, as a result of reading the contentions of writers in the field of the slow learner and handicapped child, was an effective method that allowed the classroom instruction to be geared toward the individual needs of each child in the class.

STATEMENT OF THE PROBLEM

The specific area of concern in this study was the development of a Productive Thinking Approach for the teaching of slow learners in the intermediate grades. Consideration was given to the importance of developing every individual child to the full extent of his potential. An aspect of this potential was related to creative production and the development of the individual's ability to think and act productively.

NEED FOR THE STUDY

One of the most pressing needs in modern education was the need for tailoring our educational system to meet the potentialities of slower children and thus reduce the incidence of failure. This was made clear by Silberman (1970:287) who observed that:

In a statewide study in the state of North Dakota problems in the elementary school are neither emotional nor physiological in origin; they are simply children's defensive reactions to curricula that appear irrelevant The openness of the informal classroom, and the fact that children's activities grow out of their own interests, will it is hoped sharply reduce the incidence of disabilities and behavior problems.

Therefore, a method designed for identification and treatment of slow learners was deemed to be important, because the slow learner dilemma was one to which significant adequate methodology appeared to be lacking. The research had shown that "cure all" programs that worked in one school district were not necessarily the best method to be used for slow learners in another district (Orr, 1955). The writer fully realized that conditions which existed in one area may be unique to that area only. There were, however, some teaching strategies which might prove to be more appropriate for working with slow learners which school districts would wish to apply in their particular situation.

During the past six years, the investigator had received well over five hundred letters concerning his work with slow learners. The letters of inquiry came from all over the United States, while a few came from foreign countries. In almost every letter of inquiry, people

were concerned with methods for starting and developing a slow learner approach applicable and adaptable in their own particular classroom situation or their school district.

A procedure seemed especially needed to facilitate early identification and treatment of intermediate grade slow learners. Along with early identification and a system for treatment through teaching, teachers seemed in need of a means to continually keep "abreast" of the immediate problems facing the slow learners in their classrooms. This investigator proposed that the Productive Thinking Approach could be used as an adaptable approach for both identifying and facilitating the slower child's needs.

It was deemed imperative that the slow learner be identified early since motivations, habits, interests, and attitudes established at an early age tended to affect academic achievement in subsequent years. If early identification was going to take place, teachers who were not using an established slow learner curricular plan needed an educational system for identification of slower student's weaknesses.

Several researchers and authors had mentioned these needs. It had been noted by Waldfogel (1966:308) who is concerned with motivation that "the dependent self-conscious child does not exert himself to do his work and promptly is branded as lazy."

Kagan and Moss (1962:272) pointed out that, "the child who anticipates that he will fail at school will not attempt school."

Harris (1961:124) commented that educators should be more considerate of the slow child's needs. He stated that, "some children are inattentive and indifferent at school because they are preoccupied with problems at home." Motivations, interests, and attitudes are important as they relate to later academic achievement. Sontag (1963:533) noted that "the degree of motivation to master tasks which can be observed in a child during his first five years of school is an accurate predictor of his achievement efforts as an adult."

If problems of slow learners were so varied and unlike in different situations as had been mentioned by the previous authors and researchers, then a method which would help teachers identify and provide some specific guidelines was needed.

GENERAL PROCEDURES

The procedures in this study were as follows:

1. A proper understanding of the type of child that the investigator termed "slow" was deemed relevant to the demands of this study. It was felt that by establishing this definition of the slow child, early in the study, the reader would not be confused as to what "kind" of slow child the writer was discussing in developing the method.
2. The investigator conducted an intensive and thorough review of the literature as it pertained to the slow learner. Particular emphasis was given to historical research in the area of the slow

learner, studies concerning special class placement of the slow child (as compared with regular class), the theoretical background, nurturing creativity in slow learners, and the relationship between creative and productive thinking ability.

3. A questionnaire was developed and submitted to selected teachers to determine some of the problems and possible solutions often encountered in striving to implement and maintain a slow learner program for intermediate grade slow learners in the state of Montana.

4. Personal interviews were held with educators who had some first-hand experience in teaching the slow learning intermediate grade child. To accomplish this, observational trips were made to schools throughout the state of Montana in which designated slow learner programs were in existence or had been in existence during the past three years. Contact was made with the State Director of Special Education, in an effort to locate the teachers and the particular buildings where slow learner programs were taking place.

5. The steps taken in developing a five phase Productive Thinking Approach with slow students were explained and developed. Hopefully, much of this approach would be adaptable for structuring slow learner programs in specific school districts.

6. The steps for implementing and carrying through specific teacher training sessions on an in-service basis would be developed. For the purpose of maintaining well-rounded slow learner programs, it

was believed that teachers needed to work together and seemed to need some viable procedure to follow while doing so.

7. A manual concerning specific activities applicable to programs for the slow learning intermediate grade student's curriculum was developed. The manual dealt with activities in the specific content areas of the intermediate grade curriculum. Information for the teacher manual was to be developed from specific areas of difficulty that teachers mentioned in the questionnaire and during the observation sessions.

LIMITATIONS

1. This paper was to be a theoretical study only. The actual implementation and evaluation of the approach found in the devised method would not be tested at this time. It would be up to the individual school districts to adapt the approach to their particular school situation and hopefully conduct action research concerning its effectiveness.

2. Only a selected group of educators would be contacted for assistance in gathering data. These people would be persons who had taught or were presently teaching slow learners in the intermediate grades.

3. The Productive Thinking Approach to be developed in this study was not suggested as a cure-all for the problems often encountered

with slow learners in all school districts. The Productive Thinking Approach was not to be a "cookbook" type package which, if understood and adopted, would somehow solve every problem encountered with slow learners. Rather, the approach was intended to provide a set of procedures that might give an individual teacher or a particular school district a sense of direction and purpose in working to develop a program for slow learning elementary students in their district.

4. The investigator utilized a variety of resources in the development of this paper. A main source of information came from current educational journals and psychological journals available to the writer from the Montana State University Library. The second source was taken from the investigator's personal library, which contained over one hundred texts on learning disabilities in elementary school children and another fifty texts on creative classroom endeavors with elementary school children. A third source of information was taken from the many available special education journals located in the Rocky Mountain Resource Center for Special Education in Butte, Montana. In addition, the remaining source of information for the paper was taken from the ERIC resources available through the Montana State University Library.

DEFINITIONS OF TERMS

For the purpose of mutual understanding and to facilitate communication concerning the proposed study, the investigator presented the following definitions of terms:

Productive thinking. The process of grouping, reorganizing, and structuring problems and ideas. It involves the operation of dividing the problem into parts, while still seeing the divisions together with clear reference to the whole figure and in view of the specific problem at hand (Wertheimer, 1954).

Creative problems solving. A five-step process which comprises the procedures of (1) Fact-finding, (2) Problem-finding, (3) Idea-finding, (4) Solution-finding, and (5) Acceptance-finding. (Osborn, 1963).

Intermediate grades. The Dictionary of Education (Good, 1959: 297) defines intermediate grades as "those comprising the fourth, fifth, and sixth years of school work."

Creativity. For the purpose of this paper, the writer's concept of creativity as developed by James A. Smith in Setting Conditions for Creative Teaching in the Elementary School (1966:xii) will be utilized.

Smith spoke of creativity today in terms of the heretofore unsuspected creative potential of all persons. He noted:

The ability of each individual to produce with originality and the emergence in various forms of this innate ability is found in every human being. Creativity causes a person to identify so closely with a problem at hand that tensions are created which make him search through his past experiences for solutions to the problem, and finding no exact solution rearranges his experiences to come up with new ideas and new solutions.

Elementary and Secondary Education Act (E.S.E.A.). Grants provided to elementary and secondary school districts for the purpose of conducting innovative educational projects in the areas of low income through instruction, service centers, strengthening present programs, and educational research (Green, 1973).

An overview of Chapter 1 indicated that what was needed was an adaptable method which would gear itself to the "unique" slow learner conditions which existed in each specific school district. It had been stated that "the problem of the slow learner is not a new problem, but rather it is significant to every classroom teacher (Clark and Richards, 1968:223)." Brickman and Halprin (1972) claimed that success in school for these slow learners meant being able to read, write, and figure, and to use these skills in new learning situations. The investigator recommended that emphasis also be placed on the language arts and include the oral expression skills.

SUMMARY

The problem of effectively teaching the slow learner appeared common to many school districts. Although it was currently a recognized problem, the number of slow learners in the nation's public schools increased annually. Effective procedures and teaching strategies to remedy this educational problem had not yet been established.

Part of the problem seemed to stem from the situation that the reasoning underlying what constituted a sound slow learner curriculum had not yet been completely established. Although there had been many articles written concerning the slow learner problem, most articles did not appear to provide basic information or guides for developing educational programs.

There appeared to be sufficient evidence proving that the slow learner problem was varied, yet specific curricula had not been adequately developed to meet these variances. It was determined that school districts were by no means professionally ready to develop a method effective in every instance for intermediate grade slow learning students. Based on the need for further study in the slow learner area, a Productive Thinking Approach for teaching slow intermediate grade students might be an adopted method flexible enough to meet the various needs of the different school districts.

The general procedures to be followed were:

1. To provide a clarification of the slow learner concept.

2. To conduct a thorough review of the related literature.
3. To submit a questionnaire to teachers of slow learner programs.
4. To conduct personal interviews with a selected sample of the teachers of slow learners.
5. To develop a five phase Productive Thinking Approach, applicable to slow learner programs in the various school districts.
6. To describe steps for implementing teachers' in-service training sessions for slow learners.
7. To develop an activities manual for teachers working with slow learners.

The next chapter will more specifically deal with the procedures to be utilized in investigating and developing an adaptable slow learner approach. These procedures are found in Chapter 2.

Chapter 2

PROCEDURES

The procedures to be used in this study and the criteria for their inclusion are discussed in this chapter. It should be noted that the procedures discussed below are arranged in chronological order.

PROCEDURE ONE

The first procedure to be dealt with in this study concerned establishing a proper understanding of the type of child that the investigator termed "slow." Establishment of this definition was deemed by the investigator to be relevant to the demands of the study, because he believed that programs might be developed which would be able to accentuate the child's stronger school areas and still recognize his areas of academic disability. This investigator believed that merely placing slower children with similar characteristics together accomplished little educationally, unless adaptable methods, materials, and pupil-teacher interactions which would facilitate the child's needs were provided. What was deemed necessary was a proper understanding of the characteristics of the slow learner coupled with materials and methods that would serve his needs. Without a proper understanding of the child who was termed "slow," the reader might become quite confused as to exactly what type of program the investigator was trying to

initiate through the Productive Thinking Approach.

PROCEDURE TWO

The second procedure concerned an extensive review of related literature and research concerning the slow learner. The review of related literature was extremely important for three reasons. First, it would give the reader an understanding of the slow learner in the elementary school today. Second, it was hoped that the review would provide indices to applicable slow learner approaches. Third, it would attempt to show that slow children who ordinarily did not score high on traditional intelligence tests could learn to solve problems creatively and might develop their productivity. The specific review of literature for this study concerned the following areas.

Historical Perspectives

The investigator attempted to give the reader some feel for the historical developments of instruction aimed at assisting the slow learner starting with the ancient Greek era and progressing to the present time. Some recent evaluative studies were also cited.

Special Class Placement

The rationale behind special class placement and what it hoped to accomplish educationally was discussed. The general objectives of personal, social, and economic development and adjustment seemed to be

universally accepted as realistic and practical for the slow learning student. Authors' opinions, however, varied as to whether or not special class placement was the best approach to use in trying to accomplish these objectives. The investigator attempted to emphasize that special class placement in an environment that emphasized "positivism" rather than "negativism" tended to promote the slow student in his personal as well as academic abilities.

Theoretical Background

This section dealt with the theoretical principles which supported the educational philosophy that guided the Productive Thinking Approach to elementary education. The various educationists who made contributions to the theoretical foundations of creativity were discussed here. The various beliefs about creativity and the creative potential were also dealt with in this section.

Nurturing Creativity and Productive Thinking with Slow Learners

Research was reviewed in an effort to point out indications that a creative approach based on Productive Thinking for slow learners might be a way to give back to these students the self-confidence and feeling of personal worth that many appeared to be lacking. Along with nurturing creativity and implementing productive thinking, methods of providing time and establishing a proper classroom atmosphere were also investigated.

The Relationship Between Creativity
and Productive Thinking

This section of the review of literature will give an overview of the various viewpoints concerning creativity as found in the Creative Problem Solving Process and in the Productive Thinking Approach. The relationship between the Creative Problem Solving Process and the Productive Thinking Approach with slow learners was discussed.

PROCEDURE THREE

The next step in this study dealt with the development of a questionnaire by the writer designed to answer some of the critical questions related to effectively teaching the slow learner. The questionnaire was mailed to those members who were active in the Montana Council for Exceptional Children. This group consisted of teachers and professionals closely associated with the slow learner field. Names of these members on the Council, presently teaching or working in related slow learner programs, had been obtained from Ray Beck, President of the Council for Exceptional Children.

Names of elementary principals in the state of Montana who had designated that slow learner programs had been instituted in their schools were obtained from the office of the State Superintendent of Public Instruction.

The investigator believed that it was important to know something about the background and experience of those people working with

slow learners. He considered this information important in order to develop in-service sessions applicable to their needs.

The questionnaire was intended to answer the following questions:

1. What specialized courses had been completed by teachers of the slow learning child?
2. How did teachers define the term "slow learner"?
3. In their present teaching or working capacities, did the teachers try to develop creative activities with students?
4. What approaches did teachers believe best for the instruction of the slow learners?
5. What classroom arrangements did teachers consider to be the best approaches for the slow learner's education?
6. In their present positions, did teachers consider it to be advantageous to consult outside agencies or resource persons?
7. Did teachers believe that persons teaching slow children should be able to adapt their programs in any manner deemed necessary?
8. Have the teachers encountered any problems in trying to develop their own program with slow learners?
9. What did teachers consider to be the most important factors to be recognized and dealt with in attempting to initiate the kind of slow learner program that they would like to develop in their district?
10. Did teachers believe that the slow learning child could be

taught a Productive Thinking Approach and in turn develop the ability to think productively?

11. Did teachers believe that they can learn to teach productive thinking skills to the slow children who were under their charge?

12. Had anyone ever demonstrated to the teachers how to initiate a Productive Thinking Approach that might be applicable to the children with whom they work?

13. Did teachers presently have in-service training sessions with other teachers of the slow learner in their building or in their district?

PROCEDURE FOUR

Personal interviews and observations with educators in the field who had first-hand experience with slow learners were discussed in this section. Through the interview method, the writer hoped to gain additional insight into the problems and possible solutions to these problems from the suggestions made by those teachers who worked daily with slow children.

Interview and observation sessions were conducted with teachers in the following slow learner programs.

1. Learning Disabilities--Early Identification and Remediation.

This program was an E.S.E.A. Title III project in School District No. 2, Billings, Montana. The project's major emphasis was to develop

techniques to reduce learning disabilities in slow elementary students. This project was under the direction of Mr. Don Black, Administrative Assistant for Special Projects. It involved some forty-five teachers in the Billings Public Schools.

2. Educational Remediation for Children with Learning Deficits Through Precision Teaching. This was a slow learner program of the Great Falls Public Schools and was also funded under E.S.E.A. Title III. The project was under the direction of Ray Beck, and involved three pilot schools.

3. Creative Problem Solving Classes for Slow Learning Elementary Students. This was a project also under Title III E.S.E.A. in School District No. 1 in Butte, Montana. It involved fourth, fifth, and sixth grade students in the Monroe, Washington, and Emerson Schools in Butte.

These projects were selected because they represented programs that, according to the State Superintendent's Office, were geared to reach elementary children whose academic achievement lagged significantly behind the child's ability to learn.

The findings from these interviews and observations were discussed in Chapter 6.

PROCEDURE FIVE

Procedure five involved the outlining of specific steps for implementing the Productive Thinking Approach to be used with slow learners. It should be noted that the investigator had mentioned previously that his views on the developed method as it pertained to slower students was not meant to be represented as a "cure all" program. Rather, this approach with slow learners was intended to establish means of implementing a successful program in various school districts for slow children. It was hoped that through utilization of the indicated method teachers would gain a sense of direction in planning their own program for slow learners in their own school setting.

As a result of information gained from personal observations, the questionnaire, and related research, this investigator endeavored to make recommendations to teachers of the slow learner and answer questions in the following areas.

1. Determination of Program. A discussion as to the rationale behind selection and implementation of slow learner programs was considered. Particular emphasis was given to the underlying reasons why the various school districts selected "specific" educational procedures. An effort was then made to convey the message that any intermediate grade slow learner program in any school district should be developed with the student's genuine need being the first priority. Care was exercised to insure that teachers who planned programs

considered basic objectives and goals of the program. An approach that allowed teachers to expand on goals and objectives was recommended.

2. Advisor Service. Alternative types of advisory services that should be established and the functions they should perform in order to provide teachers with the continuing support often needed when implementing a creative method with slow learners was discussed. Consideration was given to the role that outside agencies could play in evaluating program objectives and establishing attitudinal changes with children.

3. Creative Problem Solving Skills. Teachers of slow learners were taught what the Creative Problem Solving Method was and how it might apply to their particular teaching situation. It was demonstrated that both teachers and students could acquire creative problem solving skills. Next, methods used to foster and develop Creative Problem Solving skills as they applied to intermediate grade students were considered.

4. Productive Thinking--Elementary Level. The specific phases of Productive Thinking and ways that this method could be adapted to slow learning intermediate grade students were discussed in this section. Recommendations were then made as to how Productive Thinking, being an integral part of Creative Problem Solving, could be adapted to slow learner education.

5. Class Planning. Specific ways that teachers could employ

the Productive Thinking Approach and adapt it to their classrooms' needs were reviewed.

6. Flexible Curriculum. How teachers might work within the curriculum, cope with time schedules, provide for individual differences while endeavoring to condition change was considered. These questions were examined from the standpoint of the teacher's role within the curriculum.

7. Communication. The improvement of communication among those persons involved with teaching slow children was discussed. The investigator believed that it was important to consider viewpoints of teachers, administrators, and the students themselves. Some of the attitudes and qualities that one should possess to foster a sound relationship with slow children was presented.

8. Involvement. Consideration was given to how the home, school, and community might all share in the responsibility for the slow learner's education.

9. Leveling, Reporting, and Grading. Suggestions as to how teachers who were using a Productive Thinking Approach could place the child on a specific ability level and still grade him were presented.

10. Student Self-assessment. An indication as to whether a Productive Thinking Approach for slow children would allow the child to be creative and learn to evaluate his own progress was determined. Effort was then made to recommend a tool that might allow the student

to measure his feelings about his individual progress and relationships with the teacher.

11. Administrative Commitment. The administrative and school board commitment concerning fostering a creative method for effectively teaching slow learners was reviewed. Recommendations concerning how both agencies could contribute to the program were included.

12. Individual Initiative. Recommendations were made as to how teachers could use available resources to foster individual initiative in reading. Methods in providing a stimulating room environment that might induce individual effort were then considered.

13. In-Service. Indications as to the type of in-service training that would facilitate gaining needed information and services for initiating a creative approach for slow learners' education was sought. Specific suggestions for teacher in-service sessions was developed.

14. Manual. A manual was then developed which emphasized some of the specific activities and innovations relative to the slow learner curriculum.

SUMMARY

The writer attempted in the preceding section to outline the procedures deemed necessary to complete a study concerning slow learning intermediate grade students.

The first procedure dealt with establishing a clarification of the concept "slow learner." Clarification of this concept appeared to be relevant to the demands of the study, because without proper understanding of the circumstances involving slow children, the reader could become quite confused as to exactly what type of program the investigator was trying to initiate through the Productive Thinking Approach.

Secondly, an extensive review of the related literature and research in the area of the slow child was mentioned to be conducted. It was felt that depth would be added to the study after the researcher considered historical perspectives, theoretical background, the relationship between creativity and productive thinking, and the many philosophies relevant to special class placement.

The rationale supporting opinions concerning special class placement as being an appropriate approach for slow students was to be considered. The theoretical principles which supported the Productive Thinking Approach and creativity approach for slow learners was to be introduced. A thorough review of literature would endeavor to examine the possibilities that by nurturing creativity and Productive Thinking with slow learners, avenues of learning would be opened which could give back to slow students self-confidence and feelings of personal worth that may presently be lacking. A question as to whether creativity training could establish the initial foundation for developing a Productive Thinking Approach with slow learners was to be considered.

Additional information was to be gained through a questionnaire administered to teachers in the field, as well as personal interviews and observations in the classrooms of a select group of these same teachers. Through these techniques, the investigator hoped to gain additional insight into the problems, and possible solutions from the prospective of those persons who worked daily with slow children.

The final procedure was to be the development of a teaching method based on Productive Thinking for slow elementary students.

The next topic considered in this study is a clarification of the slow learner concept. This clarification is found in Chapter 3.

Chapter 3

THE SLOW LEARNER CONCEPT

This chapter was written in an effort to clarify the concept "slow learner." A clarification was felt necessary so that the reader might become familiar with the type of child who was often labeled "slow" and the varied reasons for his seemingly slow development.

The term "slow learner" was often used to refer to all children of below average intelligence. Featherstone (1941:v) felt that at best the term is a rather "euphemistic" and an "unsatisfactory one" because students are given this label on the basis of their ability to learn intellectual facts on intelligence tests. He contended that scores on these tests should not be the only measures used to rate intellectual capacity. This investigator found that in a few states the term is used to refer to the mentally retarded. Doil (1953:61) contended that "a distinction may be made between generalized slowness and retardation in specific fields." He believed that:

There are many different areas and ways of learning and anyone may be a slow learner in some areas, yet rapid in others. The old rhyme says: One could whistle, and one sing, and the other could play the violin. This refers to the successful learning differences, but implies that people are not equally successful in all directions.

A distinction should then be made between children who are below average in mental ability who can be classified as slow elementary students and those students with much lower mental ability who can be classified in the educationally mentally retarded range.

In order to make this distinction, consideration was given to the intelligence quotient score, school environment, individual family's socio-economic status, and emotional-behavioral characteristics.

INTELLIGENCE QUOTIENT

A number of misconceptions and misunderstandings have persisted among parents, teachers, and others in their discussion of slow learners.

Barbe (1963:7) spoke of the complexity of the problem in that:

The area of mental exceptionality includes both those above and below average. The area of the slow learner, or child who is below average in mental ability, but who is not in the retarded range is a good example of the complexity of the problem. To most, the "slow learner" refers to the child within the IQ range of 75-90, but in some states (notably Ohio) "slow learner" refers to the child more commonly known as the retarded child within the IQ range of 50-75.

Bloom and Murray (1957:3) referred to them as "island children," the ones who "are surrounded and isolated in our educational heirarchy." Agreement was fairly general that slow learning children constitute fifteen to twenty per cent of our school population, although the term "slow learner" was sometimes used to apply to all levels of mental retardation.

Some of the most representative definitions which appeared in the literature on this subject are those concerning children's IQ range. Barbe (1963:9) considered that IQ scores should follow a normal curve. He stated that by definition, "children whose composite IQ falls outside the average range are exceptional." For this reason, many authors

in writing about the slow learner had labeled him "exceptional." Frain (1954:13) contended that the exceptional child is "distinctly below average in intellectual capacity if his intelligence quotient ranges from 70 to 89." He was considered in a dull normal range if his "measured intelligence quotient is somewhere between 80 to 95." Burt (1953:38) considered a different viewpoint when he stated that, ". . . we may define a child who is educationally subnormal as one whose educational attainments are less than 80 per cent of what is normal for his years." Cruickshank and Johnson (1958:4) considered that "the general tendency . . . is to face reality with parents and educators, and thus the term slow learner is rapidly becoming restricted to the higher group referring to children in the 75 to 90 IQ range."

Although definitions and classifications were given, children who fall into so-called "slow learner intelligence ranges" were rarely adequately tested or even properly identified. Grounlund and Whitney (1958:264-268) reported that:

It is unfortunate that the area of intellectual exceptionality is left so heavily to the mercy of test results. Teacher observation should be a valuable means of assisting identification.

This investigator believed that the objectives for teaching those children who were defined as "slow" were less clearly defined than those of the retarded or trainable child. The investigator noted that this was another indication of the limited attention which had been given to this particular group of children.

Unfortunately, slow learners were too often expected to achieve at an average level. Johnson (1963:55) considered this to be a fundamental educational error. He asked us to consider again that:

The fundamental characteristic of the slow learners is a retarded intellectual development as reflected in an IQ between 75 and 90. Their developmental rate is from three-fourths to nine-tenths that of the normal learner. Since their development stops at about the same time it does for all children, their final intellectual level is somewhat below the average for the general population. They have ample intelligence as adults to manage their own affairs and earn a living, but are restricted in the types of vocational and social activities in which they can participate effectively.

This investigator found that many writers in the field of special education used IQ exclusively in describing slow learners. It had been found that many of these writers were not consistent in their numerical limitations. The slow learner issue concerning defining intelligence had often been confused because of awkward terminology and vague discussions of aptitudes, achievement, abilities, and intelligence. Intelligence Quotient ranges of 80 to 95, 85 or less, 70 to 89, 50 to 75, and 59 to 89 were found in the literature on the subject. Lack of a clear intelligence range seemed to confuse rather than clarify.

In terms of clarifying the slow learner concept in this study, the investigator posed that the slow learner intelligence range was from 75 to 90 on a standardized IQ test. It was generally assumed that learners with an extremely low IQ could not learn certain skills no matter how the materials were introduced. For the purpose of this

paper, the lower level is set at approximately a 75 IQ score. The investigator recommended further that these IQ levels should not be rigidly limited. Other related factors were: the school, home, neighborhood, culture, socio-economic conditions, and emotional and behavioral outlook.

SCHOOL ENVIRONMENT

Another constituent of the slow learner concept was that of environmental restrictions which were placed on slow learners. Behavior that was accepted or condoned in the home was often not accepted from him when he entered school. The child was often confused as to what behavior was expected of him.

"Part of the responsibility for the slow child's educational achievement involves a close relationship between the home and the school (Heffernan, 1962)." Parents should know that the problem was more than one of inadequate instruction as it was obvious that the slow learner could not be expected to achieve at the same levels as the average child. It appeared that "the slow child is a child whose mental ability is high enough to justify keeping him in a regular classroom, but low enough to give him considerable difficulty in keeping up with the average speed of the class (Dehaan and Kough, 1956:152)." It seemed that even additional effort often does not make a difference for the slow child. It was not generally agreed that the slow child

was always behind the average child. This investigator had found, as a result of reviewing the research, that it was not uncommon for the highly motivated slow learner to achieve better than many children of average ability. It appeared then that the major objective should be to aid the slow learner to recognize his limitations and his strengths, and to develop to the limits of his ability in a suitable school environment.

A success oriented environment for the students is a necessity because these students are often unable to satisfy regular grade standards year by year and are retarded in their academic achievement for their age group. In the elementary school, slow learners are usually retained at least once (Ingram, 1960). Much of the research reviewed by this investigator indicated that retention was often of little value. Johnson (1963:290-292) reported that "if a child is to be retained he should be retained during his early years. Delayed entrance into first grade, particularly when the child's birthdate was close to the cutoff date for entrance is advised."

It appeared that if retention was of little value, then the factors which influenced the school environment should be considered. Kottmeyer (1959) had observed that along with a stimulating environment which was conducive to study, a thorough readiness and skills program should be provided.

Holt (1969:17) seemed to think that all children profit from a

classroom environment based on enrichment and success at every turn. He contended that "children learn by exploring, by experimenting, and by developing their own model of the grammar of language." The slow learner seemed to encounter his greatest difficulty in the language arts area because the school setting did not allow him to experiment with words. Research indicated that he preferred to do things rather than talk about them (Green and Petty, 1971). Holt maintained that the slow child should be able to manipulate, change, and refine. When he is provided with a school environment that will allow him to do so, the learning model which he had developed on his own eventually began to work for him. Sullivan (1969:287) remarked that:

When the slow student is allowed to feel that his way of perceiving and relating his perceptions to reality is unique, that he is unique, that his uniqueness has value: The classroom ceases to be a battlefield for a student and teacher. It becomes more like a womb in which the student "grows" and the teacher (host, mother) passively feeds the student what he needs for growth--security (comfort) in the form of warmth (interest) and lack of criticism. In time, food in the form of the ideas and experiences will stimulate the slow student's mental energy.

According to Johnson (1963:56), "the slow learner's primary problem during childhood was an educational one." He felt that "it was not sufficient to merely adapt the instructional level to the learning level." These students developed slower and had a lower level of learning ability. Their potential for above average intellectual development, in the majority of cases, seemed restricted by lack of social stimulation. What appeared needed was a unique school

environment that would consider these factors.

Evidence strongly indicated that where programs had been instituted and designed specifically to meet the needs of slow learners, most antisocial, or deviant behavior, was reduced in intensity. Delinquent behavior and attitudes of disinterest and dislike for school and learning activities seemed to diminish (Johnson, 1963:53).

SOCIO-ECONOMIC LEVEL

The slow learner was likely to be from a lower socio-economic level. Conant (1961) and Sexton (1961) presented findings to show the influence of such factors on children's performance in school. Johnson (1963:16-17) pointed to these socio-economic limitations as resulting in "second-class citizens."

The literature indicated that most slow learners came from deprived homes where, as compared to other elementary children, there was little intellectual motivation. Evidence seemed to indicate that lack of proper environmental stimulation caused the child to be one to two years behind other children of the same age when he started school. Further evidence also indicated that many of these students would be able to operate at higher intellectual levels if early stimulation and basic experiences were provided in the home.

School was not always enjoyable for the slow child. Kirk (1972: 174) reported that the curriculum in the school assumed that every

child who entered school had a middle-class orientation and middle-class background of experiences. Since the child who came from a low socio-economic background had neither, the standard curriculum in the elementary school operated against him from the first day school started. To make matters worse, according to Kirk, many classroom teachers demanded that this child who lacked a basic background of experiences was made to adhere to the expectations of the curriculum. If this child did not, he was made to feel that something was wrong with him.

The investigator believed that we must examine further why the child who came from a low socio-economic background often was unable to achieve at average levels of academic expectation.

In examining these elements, it became important to consider the child-rearing factors which had taken place before the child entered school. Hewitt and Jenkins (1945) related their patterns of maladjustment to home conditions as an explanation of the behavior of the slow child. The overinhibited child came from restricted families at the higher socio-economic levels. The unsocialized aggressive child came from lower class families who had no attachments to or love from parents in early childhood. The socialized aggressive, who later had attachments to the gang or peer group, felt security from the parents in early childhood but was later rejected.

Jenkins (1966:450-457) studied five hundred cases from the

Michigan Child Guidance Institute. He related "clusters of behavior to certain types of home environments." The "shy, seclusive, inhibited child" who did not do well in school, tended to come from a family where both parents were present, where there was little feeling of rejection, and where the mother was not hostile toward the child. In the "neurotic, overanxious group," many of the mothers were considered neurotic. The aggressive delinquent tended to come from neglectful homes and poor neighborhoods.

Child-rearing methods featuring inconsistent discipline and rejection or hostility on the part of parents in the home are positively correlated with conduct and achievement in school. These same factors are thought to be related to many forms of personality problems. In relation to delinquency, for example, Bandura and Walters (1959:48) found that certain "child-training factors" and "family interrelationships" differentiated a group of aggressive boys who had come into conflict with school authorities or county probation authorities from a group of boys not in such conflict. They found that parent attitudes, rejecting dependence, encouraging aggressiveness outside the home, and placing fewer demands for obedience, responsibility, and school achievement were significant. There was also less affection shown between father and mother and between parents and the boy.

An investigation concerned with sociological factors and family life was done by McCord and McCord (1959). Many aspects of home life

and socio-economic influences were examined. Of significance was the frequency with which delinquency was associated with lax or erratic discipline which was punitive in nature, membership in gangs, and quarrelsome and neglected home life. Certain groups of factors seemed to indicate higher relationships than did single factors. A quarrelsome home plus lax discipline led to quarrelsome behavior and discipline problems in the school.

The socio-economic level was an important factor to be considered in the slow child's development because there were influences from the community which help determine the course of a child's social and emotional development. Much of the conflict with the law which arose in lower-class urban areas was complicated by community factors, as well as family influences.

The studies of Shaw and McKay (1942) indicated that in Chicago delinquency areas were identifiable. The highest rates were in the inner zone (the business area), the next highest in the bordering slum areas, and the next in the workingman's area. The lowest rates were in the outer zones of the city. It was in the high-delinquency areas that the criminal tradition was handed down from one generation to the next through what is known as "cultural transmission." In studies of other factors, Maccoby, Johnson, and Church (1958:38) found that "in areas of high delinquency the community was heterogeneous in religious beliefs and ethnic background and that there was greater

impersonality among the neighbors."

It was apparent that we do not have a classless society in this country. Miller (1958:222-223), a cultural anthropologist, believed that social class status was now superseding the ethnic differences prevalent during surges of immigration to this country. He believed that we do have a growing and distinct "lower socio-economic class" with a hard core of some fifteen per cent of the population and probably twice as more were influenced to a lesser degree by the mores of that group. Miller used the term "lower socio-economic class" in a descriptive sense rather than as a negative evaluation when he mentioned that:

To discriminate between important subsegments of our society is not to discriminate against them Lower-class culture is a cultural system in its own right, with an integrity of its own, with a characteristic set of practices, focal concerns, and ways of behaving that are meaningfully and systematically related to one another rather than to corresponding features of middle-class culture.

In lower socio-economic levels, concern appeared to center on immediate problems. Goods are to be used, money is to be spent, and life is to be lived. The focal concerns of this group, according to Miller, were: "trouble," "toughness," "smartness," "excitement," "fate," and "autonomy." Success in school was not always an important factor. Miller pointed out that these concerns of "getting into trouble," "staying out of trouble," "being masculine and strong and able to endure pain and fatigue, outsmarting others, being one's own boss, and so forth, rather than the economic factor of being rich or

poor are what differentiate this group." This socio-economic subculture could be further subdivided into lesser subcultures, one of which was the delinquent gang.

Sociologists believed that the social values of lower-class culture were an inversion of middle-class standards and derived from the disadvantageous position in which the members of the lower class found themselves. Cohen (1955:136-137) dwelled at length on a delinquent subculture characterized by elements of nonutility, negativism, and maliciousness, which he postulated was a reaction against middle-class standards by a lower-class group placed in a disadvantageous position because of their social status. He stated:

This . . . may require a certain measure of reaction formation, going beyond indifference to active hostility and contempt for all those who do not share his subculture The problems of adjustment to which the delinquent subcultures is a response are determined, in part, by those very values which respectable society holds most valid.

From the investigator's own experiences in working with slow learners from the lower socio-economic class, it was noted that children often came to school with backgrounds of experience that were geared toward failure. When some children entered school on the first day, the effects of their different backgrounds began to operate. Family standards may have prepared them well for their own socio-economic expectations which may not be compatible with those of the school. They may have learned to be overly aggressive, to ignore noise, to detect threatening attitudes in others, or to "shift for themselves."

At the same time, their family may not have given them the experiences which the elementary school curriculum expected of all children. The child in this case was often labeled slow and was said to make up the greatest percentage of school dropouts and juvenile delinquents. Gordon Liddle (1959:103) commented on students who created problems in the school and community. He said that "the school failure, dropouts, discipline problems, and delinquent students were often non-achievers with IQ's between 75 and 90, who came from low socio-economic backgrounds." Liddle felt that the slow learner with such a background could be the greatest behavior problem in the classroom and shared (with the gifted) the dubious distinction of being the "most neglected child in the schools."

The socio-economic factors in the home and the community which influenced behavior in children were reflected in the school. The investigator believed that teachers must understand these influences if they are to effectively handle children whose maladjustments stem largely from these out-of-school factors such as conflict between the subculture of the home and the middle-class values of the school. Although the social and cultural forces in a society are normally beyond the control of a school, the school can contribute to the home and the community through the activities of children. It was this role that the school had to play to reduce or compensate for the detrimental influences of poor socio-economic conditions on the mental health of

children.

The last factor considered in the slow child's development was that of emotional and behavioral characteristics.

EMOTIONAL AND BEHAVIORAL CHARACTERISTICS

Emotional and behavioral disorders can be defined in terms of dynamics of personality or in terms of the effect of a child's behavior on himself or on other people. In this study the writer was concerned with emotional and behavioral characteristics of slow learners as they related to a deviation from age-appropriate behavior. Deviant behavior might interfere with the child's personal growth and development in school.

When a child was extremely withdrawn and did not relate to other people, and did not seem to respond to his environment, his behavior often interfered with his intellectual growth process.

There was no evidence from research and reported studies that the slow learners had any uniform emotional and behavioral characteristics (Johnson, 1963:47), but these students have still been termed "withdrawn," "neurotic," and even "schizophrenic." The slow child who behaved in such a way that he had conflicts with parents, classmates, teachers, and the community often experienced unrewarding relationships in both school and home settings. Parents called him a bad boy. Teachers often referred to him as a "behavior problem." Social workers

said he was socially maladjusted. Psychologists in the school districts said that he was emotionally disturbed. If the student came into conflict with the law, he was called a delinquent. Emotional and behavioral disorders in students caused actions which defeated or demoted social and academic growth.

This investigator believes that perhaps the slow learner more than any other child needed understanding. Respect for the slow learner's capabilities had been deemed important by educators for a number of years.

Gesell (1938:17) believed that slow learners should be regarded as definitely normal persons. He said that "they are only different in that their intellectual abilities are somewhat below the average." He believed that they could make their way in the world quite satisfactorily in the sphere in which they normally operated.

Gesell's contentions were that because the slow learner was able to function in an average society, he needed to learn his role in such a world.

The major difficulty in delineating emotional and behavioral deviations with slow learners was in the use of terms and concepts. In most cases, the slow child was usually labeled in school and carried this label with him throughout this entire education. The investigator believed that the slow learner should be identified in terms of the kind of emotional and behavioral deviations that existed,

the degree of deviation, and the situation in which the deviation occurred.

The area of behavior disorders was studied in many professional fields: social work, psychology, psychiatry, sociology, neurology, and education. Traditionally, education had concerned itself only with the mild emotional and behavioral disorders, leaving the severe cases to psychiatry. It appeared that the field of mental health had moved away from a purely medical approach toward a behavioral-educational approach. Education seemed to have taken an increased responsibility not only for prevention but also for the treatment of many of the more severe behavior disorders, as evidenced in behavior modification centers such as was operated in Great Falls, Montana.

Emotional and behavioral disorders in slow learners took a variety of forms and stemmed from a variety of causes. The National Society for the Study of Education (1950:238) recommended some curricula adjustments to compensate for these disorders. The Society stated that:

The slow learners usually find the traditional type of school program too difficult to handle without some modifications of the program to adjust requirements to their normal capacity for achievement.

Lee and Lee (1958:3261) believed that "early identification of these disorders, necessary curricular adjustments, and large blocks of time with fewer teachers will help slow learners to prepare for their role in life," and the way they relate to other people. It was noted

that additional problems in trying to identify the slow learner existed.

They commented:

It is more difficult to recognize the slow learner than to recognize the gifted child. While the gifted child attracts us because he accomplishes rather special things, the slow learner may also be identified through observations of all the things he doesn't do that we expect of him. At first glance he appears just like the other children in his group, and he often gets tagged "lazy" or "poorly motivated."

The large majority of children with emotional and behavior disorders were enrolled in regular classrooms with normal children and were classified as slow learners. A study by Ullmann (1965) found that teachers identified 8 per cent of their pupils as maladjusted. He also reported that the ratio of boys to girls in this category was four to one. Bower (1960) who studied techniques for identification of the emotionally handicapped child in school found that 87 per cent of the clinically known emotionally handicapped children were likewise so rated by their classroom teachers. The teachers who rated students in this study classified 10 per cent of these students as aggressive (behavior problems) or withdrawn and timid (emotional problems).

As the school increased its responsibility for education or treatment of emotional and behavior problems, it was necessary to develop strategies for the organization of programs and teaching procedures for those children labeled as having behavior disorders or being emotionally disturbed, socially maladjusted, or maladapted.

Despite all of this concern, knowledge, and effort, few adults

confronted with a child who behaved ineffectually or in an unruly manner could identify accurately the reasons for his actions, nor did they know how to revise them. Adults often met the difficulty with anger or guilt; and after many efforts to punish the child, to reason with him, or to conciliate him, they resigned themselves to an inevitable permanency of the deviate or lax behavior. Often, if they found the child's actions too unpleasant to live with, they rid themselves of the burden by categorizing him as a slow learner that could not be helped. Doil (1953:61) contended that this need not happen, because "everyone may be described as a slow learner in one or more ways--for example, failing to learn in proportion to his desires, efforts, or instruction."

In the editor's introduction to Teaching the Slow Learner, Caswell noted that:

. . . the education these slow-learning children acquire is of major importance to American democracy They will do their share of the work of the world, they will cast their votes, they will participate in the activities of labor unions, and farm organizations, they will make homes. What they become, the ideas they develop, are vital to our national welfare (Featherstone, 1941:v).

If anyone doubts the need of sincere efforts to educate these slow learners, let him meditate on the fact that twenty out of every hundred pupils chosen at random are slow learners. Then let him ponder the consequences for the general welfare of permitting that number of future adult citizens to grow up illiterate, uncultured, and

uninitiated in the American way of life.

If anyone doubts the soundness of investing a considerable sum in their education, let him try to forecast the consequences of not making that investment, bearing in mind, of course, diminished capacity to produce as well as to consume, but more important, not overlooking the declining zeal for the democratic way of life that invariably accompanies illiteracy and ignorance (Featherstone, 1941:v).

For the purposes of this study, the slow learner was defined as the child whose measured intelligence quotient score was between 75 and 90 on a standardized IQ test. Additionally, a basic characteristic of the slow learner was that he had some degree of intellectual retardation that prohibited him from acquiring basic academic knowledge and skills as rapidly as the average child. In most cases, his chronological age was greater than his mental, social, and academic age. Slow learners usually were unable to derive the same amount of benefit from their years of experience. This lack of experience factor could be noted on the student's intelligence quotient score but should be coupled with observation of behaviors.

The slow learner's basic needs within the school environment should be considered, because there are more similarities than differences between the needs of slow learners and others. In order for the slow child to establish worthwhile and realistic goals, he should see measurement of progress in terms of capacity. The slow learner needs affection, acceptance, and achievement in his school day. As with other children, his needs and the ways to satisfy them must be

individualized as much as possible, within the limitations of a particular family, school, and community.

Slow learners did not all come from poor neighborhoods, but the percentage seemed to be high enough that special attention should be paid to the families' socio-economic level. Lagging school accomplishment often occurred when the child came from a neighborhood or home where lax child-rearing methods were the mode. In examining the socio-economic influences which concerned the slow learner, it could be found that in most cases he lived in poverty neighborhoods where educational attainment was not stressed. Consequently, because the home and community influenced behavior, the slow learner often developed deviant emotional and behavioral characteristics.

Evidence from research indicated that the slow learners had no uniform emotional and behavioral characteristics. However, in recent years a number of misconceptions and misunderstandings had persisted among parents, teachers, and others in their discussions of slow learners. A rather common misunderstanding was associated with slow learners as potential delinquents. The investigator believed that it could more accurately be stated that all children were potential delinquents, with the possibility of becoming one directly related to a combination of factors. The investigator maintained further that because the environment of many slow learners was conducive to delinquent behavior, it could more accurately be assumed that in some cases

the cause of one was at least partly responsible for the other.

Because of neglect and frequent failure to adapt school programs to the slow learner's needs, puzzled states of mind and feelings of inferiority developed. The usual anticipation of these children toward school often changed to indifference and then to resentment. Slow learners who elicited emotional and behavioral problems faced many of the same pressures as the normal children, but often exhibited an inability to cope with them. Thus, many overt emotional and behavioral characteristics often developed. It was felt that before an educational program could be developed for the slow child, consideration had to be given to the factors of intelligence, his family socio-economic status, his personal emotional and behavioral characteristics, and the classroom environment that was provided for him.

SUMMARY

The chapter was written in an effort to clarify the concept "slow learner," in order that the reader might become familiar with the type of child who was often labeled "slow."

The term was considered to be an unsatisfactory one because it had often been used to categorize all children of below average intelligence. A few states had used the term to refer to the mentally retarded child. There existed a variety of reasons for children's being classified as slow elementary students. In order to show causes

for these classifications, the investigator reviewed intelligence quotient scores, factors concerning school environment, family socio-economic status, and emotional-behavioral characteristics.

Authorities' opinions differed as to what constituted the IQ range for slow learner classification. This situation came about because the area of intellectual exceptionality had been wholly determined by test results. Past consideration was not given to the fact that the development rate for slow learners is from three-fourths to nine-tenths that of the normal learner.

It was reported that lack of consistent numerical agreement as to what constitutes the slow learner's IQ range had caused much confusion. For the purposes of this study, the investigator determined that the slow learner intelligence range would be considered to be from 75 to 90 as measured on a standardized intelligence quotient test.

In considering the school environment, authorities agreed that the slow student should be placed in a classroom environment which would allow him to meet his individual needs. The investigator recommended that all persons concerned could meet the slow learner's needs by recognizing his weaknesses and strengths and helping him to develop to the limits of his abilities. It was felt that where programs had been instituted and designed to meet the specific needs of slow learners, much of the antisocial behavior could be reduced and attitudes of disinterest and dislike for school would be reduced.

Socio-economic circumstances were considered to be a major concern in the students' academic development. The investigator found that part of the cause for "slowness" was the child rearing factors which had taken place in the home. Literature indicated that most slow learners came from deprived homes where, as compared to other elementary students, there was little scholastic motivation. Evidence existed that many of these students would be able to operate at higher intellectual levels if early environmental motivation was provided in the home. Home life and lower socio-economic influences were examined, and it was determined that delinquency and levels of concern could be associated with lax or erratic disciplinary practices.

It was found that the social values of lower class cultures are often an inversion of middle class standards. They seem to be derived from the disadvantaged position in which members of the lower class find themselves. The reaction of a lower class group placed in a disadvantaged position because of their social status could often be brought out in elements of nonutility, negativism, and maliciousness. It was indicated that when this occurs, the family standards and socio-economic expectations may not be compatible with those of the school.

It was felt that in order to effectively teach these children, the school must understand the conditions which influence their lives. Once these conditions are understood, the school can reduce or compensate for the detrimental influences of poor socio-economic conditions

and inadequate home direction.

The final area of consideration dealt with the concern for the emotional and behavioral characteristics often associated with slow children. Emotional and behavioral disorders were defined in terms of dynamics of personality or in terms of the effect of a child's behavior on himself and on other people.

It was reported that no sound evidence exists from research or reported studies that slow learners have uniform emotional and behavioral characteristics. Despite these indications, it was noted that slow learners have been labeled withdrawn, neurotic, autistic, schizophrenic, and maladjusted. It was felt further that the slow learner needs more understanding than any other student. He should be regarded as a definitely normal person, being identified in terms of the kind and degree of behavior that exists and the situation in which the behavior occurs.

Identifying emotional and behavioral disorders was important because these disorders took on a variety of forms and stemmed from numerous causes. It was felt that the causes had to be recognized in order to make necessary curricula adjustments.

It was pointed out that twenty out of every hundred pupils chosen at random were slow learners. Therefore, the slow learner concept as it affects the public schools should be considered from the standpoint that when these children are allowed to grow up as illiterate

and uncultured, the American public will have to pay the price.

For the purposes of this study, the slow learner is defined as an intermediate grade student whose intelligence quotient score ranges between 75 to 90 on a standardized IQ test. He is characterized by some degree of intellectual retardation which limits academic skills. His chronological age is usually greater than his mental age, and he usually needs more success experiences in order to reach goals. In many cases he lives in lower socio-economic areas where education is not stressed. Lax child-rearing methods often brought about deviant emotional and behavioral characteristics. Because school programs were usually not geared to his needs, he frequently became disillusioned and developed inferiority complexes.

The next topic will be a review of related literature and research. This review can be found in Chapter 4.

Chapter 4

REVIEW OF RELATED LITERATURE AND RESEARCH

This chapter reviewed selected literature and related research concerning developing Creative Problem Solving Programs and strategies utilized in teaching slow learning students in the intermediate grades. Five major divisions were included in this chapter: (1) historical perspectives, (2) special class placement, (3) theoretical background concerning the creative potential, (4) nurturing creativity in slow learners, and (5) the relationship between creative and productive thinking ability.

HISTORICAL PERSPECTIVES

As we look back into history, we find the concept of educating each child to the limits of his ability was relatively new. "The current use of the term 'slow learner' is itself a reflection of radical changes in society's view of those who deviate (Kirk, 1972:5)."

We had made significant progress from the Spartans' practice of killing the deviant or malformed infant to advocating educational programs that are intended to provide for these kinds of individuals today. Nevertheless, the journey had developed by slow stages. Exploitation of individuals in the roles of court jesters several hundred years ago could still be found in today's circus side shows (Kirk, 1972). Certainly, on the whole, tremendous changes had taken

place in society's attitude toward the deviant child.

The enigma of the child who had been unable to learn had been the concern of researchers for many years. In 1799, a physician by the name of Jean Itard worked with a "wild boy" who was discovered in the forest near Aveyron, France. Itard believed this child to be normal physiologically but unaffected by civilization. He initiated sensory training similar to techniques he was using with his deaf patients.

His techniques in sensory training were later initiated in the United States in 1866 by Itard's student Edouard Sequin. Sequin's philosophy emphasized muscle and sensory training in gymnastic activities.

Later Maria Montessori determined that problems in mental deficiencies were not medical problems, but problems of an educational nature. She opened a school in Rome called the Orthophrenic School for the Cure of the Feeble-minded. Montessori worked in the area of sense and muscle training, physical activities, and utilized a self-teaching technique termed "autoeducation."

Educational progress was indeed slow. In the late 1800's, according to Learner (1971), English ophthalmologists reported a condition called "word blindness," which involved an inability to read. The concept of remedial reading did not begin in the United States until the late 1920's (Smith, 1961).

Historically, three stages in the development of attitudes

toward the deviant child could be recognized (Frampton and Gall, 1955). First, during the pre-Christian era these children were persecuted, neglected, and mistreated. Second, during the spread of Christianity they were protected and pitied. Third, in very recent years there had been a movement toward accepting these children and integrating them into society to the fullest extent possible. Rosenthal (1966:154) expressed that "integration, in education, denotes a trend toward educating the slow learner with his normal peers to whatever extent is compatible with his fullest potential development."

The three stages in the development of attitude toward the slow child could be seen in the educational history of our own country. The investigator had been unable to find significant research indicating educational provisions made for the slow learning child prior to the 1800's. He was able to determine that in the Colonial era many of the mentally subnormal individuals were generally relegated to an attic or to the role of the village idiot. In the first decades of the nineteenth century, such leaders as Horace Mann, Samuel Gridley Howe, and Dorothea Dix gave impetus to the slow learner movement by establishing residential schools as had been done in Europe.

As early as 1871 Samuel Howe, according to Irwin (1955), was able to predict future educational provisions for the slow child. He believed that a sure trend in the education of slow learners would be toward integrating them into the "common" schools with "common

classmates" in all possible areas. Other educators had somewhat different opinions. Shattuck (1945) reported as to the then existing controversial opinions concerning whether or not segregating these children was to their educational advantage. Educational factions were divided as to the advantages and disadvantages of separated classes for slow learners.

An effort to meet the child's needs and promote his individual development was, and still is, a main factor in segregation of children with special needs. Paul Whitty (1946:v) mentioned that, "Education is that process which seeks to promote the maximum development of every boy and girl in terms of his unique nature and needs." Despite the controversial opinions that had been generated concerning this topic and the lack of agreement among educators in general, children serviced by special classes and the number of classes had increased. Mackie and Robbins (1960:16) pointed out, "In 1948 one in ten slow children were enrolled in a special education program; in 1958, one in four were enrolled."

Since that time many authorities had dedicated time to intensive studies of the slow learner problem. As new knowledge was accrued, the existing theories had often proved to be inadequate, and thus had been treated as working hypotheses to be redefined, modified, revised, and enlarged to encompass the new knowledge. The historical growth of any science had relied upon such a continuum of inquiry. John Dewey

(Learner, 1971:13) believed:

That earlier conclusions have the function of preparing the way for later inquiries and judgments, and that the latter are dependent upon facts and conceptions instituted in earlier ones. are commonplaces in the intellectual development of individuals and the historic growth of any science.

Following World War II, programs for the exceptional child accelerated.

An overview of the historical perspectives concerning special education legislation by McCarthy and McCarthy (1970) showed that, beginning about 1900, special classes were established in some of the larger cities. Although the first special class teachers were often not adequately prepared, they did initiate impetus for the establishment of state certification standards. From this point on, local school districts were encouraged to establish educational provisions for special classes through the use of excess cost formulas. These monies were provided through the State Departments of Education.

By 1930, the federal government had established a Section on Exceptional Children and Youth in the United States Office of Education. This unit remained until 1963 when it became a division (McCarthy and McCarthy, 1970:115).

A reorganization plan in 1967 under Public Law 84-750 caused the Bureau of Education for the handicapped to be created. This Bureau exists now under three divisions: Research, Educational Services, and Training Programs.

In 1965, the well known Elementary and Secondary Education Act (E.S.E.A.), provided direct educational aid to the various states who could qualify for Federal money grants. James and John McCarthy contended that through the passage of this act under Public Law 89-10 "many school districts were able to experiment with and establish programs for children who were specifically designated as slow learners."

McCarthy and McCarthy (1970:114) believed "that since the time of its original inception in 1930, provisions for special classes in all areas of underachievement have made significant gains."

SPECIAL CLASS PLACEMENT

This investigator found that prior to 1950 comparatively little research was conducted concerning the controversy of special class placement. One researcher, Bennett (1932), made a comparison of sub-normal children in the elementary grades. She found that special class placement did not result in increased achievement. Pertsch (1936) used two groups, paired on the basis of chronological age, mental age, and intelligence quotient. Just as in Bennett's previous study, Pertsch found that slow students who were left in the regular grade group performed significantly better academically than the special class group. Both of the studies by Bennett (1932) and Pertsch (1936) indicated that in motor skills the special class group showed neither greater abilities nor greater growth than the regular grade group.

According to these two studies, the special groups were given more individual attention and yet were unable to make substantial progress.

Hewett (1970:48) noted that these studies could be open to a number of criticisms. "Because they were not followed up, they had little or no influence upon the development of special programs."

Hewett (1970) further contended that while we equate CA, MA, and IQ, we should also consider such important factors as: initial academic performance, personal adjustment, social adjustment, and physical and sensory abilities.

In the two previously mentioned studies by Bennett and Pertsch, these social facets of special class placement were neither mentioned nor tested. Another shortcoming was noted in that no objectives for the special class program were ever mentioned in these studies. It was contended that before any meaningful evaluation could be made, the objectives of a slow learner program must be defined and the evaluation made in terms of the program objectives. (A section on slow learner program objectives was considered in Chapter 7 of this paper.)

In some of the more recent studies concerning placement in the special class, consideration had been given to academic performance as it related to age of the slow student and the number of subjects he took. On the elementary school level, some of the following studies concerning age and subject factors, as they related to special class placement, had reached contradictory conclusions.

Concerning age related to academic performance for slow children, Carter (1956) found that under-aged children had lower school achievement than children of normal age for the grade and equivalent ability. In another study, under-age children had been found to be somewhat superior in achievement (Stephany, 1956), while Miller (1957) showed that age had little effect on academic achievement.

Another factor, that of the number of subjects taken by each student, has been found to have no effect upon performance of regular students (Andrew, 1956; Hountras, 1958; Merrill and Osborn, 1959; Schwilk, 1959; Shaw and Brown, 1957). However, for low ability students, all five of the above mentioned studies mentioned that number of subjects taken was inversely related to grades. Learner (1971) contended that the low-ability students or slow learners should be expected to have fewer school subjects in a climate that would allow their ability to develop.

On the elementary school level, Malpass (1953) administered a series of tests to below average school children that were designed to measure student perceptions in five school related areas: teachers, classmates, discipline, achievement, and school in general. Responses were rated on a five-point scale of favorableness to each area. With ability controlled, correlations between these measures and two criteria of academic performance (grades and achievement test scores) were computed. It was found that favorable perceptions in the school areas

were more highly related to grades than to achievement tests. In particular, favorable perceptions regarding teachers and achievement were most highly related to grades. It was interesting to note that in Andrews' study (1956) predictors correlated more highly with achievement test criteria than with grades.

The study by Malpass (1953) suggested that favorable attitudes toward teachers and toward achievement resulted in better relations between student and teacher. Better relations could, in turn, lead to higher grades, even though they did not objectively result in more learning as measured by achievement tests. D'Evelyn (1957) proposed that students who were usually judged to be on the lower end of the academic spectrum were usually judged solely on the basis of scores on intelligence tests. For the most part, placement in special classes had been done mainly on the basis of these tests, while other factors had not been considered. Fliegler (1957:533-536) found that four factors concerning home patterns were predominate in the case of the slow learning child:

- (1) a neutral or uninterested view of education by the parents;
- (2) overanxious, oversolicitous, easy-going, or inconsistent parental behavior;
- (3) lukewarm, indifferent parents;
- (4) lack of a cooperative spirit in the family.

He believed further that these patterns lead to distrust of people, a negative attitude toward the learning situation, and a lowered level of aspiration.

Research to date appeared to be controversial. Some researchers

contended that a more superior education was provided for the slow student when he was placed in a special class. Other researchers contended that the student should be allowed to remain in the regular class where he would be influenced by his age group.

A number of explanations had been stated to explain the advantages and disadvantages concerning special class placement.

Thurston (1962:3) noted that "slow children's motivations are reduced when they are placed in a special class." She believed that emphasis of the special class was not on academic achievement. In an article published by this investigator, "Developing Creative Problem Solving in Select Elementary Students," Journal of Creative Behavior, Sullivan (1969) took issue with Thurston's point of view. This writer believed that Thurston's contentions concerning academic achievement would not explain the lack of many positive results gained in the emotional and social areas when children were placed in special classes where they could experience varied learning situations. Much of the previous research emphasized disability rather than ability. His contention was that what was needed was a special class placement where the slow learner could experience continual daily success. In such a positive situation, students could develop into emotionally healthy individuals. What he believed was needed was not reinstating the pressures on slow learners as they existed in the regular grades nor removing all the pressures found within a regular school day. Rather,

within the specialized class for slow learners, learning activities should be meaningful and have purpose and value. Sullivan mentioned a Creative Problem Solving approach that provided an effective strategy for teaching slow learners.

Sullivan (1969) believed that the teacher should approach the education of slow learners with a more "positive" rather than "negative" attitude. He asserted that special class placement of the slow learner under stimulating class conditions may have positive results.

THEORETICAL BACKGROUND

In this section the investigator attempted to familiarize the reader with some of the theoretical principles which supported the educational philosophy that guided the creative approach to elementary education.

Patrick (1937, 1938, 1941) determined that the creative process included: preparation, incubation, illumination, and elaboration. His studies indicated that psychologists during the late 1930's and early 1940's did not consider creative potential to be an integral part of intelligence and almost no attention was given to self-initiated ideas when it came time to evaluate achievement. J. P. Guilford (1950) aroused much theoretical interest which led people into asking the questions of what, how, and why; implying that there are determining conditions which affect the thinking process. Guilford (1950:444), in

discussing his model of the divisions of the intellect, made the point that, "There are many avenues to learning; and the typical intelligence test only measures a few avenues.

Osborn (1963) considered a creative problem solving process which emphasized that to live was to have problems, and to solve problems was to grow intellectually. It became apparent then that creative problem solving and intelligence were compatible processes both leading to the development of the individual's intellectual growth. Recent findings indicated that the IQ score in particular, and achievement to some degree, correlated poorly with the intellectual growth brought about creative endeavors. The base for intellectual attainment had, however, remained unchanged. Getzels and Jackson (1962:3) noted that, "Despite significant transformation in our theories of cognition, learning, and problem solving, the conceptual base of the intelligence test has remained unaltered."

Researchers in the creativity field contended that the common intelligence test should not be the sole measure for predicting potential. Guilford (1968:2) suggested that:

The items on the typical intelligence test seemed to us to represent a rather narrow band of intellectual tasks, relying chiefly on those requiring "convergent thinking" and neglecting those requiring "divergent thinking." To do well on the typical intelligence test, the subject must be able to recall and to

recognize, perhaps even to solve, but he need not necessarily be able to invent or innovate.

Getzels and Jackson (1962:3) pointed out that:

Although the correlation between the IQ and learning is positive and we ought to say at once that we recognize the IQ as probably the best single measure we have—it nevertheless rarely accounts for more than one-quarter of the variance in such crucial factors as school achievement and academic performance. The student with higher IQ who is doing poorly in school and the student with a lower IQ who is doing well appear too often for the IQ to stand as the only predictive measure of intellectual ability or as the sole criterion of giftedness. Moreover, it is commonly observed that many children who are very high in intelligence as measured by IQ are not concomitantly high in such other intellectual functions as creativity, and many children who are very high in creativity are not concomitantly high in intelligence as measured by IQ.

Most persons would agree that intelligence and ability tests measured some dimensions of problem-solving capacity. There was, however, much less agreement regarding the sources of this capacity (Guilford, 1968).

One theoretical position was that the intelligence test score was an index of inherited ability. Another interpretation was the environmentalist viewpoint that intelligence was largely a product of cultural factors; and, finally, there was the opinion that intelligence level was determined through the interaction of hereditary and environmental factors. The last position now seemed to have the support of most social scientists, although this orientation included two factions: one maintaining that environment was relatively more important and the other that heredity was more significant.

Goslen (1963:151-152) considered that a person's test score reflected a number of different factors. The major variables were "the individual's inherited potential both in terms of general intelligence and specific capacities for training, plus the environment in which the organism had developed." Within the general category of environmental influences were: the effects of the individual's cultural background, his formal training experiences (school, and the like), his experiences with similar tests, and his general health.

Goslen's (1963) contention was that intervening between the test score and these variables were four major sources of fluctuation in performance. These variables were: personality, achievement motivation, interest of the individual in the test, and anxiety connected with the testing situation. The situational factors to be considered were: the perceived importance of the test, the confidence of the individual in his ability to handle the test items, the specific physical condition of the examinee at the time of the test administration, interference from the environment during test administration, and the effect of the tester. He had noted that in the testing situation a number of other circumstances should be considered. These were influences of the specific kinds of learning or abilities required by the test, the demands of the test with respect to the speed of response required of the examinee, and the role played by misleading or faultily constructed items. Finally, the random variation produced by guessing

and clerical errors were considered.

Boroff (Torrance, 1963:13) emphasized creative thinking and intellectual thinking abilities by stating that "as we learn how to teach more effectively so that our students are encouraged to use their creative thinking abilities in acquiring knowledge and intellectual skills, a larger number of people will become educable." As we found means of freeing both the creative and productive thinking potential of school children, learning and thinking in school would become more exciting and a larger number of able students would be motivated to continue their education. Boroff (Torrance, 1963:13) continued with the statement that:

This will result in a raising of standards. We still maintain that the IQ is a useful metric. Nevertheless, the fact remains that people within a considerable range of IQ's can be educated without any sacrifice of educational standards when we teach them in a way that opens up and develops their creative and evaluative thinking abilities.

Barron, in his research studies (1958), had given some insight into what these creative attitudes and abilities were and the kinds of knowledges and skills which were important. He mentioned that, while each researcher used his own nomenclature, it seemed valid to summarize the attitudes which were basic to creativity as: curiosity about the environment, openmindedness, wondering or inquiring about things, objectivity, feasibility, intellectual playfulness and humor, indifference toward conformity to many cultural stereotypes, willingness to work long hours over long periods of time, willingness to be alone physically

and figuratively, confidence in one's own ability, sensitivity to various sensory stimuli in the environment, and strong interests.

The criterion problem, how to identify the creative person and how to identify the level of creativity achieved, was one of the most critical questions in the investigation of creativity. "Implicitly or explicitly, every study of creativity involved a set of assumptions concerning the identification of the creative individual and his work (Stein and Heinze, 1960:84)."

Authors' opinions on creativity varied. Some considered creativity to be inherent in the creative process, some in the development of the creative imagination, and some in the ability to solve problems and think creatively. Carl Rogers (1954:249) in discussing a theory of creativity felt that the creative process could be defined as:

The emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand, and the materials, events, people, or circumstances of his life on the other.

Recognition of the creative process was not something new for Rogers' time. Elements of the creative imagination were emphasized as far back as 1937 by Ruch (1937:598) who believed that:

The creative imagination is similar to problem-solving and autistic thinking in that it used symbols that have acquired meaning through learning. It differs from the other two in the degree of control. Creative imagination is less inclusive than problem-solving that is directed by voluntary attitude and more controlled than autistic thinking.

Somewhat the same point was made by Newell, Shaw, and Simon (1958:82), "Creative activity appeared simply to be a special class problem-solving activity characterized by novelty, unconventionality, persistence, and difficulty in problem formulation.

Thurston (1950:10) pointed out that there existed different kinds of creative talent. He believed that:

Creative talent is not the same as intelligence, although there is undoubtedly a positive correlation between the two. Neither is it the same as scientific talent which may work successfully in the method of the field without producing original ideas.

Guilford (1969) particularly noted that there was a lack of investigation in many of the traits related to creativity. He contended that many authors in discussing creativity believed that the chief secret of creative performance lay in traits of motivation and temperament.

NURTURING CREATIVITY IN SLOW LEARNERS

Not all agreed with the premise that the traits of motivation and temperament were a necessity for creative development. When creativity was to be fostered with students in school, Torrance (1962) maintained that setting the proper conditions for creativity to happen should be the first priority. He pointed out that teaching has been much too authoritative and noted that most education in the elementary school had not given the younger generation instruction in how to use

information in creative ways, or even the opportunity to do so in many cases. He stressed that creative education, on the other hand, aimed at "self-starting," "resourceful," and "confident" persons, ready to face personal, interpersonal, and other kinds of problems.

Torrance (1963) seemed to think that the evidence was clear that children could be taught to use creative thinking abilities in acquiring even traditional school learnings, that traditional concepts of under-achievement and over-achievement were woefully outmoded, that the learning procedures of highly creative children were quite different from those of children with high IQ's but without high creative thinking ability, and that many social pressures interfered with the development and expression of these abilities.

Thurston (1950), Guilford (1969), and Torrance (1962, 1963) indicated that the development of creativity should be a definite aim, carefully cultivated, rather than left to become a by-product of social conditions. The school seemed to be the best fitted of all the educational agencies for taking this responsibility. It not only came in contact with more individuals at their most impressionable stages of development than any other agency, but it also required specialized training of its teachers and had the facilities for providing the sequential experiences necessary for the growth of intellectual skills, knowledges, and attitudes which were an integral part of creativity (Marksbury, 1963).

If the schools were to take the responsibility, and if changed objectives were to mean anything, many other new developments were necessary--in teaching methods, in curriculum and instruction materials, in identifying talent, and in evaluation of achievement.

The assumption was made that if the highly creative students who were not reached by conventional methods appeared to be unintelligent on the basis of conventional tests, then perhaps a creative approach for slow learners might succeed where the traditional approach had failed. In extending this assumption, the contention that "every student is creative whether his mental make-up is fast or slow, will be followed (Torrance, 1963:3)."

President Kennedy (Torrance, 1962:6) highlighted the need for an awareness of creative thinking when he told the public that "the human mind is a fundamental resource. The success of the United States as a civilized society will be largely judged by the creative activities of its citizens." Historical records (Osborn, 1963:297-299) provided evidence that cultures had collapsed because of their failure to utilize intelligent, imaginative methods of solving their problems. Torrance (1965:297) explained that "a child whose achievement quotient is lower than his IQ is regarded as an underachiever or slow learner and is urged to study harder and learn more rapidly." There is now a growing recognition that the IQ attempts to measure only a small number of the thinking abilities that man possesses. Nevertheless, Torrance

(1965) considered that the IQ score alone was not a good predictor of which thinking abilities are important in education.

Guilford (1966:6) claimed that "creative talent is one of the nation's greatest resources. Creativity is the key to education in its fullest sense and the solution of mankind's most serious problems." More and more insistently, schools were being asked to produce men and women who could think, make new scientific discoveries, and develop latent skills. These students were expected to adapt to change in an age of acceleration. Threats to man's survival challenged us to consider what man could become and to search for new ways of helping children realize their creative potential.

Hunt (1961) claimed that for over half a century the leading theory of man's nature had been dominated by assumptions of fixed intelligence and predetermined development. These beliefs had played a large role in psychological theorizing and investigation; they provided a conceptual framework for the measurement of intelligence and for accounting for the development of human abilities, which had traditionally been regarded as the unfolding of capacities almost completely predetermined by inheritance. As time progressed, a transformation had been taking place in this traditional concept of intelligence and its relation to experience. Evidence from various sources had been forcing a recognition of central processes intelligence and of the crucial role of life experience in the development of the central process.

Goodlad and Anderson (1963) reported that during the second half of the nineteenth century and the first decades of the twentieth, the elementary schools came to be viewed as a series of graded hurdles to be cleared one after the other by participants in a common race. The child who failed to clear a hurdle simply waited, presumably to muster the ability to clear it on his second try a year later. Holt (1964) maintained that under these circumstances approximately 40 per cent of our children failed in school; and if we were to raise our academic standards, as some would have us do, then the figure would increase substantially.

Randolph (1966) asserted that while schools have been busily evaluating achievement and potential in the three R's, the large majority of slow learners had been quietly lowering their self-esteem, self-confidence, and perseverance. If schools were really interested in encouraging creativity and salvaging the 40 per cent who fail, then they were going to have to develop ways to give back these children's self-confidence and feeling of personal worth.

In order to provide a feeling of self-confidence and personal worth, Marksbury (1963:63) believed we should recognize individual differences in children. She continued with the idea that:

In planning learning situations which will give each child an opportunity to grow in creativity, individual differences in native capacity, physical development, and background of experience need to be considered. These differences determine how a child will organize experiences and relate to the school learning situation.

Wilt (1959) agreed that children should be able to organize past experiences in meaningful ways. She indicated that while the child was in the elementary school he should be taught how to develop oral and verbal experiences.

She pointed out that he should be encouraged to talk out his ideas, to enrich his experiences, to gather data. He should be asked questions that would encourage his thinking.

Wilt (1959:v) further contended that in an effort to facilitate learning, elementary teachers should employ creative activities.

"Creative activity can serve the needs of all children from the genius to the slow learner, the emotionally disturbed to the physically handicapped."

In considering creativity and the learning situation, where the slow child was concerned, Montessori (1960:109) commented that:

Beneath these outward manifestations an unknown child lies hidden who must be freed. The most urgent task facing educators is to come to know this unknown child and to free it from all entanglements.

If Montessori's contentions were true, then every educator who worked with slow children should be establishing conditions for creativity to appear. Creativity can be nurtured when the teacher considers each child's personal worth and is able to develop his self-confidence by showing him that his creative endeavors are worthwhile. Sullivan (1969:284) in considering creativity for the slow learner pointed out that:

Students who fall into the slow learner category continue to pose a problem to many school systems across the nation. Placed in a regular classroom, slow learners usually experience continual daily failure. They become academically stagnant and fall farther and farther behind in their studies each year. Their attendance becomes increasingly poor and many eventually drop out of school as soon as they are able. While in school they are often characterized as troublemakers and discipline problems. When placed in slow learner classes, they accept the fact that they are slow and resign themselves to staying that way. In either case, their negative self-image effectively dampens their motivation to exert effort and apathy sets in. Thus, the problems of curriculum planning, special class placement, the programs of the school to include instruction designed to meet the special needs of the slow learners have become of major importance to educators and society in general.

Lobdell (1954:334) stated that, "During the present day and age in education, careful curriculum modification for slow children who haven't been promoted often results in quite satisfactory progress for many of them."

Smith, Stanley, and Shores (1957) indicated another area to be considered. They viewed the curriculum as the potential experiences set up in a sequence or order by the schools. The curriculum should be a reflection of the society. What people thought, believed, felt, and did was all part of curriculum planning. Its purpose was to help children to better understand the thinking and behavior of the group and their relationship to the group or society. Thus, the curriculum should be more than a student centered approach. It should, they maintained, also consider the individual in relation to society.

Johnson (1959:68-69) indicated that:

Proper application of these concepts can have great implications in regard to classroom instruction and curriculum planning for slow learning children. It essentially means that the teacher of these children can devote approximately one-sixth of her time to concepts and experiences of a "special" nature while still taking no time away from the instruction of "basic skills" usually considered to be essential as tools that will enable the individual to make continuing adjustments independently.

Johnson (1959) noted that many articles have appeared in professional periodicals, but they had done little to indicate a solution to or clarification of the slow learner problem. Rarely did these articles provide the basic help, information, or guides required to develop educational programs for the slow learners. Articles concerned with the specific solution to a specific problem in a specific area were not available. He believed little or no general value was presented unless (1) the situation could be duplicated or (2) principles could be evolved that have general application. Thus, as a result of "limited treatment of the problem," these articles tended to "confuse and discourage" rather than "clarify and point out" directions toward solutions (Johnson, 1968:9). Special class placement and appropriate kinds of educational programs for slow learners having significant value could be proposed and accepted. This lack of thorough understanding of the problem and an inability to clarify it, rather than a lack of recognition of its existence, had caused educational researchers in many instances to arrive at indefinite solutions.

Maria Montessori (1960) believed indefinite solutions had been arrived at because the psychology and the education of children had

been studied from an adult rather than from a child's point of view. She felt that through the conditions that were established we often hampered creativity in children. We hampered creativity because our adult environment was not a suitable environment for children. She contended that, "Ours is an environment that poses obstacles to strengthen their defenses, warp their attitudes, and expose them to adult suggestions." In essence, she believed that we teach students to conform from our adult point of view.

Research indicated that a creative approach for slow learners might be a way to give back to these students the self-confidence and feeling of personal worth that they are lacking. To do so, a constructive atmosphere must be established.

Wilt (1959:1) asked us to consider that this constructive atmosphere must allow choices. "Freedom to do, to think, to discipline and direct himself is essential for the emergence of creative individuals and for the prevention of a waste of human potentialities."

Slow children must have the necessary time and freedom to explore, test, and experiment. Even more, these children must feel free to make mistakes and be shown how to learn from their mistakes. They should learn how to experiment with ideas, words, and materials. The literature indicates that slower children's "ridiculous" ideas should be accepted as creative ones, while new solutions to problems must be sought after, as much as correct solutions to problems. When

these slower children do have the opportunity to share and learn from each other, then, the research indicated, they will start to explore, create, and solve problems on their own.

Wilt (1959:2) continued with a question on conformity. He wanted educators to consider that, "Slow children have been taught well to conform. Have they also been given time and encouragement to make choices, to use their imaginations, and to explore their worlds with their senses?"

When educators take time to answer these questions, then the first step toward nurturing creativity will be accomplished.

There are differences in type and nature of conformity in different persons under different conditions. Wyler (1967) found that those subjects who had low ability and low achievement showed the highest conformity of this type.

Wilt (1959:2) considered that conformity itself cannot be treated lightly. It was essential in our society much of time, but as "all work and no play makes Jack a dull boy" so all conformity and no free-wheeling thinking made him an uncreative adult.

Smith (1967) indicated that in creative teaching, conditions must be set to permit creativity to appear. Creativity cannot be taught. We can only set conditions for it to happen, and then by reinforcing its appearance through reward, encourage it to appear often.

Meyers and Torrance (1965:v) advocated that neither teachers

nor psychologists can agree upon whether or not all slow children can behave creatively; but everyone knows that children can imagine. Thus, "you can be certain that you will receive a resounding 'Yes' to the question, can children imagine?"

There had long been many people who believed that imagination was the most valuable attribute of the human mind, but most people even today tend to depreciate the value of the imagination. Imagination was associated with play, frivolity, fairy tales, and daydreaming and was not regarded as a practical attribute. Increasingly, however, people everywhere were beginning to recognize that imagination did have practical value. It may yet be demonstrated that the creative engineers, scientists, inventors, and builders of the future will be the children who today are able to imagine and to enjoy fantasy.

THE RELATIONSHIP BETWEEN CREATIVITY AND PRODUCTIVE THINKING ABILITY

This section of the review of literature will look at the viewpoints concerning creativity, as found in the Creativity Problem Solving Process, and point to the relationship with a Productive Thinking Approach. The first general observation made by Parnes and Harding (1962) was that there was a high degree of similarity between steps in Creative Problem Solving and Productive Thinking. They suggested that all genuine problem solving involves creative thinking, and all productive thinking involved some degree of creative thinking.

Both Creative Problem Solving and Productive Thinking were compatible due to the degree of novelty shown by the problem solver.

Hodges and Rudorf (1972:182) claimed that Problem Solving was a process which "logically follows the checking of facts, events, and ideas." They felt that elementary students seldom behave in such a rational manner unless they are taught how to do so. They asserted that when an individual learned to "recognize and define problems, he had actuated problem solving processes." The problem solving process in the writer's opinion was a productive thinking process. Gardner Murphy (Borow, 1973:160) maintained that to be a productive thinker, a student needed to develop both problem solving skills and a productive personality. When he developed this "productive personality," he would be able to think with "originality and newness."

Experience had demonstrated that creativity, as developed in the Creative Problem Solving Process, was a magic word; it caught immediate attention. Inevitably it came up in the context of the subject of productive thinking. The term appeared at times to be a kind of "catchall" label, much too loosely employed. Only when we break it down into its several manageable implications are we able to do much creatively about it (Guilford, 1965).

In considering some of the manageable implications concerning creativity, Smith (1966) believed that creativity was a learning process. He emphasized that teaching for creativity, especially as it

had been developed in Creative Problem Solving, had often been considered a "frill" in the American public school curriculum. Research into creativity (Guilford, 1966) had helped to dispel this misunderstanding by showing that: (1) creative learning is a highly effective way of learning and (2) "frills" are a necessary part of the teaching-learning process if progress in educational practice is to be made.

Concerning the first point, there was substantial evidence (Smith, 1966; Torrance, 1965) to show that children often learn more effectively and retain longer what they learn through creative learning processes. The creative learning process employed all those facets of learning which have been considered essential to the learning act--and more.

Secondly, "frills" must be considered the vanguard of educational advancement, the area in the educational process where new ideas are being put to test. These tests, according to Torrance, resulted in sound outcomes that would, in turn, produce profound changes in educational methodology, classroom organization, and learning procedures. In this sense, "frills" may be regarded as necessary for educational advancement. Hence, rather than a "frill," creative teaching and learning may well be the core of the educational process.

Guilford (1965) emphasized that for years the American public school has had as one of its major objectives to perpetuate the knowledge, skills, and values of the culture in which it operates. It

had trained children to memorize, to think critically, to see relationships, and to build concepts in terms of this culture. He considered that these skills are in the nature of convergent thinking processes: gathering facts in order to arrive at the most likely answer or the most correct answer. Guilford contended that as late as 1960 every commercial test on the market, with the exception of the Rorschach Psychological Test, was concerned with measuring convergent thinking processes.

A former educational process which was regenerated in the middle fifties was that of divergent thinking. In divergent thinking, facts, concepts, understandings, and skills were put to new uses, and a new answer was devised, rather than a likely or correct answer. It was this type of thinking that was the basis of creativity in individuals.

Dunkel (1961) mentioned that up until 1955 most of the literature on creativity was largely philosophical with only a trickle of research articles available on the subject. The accepted belief among most educators was that creativity was an intangible quality found only in a few people which could not be researched. Dunkel (1961:209) stated, "It was often called 'talent' and creative people were thought to be 'different or queer'." Little was known about the divergent thinking processes or about the manner by which creative talent was developed. Our intelligence tests were supposed to measure giftedness

in children, but creativity was a kind of giftedness, and these tests did not identify creative children. The difficulty lay in the fact that all the items in the Binet IQ tests (Aiken, 1971:112) dealt with convergent thinking principles; every test designed since the Binet test had been validated against it. Consequently, the IQ test had continued over the years to measure only convergent thinking processes.

Guilford (1956:276-295; 1959:469-479) in his classic articles on the structure of intellect contended that intellect could be analyzed into a large number of components which covered a large number of intellectual abilities. He had arranged 120 components of intelligence into his "structure of intellect." He stated that there were three ways abilities could differ from each other:

(1) content: the areas a person has to deal with which are figural, symbolic, semantic and behavioral; (2) operations: those areas of the mind which have to deal with cognition (knowing), memory, divergent production and evaluation; and (3) products: those areas which deal with systems, classes, relations, transformations, and implications.

Creativity was placed in this framework as an OPERATION, specifically as a DIVERGENT production. This included such factors as fluency, flexibility, originality, and spontaneity. Divergent production did not contain all the factors which contribute to creative thinking, however. Almost all areas contribute something. Both convergent and divergent thinking processes had a role in creative work. A more extended illustration of the contrast between these two types of thinking follows.

A teacher holds a jar before the class and asks, "What is this?" and the class says, "It is a jar." This appears to be convergent thinking because it has one final answer. Convergent thinking may include many such questions and answers used to arrive at the solution to a more complex problem.

But if the teacher holds the jar before the class and says "This is a jar. What are all the things you can think of that I may do with it?", and the answers which follow are diverse, unique or original, such as "You can make a clothes sprinkler out of it; you can fill it with colored sand and make a door stop out of it; you can fill it with colored water and hang it on a string to make a decoration of it; you can store juice in it; you can put a spout on it and make a watering can for house plants; you can paste colored papers on it, fill it with sand and make a paperweight from it"--this is divergent thinking. The process requires no one single answer, and the mind is agitated to be more flexible, more searching, more original as the answers are used up, for then answers become more and more difficult.

Research into creativity had alerted educators to the fact that the development of divergent thinking had been grossly neglected in our schools (Torrance, 1965). Now that divergent thinking processes had been identified as the base of creative production, schools could make a significant contribution to the development of creative powers in all children.

Creativity has been defined by Smith (1966:3) as "sinking taps into our past experiences and putting these selected experiences together into new patterns, new ideas, or new products." Smith believed that creativity implied a quality of a unique nature. It can be developed through all areas of the elementary school curriculum. All people have it to some degree. Creative learning may be the basic core of all learning.

Many misconceptions abound concerning creativity, and a word must be said to clarify the investigator's stand on these issues. The word "creativity" appeared to have been often overused and therefore negative connotations had arisen at times when it was proposed as an educational strategy. The investigator believed that it was important to consider creative production and productive thinking. In our world of change we tend to regard the quantity of production as the unique factor which makes our way of life possible. Productivity implies quantity, whereas creativity implies quality. Once a creative idea was developed, it was often subjected to mass production so more people might benefit from the idea.

Creativity was often confused with productivity in other ways. A symphony orchestra or a ballet dancer was not creative when either trying to reproduce a composition or a dance exactly as it was presented at a previous time. Reproduction in this sense was a technical process-- and the players and dancers at this moment are technicians rather than

creators (Smith, 1966). To be creative, according to Smith, meant to break away from tradition and do something that is unique, original, or different. The investigator asserted that productivity which implied quantity should not be confused with productivity as advocated in productive thinking. For in the Productive Thinking Process quantity of ideas is desired only if it is derived from fluent, flexible, and original thinking.

Wertheimer (1954:9) pointed out that there first must be a problem situation in which the problem starts and the structure of the problem is incomplete. A number of steps lead to the second situation-- in which the structure of the problem is completed, the process ends, and the problem is solved because the structural trouble has disappeared.

Wertheimer suggested that all productive thinking partakes of these features:

- (1) There is grouping, reorganization, structurization, operations of dividing into sub-wholes and still seeing these sub-wholes together, with clear reference to the whole figure and in view of the specific problem at issue
- (2) The process starts with the desire to get at the inner-relatedness of form and size. This is not a search for just any relation which would connect them, but for the nature of their intrinsic interdependence. Outstanding relations of this kind--sensible with regard to the inner structural nature of any given situation . . . play a large role here.
- (3) There is the feature of the functional meaning of parts
- (5) The entire process is one consistent line of thinking. It is not an end-sum of aggregated, piecemeal operations. No one step is arbitrary, ununderstood in its function. On the contrary, each step is taken surveying the whole situation.

Most learning involved problem solving. Hilgard (1959:163)

defined creativity in relation to problem-solving in this manner:

There have been two major types of approach to problem-solving and creativity. The first of these relates problem-solving to learning and thinking, as a type of "higher mental process" or "cognitive process," to which problem-solving certainly belongs. The second approach, supplementary rather than contradictory to the first, sees creative problem-solving as a manifestation of personality and looks for social and motivational determinants instead of (or in addition to) the purely cognitive ones. It is not surprising that these two approaches deal also with somewhat different topics. The approach via learning tends to emphasize problem-solving in which a high-order product emerges, although not necessarily a highly original one, whereas the approach via personality tends to seek out somewhat more the elements of creative imagination and novelty.

In both Creative Problem Solving and Productive Thinking, there was an initial sensitivity to a problem, for which there is a corresponding type of ability as previously mentioned in the structure-of-intellect model (Guilford, 1956). There was next an analysis of the problem, which involved primarily cognitive abilities. The way in which the problem was comprehended set up search models, which served as cues for the retrieval of stored information. Stored information involved a set of memory abilities. The generation of ideas by recall from storage was likely to be by way of transfer, because the information was retrieved by a new one in connection with which it had not been learned. The theory of productive thinking here proposed was therefore given the label of a "transfer theory" (Guilford, 1959).

Facility of information retrieval depended in part upon certain

abilities for fluent information production of which there are three kinds (Guilford, 1959). They differed in terms of the product category in which the items of information belonged: units, related correlates, or systems. Three kinds of flexibility factors helped to keep the search from becoming too limited in scope and to transform the nature of a product or to redefine it for new uses and new connections. Elaboration abilities helped to make additions and to achieve completions.

At all stages of problem solving, as found in Creative Problem Solving and Productive Thinking, evaluative abilities contributed to the selection of the best information and the rejection of unsuitable information. The initial step of sensing a problem was itself an act of evaluation (Osborn, 1963). The final step of accepting the finished product was also an act of evaluation. At any step of the way, although there are times when judgment should be relaxed for the sake of idea production in large quantity, evaluation provides guiding influences.

The most obvious aspects of creative thinking appeared to depend upon the abilities to do divergent-productive thinking and the abilities to effect transformations of information. With the abilities of fluency, flexibility, elaboration, and redefinition playing significant roles, with creative thinking put in its larger context of problem solving, and Productive Thinking (Parnes and Harding, 1962), we see that any or all kinds of abilities can be utilized.

The writer proposed that the critical stages of the Five-Phase Productive Thinking Approach are fact finding, problem finding, idea finding, solution finding, and acceptance finding. The preceding research mentioned that the Productive Thinking Approach was a series of experiences or processes, each of which continued with what had gone on in the preceding experiences and would lead directly into other experiences, so that there was a continuous merging until the final whole was reached. Each individual experience was a creative problem-solving situation making its contribution to the overall problem.

The writer advocated that the Productive Thinking Process to be taught to slow students could be divided into five separate stages. Each stage should be taught as a separate unit. The first was a fact-finding stage or a period of preparation. In this stage, the student learned how to develop initial sensitivity to problems. It was concerned with the inspection of the problem and the collection of information or material. The second stage was the problem-finding stage, in which he learned to use his cognitive abilities in analyzing the problem. The third stage was the idea-finding stage, in which the student learned to generate ideas. He learned to develop his own search model for retrieval of stored information. During this stage he searched through the back of his mind for solutions to the persistent, difficult problem. The fourth stage was the solution-finding stage in which by the student's insight, verification took place. The fifth or

final stage was the acceptance-finding stage. In this stage the finished product or solution was accepted and evaluated. During this stage the thinker tested, checked, criticized, and polished the solution until he was satisfied as to its fitness and value.

It was evident from this description and previous studies cited that the Productive Thinking Process was a Creative Problem Solving Process. In order to teach a student to think more creatively, we began with several basic assumptions.

First, it was assumed that all students, regardless of intelligence or initial level of competence, demonstrated a level of thinking that fell far short of what they were potentially capable, and that by teaching him the Productive Thinking Approach he could learn to utilize his potential for some degree of creative thinking.

Second, it was assumed that the skills involved in productive thinking are general skills that could be learned by a slow student. As general skills, they would be taught production of original ideas, the invention of a unifying principle which integrated several separate events, and the use of strategies to solve a complex problem.

Third, it was assumed that the student could strengthen, develop, and integrate skills and attitudes which he had already possessed in some lesser degree.

The teacher was an important factor in teaching the critical elements of the Five-Phase Productive Thinking Approach.

SUMMARY

The investigator attempted in this chapter to develop a foundation, through a review of literature, for the later development of a Productive Thinking Approach concerning teaching intermediate grade slow learners. An attempt was made to describe the development of a Productive Thinking Approach by discussing and reviewing the following areas: (1) historical perspectives, (2) special class placement, (3) theoretical background concerning the creative potential, (4) nurturing creativity in slow learners, and (5) the relationship between creative and productive thinking ability.

Historical developments showed that education had made significant progress from the time when the Spartans first killed the deviant or malformed infant to the educational programs that were in existence during the 1970's. The child who had been unable to learn concerned researchers for many years. Prior to the 1800's, there existed many mixed feelings concerning the slow child. The research indicated that he was neglected and mistreated, protected as well as pitied. It appeared that in more recent times progress had been made to integrate the slow learner into educational programs of the school.

A review of the literature concerning special class placement showed that authorities' opinions varied as to what constituted the most appropriate approach to slow learner education. The controversies were generated as to whether slow students should be integrated with or

segregated from the regular class students. Despite the various controversies, the number of children being served in special classes had increased.

After 1900, special education legislation came into being. It also opened the door for the establishment of teacher certification standards for the teaching of slow learners. Consequently, in 1930 the Federal government established a division on Exceptional Children and Youth, and in 1967 the division was reorganized under Public Law 84-750 to form the Bureau of Education for the Handicapped. Historically, then, educational progress for the slow learner had made continued gains.

Some earlier studies in 1932 found that special class placement did not result in increased achievement. However, later research in 1970 considered that these earlier studies could be open to a number of criticisms. Many of the previous studies failed to test the important factors of age on academic performance and the number of daily subjects taken by each student. The research indicated further that favorable attitudes toward teachers and toward achievement resulted in better relations between student and teachers. This factor was not considered in the previous studies. Placement in slower classes for the most part was made on the basis of IQ scores. Research, however, indicated that in this placement the IQ score should not be the only factor considered. It was felt that home patterns which dominated the slow student's life

as well as IQ should be considered in recommending special class placement.

The investigator, in citing a previous article which he had written entitled Developing Creative Problem Solving Skills in Slow Learning Elementary Students (1969), emphasized that student ability rather than disability should be the first priority in special class placement.

Recommendations were given that teachers should approach the education of slow learners with a positive rather than a negative attitude.

The theoretical principles supporting a creative approach to elementary education were reviewed in order to determine if this might be an advantageous approach. Previously, the creative potential was not considered to be an integral part of intelligence, and no attention was given to self-initiated ideas when it came time to evaluate achievement. It then became apparent that creativity and intelligence were compatible processes both leading to the development of the individual's intellectual development. It was determined that the common intelligence test and achievement test to some degree correlated poorly with creativity. The common intelligence quotient test rarely accounted for more than one-quarter of the variance in such crucial factors as school achievement and academic performance. The research and related literature varied, for some authorities claimed that intelligence was an

index of inherited ability, while the environmental researchers claimed that it was largely a product of cultural factors.

Research concerning creative thinking and intellectual thinking ability indicated that, as students were encouraged to use their creative thinking abilities in acquiring knowledge and intellectual skills, a larger number of slow students would become educable. The IQ was considered to be a useful metric, but did not consider all the avenues of learning as mentioned in the various divisions of the intellect. It was felt that creative and evaluative thinking abilities should also be considered. The school seemed to be the best fitted of all the agencies to assume this responsibility, because it came in contact with the student during the most impressionable stages of development. It was believed that the development of creativity should be a definite aim, carefully cultivated, rather than left as a by-product of social conditions.

Literature suggested that a process which would nurture Productive Thinking with slow learners might be a means of raising the slow student's self-esteem, self-confidence, and perseverance, while alleviating graded failure. In order to allow for creativity to be nurtured, it was mentioned that a revision of the present slow learner curriculum was in order. Consideration was given to the fact that this curriculum should be more than just a student centered approach, and approximately one-sixth of the time should be given to development of

concepts and experiences related to creative endeavors.

It was noted that in the many articles and professional periodicals few contributions seemed to provide the basic help, information, or guides required to develop educational programs for the slow learner. As a result of "limited treatment to the slow learner problem," these articles have tended to "confuse and discourage" rather than "clarify and point out" directions and solutions.

The investigator pointed out that there was a high degree of similarity between steps in Creative Problem Solving and Productive Thinking. Both problem solving and productive thinking involved a high degree of creativity and, therefore, both were deemed compatible processes which could be taught to slow elementary students.

The investigator felt that the term "creativity" as employed in Productive Thinking and in Creative Problem Solving itself had been much too loosely employed and often promoted negative connotations. Present research contended that creative learning was a highly effective way of learning. E. Paul Torrance (1965) indicated that substantial educational advancement could be made when creativity was allowed to appear.

In the past, schools normally taught skills by convergent thinking processes. Creativity seemed to bring about focus on another kind of thinking process--that of divergent thinking. In this process, individuals were required to take facts, concepts, understandings, and

skills and put these to new and better uses. The research indicated that in the past creativity as advocated in divergent thinking was considered to be an intangible quality, found to be possessed by only a few individuals. It was felt that this quality could not be researched, and people who possessed this talent were thought to be "different." Guilford first opened the door to the realization that there were a large number of components which covered a wide range of intellectual abilities. He indicated that the typical intelligence and achievement tests measured only a slight segment of the various divisions of the students' intellect. The slight segment that was mentioned on these tests represented the convergent thinking skills and did not consider divergent thinking skills. Research into creativity alerted educators to the fact that the development of divergent thinking skills had been grossly neglected in our schools up to the present time.

Both Creative Problem Solving and Productive Thinking appeared to be compatible processes, because in both there was an initial sensitivity to a problem which utilized all phases of thinking ability. The obvious aspects of both processes depended upon the ability to do divergent-productive thinking and the ability to effect transformation of information.

There appeared to have been historical advancements made in the field of slow learner education. Although advancement had been made, there were still many other considerations which had not yet been

reviewed. The first consideration given was to gather consensus of opinion as to whether special class placement was appropriate. The second consideration deemed necessary was to formulate ideas concerning the classroom environment conducive for stimulating creativity for students. The investigator indicated that this classroom environment should teach creativity and promote Productive Thinking skills for the slow students.

The review of literature and related research indicated that there were many theories underlying intelligence, creativity, and the creative potential as it related to learning. The investigator contended that by teaching creative problem solving skills to slow learners many avenues for developing productive thinking abilities would be opened.

After reviewing the many theories concerning creativity and Productive Thinking, the writer perceived that the Five-Phase Productive Thinking Approach could be taught to slow students. The elements mentioned were fact-finding, problem-finding, idea-finding, solution-finding, and acceptance-finding.

Evidence indicated that the Productive Thinking Process was a Creative Problem Solving Process. It assumed that each student, regardless of level of intelligence, could utilize his potential for some degree of creative thinking.

The next chapter presents the results of a mailed questionnaire

to educators in and out of the state of Montana. These results are found in Chapter 5.

Chapter 5

QUESTIONNAIRE RESULTS

In the first part of this chapter, the investigator presented the results of a mailed questionnaire (See Appendix C, pages 260-264) to selected educators in the state of Montana. The second part of the chapter reviewed the results of five questionnaires from educators in each of the states of Washington, Oregon, Utah; along with one questionnaire each from the states of Maryland, North Dakota, Florida, and Missouri.

The investigator presented the results of Sections I and III of the questionnaire in narrative form, because he believed that the collected data could be presented in a more meaningful way by a narrative discussion. Section II of the questionnaire was most conducive to a tabular presentation because of the variation in responses. This tabular presentation of Section II may be found in Appendix D, pages 265 through 271.

Montana was chosen as the main core of this sample. The investigator had taught a number of workshops in various cities throughout the state and discovered a need for some specific direction in slow learner education. The mini-sample in states other than Montana was used for the purpose of gaining additional information concerning teacher's attitudes toward slow learner education.

The results of the returned questionnaire were used later to

make recommendations for developing an approach for slow learner education as well as in the development of a class activities manual (see Appendix J, pages 292-324).

The developed questionnaire was directed to persons who work with or taught slow learners. The list of respondents was obtained by writing Mr. Ray Beck, officer in the Montana Council of Exceptional Children and Mr. Larry M. Holmquist, State Director of Special Education-- State of Montana. The investigator also included four educators in the states of Maryland, North Dakota, Florida, and Missouri, who had definite first-hand knowledge concerning slow learner education in the state of Montana. Likewise, these names were supplied by the Montana Council of Exceptional Children, because these people were once active in the Montana Council and had now moved out of state.

The questionnaire was sent to a total of 180 persons who were teaching or had taught slow learners. It should be noted that of the 180 questionnaires 156 were completed and returned for a 86.67 per cent return. Those persons who after the first mailing failed to return the questionnaire were contacted in person during the 1974 Montana State Council of Exceptional Children convention sponsored by Eastern Montana College from March 28 to March 30, 1974.

TEACHER IN-STATE QUESTIONNAIRE

Section I

Section I of the survey dealt with questions pertaining to each respondent's present teaching and working situation (see Appendix C, pages 260-264). These questions were constructed in order to give the investigator some background information needed to make recommendations for Montana slow learner program modification and development, teacher in-service training, and class activities.

This section of the questionnaire yielded the following logistical information. Of the 156 persons surveyed, 96 or 61.54 per cent of the respondents indicated that they were female. The remaining sixty respondents, or 38.46 per cent, indicated that they were male. The ages ranged from 21.79 per cent who indicated that they were under twenty-five years of age to 5.78 per cent who indicated that they were over fifty-five years old. The majority of the respondents, or 40.38 per cent, indicated that they were between the ages of twenty-five to thirty-four years of age. Another 14.74 per cent indicated that they were between thirty-five and forty-four years, while 17.31 per cent indicated that they were in the forty-five to fifty-five age bracket. These responses seemed to indicate that the majority of educators who worked with or taught slow learners in Montana were female educators under thirty-five years of age.

The number of years working with or teaching the slow child

ranged from a low of 15.39 per cent who specified first year experience to a high of 41.66 per cent who indicated at least two to five years experience.

When asked to respond to their present teaching capacity, ninety-five, or 60.90 per cent, indicated that they were presently teaching in slow student classes, while forty-four, or 28.21 per cent, indicated that they had taught slow children. The remaining seventeen educators representing 10.90 per cent of those surveyed were presently working in some special service capacity.

In answer to question five, concerning class loads and case loads, responding teachers indicated that class loads ranged from a low of four students to a high of fifty-four, with the mean number of students being 35.62. Those persons serving in special service capacities with slow learners indicated that the smallest case load was two students, while the largest load was forty-seven. The average number of students was 15.26 for each case load.

Respondents indicated a majority of the slow learner programs were located in the states' larger schools. Of the 140 respondents answering question six, 42 of the respondents, or 30 per cent, indicated that their school enrollment was from 201 to 601 pupils. Thirty-nine, or 27.86 per cent, indicated an enrollment of from 101 to 200 pupils. Twenty-four, or 15.39 per cent, indicated schools with enrollments over 600. Nineteen, or 13.52 per cent, checked enrollments of 41 to 100

pupils, while fifteen, or 10.71 per cent, mentioned enrollments under forty pupils.

In proportion to student enrollment, it appeared that slow learner programs in Montana were equally dispersed.

In answer to question seven, concerning the highest degree earned, 48.08 per cent of the 156 respondents indicated that they presently held bachelors' degrees, 13.46 per cent hold master's in education, while 19.87 per cent had Special Education Masters degrees. Another 10.90 per cent of the respondents indicated that they had Ed.D degrees, and 7.69 per cent of the remaining respondents were Ph.D's. These figures indicated that a large majority of educators of slow learners had prepared themselves beyond the bachelor degree level.

All respondents were then asked to check the number of years since they had completed their last college level course geared for the remedial child or slow learner. The majority, or 85.90 per cent, of the respondents indicated that one to three years had lapsed from the time they had taken their last course. Another 8.33 per cent of the respondents indicated that their last college level course in this area was taken four to six years ago. The remaining 2.56 per cent indicated that it had been over twelve years since they had taken a course geared toward the slow child. The survey indicated that most respondents in the state of Montana had taken some of the more recent courses and may possibly be informed concerning the new trends in slow

learner education.

At this point the respondents were queried as to how many quarter-credits of specialized courses relating to the slow learning child they had completed. Those persons who answered this phase of the questionnaire indicated a range of undergraduate specialized course work from as few as three credits to as high as sixty-six undergraduate credits. The average number of special course credits for the undergraduate group was 32.86 credits. Those persons responding to the graduate level inquiry indicated an average of 24.59 credits.

These statistics would indicate that for the most part Montana educators should be adequately prepared and have had many of the special courses necessary to meet the needs of slow learners; however, other teachers appeared to be holding positions without adequate training.

Question ten dealt with categorizing the respondent's concept of the slow learner. The investigator felt that a proper understanding of the respondent's opinions as far as the slow learner was concerned would "shed some light" as to the reasoning underlying the manner in which the remaining questions were answered.

A determination that the slow learner was a student having difficulty in all subject fields, with an IQ of 75 to 90 was indicated by 55.13 per cent of the respondents. Another 12.82 per cent indicated that he was a child experiencing educational difficulty and had an IQ below 75. In the third part of question ten, the respondents were to

specify another definition of the term "slow learner," if they were not in total agreement with the first two concepts. Fifty, or 32.05 per cent, of the educators gave written responses to this section. The fifty written responses following "other" represented various concepts ranging from a child experiencing specific learning disabilities, to a low IQ student behind one or more grade levels in school, to that of the delinquent child.

Two Montana educators responded by mentioning "specific" learning difficulties, while another mentioned that "the slow learner was a child having difficulty in all subjects because of non-IQ factors." They believed that "environment" and "cultural deprivation" should be considered in classifying the slow learner while IQ scores were not important. Those 8.6 per cent of the respondents answering "other" felt that the term slow learner was essentially synonymous with that of a marked underachiever in some subject area.

It was apparent that there were varied opinions concerning children with low intelligence. The investigator noted that many of the misconceptions and varied opinions should be coordinated before an adequate slow learner approach could be developed.

For example, many educators still felt that an IQ was fixed, unchangeable, and set for all time. They did not recognize the influence of a rich environment as contributing toward raising an intelligence capacity (Johnson, 1963).

Question ten indicated that 55.13 per cent of respondents would classify this student as having difficulty in all subject fields and with an IQ of 75 to 90.

Creativity with slow learners was then considered by the investigator. Respondents were asked to comment concerning whether they used creativity in their present teaching or working capacity. An overwhelming majority of 144, or 92.30 per cent, answered "yes," indicating that creative activities with slow children were feasible.

In keeping with the question concerning creative activities, respondents were asked to indicate the approach that they believed best for slow learner instruction. An individualized approach elicited 123, or 78.85 per cent of the responses, while the unit approach was low with only 7.69 per cent feeling that it was the better approach. Those twenty-one respondents, or 13.46 per cent, who specified an "other approach" indicated that a combination of the two approaches was best. These respondents seemed to believe that individualized instruction could be completed within the framework of a unit approach based on individualized instruction.

Respondents were asked to comment on what they thought was the best classroom arrangement. The self-contained class consisting entirely of slow learning children elicited 22.44 per cent favorable responses. A combined class consisting of slow, average, and above average elicited 26.92 per cent of the responses, while a remedial

class for slow learners during one or two periods of the day elicited 38.46 per cent who were in favor.

Those persons who chose to list their response as "other" numbered nineteen, or 12.18 per cent. One educator suggested, "let the student compete wherever he can, and then present material to him in a special class when it is needed." Another believed that "if a child can survive through an individualized program in a normal classroom then this is where he belongs." He believed that "any student who could not handle a regular class should be placed in a special program." Still another educator believed "the best system is to somehow help the child without furthering his problem by attaching the stigma slow learner on him."

It seemed as though a variety of classroom approaches were currently being advocated. In many cases, the classroom arrangements were commensurate with the philosophy of the various school districts. According to this survey the majority, or 38.46 per cent, mentioned that a remedial class one or two periods per school day was sufficient for slow learner education.

Section II

In Section II the respondents were asked to answer specific "yes" or "no" questions concerning assistance from outside agencies. They were also asked to relate their feelings toward developing their own slow learner programs.

In answer to question fourteen concerning the feasibility of

consulting outside agencies or resource persons for assistance, an overwhelming majority of 144, or 92.31 per cent, indicated "yes," they could use assistance. Some 7.69 per cent of the respondents indicated "no." One hundred two of the responding educators specified why they answered "yes" to question fourteen. The percentages and reasons for needing assistance is found in Appendix D, pages 265-271.

Those respondents who indicated that it would be to their advantage to utilize consultants were asked to specify the agency that would be most helpful. Given the categories university consultants, social workers, parents, or a space provided for "other" helpful agencies, Montana educators had mixed opinions. The large response of 33.33 per cent indicated that they could best utilize the services of a wide variety of agencies indicated in the blank space left for "other." Among the most noted were other successful teachers or someone who had worked in the slow learner field. This category elicited fourteen of the fifty-two responses per stated reasons. The next most frequently mentioned area where educators would go for assistance under "other" was to persons with expertise in the curriculum field. This category elicited some twelve of the fifty-two responses.

Question number fifteen dealt with educators being able to adapt their programs in any manner which they deemed necessary. Of the 156 educators who responded to this question, 144, or 94.87 per cent, indicated a very positive "yes." It was evident from the data gathered

that educators believed that they were very close to the actual learning problem and noted that they should be allowed to adjust their program in accordance with children's needs as they perceived them. It appeared, then, that some flexible means must be provided these educators so that they might make the necessary program adjustments.

When asked to comment on their beliefs concerning why they should be able to adapt their own programs, educators mentioned that the most important consideration was to meet the "specific needs" of children. The second most important reason was that "flexibility was important to good management." Those respondents who indicated "no" were 5.13 per cent. This small minority seemed to believe that the slow learners' education would be highly prescribed.

Question sixteen dealt with whether problems were encountered in trying to develop programs with slow children. Some 76.92 per cent mentioned that they had experienced problems, while thirty-six educators, or 23.08 per cent, indicated that they had not encountered difficulty.

If the response to question sixteen was "yes," the respondents were asked to comment. These comments may be found in Appendix D, pages 265-271.

Of the 120 comments submitted to the investigator, the most frequently mentioned problem area was finding enough material. Thirty-six educators, or 30 per cent, of the one hundred twenty educators indicated that this was their main problem. Finding enough time to

assess each student's needs was the next most frequently mentioned comment.

At this point in the questionnaire, the investigator asked educators to describe one or two of the most important factors to be recognized and dealt with in attempting to initiate a slow learner program. Question seventeen elicited some 220 responses indicating that there were many problems encountered when educators endeavored to initiate their own slow learner programs. The most noted responses dealt with providing teachers time for in-service or planning sessions. This was mentioned by thirty of the responding educators. Another important factor mentioned by twenty-two respondents was individualizing the program for slow children. The other factors that educators noted to be important in initiating a slow learner program were varied. The investigator believed that these factors could best be presented in a tabular arrangement in Appendix D, pages 265-271.

Section III

In Section III the investigator gave a brief introduction to what he deemed a Productive Thinking Approach for slow learners. During this introduction the components of this approach were presented and some examples for stimulating creativity in slow learning children were mentioned. Respondents were asked to check five important questions relevant to a Productive Thinking Approach. Question eighteen then asked respondents if they believed that the slow learning child could

be taught a Productive Thinking Approach and in turn could develop the ability to think productively.

Of the 156 educators who responded to this question, 97.44 per cent indicated that slow children were able to develop this ability. Negative responses were received by only 2.56 per cent of the respondents.

When asked to give specific comments concerning the slow child's ability to think productively, 133 educators added additional comments. These comments ranged from "it might take a slow learner longer to unlearn the stereotype way of thinking that he has been taught" to "he must overcome his ill conceived ideas that he is slow before he can learn to think."

Educators seemed to agree that a Productive Thinking Approach was a feasible approach that could be used in slow learner education.

Next, the investigator presented the respondents with a question concerning whether they believed that they could learn to teach productive thinking skills to the slow learners who were under their charge. Of the responding educators who replied to question nineteen, some 153 indicated "yes," while only three persons answered "no." This indicated that the respondents who taught or worked with slow learners believed that they could teach productive thinking skills to the children. A majority of 98.08 per cent presented this positive response.

When asked in question twenty if anyone had ever demonstrated how to initiate a Productive Thinking approach applicable to the children with whom they worked, 110, or 70.51 per cent, indicated "no." It became apparent then from questions nineteen and twenty that educators believed they could initiate this approach if they knew and understood the particular technique. The 29.49 per cent indicating "yes" mentioned that the approach had been demonstrated to them. One of the respondents mentioned that he was "using this approach with a higher group, but not with his slow learners."

The investigator was concerned as to whether educators of slow learners were presently being exposed to in-service training sessions. This question was posed in an effort to determine exactly what percentage of educators of slow learners could rely upon their fellow educators for significant answers. Of the responding educators who answered question twenty-one, 25 per cent indicated that they had in-service, while 75 per cent indicated that they did not. It was the investigator's belief that more meaningful progress could be made in Montana slow learner education programs if educators had a chance to exchange ideas, work out problem areas, determine their own programs, and make decisions during in-service training sessions.

Those respondents who indicated "no" were asked in question twenty-two if they could use a method for organizing their in-service training. The method mentioned was directed toward allowing them to

continually keep abreast with the immediate problems facing the slow learners in the classroom. Of those educators who answered this question, 114, or 73.08 per cent, indicated "yes," they could use a specific method. One educator responded with a "write-in" statement indicating that "the traditional in-service approach did not seem to pay significant dividends." He felt that there was no reason that members of a staff could not profit from "group enterprises," but felt that "activities are more useful when carried on at a grade level." This philosophy seemed to be consistent with the philosophies of many writers in the field (Osborn, 1963; Parnes and Harding, 1962). Generally, these writers contended that it was important to conduct group training sessions during school hours if at all feasible even if the consultant had to repeat the process with several groups or individuals. Writers also believed that the sessions should be brief and should focus on specific problems rather than broad topics. (Torrance, 1963; Wilt, 1959).

TEACHER OUT-OF-STATE QUESTIONNAIRE

Section I

Section I of the out-of-state questionnaire yielded the following logistical information. Of the nineteen persons surveyed, all nineteen responded for 100 per cent return rate. Those respondents from the states of Washington, Oregon, Utah, Florida, Maryland,

Missouri, and North Dakota who participated in the mini-survey gave the following information.

The majority, or 63.16 per cent, were female, while 36.84 per cent indicated that they were males. The median age range for out-of-state respondents was twenty-five to thirty-four years old. Eleven of the nineteen respondents, or 57.89 per cent, indicated this age range. These figures were commensurate with the state of Montana, because out-of-state respondents also indicated a majority of educators of slow learners being female between the ages of twenty-five to thirty-five.

The largest number of years working with or teaching slow learners was indicated by nine respondents as from two to five years. These respondents represented some 42.11 per cent of those surveyed. These reports were similar to Montana, where the majority, 73.68 per cent, of the educators indicated that they were presently teaching slow children and had educational experience averaging from two to five years.

Out-of-state educators indicated that class loads ranged from a low of two to a high of fifty-four with the mean number of students being 20.33 students. Persons in special service capacities with slow learners indicated the smallest case load of six students, while the largest was thirty. The average number was 17.63 students.

Out-of-state respondents indicated estimated school enrollments as being in the 201 to 601 category. This category was also the largest

for Montana. Forty-two respondents in Montana elicited 30 per cent response to this category, while some nine respondents in the mini-survey indicated a 42.11 per cent response.

A bachelor's degree was also the highest degree earned with 52.63 per cent of those queried. In considering courses, 73.68 per cent of the respondents indicated that from one to three years had lapsed since they had completed their last remedial course. When asked to respond to the number of credits in specialized undergraduate courses, the responses ranged from a low of three courses to a high of sixty-six. The mean number of undergraduate credits taken was 20.5. For graduate credit, the respondents indicated the mean number as being 23.44.

In answer to question ten, 52.63 per cent of those queried checked the space "other" for their own definition of the slow learner. One of the most common responses to this category was "a child with 65-90 IQ who was having difficulty in one or more areas of study." This classification was generally similar with responses made by Montana educators surveyed.

Question eleven elicited a 100 per cent response to the fact that all out-of-state educators surveyed endeavored to develop creative activities with students. They also believed that the individualized approach was the best. Fifteen of the nineteen educators, or 78.94 per cent, indicated "individualization" as their choice for a slow learner

approach to education.

It was noted that the one area that did not agree with Montana educators was their contentions concerning the best approach for slow learner education. A majority, or 47.36 per cent, of the respondents indicated "a combined class consisting of slow, average, and above average students" as being the best approach. Montana educators favored the remedial class for one or two periods per day.

Section II

In Section II of the mini-survey, the responses were very similar to those given by Montana educators.

The advantages of consulting outside agencies or resource persons elicited a 94.74 per cent "yes" response. Social workers were the persons that 63.15 per cent of the respondents indicated that they would consult.

Fifteen of the nineteen persons queried, or 78.94 per cent, indicated "yes" they should be able to adapt their slow learner program in any manner deemed necessary; yet, when asked if they were encountering problems in adapting the program to suit their needs, some 52.63 per cent responded "yes" they were encountering problems.

When asked to describe important factors to be dealt with in initiating slow learner programs, respondents mentioned many important factors. Among the most often noted were "making the community and the staff aware of such a program" and "arranging a different curriculum

as determined by individual needs."

Section III

Section III of the out-of-state mini-survey dealt with questions eighteen through twenty-two concerning the Productive Thinking Approach.

A total of 100 per cent from the out-of-state respondents indicated that they believed the slow learner could develop the ability to think productively. Concerning their ability to teach this type of thinking skill, all nineteen, or 100 per cent, indicated "yes" they had this ability. Ten educators, or 52.63 per cent, indicated that such an approach had never been demonstrated to them. Fifty per cent indicated that they did not have in-service training, while another 50 per cent indicated that they did. All respondents indicated that they could use a system to keep abreast of the immediate slow learner problems.

SUMMARY

This chapter was divided into two parts. Part one dealt with the results of a mailed questionnaire to select educators in the state of Montana. Part two reviewed the results of five questionnaires from educators in each of the states of Washington, Oregon, Utah; along with one questionnaire each from the states of Maryland, North Dakota, Florida, and Missouri.

The investigator attempted to develop a greater understanding

of problems confronting educators in the slow learner field. He reported the results returned by 156 of 180 prospective respondents. This was an 86.67 per cent return rate.

Some 61.54 per cent of educators who worked with or taught slow learners in Montana were female under thirty-five years of age. In this group, 15.39 per cent claimed first-year experience, while 41.66 per cent claimed two to five years experience. The educators who were presently teaching indicated the average class load as being 35.63 students. When asked to report educational preparation, 19.87 per cent indicated they held Special Education Master's degrees, 13.46 per cent held a Master of Education degree, 10.90 per cent an Ed.D, and 7.69 per cent have Ph.D's. These same respondents mentioned an average of 32.86 undergraduate hours and 24.59 graduate hours in courses directly related to the slow learner.

Respondents next categorized their concept of the slow learner. Some 55.13 per cent indicated that the slow learner was a student with an IQ score from 75 to 90 who was experiencing difficulty in all subjects. Another 12.82 per cent indicated that the IQ score under this classification should be lower than 75. Other educators mentioned specific learning disabilities, lower grade levels, and the delinquent child in their classification.

Evidenced in the survey was the fact that 92.30 per cent of those persons queried claimed that using creative activities with slow

learners was feasible. In signifying a way to foster creativity, an individualized approach was deemed the best approach to take by 78.85 per cent of the respondents. Only 7.69 per cent believed that the unit approach was best. Twenty-five respondents felt that a combination of the two was feasible.

Montana educators surveyed had mixed beliefs concerning classroom arrangements. A self-contained class elicited 22.44 per cent in favor of keeping slow learners together. A combined class consisting of slow, average, and above average elicited 26.92 per cent in favor, while 38.46 per cent mentioned a remedial class for one or two periods per school day. However, indication was given that teachers are using a variety of classroom approaches.

Section II of the questionnaire concerned perceptions of assistance given to slow learner programs by outside agencies. A total of 92.31 per cent indicated that they could use assistance but varied in opinion as to what agency would be best to consult. Given categories for university consultants, social workers, parents, or "other," 33.33 per cent indicated a wide variety of responses under "other." The most frequently mentioned category was "other teachers" who had expertise in working with slow learners. For a tabular presentation, see Appendix D, pages 265-272.

In mentioning specific problems encountered in developing their own program, 76.92 per cent indicated that they were experiencing

problems. Another 23.08 per cent indicated that they were experiencing no difficulty. The most frequently mentioned problem area was "finding enough material and time."

When asked to mention the important factors to be recognized and dealt with in initiating a program, the most noted responses were "more time for in-service or planning sessions" and "individualizing the program." Montana educators agreed that a Productive Thinking Approach was a feasible approach for slow students, because the opinion that slow children could think productively was checked by 97.44 per cent of the respondents.

Respondents were then asked if they thought they could learn to teach productive thinking skills to slow learners. A majority of the 153 respondents indicated "yes." However, some 70.51 per cent of this same group mentioned that they had never been taught a Productive Thinking Approach or how to implement it.

The next point that was considered was to ask respondents if they had in-service training sessions. A smaller response of 25 per cent indicated that they took part in in-service training, while another 75 per cent indicated that no provision for in-service training was provided. Although some 73.08 per cent of the entire group mentioned that they could use a method for organizing their in-service sessions.

The investigator next conducted a mini-survey to out-of-state

respondents. The states surveyed included Washington, Oregon, Utah, Florida, Maryland, Missouri, and North Dakota. This data was used to make a comparison with Montana educators.

A 100 per cent return rate was elicited from the nineteen persons queried in the mini-survey. In this group, 63.16 per cent were female and 36.84 per cent were male with the average age being twenty-five to thirty-four. As indicated in Montana, two to five years experience was the average and the mean number of students indicated per class load was 20.33. A majority of slow learner programs outside of Montana were also located in schools with large enrollments of 201 to 601. Undergraduate credits in specialized course work was averaged as 20.5, while graduate credits beyond the bachelor's degree was 23.44.

Out-of-state respondents presented a classification of their concept of the slow learner which was somewhat similar to Montana educators. They considered him to be in the 65 to 90 IQ range and experiencing difficulty in one or more subject areas. A positive response indicated preference for an individual and creative approach, but out-of-state comments were not compatible with Montana responses as to beliefs for the best approach. The difference was apparent when 47.36 per cent favored a combined class of slow, average, and above average.

In Section II of the mini-survey, 94.74 per cent of the respondents indicated that they needed assistance from outside agencies.

Social workers were indicated by 63.15 per cent as the best persons to consult. A problem area was noted when 52.63 per cent indicated that they had encountered difficulty in endeavoring to develop their own program.

Of the nineteen persons surveyed, 100 per cent indicated that the slow child could develop the ability to think productively, but indicated that the Productive Thinking Approach had never been demonstrated to them.

An overall indication that was expressed by Montana educators as well as the small sample of out-of-state respondents was that they had completed some preparation to teach with or work with slow children, but this often was not enough to keep successfully current with changing programs and trends.

It was expressed that they should be allowed to develop their own programs based on specific "needs" and their concept of who the slow child was and what he could do. Conceptions of the term "slow learner" varied between areas with educators indicating IQ scores, "environment" and "cultural deprivation," as some major causes for students being behind.

The majority of these educators from the various regions mentioned that they had specific problems which in many cases were relevant to their region only. All agreed that they could use an adaptable method which would suit their local needs. They pointed out

that in-service sessions were a necessity if progress was to be made with slow children. A method that would allow them to continually keep abreast with slow learner education was advocated by a majority of the respondents.

These respondents contended further that program modification and development, teacher in-service training, and varied class activities were necessities to progress in the slow learner field.

The next chapter discusses the results of personal interviews conducted with educators experienced in working with slow learners in the state of Montana.

Chapter 6

INTERVIEWS AND OBSERVATIONS

The next step in this study was to conduct personal interviews and class observations with various elementary educators who were involved in teaching newly organized as well as previously established remedial programs. The main purpose of these interviews and observations was to provide the investigator with additional insights into problems, and possible solutions, experienced by Montana educators who endeavored to work with slow intermediate students. The investigator was interested in ascertaining the various opinions concerning special class placement for the slow learner, as well as to determine how students were selected for classes. He inquired as to whether students with discipline problems who were not necessarily slow learners were placed in the classes. It was also of interest to the investigator to determine some of the most successful teaching strategies currently being employed as well as any new teaching techniques utilized with slow students. In order to determine in detail the type of program in each individual school, the investigator asked a series of questions and used an observational rating scale (Appendices E and F, pages 272-273 and 274-275, respectively.)

The interviews and observations were conducted in the following elementary schools:

- a. Roosevelt School, Great Falls, Montana

- b. Lewis and Clarke School, Great Falls, Montana
- c. Sacajewa School, Great Falls, Montana
- d. Washington School, Butte, Montana
- e. Monroe School, Butte, Montana
- f. Emerson School, Butte, Montana
- g. Rocky Elementary, Billings, Montana
- h. Highland Elementary, Billings, Montana
- i. Taft Elementary, Billings, Montana

INTERVIEWS

The investigator started every interview by asking each classroom teacher their opinion concerning special class placement for the slow learner.

The majority of the teachers contacted seemed to agree that the goal of special class placement was to help children develop personal independence so that they would eventually be able to return to normal classes. Some educators asserted that these children could begin the transition by attending a selected subject within the regular classroom. These students, they believed, could then gradually increase participation until they attended regular classes full time. One educator mentioned that "if transition is to be effective, a good working relationship must be maintained between both teachers."

Not all teachers were in total agreement that special class

placement was the best approach. In a few school districts, the teachers were in favor of a "precision" teacher to work with learning disability students whose disabilities were not severe enough to merit being placed in a special class. When asked to explain how this approach worked, one third grade teacher responded by stating that, "Students leave their classroom at a specified time." The sessions were held daily and usually lasted from ten to twenty minutes. "During this time the student worked in his weaker areas, and his progress was charted daily."

Another teacher mentioned that in order for this approach to work, "optimum time for the child to leave the class must be provided." She noted that, "when children leave her class for reading, the reading time must be rescheduled in her class." One first grade teacher mentioned that she arranged her schedule so that the child missed a different subject each time he worked with the "precision" teacher.

The investigator noticed another trend while pursuing the special class placement question. It seemed that one of the most recent trends with slow learners was toward the development of resource sections for children who were determined to be slow learners. This resource section was served by a highly trained professional who diagnosed the child's problems, planned a teaching program, and helped implement the plan with his classroom teacher. This professional was often responsible for in-service session demonstration lessons and

continuous evaluation. A significant number of educators were in favor of this approach rather than having a "specifically designated" class of slow learners.

When asked how students were selected for their class or class period, educators had numerous responses. A clarification of how the major school districts selected students was mentioned in Chapter 7 under Determination of Program, in order that districts planning implementation would be able to consider some basic guidelines.

The investigator was aware of mixed opinions when inquiring whether students with discipline problems were placed in the various classes. In response to the question concerning discipline problems, one intermediate grade teacher believed that his slow class was a "dumping ground" for the remainder of the district's problem children. Another teacher of slow learners believed just the opposite. He contended that there were no real discipline problems when a flexible curriculum arrangement for slow learners was used. He mentioned that all children had discipline problems to some degree. How they were handled by the teacher determined the higher or lesser degree. His contention was based on the fact that discipline problems arose when children had to conform to rigid rules.

Generally, most teachers who were contacted felt that discipline problems could be avoided if teachers used more effective teaching strategies. Some of the most noted strategies mentioned were "positive

reinforcement," "creative problem solving," and "precision teaching" in which the particular child competed against himself and not the class.

One teacher who served in a "master teacher" capacity stated, "If you don't want discipline problems, you must make allowance for individual initiative." She believed that grades should not be issued.

In response to the next question: What are some of the most successful teaching strategies that you use in your classroom? A number of very sound techniques were presented. A number of interviewed teachers felt that before one could implement a particular strategy that person must understand the child as well as the subject matter to be taught. A philosophy mentioned by one teacher was that in addition to knowing whether a student was successful at certain levels and in certain operations, it was necessary to probe into his strengths and weaknesses of learning. She believed that a teacher of slow learners should ask herself, "How do the child's adaptations of his deficiencies affect his approach?" "How far back is it necessary to go to insure a firm foundation?" She believed that until these questions were answered in the teacher's own mind, she could not start to select an effective teaching strategy.

In the next phase of the interview, teachers were asked to respond to the question: How do you provide for classroom demonstrations if you believe these to be important?

The educators interviewed were in agreement that demonstrations

were an integral part of the slow learner education. One educator informed the investigator that she started every unit with a demonstration. She mentioned that she could arouse enough interest to make the unit worthwhile. Another indicated, "slow students learn faster by observing." It seemed as though demonstrations were being conducted in almost every class visited.

In response to the next three questions concerning starting, using, and maintaining creativity, those teachers interviewed all seemed to indicate that sometime during the day they emphasized creativity. Teachers in one school mentioned that there were often many non-achievers with high ability who were actually failures in school. A teacher indicated that, "it takes more than intelligence to succeed in school as well as in life." She believed that creativity could "open the door" to many varied learning experiences.

A specific example of how a failure oriented student later became successful in school was mentioned by one teacher. She attributed her success to the fact that she "awakened the child's creative aspirations." She reported that this child was "a kind of creative delinquent who withdrew from goals, activities, and social participation." "As a child, his initial attempts at creative accomplishments may not have been viewed by others as worthwhile but only as queer or different. He didn't try to succeed." She believed that creativity in her class inspired this child to make an effort.

The next question asked to those teachers interviewed dealt with the utilization of outside agencies or advisor services. There were numerous responses to this question indicating for the most part that assistance from persons in an advisory capacity was needed. Generally, most teachers noted that there were many persons in the immediate area who could answer "specific" problems but contended that "outside" agencies might be able to detect unforeseen problems not readily observed by teachers working in the program. Many teachers mentioned that they could benefit from consultants who made frequent visits to the classroom and pointed out evidence of teacher behavior patterns that might stifle slow learners' progress. Another teacher mentioned, "Frequent visits keep us alert."

Teachers were then asked to comment on how they enhanced creativity while teaching specific subjects. There was a wide array of ideas given. The investigator discovered that the major emphasis in slow learner education was normally directed toward reading and mathematics. Subjects such as language arts, history, science, and geography were taught by some teachers who recognized that these subjects were needed so that the slow child might develop into an effective individual personally, socially, economically, and civically. Many of the ideas and suggestions from these teachers were mentioned in the manual which the investigator developed in Appendix J, pages 292-324.

Those teachers who believed that language arts and the other

subjects were not as important as reading and mathematics mentioned that a budget available for purchasing remedial material was not normally allocated to cover a wide variety of subject areas. They indicated, for the most part, that slow students needed many "extra" materials such as listening tapes and manipulative devices.

When asked to relate their beliefs concerning standardized tests as compared to teacher-made tests, a large majority indicated that they constructed teacher-made tests because their own tests were more conducive to testing the individualized materials which they had developed for each child. Standardized tests were mentioned as "helpful" in providing information concerning specific disabilities. Teachers believed that their main use for standardized tests was to make decisions concerning the school program. One teacher mentioned that standardized tests neglected many important variables such as "background," "language," and "motivation." He did, however, believe that "There are many times when such tests are helpful in making decisions."

The investigator detected a problem area when inquiring about participation in in-service workshops. Teachers indicated that in-service sessions for teachers were a "must" if progress with slow children was to be made. In asking teachers to describe their sessions, it became apparent that most in-service sessions were currently being conducted by one person--usually the administrator--who was often very directive. A few teachers mentioned that they were not allowed to

contribute the real "input" which would make these sessions worthwhile.

In terms of a possible solution to this problem, the investigator believed that many of the positive suggestions and sound ideas contributed by the teachers interviewed should be reported. A section in this study (Chapter 7) was devoted to teacher in-service sessions and utilized many of the suggestions advocated by the teachers who were interviewed.

OBSERVATIONS

While conducting observations in the nine selected elementary schools, the investigator used a check list (Appendix F, pages 274-275) to aid in making comparisons of the various remedial approaches as well as total slow learner programs. The idea for a check list approach was derived from a preceding doctoral dissertation completed by Crumbaugh (1973). Its use provided the investigator with a means of gathering sufficient data concerning classroom management systems, classroom approaches, specific teaching techniques, and academic subjects. Results of the observations made in nine elementary schools are found in parentheses following the rating scales on the observational form (Appendix F).

The observation sessions in many of the classrooms for slow students proved to be revealing and quite informative.

In each of the three cities visited, the approach being used

with slow learners was quite different. In every building visited, the investigator was impressed with the ease at which the students in various grade levels went about their work. It was apparent that they were accustomed to visitors in their classrooms. Their apparent ease could probably be attributed to the fact that all classes were presently or had been designated Elementary and Secondary Education Act experimental programs. E.S.E.A. programs usually are subject to many visitations.

It was interesting to note that individual schools and school districts had developed innovative organizational arrangements for helping slow children. Like the students themselves, each school environment was unique. There was strong evidence that a pattern or structure that was successful in one school environment could not completely be adapted to another without modification.

In two city school programs the students in elementary schools with slow classes were grouped entirely by ability. The philosophy underlying this approach was that slow learners should be grouped in two ways, one way was with children who are close in mental age for intellectual pursuits, the other way was grouping them with others who are their same chronological age for social and emotional development. Providing two ways of grouping was mentioned by the program staff to be conducive to the growth and development stages and would provide an experience level for the child. The educators teaching in these

programs felt that many of these experiences could not be provided adequately by the family or other agencies. There was strong evidence that this particular method of grouping was geared to meet the childrens' needs in low socio-economic communities.

In the other school district, slow children were grouped together for certain periods of the day and were integrated with other children during the remaining periods.

In one of the school districts, the following organizational plan occurred. Educational responsibilities are divided between a diagnostic specialist and a remedial teacher. The diagnostic specialist was responsible for: (1) screening the school population to identify children with learning disabilities; (2) giving diagnostic tests to identify and diagnose children with learning disabilities; (3) requesting special services when necessary; (4) evaluating the child; and (5) formulating a teaching plan. The duties of the remedial teacher were to implement the educational prescription by teaching the child. The remedial teacher usually met the child several times per week in a small group or individually.

Among the most noted observations which were aimed at improving the slow learners' education was the team teaching approach and the involvement in diagnostic teaching activities.

Many districts were involving as many specialists as possible. Included were parents, guidance personnel, social workers, psychologists,

and even the children themselves. The investigator noticed a trend toward increased interest and cooperation of professional personnel. Contributions to the students' total school program were noted to be made by pediatricians, neurologists, and other specialists, in several classes of slow learning youngsters.

One school district developed a program based on discovering learning disabilities at kindergarten age. This program planned to determine individual learning problems and develop remedial procedures to meet these problems throughout the students' entire elementary program.

According to Johnson (1963), the approach might be feasible because programs which suddenly attempt to meet the slow learner's particular behavior problems at an adolescent age have already missed the basic areas which typically begin with poor performance in academic skills.

A current educational trend appeared to be toward little or no separation of slow children from other students (Rogow and David, 1974: 514-515). In Montana schools the place of separating these children from the main educational stream for part or each day, or for a limited period per week, or for total separation for a period of years, was claimed by all to help increase readiness for various processes. In many of these classes, the formal approaches to subject matter were postponed until readiness patterns were developed. The investigator

did notice a greater emphasis being placed on individualization, adaption of teaching materials, and teaching techniques.

Teachers who taught slow learners indicated in the questionnaire and in the interviews that they endeavored to employ creativity in all subject areas. However, in visitations to the classes, creativity in these subject areas was not readily observable.

The investigator contended, after viewing programs, that a review and modification of courses of study and subject content would be in order. A realization that the educational process is more than scholastic instruction in one or two subject areas might help develop feasible modes of preparation for life, living, and making a livelihood. What we accomplish in the future for these particular children might depend upon how much we know about them and their needs and how conscientious we are in putting into practice, on at least an experimental basis, what other school districts have already tried. He believes further that we should realize that there is no single "best program" for these children, but does recommend a modification of course content. Please see Appendix I, pages 286-291, for recommended ideas concerning modification.

SUMMARY

The investigator conducted personal interviews and class observations with elementary educators who were teaching newly organized as

well as previously established remedial programs in nine Montana elementary schools. The purpose of the interview and observation sessions was to ascertain problems and possible solutions experienced by Montana educators who work with slow intermediate students.

The majority of teachers contacted agreed that a goal of special class placement was to help children organize themselves for increased independent learning so that they might be able to return to the regular classroom. Those teachers who were not in favor of special class placement suggested that a "precision" teacher be assigned to work on a ten to twenty minute daily basis with learning disabled children. These students were to remain in the class for the remainder of the day.

Teachers in some districts were in favor of a trained specialist who would diagnose the child's problem, develop a plan, and implement the plan into his daily curriculum.

The investigator tried to determine teachers' beliefs concerning discipline problems. Respondents were asked to comment on whether discipline problems who were not "slow learners" were being placed in their classes. The responses ranged from the contention that "in a flexible curriculum arrangement problems concerning disciplining are non existant," to an extreme case who had mentioned that his class was a "dumping ground" for children with problems. The majority of teachers mentioned that to avoid problems varied teaching strategies should be

employed and individual initiative should be fostered.

In the interview, teachers were then queried concerning using and maintaining creativity. The responses indicated a positive confirmation that creativity was being employed. Variations were given from "how creativity could open the door to new learning experiences" to the belief that "creative aspirations could inspire the student to make an effort in school."

Assistance from persons in an advisory capacity, either from outside agencies or from experts, was deemed necessary. Teachers contended that "outside" agencies might be able to detect unforeseen problems not readily observed by those working in the program. It was expressed that consultants who visit the program might point out evidence of teacher behavior patterns that might be stifling slow learner's progress.

Reading and math were determined to be the two subject areas that enhanced creativity. The investigator believed that the other subject matter components in the slow learner's program were not mentioned frequently and might possibly be neglected.

In testing, standardized and teacher-made tests were used by teachers. The most frequently used tests were teacher-made tests for diagnosing performance in different levels of learning. Standardized tests had been indicated for quantifying learning disabilities, but their use was not widespread.

The problem areas concerning in-service workshops ranged from not being able to contribute during the sessions, to administrators who were very directive. The majority of teachers were interested in participating in in-service sessions.

During observations made in slow student classrooms in nine schools, it was found that the classroom management systems and approaches varied in each city. In two city school systems, the students were grouped by mental age and chronological age. Progress was measured in accordance with mental age for intellectual pursuits and chronological age for social and emotional development. In these two systems, the methods of grouping seemed to be geared for children from poor communities.

Another school district advocated grouping students during certain periods of the day for diagnostic work. Responsibilities were divided between a diagnostic specialist and a remedial teacher. Screening, testing, and evaluating were completed through this plan.

One educational endeavor that was noted was to place emphasis on detecting slow learners at the kindergarten level. After the specific learning disabilities were detected, the child would be mainstreamed into classes for specific remedial help. This remediation process would be given to the child in the primary grades and could possibly be given in the intermediate grades if the disability was not alleviated.

The next chapter deals with specific steps for implementing the Productive Thinking Approach to be used with slow learners. It will consider some of the major areas in program implementation.

Chapter 7

THE PRODUCTIVE THINKING APPROACH

This chapter dealt with the specific steps for implementing the Productive Thinking Approach to be used in planning a program for slow learners.

The approach, as it pertained to development of a slow learner program, was not meant to be a "cure all" approach that might work in every instance. It made recommendations concerning establishing methods for implementing slow learner programs in school districts. Hopefully, readers would be able to analyze, manage, and design their own programs based on the major premise that an observable improvement in classroom instruction as well as student performance would occur.

This chapter was arranged in fourteen divisions in order that selected information may be taken from one or more of these divisions and adapted to meet educational needs.

The first major division concerned selection of the initial program and involved developing basic strengths, objectives, and goals. It outlined the selection procedures of three major school districts in the state of Montana.

Following the information given in program selection, a discussion concerning the part that an advisory service could perform was reviewed. This division was intended to give teachers ideas for gaining the continuing support often needed when implementing creative approaches

with slow students.

After these considerations were presented to the reader, the next division reviewed concerned creativity. Creativity and its implications to the Creative Problem Solving Method were presented in order that teachers and students alike might learn to acquire problem solving skills. Problem solving skills were deemed to be the foundation of a Productive Thinking Approach and, therefore, seemed applicable to slow intermediate grade student's education.

The chapter continued with the specific steps for teaching the Productive Thinking Approach at the intermediate grade level. This section was presented from the standpoint that Productive Thinking is an integral part of Creative Problem Solving and can be adapted to slow learner education.

The next division concerned the feasibility of a flexible curriculum arrangement. It endeavored to provide teachers with insight into teaching within the curriculum, coping with time schedules, making provision for individual differences, and conditioning change.

The various viewpoints of educators involved in the program concerning communications were examined in the next division.

The fact that the home, school, and community all shared in the responsibility for learning was considered in the division concerning involvement. This division was followed with a section on leveling and grading which lended itself well to the commitment by which students

and administration must comply. Recommendations were then made as to how teachers might use available resources to foster individual initiative in reading.

A division concerning in-service training for teachers was then developed in order that teachers might learn some specific techniques in productive thinking. The final division introduced a manual to be used in providing creativity with school subjects. The manual was to be dealt with in the Appendix.

Determination of Program

In this division the writer presented the rationale for selection and implementation of slow learner programs in the state of Montana. Specific attention was given to innovative remedial programs visited by the investigator in the cities of Butte, Great Falls, and Billings, Montana. An overview of each program was reviewed in an effort to disseminate information concerning program development to other school districts.

The first school district visited was Butte, Montana, because the investigator taught in Butte's slow learner programs and had first-hand knowledge of the program's objectives, strengths, and goals.

School District Number 1, in Butte, Montana, formed pilot classes in an effort to survey needs of slow learners. These original "pilot classes" were termed Creative Problem Solving Classes and were composed of students who scored significantly lower on achievement

tests than their classmates and whose measured I.Q.'s ranged from 75-90. These students were organized in the Washington, Monroe, and Emerson Elementary Schools. Pupils from the fourth, fifth, and sixth grades were combined in these classes, each of which had twenty-five students. These pilot classes comprised the experimental group of Butte, Montana's slow learner program.

Criteria for selection of the students, as submitted in Butte Montana's Title III E.S.E.A. proposal, were low achievement (determined by scores on a standardized achievement battery based on national norms) and a test score below the fourth stanine on a standardized achievement battery based on local norms. Consideration was also given to below average achievement in three major subject areas, as well as below average achievement determined by the previous year's teacher. To be considered below average, a student's I.Q. was between 75 to 90 as measured by a nonverbal individual intelligence test.

School District Number 2, in Billings, Montana, reported that they were taking part in an E.S.E.A. Title III Experimental Project on Learning Disabilities. The project's major emphasis focused on early identification and remediation procedures for children with various disabilities.

This was a research project designed to develop techniques which, when placed in the hands of competent classroom teachers, would assist them in identifying students with specific learning disabilities.

With this information at hand, the classroom teacher would assist the student through remediation of the identified learning disability from recommended techniques within the identification devices.

This project was experimental and developmental in design. Criteria for selection of the students as submitted in Billings, Montana's original Title III E.S.E.A. considered children screened through a process of teacher recommendation and/or a screening instrument. These children were chosen to participate in the project after they had first been identified by the Title III staff as having learning disabilities. Identification was established through a hierarchy of individual tests administered in a clinic setting by a school psychologist, a psychometrist, a child development specialist, and two learning disabilities interns. Remediation was implemented to participating students by the classroom teacher.

The Great Falls Public Schools in Great Falls, Montana reported that they also were taking part in a Title III E.S.E.A. program. The project entitled Educational Remediation for Children with Learning Deficits through Precision Teaching selected children with learning deficits who were defined as disabled or slow children. The project's major emphasis was to locate children who were one or more grade levels behind and not performing at standard in academic areas which were commensurate with their ability.

These students were selected and identified through the use of

a screening device which helped determine whether the child was deficient in basic skill areas. The screening device was geared to determine the various objectives the teacher considered important. Proponents of this program claimed that deficiencies in the basic skill areas hampered the student's academic growth in comparison with his peers.

Of the children screened, approximately 17 per cent of the class who were deficient in a particular skill area were identified. In order to be selected for specific remediation classes, the student's basic academic ability had to be one-half or less the median frequency of his classroom peers.

Those students who were in need of "remediation" were placed in one or more of three movement cycles. These cycles included (1) writing numbers, (2) hearing-writing and marking symbols, and (3) reciting letters or numbers randomly.

Genuine Need

In determining a program, it should be remembered that the ultimate purpose for developing a slow learner program is to improve instruction, thereby affecting student productivity. Every aspect of this program, from the planning and organizing to the final evaluation of the program's effectiveness, must focus on the improvement of student performance. It seemed that the major goal should be to develop an approach which would meet the individual needs of every student in the

classroom. The program should be analyzed, designed, managed, based on the major premise that an observable improvement in classroom instruction as well as individual student performance will occur.

The writer believes that when educators sit down to develop a program and formulate a common philosophy concerning their program, they do not have to create something entirely new, since each individual staff member has been exposed to fragments of educational philosophy dating back to his own education concerning the findings of such early educators as Pestalozzi, Spencer, Chapman, Dewey, and others. What first needs to be considered in the school's approach to its slow learners are the attitudes, understandings, and knowledges of its staff. Do its members know how many slow learners they have? Are they aware of the causes and characteristics of slow learners? Do they recognize and fully accept their responsibilities related to identification, instruction, and evaluation of children and programs? Are they adequately prepared and do they have the basic background to organize a slow learner curriculum? If not, provisions should be made to establish in-service preparation related to child study techniques and to adapt methods for slow learner education.

Before teachers can reach an agreement on a general philosophy concerning the program, they must make an initial effort to understand each other and have respect for each other's opinions, ideas, and methods as long as these methods are consistent with the goals that

are to be established.

Many problems that might possibly be encountered in determining a program can be avoided if the staff had a basic approach to rely on. The basic approach recommended by this writer was one based on Productive Thinking. For Productive Thinking could provide a systematic approach that might alleviate communication barriers.

Some recommended readings which might provide insight into productive thinking were Alex Osborn's book Applied Imagination (1963) and Sidney J. Parnes and Harold F. Hardings' A Source Book for Creative Thinking (1962). This investigator believed that the ideas presented in these readings employed a procedure applicable toward developing Productive Thinking skills with the staff during their planning sessions. The procedure employed in Productive Thinking might possibly be applicable toward developing a program's strengths, goals, and objectives.

Teachers contacted felt that many times during their planning sessions positive efforts seemed to be hampered by the inability of all participants to speak to educational problems. The reasons given for this inability to voice their opinions seemed to involve internal and external factors. One of the external factors was indicated to be fear of comments and criticisms on the part of other teachers, while one of the internal factors seemed to involve a deep feeling that their suggestions would not be accepted. Teachers indicated further that

they could utilize an approach which might rid them of an inability to communicate.

The investigator had noted that when many teachers were reluctant to speak during the planning sessions only a few members contributed. When a small minority made the major contributions, suggestions were often stagnant and new and innovative ideas were not mentioned.

What seemed to be needed were ways to develop ideas, new means for putting these ideas into action, and new methods for gathering different data for distribution to teachers. This writer believed that all teachers should realize that in order to develop unique programs, they need fresh ideas.

In their work Creative Encounter in the Classroom, Massialas and Zevin (1967) recommended that in order to develop a program for slow learners, school districts should participate in weekly in-service sessions. During these sessions, teachers should discuss such points as home conflicts, peer relationships, student successes and failures.

During the planning sessions all teachers should make contributions toward the program. Suggestions that seemed feasible should be tried and, if applicable, used with students in the classroom. Suggestions that did not work after a trial period should be discarded. The initial goal should be to determine a success-oriented program for slow learners that was applicable to the particular needs of the school district.

Agencies that might be helpful in forming an advisory service to the program were considered next.

Advisory Services

After a school district has committed itself toward determining an appropriate slow learner program and has determined goals and objectives, then educators need a basis from which to pursue these goals and objectives. Advisory services might provide just such a basis when the advisors could make frequent visits to the classroom and point out evidence of teacher behavior patterns that threaten to stifle a child's school progress.

Because of the slow learner's general behavior patterns, teachers in those school systems surveyed felt that they could utilize the help of outside agencies in establishing programs and arranging curricula. It was suggested that the advisors to the programs come from the ranks of parents, social workers, or university consultants.

Parents. Whether one talks of the slow learner whose limitations are to be accepted or of the child whose mental processes can be elevated considerably when the causes which hamper the process are identified and eliminated, the advice and attitudes of parents have a strong influence on the education and adjustment of the child.

The parents who were able to help and give the most advice were those parents who recognized that slow children needed special help and

training. These were parents who could recognize and convey to teachers many of the positive attributes that the slow student possessed. They could be very helpful advisors when it comes time to plan the program.

In using parents as advisors, teachers should remember that parents see a child in several ways: what they hope he is; what they fear he may be; what they think he really is; what they think others think of him; and what they hope he would be. This projection often influences the information that they can convey to the teacher. Teachers who plan to use parents as advisors should remember that the people who know and are most familiar with the child can be helpful only if they know and understand the educational goals and directions that the school is taking.

Social workers. A badly neglected area of school improvement had been that of establishing effective contact with homes of children. Probably no other phase of the program had caused so much uncertainty and sorrow to teachers or so much maladjustment and discouragement to children. It was an area in which pressures were sometimes intense, but more often one in which problems were expressed in dull grumblings of protest.

Less commonly recognized was the effect upon the children themselves when an unsatisfactory teacher-parent relationship occurred. Every teacher knows that he has less difficulty with the youngster who

comes from a home which takes pains to keep alert to the child's progress at school, to support the teacher in worthwhile activities, and to do all the things that demand active cooperation between home and school. When active cooperation between home and school did not exist, the child's attitudes and emotions for learning seemed to be less conducive to productivity and improvement in needed skills.

What seemed to be needed were social workers who could make frequent visits to the home in an effort to elicit home-school cooperation.

Calling upon the services of social workers who would serve in an advisory capacity could serve a two-fold purpose. Teachers would gain insight into ways to develop attitudinal changes with the students in class and would be working closely with an outside agency for the purpose of determining effective teaching methods geared toward the slow child. Decisions relating to the student would then be made after careful consideration was given to the home as well as the school environment.

Social workers could contact parents, students, teachers, and neighbors in an effort to gather opinions concerning attitudinal changes that might be observable outside of school.

Those teachers surveyed felt that efforts in developing proper attitudinal changes on the part of the student would produce a noticeable difference in relation to academic difficulties. This

change, they felt, could be fostered only after the student's out-of-school environment was considered. In essence, the teachers could first view the slow student socially in relation to attitude, discuss this attitude with a social worker who had visited the home, and then consider the student's academic program.

Social workers could provide teachers with a new and brighter look at the whole student, both in and out of school. Consideration could then be given to the home in relation to the school and the school in relation to producing attitudinal changes.

Univeristy consultants. Besides using parents and social workers, teachers could utilize other advisors in planning and implementing long range program objectives. Outside agencies, such as university research bureaus or college of education consulting teams, could evaluate program objectives and give some insight into developing attitudinal changes with slow students.

Because the slow student's level of success did not always coincide with the level that their parents had set for them, members of the consulting team could help teachers develop expectation levels for each student. The team could make frequent visits to the classrooms and see that the student expectation levels coincide with the program objectives.

Attitudes acquired by a slow learner in his early school years seemed to influence his later decision to continue school or drop out

(Sullivan, 1969). Home, school, community, and service agencies all shared in the responsibility for these early attitudes toward books, curiosity, learning, authority, and orderliness. In order to develop more effective conditions at an early age, it seemed that teachers should call upon the services of advisors from the ranks of parents, social workers, or university consultants.

Acquiring Creative Problem Solving skills was the theme of the next topic. The writer believed that teachers, in order to plan innovative programs, needed a method from which to commence planning efforts.

Creative Problem Solving Skills

After considering some of the content in determining programs and seeking advice, we turn now to acquiring creative problem solving skills. The stages in the Creative Problem Solving Process might serve as the basis for the Productive Thinking Approach which would follow later.

Teachers surveyed agreed that a Productive Thinking Approach could be applicable to their programs. The Productive Thinking Approach was based on the Creative Problem Solving Process and was advocated by the investigator for use in slow learner educational programs. Since proposed by Osborn (1963), it had been called upon as a tool for planning by business, industry, military, civic and social agencies, and education. The process had proven so adaptable that its principles

and procedures were under constant revision by those looking for a systematic procedure relative to solving problems in their occupations.

It had been developed into a semester course taught at the State University of New York, Buffalo. The course utilized Sidney J. Parnes and Harold F. Hardings' Source Book for Creative Thinking (1962). In this course, students were taught the concepts of Alex F. Osborn's text book Applied Imagination (1963). The book emphasized the importance of imagination in all walks of life, the utilization of imaginative talent, and the use of problem solving relative to all occupations. Through reading the book by Osborn and taking the course, people had been able to demonstrate to themselves that they could deliberately learn to be creative and apply the creative endeavors to their various occupations. This investigator recommended that the principles advocated in this approach be adapted to formulate a variety of educational projects in school districts, especially in the slow learner educational field.

The course and Osborn's book both stressed that a person could be creative if he had first learned to establish criterial objectives. Some of the most fundamental objectives as stressed in Creative Problem Solving mentioned aiming at self-improvement by enhancing one's own individual creative ability. Learning to be creative oneself could foster a relationship toward teaching others to be more creative. By

learning to develop techniques for producing ideas and for developing tentative ideas into usable forms, one might learn to conduct and teach problem solving activities.

This writer recommended that the reader review the following condensed overview of the course (Parnes and Harding, 1962) before program planning commenced. He felt that the concepts involved in this course could help formulate a basis for one's program.

In the course, the perceptual, emotional, and cultural blocks to creative thinking were demonstrated and discussed. Perceptual blocks concerned such matters as the difficulty in isolating problems, difficulty of narrowing the problem too much, inability to define or isolate attributes, and failure to use all the senses in observing. Under cultural and emotional blocks, consideration was given to the effects of conformity; over-emphasis on competition or cooperation; excessive faith in reasoning or logic; fear of mistakes, failure, or looking foolish; self-satisfaction; perfectionism; negative outlooks; and reliance on authority.

Early in the course students were taught the deferred judgment principle. This principle demonstrated how students could separate creative from judicial thinking at various stages of problem solving. The method was applied both to individual ideation as well as to group ideation. The principle of deferred judgment allowed the student more

freedom for applying the other techniques that were stressed later. In other words, students were taught to find ideas first, judge afterwards. This forced separation of the creative and judicial functions was emphasized throughout the course.

Within the "free wheeling" atmosphere that the principle of deferred judgment provided, students were given practice in attribute listing. This type of listening taught students to look at a problem from various perspectives before making a decision. For example, in considering other uses for an object, such as a piece of paper, the attributes would be its whiteness, its four corners, its straight edges, etc. Each of these attributes then suggested a number of other possible uses.

Checklist procedures were encouraged. Osborn's (1963:175-176) checklist of idea-spurring questions could be developed to stimulate thinking. In adapting this procedure, students could be taught to analyze a problem from the standpoint of a number of questions, such as: How could we simplify? What combinations could be utilized? What adaptations could be made?

Forced relationship techniques were utilized in the course. For example, a list of ideas were produced as tentative solutions to a problem. Each of these ideas was then artificially related to each other idea on the list in order to force new combinations. Sometimes a somewhat ridiculous idea was taken as a starting point. By

associating the idea with the actual problem, a series of associations was produced which lead in some novel direction towards solving the problem.

The importance of deadlines and quotas for production of ideas and setting aside certain times and places for deliberate idea production sessions was mentioned. Much opportunity was given in the course for deliberate practice in problem solving on a variety of problems, including many brought in from the personal lives of the students.

Students were then taught to sense problems in their studies, work, and personal lives, and to properly define these problems for creative attack. The separation of creative and judicial functions was then practiced in all stages of solving these problems. For example, during the analysis step, students were taught to list every conceivable fact that would relate to the problem. After they had exhausted this "free wheeling" effort, they then applied judgment to selecting the most important facts related to the problem. Students next created the longest possible list of questions and sources of additional data that could be of use in solving the problem. Then they went back to the judicial process of selecting the most important questions and sources of data. This procedure continued throughout the final stages of evaluation and presentation of ideas. In evaluation, for example, students were taught to develop the longest possible list of criteria by which to evaluate their tentative solutions. Then they

applied judgment in terms of selecting the most useful criteria for this purpose. Thus the principle of deferred judgment was emphasized in both individual and group thinking in all the aspects of the course.

Informal procedures were utilized throughout the course. Chairs were arranged in a semicircle in order to encourage the greatest amount of group participation and discussion. Small groups were organized in many sessions in order to provide practice in team and group collaboration for production of ideas. Students were given opportunities to serve as leaders of these small groups on various aspects of their own problems, as well as in assigned practice problems.

Reference was made to the creative course in order that teachers might consider application of this type of productive thinking in development of slow learner programs. Teachers seemed to research the educational shelves in the library in search of new ideas, when often sound educational approaches might be derived from other fields. It seemed that the utilization of an approach not necessarily geared for education could possibly serve as the foundation for developing a successful program with slow learners.

The approach differed from other textbook-oriented approaches, in that it stressed seeking a multitude of possible solutions to a problem. It emphasized that quantity of ideas tended to yield better quality. Productive thinking replaced critical thinking because

one was no longer required to repeat an exact answer but rather was required to look into other ways of solving problems. When this approach was used with slow learners, it tended to enhance the total person and provided him with a means of successful thinking.

The technique as applied to a Productive Thinking Approach for teachers and elementary students would follow the sequence of fact-finding, problem-finding, idea-finding, solution-finding, and acceptance-finding. The writer recommended that these steps be used as a tool for class unit planning with students, as a problem-solver with teachers in in-service sessions, and for teacher individual lesson plans.

At this point, application of the course concept as it applied to the elementary school was developed.

Productive Thinking--
Elementary Level

The thought advanced in the last division was that through learning the five essential stages in creative problem solving as it applied to Productive Thinking, people might more effectively advance toward their potential. The writer believed that creativity and Productive Thinking could be utilized by both educators and students alike, because the forward movement featured by productivity, curiosity, and imagination denoted progress of the highest type.

It was believed that this total process might be used to solve

one individual's school problem, or it could be used by the entire group to develop a class unit. In outlining the next essential steps for the elementary school, the writer demonstrated how both methods might be utilized.

Fact-finding. The fact-finding stage was the first stage in the process. In this stage, the student who presented a problem, the teacher who presented it, or the class members who were striving to solve a problem in a class unit had to answer questions concerning their feelings for the chosen problem. The other group members asked pertinent factual questions. The reason that all pertinent facts had to be known was that one person seemed unable to help another person solve a problem unless he sincerely knew that person's true feelings in relation to the problem. For example, if a teacher presented a concept from a unit to the students, they might ask the teacher the following kind of questions in determining the teacher's factual background and feelings. Do you think that it is important for us to know? Have you ever had much experience in this area? Do you like teaching this particular unit?

If the group was going to help a person solve a problem, it was important that they know how the originator honestly felt, what he truly knew about the subject, and what his true inhibitions were.

When a student presented a problem during a student-structured

unit, the fact-finding questions might be as follows: Why is this important to our class? Will we have time to complete the unit? Do you think the unit is worthwhile?

The person or persons who originally structured the problem, whether it was for the purpose of formulating a class unit or in solving an individual's specific problem, again had to honestly answer all the questions in relation to factual background. These questions were asked by other members of the group. When the fact-finding stage was used in in-service training sessions, teachers asked other teachers the factual questions. When used in class planning sessions, students asked teachers or other students the factual questions. During individual problem solving sessions, the person asked himself and searched his own mind for the basic facts underlying the problem.

Problem-finding. The second stage in the process was problem-finding. This would be the first stage that required anything to be written on the large charts which were hung on the walls. Here the original problem, whether it was presented during elementary in-service session with teachers, or presented to develop a unit in a class with students, had to be written and redefined a number of times.

If the entire group was going to collaborate in trying to formulate one solution to the problem, then all had to broaden their thinking and compose some concept of what the real problem was. Here the problem was defined once, twice, or as many times as felt

necessary by the group. Each redefinition was written down.

The reason for redefinition of the problem a number of times was that there existed the possibility of uncovering a wide variety of ways to consider the original problem. Group members endeavored to view the problem from the same perspective that the originator viewed it.

It appeared that to formulate a problem was often times far more essential than its solution, which might be merely a matter of experimental skill. To raise new questions, new possibilities, to regard old problems from a new angle required creative imagination and seemed to mark a real advance in productive thinking.

Idea-finding. The most important part of the Creative Problem Solving Approach and the Productive Thinking Approach could be found in the third stage--idea-finding. This stage involved the total group's efforts. Group collaboration was used to form a unit with student groups and was also used to solve group problems with teachers.

Productive thinking commenced to take place as group participants responded the very moment a productive idea entered their minds. In solving school problems, teacher groups responded spontaneously with many positive ideas. In building class units, based on subject-oriented problems, students combined efforts to respond spontaneously.

The idea-finding phase of the approach seemed to be success

oriented because many slower students possessed different backgrounds of experience. By pooling ideas based on their various backgrounds of experience, they arrived at some unique suggestions and ideas. Likewise, teachers utilizing the same approach experienced success, because each teacher possessed knowledge from his varied background of experiences. Together teachers combining their background of experiences could arrive at unique and innovative solutions.

Figure 1, page 166, indicated a representation of the effect of group approaches to problem solving. The three separate faces represented three separate individuals with varied backgrounds and experiences. Each was naturally different from the other. The three circles, when joined together, denoted an intersected area being common to all three. This was the element of experience or background which the people in the group possessed. A large portion of each person's face was located outside of the other two. This represented a sizeable background of experience, built up throughout a lifetime and unshared by the other two persons.

On the other hand, some specific knowledge could be common to some of the individuals in the group or held by one member of the group.

In a group of teachers, or a group of students, this knowledge attainment usually occurred, as each member brought in facts and experiences which no one else in the group possessed. Thus, a combined

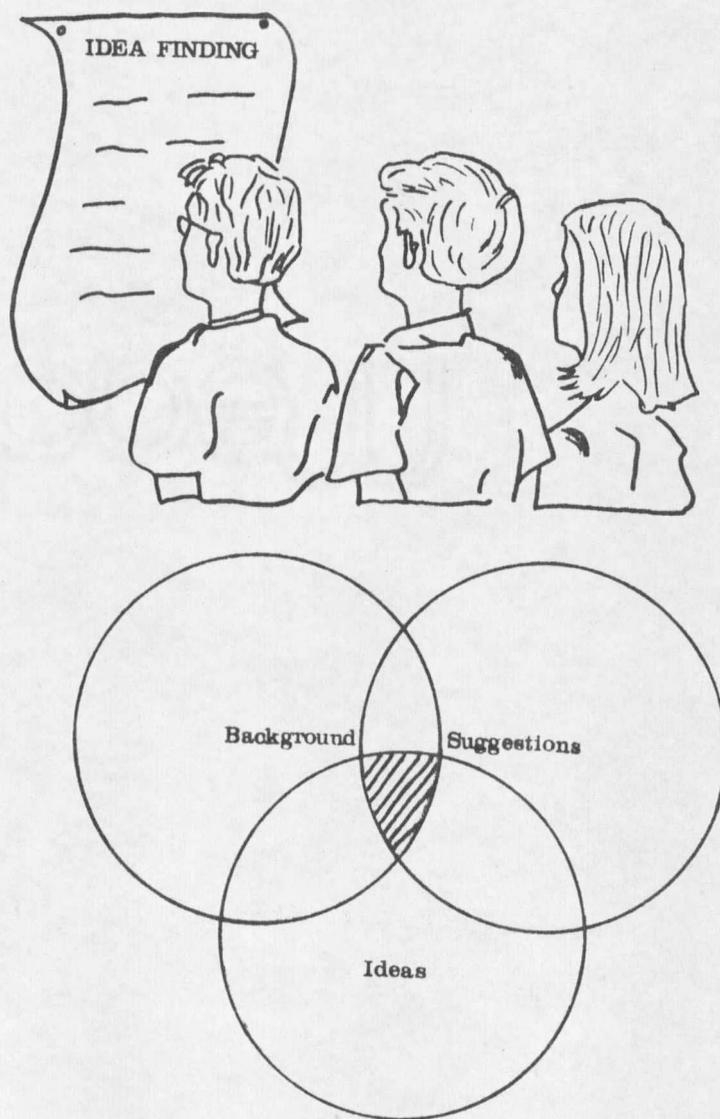


Figure 1

Working Together to Combine Ideas

mental team could be put to work on a problem. As mentioned, this mental team could be a group of teachers endeavoring to work out a problem or make suggestions during a teachers' in-service session. A class of underachievers developing a unit in school or in their classroom planning sessions, or an individual teacher who was faced with a problem utilize the various elements of their mental background to solve a problem. Their ideas might later be used as a lesson plan, because one individual might brainstorm and develop ideas as well as a group. The rules that are essential for group interaction might be modified to fit the teacher's individual problems.

A necessary facet to the idea-finding stage was learning to develop inspiration. At this point, students were taught exactly how to become inspired. Motivational questions were presented to them in a manner that justified a variety of answers and ideas. To develop inspiration, students were encouraged to "shout out" responses that seemed appropriate to them at that moment. Even seemingly absurd ideas were used. The responses were listed on large flip sheets using the exact vocabulary presented by the students. No criticism in any form was allowed. Laughter was considered to be a criticism which should be discouraged by the teacher. The group leader, at this point, requested that all group participants withhold judgment. The request to defer judgment meant to withhold all criticism and judgment until the group participants had exhausted every idea.

Participants were encouraged to shout out responses rather than raising their hands. By requiring them to wait, it seemed that many participants lost track of ideas that came to them during a moment of enlightenment. All responses, no matter how minute or seemingly ridiculous, were accepted without criticism. By accepting all responses, the process seemed to encourage participants who had never experienced success or had never before commanded total group acceptance. Participants who had demonstrated tendencies to withhold or withdraw seemed to be encouraged by the fact that their own response was listed on a sheet and all the class was utilizing the idea that the student had presented. Positive experiences such as those advocated in idea-finding tended to show the member that his ideas were unique and had value.

Endeavoring to develop inspiration was deemed necessary for students. The writer wishes at this point to clarify the fact that when groups of teachers collaborate they must also endeavor to develop inspiration and use similar procedures as were presented to students.

Some rules developed by Osborn (1963) mentioned that criticism to the ideas of others should not be allowed. All teacher and student judgment or criticism was suspended until time for subsequent evaluation. A spontaneous atmosphere was encouraged and wild or absurd ideas were desired. Because most educational problems seemed to be attacked in the same way year after year, innovation was suggested. It appeared

much easier to reduce a multitude of suggestions than to spend hours trying to develop a few traditional educational solutions to problems.

Quantity was wanted. The greater the number of teacher or student suggestions contributed by every member of the group, the more likelihood of developing a solution that would work.

In addition to contributing ideas on their own, teacher groups or student groups combined or improved the suggestions of others. Two or more suggestions were demonstrated to be combined into one better suggestion. This combination process was one of the reasons for all ideas and suggestions being recorded in front of the group on charts. At this point, teachers or students who previously had not been able to arrive at suggestions might combine ideas on the various charts, call upon their background of experience and develop a suggestion.

It was apparent that this procedure could not be effective if group members (teachers or students) had not learned to defer judgment. The deferment of judgment principle as used in the group sessions could be effective both as a training technique to develop creative attitudes and abilities and as an operational tool for improved production of ideas. Deferment of judgment meant that every participant must withhold judgment until all persons in the sessions had exhausted all of their ideas. Then, and only then, was judgment allowed.

Productive thinking at the elementary school level might be used to develop innovative class units.

Class Planning

The focus of this study had been on the responsibility of educators to select approaches, seek advice, review creativity as it relates to Productive Thinking, and seek ways to employ a unique approach at the intermediate grade level. This responsibility as advocated in the past four divisions looked to program development as an ideal. In this and the remaining divisions of Chapter 7, attention has been directed to selected curriculum experimentation that could characterize development of slow learner programs.

For those teachers who intend to try a Productive Thinking Approach with their students, it would be wise to consider the following factors. Mainly, Productive Thinking had to be a process which enhanced the individual. To make him an individual, the procedure had to be structured so that the person could demonstrate and develop individualistic characteristics.

Many teachers seemed to believe that they could not commence activities by using the Productive Thinking Approach in their group and arrive at instant success. Most teachers believed that they still needed some guidelines to start the approach. Some of the more basic guidelines and ideas that could help in organization of a program have been previously outlined in the section concerning the Creative Problem Solving Process. These guidelines, suggestions, and ideas coupled with the way the Productive Thinking Approach is adapted as a tool for

group planning could provide a structured program while still leaving room for flexibility. The approach advocated allowing the teacher to teach using the methods that best suited their particular teaching style.

In order to demonstrate the application of productive thinking as it applied to elementary school instruction, the following example was presented.

A teacher, an ardent advocate of the Productive Thinking Approach, had the same class of slow learners for the second consecutive year. It was the custom in this teacher's class to have students remain with the same teacher from one to three years, depending upon their needs and abilities.

Throughout the school year this teacher, because of the nature of the class, had a variety of social and academic problems. A peculiar problem in the area of social studies became apparent during the second year of the class. It seemed that during the first year's social studies program the teacher provided what he deemed to be a very adequate unit concerning the caveman. While the "caveman unit" was being studied, many innovative ideas were undertaken that correlated with the subject material in the unit. Stone age tools were made, murals were drawn on the simulated walls of caves, use of friction and methods in starting fires were demonstrated. By using this teaching approach, the teacher felt that his class had progressed from a basic

understanding of early man to the intricate details concerning "cave life," family customs, as well as how stone age people communicated. This unit ceased when the teacher felt that all students knew and understood most of the basic concepts concerning these people.

During the social studies section the next year, the same teacher found himself teaching a similarly structured unit concerning the dinosaur. Because enough books were not available for the many ability levels within the class, the teacher sent students out to gather dinosaur materials from a number of other sources. Materials concerning dinosaurs came in from the city's library, school library, newspapers, and magazines. It was the teacher's practice to use the students as resource gatherers for collecting materials relevant to the unit. In this manner students who were participating at various reading levels did not have to rely on one social studies textbook. They read from the various material which they had gathered.

After all reading materials from outside sources were gathered, the teacher felt his students were motivated enough to pursue this "dinosaur" unit. The entire class had studied the concepts in the dinosaur unit for about a week when a particular problem arose. One of the students who had been in the class the previous year and had participated in the "caveman" unit had noticed a discrepancy. He had noticed something which had refuted the teacher's statements from the past year's caveman unit.

His problem which was directed to the teacher was, "Say, teacher, last year when we studied the cavemen, you told us that man didn't see the large dinosaurs because they had already died off. Well, if that is true, how come we have all these pictures of dinosaurs in our library books?"

This unanswered question was a very legitimate query on the part of the student. It was deemed to be one that demonstrated imaginative use of knowledge which was gained during the past school year's caveman unit. Many teachers faced with such a question might give a quick answer for clarification and believe that this was all that was needed to compensate for an area that they failed to teach.

This teacher, however, was one trained in the problem solving field. He realized that the boy's question was a problem that needed immediate attention. He began by endeavoring to explain to the student again that the caveman did not see the dinosaur. He made a sincere effort to explain the job of archaeologists and geologists, whose job it was to dig up and assemble remains of the past. Due to the fact that the questioning student was a slow learner, the teacher felt that this concept was not being grasped by the student even while being explained for the second time. The teacher then considered the fact that if this student could not understand, then the remainder of his class probably did not understand either.

He felt it his duty as an advocate of Productive Thinking to meet this problem from the outset and clarify it in the minds of his students immediately, rather than at some later date. He decided to capitalize upon this student interest, and deviated from the concepts he was trying to teach in the present social studies unit.

In an effort to clarify it in his own mind, he decided to define his problem in writing. That evening he rewrote and redefined his problem a number of times on notebook paper as the Productive Thinking Process advocated. He concluded that he had missed structuring the concept of why man had not seen the dinosaur in a manner that was understandable for slow learners. His problem after redefinition became: How can I reteach this unit more effectively and clarify the caveman-dinosaur concept in the minds of my students? Once the redefinition was finalized, he completed a five-step procedure which was deemed to be the rationale behind this newly enacted program for slower students. The five-step procedure called Productive Thinking when used by this teacher and his colleagues became a tool for total class planning, as well as a method of structuring lesson plans.

After reviewing the process and completing the systematic five-step Productive Thinking Approach, he arrived at twenty-one possible alternatives which might help him solve his problem. These, he thought, could be put into action by the slow learners in his class.

The following steps will help to demonstrate the procedure as

advocated in the process and the steps that the teacher chose to complete while structuring the unit. These steps served later as the teacher's individual lesson plan which was used for the duration of the unit.

Teacher fact-finding. The teacher listed fact-finding questions in an effort to open up all possible avenues of thought. His challenge was to answer the following question, "If the caveman never saw the large dinosaurs, how do we know what they look like and how do we have all of these pictures?"

In endeavoring to answer the student-structured question, he asked himself some fact-finding questions. What are my student's backgrounds? How did I miss teaching this concept last year? Is knowing about the dinosaur important? Will it be detrimental to allow this question to go unsolved without trying to solve it creatively?

Teacher problem-finding. The teacher then took the concept from the original problem statement and restated it in a variety of different patterns in order to stimulate his own thinking. His restatements included:

What ways might I teach caveman and dinosaur concepts together? How might I separate these two concepts and still explain the original question? How might I enlarge both concepts in order that the misconception will be answered for the students? How can I teach about remains of the past and bring my students around to realizing both concepts concerning the caveman and the dinosaur?

Teacher-idea-finding. At this point, he combined ideas from the previous restatements in the fact-finding step and used it to arrive at tentative leads to a solution. He formulated his problem by using the challenging statement, "How can I teach a unit concerning remains of the past and bring my students to realize the concepts concerning the caveman and dinosaur?"

While developing ideas and deferring judgment, he listed twenty-one tentative leads to a solution. These ideas ranged from securing the help of an archaeologist to going on an archaeological expedition.

Teacher solution-finding. During this phase, he took the best possible ideas from the twenty-one ideas listed previously and compared them against a list of criteria for evaluation. He used a one to three point rating scale to judge the best possible ideas. The ideas that received the highest rating dealt with studying the occupations of archaeologists and geologists and studying the remains of the past.

Teacher acceptance-finding. This step was geared toward helping the creative thinker prepare to put ideas into effect. The teacher considered ideas from the list which he had prepared previously, and asked himself how he might possibly gain the acceptance and enthusiasm

of others for the ideas that were developed.

After reviewing acceptance-finding he decided to bring the problem back to his class in order that they might use the same five step approach to arrive at a solution.

After writing down the five steps of fact-finding, problem-finding, idea-finding, solution-finding, and acceptance-finding, he found that his own thinking on this matter now began to be clarified. He now had some feasible solutions, which had to be enacted if the problem was to be solved.

His next step--as advocated by those who deem themselves true productive thinkers--was to return to the classroom the next day and admit his shortcomings to his students. This step, or the admittance phase, is what is called the acceptance-finding stage. Through the process of admittance, he presented the issue to his students in this manner.

Last year I somehow failed to provide you with sufficient reasons why the caveman never did see the dinosaur. One of your classmates asked me to tell him the reasons, and this is how I came to understand that many of you still do not understand all the details concerning how we have dinosaur pictures in books. I thought you were all aware that man never was able to see the dinosaur. If we are going to learn some of these concepts again, I need your help in structuring the unit.

At this point, the class who had been taught to use the entire Productive Thinking Process helped the teacher solve his problem. They structured a unit for themselves. The process when used by the class became their total tool for classroom planning, because the ideas that

the students gave the teacher in helping him solve the problem were written on large flip sheets and posted upon the wall. In this manner the sheets could be used in the formation of a general class-teacher planned study unit. At this point the teacher used the Productive Thinking Approach to develop his own lesson plan and was now using the same process to build a unit with his class. Together they would solve the problem.

The teacher brought in remedial reading material concerning jobs of archaeologists and geologists and those who dig up remains of the past. Students used these materials in conjunction with the unit they were forming. All other pertinent facts, ideas, or possible solutions were posted on the charts in order that they could be referred to constantly by both teacher and student. A complete outline was also written concerning the systematic steps which archaeologists and geologists would have to take in order to uncover remains of the past.

The teacher now made an effort to correlate the ideas that the class had presented with other curricula areas. These suggestions, and possible solutions, could be used for creative writing, individualized spelling, history, social studies, and numerous other class activities. During the course of the unit, the class did much outside reading.

The teacher, in referring back to his own lesson plan, found

that he had arrived at some significant ideas which up until this time had not been used. One of these ideas dealt with the class going on an archaeological expedition. This idea was abandoned because his particular school was located in the middle of the uptown business district. The surrounding low socio-economic area did not lend itself well to conducting an archaeological expedition. Therefore, the teacher abandoned the thought; placed it in the back of his mind, and made an effort to look for a better solution.

Sometime later, this same teacher gained a spark of inspiration. While hunting sage hens, he and a number of other men came across the complete remains of a dead horse. He now had a possible solution to his stimulating class problem. After a long period of incubation, the moment of enlightenment had finally arrived. The idea that he had previously formulated was beginning to become a reality. This pile of bones from a dead horse, two hundred miles away from the school, could well be the answer to the "dinosaur problem."

After some persuasion, he talked his hunting partners into lugging some two hundred or more bones back to the car and transporting them back to the school. That evening, the teacher and his hunting companions buried the bones near the school. All the members of the hunting party thought the idea was ridiculous, but they wanted to see what would be the outcome to such a ridiculous stunt. The teacher realized that problem solvers are often subjected to much criticism;

and made an effort to put up with the laughter.

After returning to class the next day, the teacher continued to teach the unit. He used the ideas given by the students on their Productive Thinking charts. The remainder of the unit took approximately another week, during which time many other subjects were correlated with the unit.

The time finally arrived when the teacher felt that his class was ready and had understood the many concepts concerning jobs of archaeologists, geologists, and those who review remains of the past. His next step was to mail the class a letter. The letter stated that the advance research team had made a "find," and when the class of archaeologists and geologists was ready, they would have to come and do the excavation work on an archaeological expedition.

At this point the class was immediately ready to go on an expedition. The teacher, in referring them to their charts of their Productive Thinking Approach, showed them that the next step they had previously written indicated that tools are always needed for an expedition. These enthusiastic and highly motivated students took only one day to get ready for the expedition, and brought in all the necessary tools.

This expedition, once it was finally ready to proceed, consisted of a group of highly motivated students who were playing the roles of recorders, diggers, carriers, archaeologists, and geologists. The

students were amazed when they discovered a large pile of dinosaur bones (dead horse) buried right next to their school playground. After digging up the huge bones, the students immediately began making scientific guesses as to what it was they had dug up. Some said, "It's a cow, it's a horse." But the teacher stated, "Remember, we are archaeologists, and we have discovered a dinosaur."

To the amazement of the school principal, these students lugged the bones back to school and into the classroom. At this point, it was their job to follow the previously determined steps which they had written on their Productive Thinking charts.

A second step on the charts which they had planned was to clean up the bones and assemble them. This procedure took a week, during which time the entire class used much imagination in determining the puzzle concerning placing these large bones together.

Once the class finally had these bones assembled on the floor, the next step, as indicated on their own Productive Thinking charts, was to sell the dinosaur remains to a bone museum. The teacher then asked them how they were going to sell the dinosaur to a museum when it was just a pile of bones lying on the floor. The class then reasoned that "the dinosaur" would have to be standing upright in order to be saleable.

After another week of deliberation, the students "brainstormed" their problem and found that one feasible solution was to make the

bones stand upright by placing them upon a "vowel chart" frame. The class extended a piece of electrical pipe through the center of the frame and inserted it into the hollow back bones of the would-be dinosaur. The remainder of the bones were assembled to the backbone and a wooden frame. Now the dinosaur was standing and was about to be assembled. At this point the class could readily see that their dinosaur was taking shape.

The next problem the class was confronted with was the fact that if the dinosaur was going to be sold to a museum, his value must be determined. Through scientific discovery it was decided that the age of the dinosaur determined his value. The teacher then demonstrated the Carbon 14 count as a method used by scientists to test the remains from the past. He secured a chemical bottle from one of the local units of the university system and filled it with Alka Seltzer. He demonstrated to the students that if the chemical were real, scientists would burn the bones with the chemical and time the burn period. The length of the burn would determine how old the bone was.

By observing the bones burn during the Carbon 14 count, the students pretended that their dinosaur was over two million years old. They concluded that if he were really that old, he would undoubtedly be worth some money. In an effort to determine the price in selling it to the museum, they correlated mathematics with the social studies unit.

At this time, the teacher directed a specific question to the

class. He asked them if they felt that they were starting to get away from the major problem of "How did a picture of this dinosaur get into the history books if man never saw what dinosaurs looked like?" He stated that all he could see was a pile of bones. The procedures in the Productive Thinking Process had now changed. No longer was the class directly challenging the teacher. Now, the teacher was challenging them with their original problem. The class in turn answered his challenge by arriving at the logical conclusion that artists would have to "sketch the meat in around the bones," and through the use of these pictures they would determine what he looked like. So the class did this by drawing many pictures of what the dinosaur looked like with flesh around his bones. Although all of these pictures used the bones as a base for the sketching, the teacher in reversing the challenge would not agree that these pictures could be what the dinosaur looked like. He told them that although they had used the bones as the base for their sketch, all the sketches were not alike and these could not be our dinosaur.

The class as a whole then came to the second scientific conclusion that the artists who worked with archaeologists would have to sit down and determine jointly what they visioned the dinosaur to look like. They determined that they would have to use the structure of the bones as a basis for their drawings but would have to jointly construct the drawing.

A third scientific conclusion learned by the class was that if "man" never saw the dinosaur, then men would have to dig up his bones; assemble them; determine the ages of the bones; draw pictures of them; and jointly decide what this dinosaur looked like before his picture could be placed in the library books.

Logically, the next motivating step was to encourage the class to write their own history books concerning this very large dinosaur.

In concluding, what started out to be a seemingly ridiculous idea turned out to be one of tremendous learning value. This all came about because the class and teacher both used the Productive Thinking Process to solve problems. The teacher had learned to look beyond the every day educational trends and come up with something new and unique. He also encouraged this type of thinking on the part of his students. Encouraging the ability to wonder, ask, find out, and solve problems had been the most important phase of instruction.

It can be determined at this point that productive thinking skills depend upon the way individuals and the school districts use them. Relating productive thinking to the classroom approach invited the following definition from Dr. Gordon Simpson (Montana State University, 1973). He claimed that:

Teaching is putting students into learning situations that force them to call upon their backgrounds and the backgrounds of others for the solutions to problems. If they find no answer, they can group with others, combine background experience, and arrive at new and unique solutions.

The use of the five stage Productive Thinking Approach when advocated as a tool for elementary class planning allowed teachers and students to instigate creative situations. In responding to these creative situations, youngsters become encouraged while creating ways of dealing with their problems.

A flexible curriculum was the theme of the next area considered.

A Flexible Curriculum

The theme of the first part of this chapter concerned how the slow learner's individual class program could be developed by using a Productive Thinking Approach. In order to develop such a program, a system must be established that will meet the standards for the approach. This division considers establishing a system that is flexible enough to meet local needs.

It was felt by those persons surveyed that teachers who initiated innovative ideas were often forced by the "system" to get back into the mainstream. These teachers felt that they often became discouraged and lost initial enthusiasm. Responsibility for the development of their own curriculum was given, by these teachers, to be the best solution to their problem. With this responsibility teachers alone would be the persons who would view their students and know exactly what remedial procedures should be applicable. The teachers believed that their curriculum framework should be developed in accordance with the type of student in the class, the student's interests,

and his capabilities. It was believed that curriculum arrangement should be left entirely up to the teachers' own discretion. This writer asserted that no other person knows exactly what might be the answer for slow students better than the teacher who teaches them. The fact that a flexible curriculum was planned on an "interest based" approach would allow the various teachers to structure their classes without specific time limitations. A flexible individualized approach with as much time as needed to complete assignments was recommended.

Time schedule. The writer contended that for the slow student, structuring of rigid time schedules in most cases would not work. He found that rigid time periods for each subject discouraged students.

Rigid structure and scheduled time limitations per subject were related to the "traditional educational" setting that had previously caused these students to be less productive. Students who continually finished last acquired a failure-oriented prospective. This was augmented by teachers who were unable to understand that standard time limits cannot be set on all students for all subject matter. Thus, the failure-oriented approach to learning, which had now become part of the slow child's total person, had caused him to do school work as quickly as possible. The pressure of meeting time limitations and meeting the schedules had caused assignments to be completed at the expense of neatness, accuracy, and learning.

A possible alternative to the problem appeared to be restructuring of schedules in order to take into consideration individual differences. Scheduling spelling, math, or any other subject for the same daily period and for the same length of time should not become the mode.

It seemed that daily schedules should be based on variety, so that students never knew what subjects or activities they were to follow. Length of time to finish course content should depend upon the capabilities of the individual student. Every student who started an activity or assignment should be required to finish the task, even if it took the entire school day.

This loose, professionally organized curriculum schedule should allow the teacher to capitalize upon the students' interest at the moment and continue this interest as long as the students were motivated.

It was recommended that teachers list large blocks of time on their class programs. They should then have the option to change or adapt subject matter at their own discretion. Traditional curricula with set time schedules and specific number of minutes for each subject seemed unrealistic in slow classes. The curricula should be completely unstructured, and the teacher, in determining what subjects are to be taught, should capitalize upon the interests of the students at the particular time during the day. To cite a specific example given by one of the teachers surveyed: early in the morning the students might

enter the classroom and be given a mathematics problem. Commencing with this problem, the teacher would develop a unit in which all of the subjects were correlated with mathematics and geared to meet different ability levels.

The following morning the teacher might begin the day with either spelling, science, reading, or any of the other elementary subjects. Students never know what subject to expect at any time during the day. This unforeseen system for scheduling the class seemed to arouse the slower students' interests, because they never knew what to anticipate. Conditioning teachers associated with slower students not to allow themselves to revert to traditionalism in arranging subject time was deemed important. It was important from the standpoint that teachers should keep in mind that a varied approach is the essence of a successful program with slow children (Johnson, 1963).

Individualism. There was general agreement that there were some underlying characteristics common to most students as they relate to why these students are failures. Dr. Gordon Simpson (Montana State University, 1972) mentioned that "there are many avenues that take away individualism and create the slow learner." He emphasized the fact that "one of the most easily recognized factors is that over the years in a regular curriculum students tend to kindle the belief they are 'slow,' 'dumb,' and 'can't get it.'" In considering curriculum, it appeared that this negative criticism started from some authoritarian

figure (teacher, parent, or another child) who expressed the fact that the child was "dumb" and continually reinforced it. The reinforcement of this factor might have occurred by the authority figure expressing it verbally or in negative motions that might have followed. In most cases, the adult or authoritarian figure might not have known that he had kindled failure and reinforced the image.

Many of these same students did not enter the primary grades with this failure-oriented aspect. They seemed, as most parents would attest, to have gained it in their relationships at school, under a rigid curricula that did not provide for individual differences.

It seemed that while at school, the younger child was often forced to conform and in the process of conforming was forced by the teacher to withhold his emotions. He was told not to speak out, not to express his feelings, and not to be himself. In following the rules of non-expression, he conformed by holding these emotions inside. Once the two feelings of "I am dumb" and "I should not express what I feel" were coupled together, the young child seemed to form within himself the impression of failure. This impression kept telling the student that he was not trustworthy. He began to consider that in many respects he was a terrible person. Seemingly, the emotions that he wanted to express did not always conform to society's expectations, and many things that he tried to accomplish did not always turn out right. As the authoritarian figure consciously or unconsciously reinforced these

two negative feelings of dumbness and withholding emotions, a hypnotic effect seemed to take place, and these negative aspects became part of his total person. This negative hypnotic state of the persons' mind seemed to develop as the two failure-oriented factors complemented each other. The once active student now regressed--thinking he was "dumb," he "could not get it," he "should not express himself." His only salvation seemed to be a flexible curriculum that would allow him to express his individuality.

Conditioning change. Because the two previously mentioned aspects of the student's mental makeup were learned negative behavior, it appeared that these can be unlearned and supplemented with more positive behavior.

Teachers might condition themselves to recognize that most negative feelings that students carried with them through life were directly related to an authoritarian figure who did not understand. In order to condition change, the authoritarian person (teacher) had to learn to recognize the aspects of his personality that kept his students from expressing spontaneous emotions. The teacher had to find out the aspects of his personality that tended to condition the negative self-image in his students. This seemed most important for the teacher who did not know he conditioned failure in his students. After contemplating aspects of his own personality, it appeared best for the teacher to start to structure a success-oriented curriculum

which would allow the student to enhance himself through expression of his successes.

The teacher's first aim in designing the flexible curriculum, it seemed, should be to make a sincere effort to loosen the bonds which were often held on slow students. Students should be allowed to be more self-sufficient in order to develop a new concept. This appeared to be best accomplished by confronting the student with challenging situations and reinforcing students for efforts and accomplishments. When this happened students learned that they could be successful. In a flexible curriculum, efforts were geared toward teaching them to unlearn the things that made them regress.

The writer believed that changing the failure concept was the initial step that should be taken in an effort to rehabilitate slow students. He contended that the classroom curriculum must be structured in order that positive accomplishments were accentuated and negative situations were downgraded. He believed that teachers should endeavor to kindle a spark of self-renewal in order that observable behavioral changes would occur.

Communication

Considering the various positions of those persons involved in any phase of the program was advocated to be an initial step toward improving communications. The viewpoints of teachers, students, and administrators was important because lack of consideration for any of

these persons might cause communication barriers to develop. In order to keep these barriers from developing certain factors relative to those persons involved in the program should be reviewed.

It appeared that the slow learner approach chosen for districts should be compatible with the teaching styles of new teachers entering the program who had not had previous experience. These teachers might need some initial direction in order to get their classes started. Next, the more experienced teachers should be considered for the wealth of contributions that they could add to the program, but care should be taken to insure that these experienced individuals would not force others to conform to their teaching techniques.

It seemed that the most improved programs had a foundation based upon both new and old ideas. A method that would capitalize on all ideas while utilizing the varied backgrounds of both experienced and inexperienced teachers appeared best for keeping the communication channels open. The writer noted that often new teachers did not have a difficult time adapting their teaching techniques to new programs which considered specific learning disabilities; but, seasoned teachers who had previous years of experience often encountered difficulty in adapting their teaching strategies and attitudes. Seasoned teachers seemed to need a method that would allow them to provide new means for innovation, while still allowing them room to present subject matter using their own approaches. It seemed that experienced teachers working

in a new program should not be required to completely change to some new technique without being able to rely partly on the teaching techniques which they had developed over the years.

The realization that all individuals whether experienced or inexperienced were not alike and cannot teach in the same manner seemed to justify advocating an approach that would capitalize on each teachers best teaching techniques. Realizing that each teacher was an individual and taught best utilizing methods in which he was most comfortable, it was recommended that the method adopted for slow programs provide for individual differences. The writer believed that when all persons in the program become involved and are allowed to contribute their best attributes, the many barriers to communication were removed.

Ease of communication seemed to be facilitated when people knew something about the other person's education, background, and experience.

Gaining initial interest. Teachers' initial interest in slow students appeared to develop during the first years that most began to teach. After observing students who were experiencing difficulty at the bottom of the class, most teachers reported that they began to look for some way to help. Most seemed to search back through their past educational training for a method or means for providing help. After finding that the search was often in vain and that somehow their educational training in college left them inadequately prepared

to help the slow child, they eventually became frustrated and ceased making provisions for individualized instruction.

It appeared that this was a common problem not only for those specifically interested in slow learning but for many of their colleagues in the teaching profession as well. How does one reach these students? How can teachers boost them academically and keep them coming to school daily? How can teachers prevent the daily failure to which the children have grown accustomed in the classroom? Where can they find the time for these students who are so academically behind and still do justice to the other students in the class?

Every teacher has at one time or another pondered over these same questions, only to be left in dismay. Some teachers made efforts and had success, many tried and failed, while still others slighted all efforts and promoted these same students "socially" to another teacher.

A frequent question called to the writer's attention was, "What can a person do with no materials, administrative backing, or outside help?" In a traditional classroom, this becomes even harder. This particular problem and the previous questions concerning slow learner education might encourage one to look for a new and better program.

Imparting attitudes and qualities. The writer noted that teachers who desired to work with slow students had to develop some unique traits. One was being able, in their own mind, to put themselves

in the place of the slow student. By considering the situation as the student viewed it, the teacher might be able to make better decisions where each student was concerned. The next trait, it seemed, was to know and understand the background of students. Knowing where they lived, played, and gained their experience seemed essential for communicating.

A teacher who participated in learning activities seemed to motivate students more than a teacher who stood by and observed. When this happened the teaching day appeared more meaningful, and teachers by active participation were often provided with other insights into why students were not comprehending.

Developing "tact" in the teachers' personality was another trait that appeared essential for communicating. The writer noted that teachers who developed a number of strategies which allowed them to handle each individual circumstance tactfully were better able to cope with many different teaching situations. In the process of using tactful strategies, these teachers seemed better able to relate to students.

A sufficient self-assurance in their teaching role was noted to encourage flexibility and interaction with pupils. Teachers then seemed better able to tolerate ambiguity and were better able to communicate ideas and facts to slow learners.

The teachers should continually have a feeling for the class

and be able to communicate this feeling. This inner feeling should allow them to know and be able to pick out the conditions which influenced change in their students. Besides being able to pinpoint and communicate "why" events occurred in their classes, they should be prepared psychologically to teach students of limited ability. This attitude implied that the teacher would not only accept the student but would develop a total awareness of the operational level of the students. In order to do so, it appeared that he must develop extreme emotional maturity, possess a broad background of subject matter, have a liking for young people, and most of all learn to develop a sense of humor. All of these capabilities must be evident and communicated to the slow student in the class. A teacher who possessed these abilities or one who made a sincere effort to develop these abilities would do much to enhance the usually poor self-concept of the slow student. A teacher with these capabilities could convince the student that he was indeed a person worthy of dignity and respect both in and out of school.

Involvement

The home, school, and community all shared in the responsibility for the slow learner's education. Eliciting the responsibility on the part of the home and community often appeared to be a difficult task as some students who came from underprivileged homes were often unmotivated.

Teachers mentioned that in order to help children whose parents

depended upon any of the various forms of state assistance, one had to learn about the family background of his pupils. The approach the teacher had to use for the child of the continually unemployed parent had to be different from that implemented for the regular class slow student.

A child whose parent was almost continually unemployed lived usually in the community where the non-working parent established the example. Children growing up in such surroundings seemed to present more deeply rooted problems than those whose parents were working. These students returned home daily to homes where negative behavior was continually being reinforced. This negative behavior was usually reinforced by the image of the non-working parent who served as a model for young people in a society where the role in school was most often established by that of the working parent.

In many cases, the parent seemed to consider that acquiring skills, and ultimately a job, was not a worthwhile goal. He could not see passing these ideas onto his children, let alone attending school planning sessions that related to his children. It followed, then, that the child saw little or no need for education as a requisite for his next logical step, that of working for a living. The writer noted that some cities were not meeting the needs of the third generation of welfare recipients.

Along with this group of non-working adults must be considered

others who had sought jobs without success. Included in this category were those who failed to find employment because of race or color (specifically, parents from the American Indian reservations). Their attitudes toward school, toward other adults, toward eventual employment opportunities tended to be hostile or unrealistic. Aggressive behavior, self-rejection, withdrawal, and other symptoms seemed to be passed on to their children.

If teachers in the elementary school were to have the means to meet the needs of children coming from homes of unconcerned parents, it appeared that they must use curricula which would help students develop desirable attitudes. These materials would be remedial in nature and express a tone of social values. These materials and means of presentation would show that people depended upon one another and that our strengths as individuals and as a nation came from the contributions of all its members. The writer found that even very young children could develop awareness of interdependence, of acceptable roles for adults in our society, and of the contributions that a good education could make on their lives.

Appropriate school relationships with the homes of the slow students appeared to begin with the realization of the parents' educational role. This did not mean that the parent duplicated or replaced the work of the teacher. What had to be sensed was that both parents and teachers were working on the same broad aims for the child. The

unconcerned parent had to learn to assume different aspects of responsibility in order to develop an effective relationship. It seemed, then, that both parents and teachers had to assume certain aspects of the child's guidance. The school had to make parents realistic partners in the education process because the school had the professional responsibility for the student's education. Teachers would delineate the educational areas in which the parent could most effectively serve and designate broad procedures that the parent was to use. These areas, it appeared, should lie mainly in the fields of general education, such as health, leisure, and character building. Full responsibility for instruction in skill subjects should be retained by the teacher.

It appeared that the school should assume responsibility for establishing workable means of contact between school and home. The student should be recognized as the chief median between home and school and made an active member of a three-way relationship of parent, teacher, and student.

The building and maintenance of associational relationships between the community and school should be based on cooperation in planning and providing pupil guidance in the school's general curriculum. It seemed that for slow learner programs, community groups should be decentralized into sections such as grade level groups. Teachers could provide leadership in helping the community members undertake

projects, or provide general services to the slow learner program.

Leveling, Reporting, and Grading

Teachers of slow children might utilize a variety of approaches and could evaluate the work or accomplishments of their students, but the problem was how to report their findings in an acceptable language to parents, other educators, or to the pupils themselves.

Finding the right form or the right words to communicate to others was often a problem for the teacher of slow children. Some teachers had indicated to the investigator that if they could just eliminate the reporting procedure, "life would be much easier for them and the students." This did not appear possible since other educators, parents, and even employers wanted to know what individual pupils had completed in terms of grade standards or in terms of pupil achievement.

It seemed that set grade standards often fell down when children from different socio-economic areas were brought together in the classroom. It appeared wrong to expect them to progress through the same materials at the same rate of speed if some were much slower students. When teachers took pupils from their entry level in September and allowed them to progress steadily from one learning skill to the next, they should not have ended up at the same level of the learning ladder in June. When the same teacher used an individualized approach, grade level restrictions were not always considered important as long as teacher and pupils worked purposefully from one sequential learning

activity to the next.

Many of the teachers contacted by the writer indicated that standardized placement tests did not seem to work well for placing students on level. They indicated that before students were placed on level some initial success and encouragement should be provided. Students confronted with a standardized placement test early in the year did not seem to have time to experience success and started out not liking school.

Teachers indicated that a sound method for placing a child on level was to observe his reading and mathematics skills. Those who advocated this method in lieu of a standardized test observed skills in the reading and mathematics area, and after careful observation proceeded to place the child in a level lower than demonstrated. In this manner the student would experience initial success and eventually arrive at a level that would challenge his capabilities.

The fact that most teachers who taught slow students made an effort to place them on their particular ability level in every subject area caused a problem when grading and reporting grades to parents. In various communities, reporting practices varied from a planned parent-teacher conference to a written or anecdotal report, along with one of a varied assortment of printed report cards. The writer had noted that these cards showed progress via letters, numbers, descriptive pictures, and descriptive words and phrases. The majority of the

reports, however, told the parents how their child was working in each prescribed subject area. It was noted that in most cases these procedures called for a report of pupil progress in terms of achievement level or standard, although teachers' interpretations of what that standard was varied in terms of their own interests, abilities, and background. Some of the most noted methods of reporting slow students' progress were individual parent-teacher conferences, marks based on ability, written reports for each subject area, and a dual marking system including ability and letter grades.

When teachers used a Productive Thinking Approach in classroom instruction, it often became difficult to grade. Parents who were used to the traditional letter grade method of reporting were often confused. A method advocated by the writer was to set aside one hour a week for parents to visit the classroom. He made it a standing invitation for them to feel free to come at this time. He allowed them to learn the approach to slow learner education that was being taken and encouraged them to take some of the responsibility of finding out just how their children worked and learned.

The writer recommended that when a Productive Thinking Approach was being used in the classroom, papers should not be graded. Since the approach advocated giving students all the individual help necessary and required them to do some of their work in pairs or in small groups, the advantage of attaching the traditional letter grade to papers was

doubtful.

It seemed that mistakes on papers should be marked, and the student should be allowed to correct his mistakes. Comments on the papers were often more helpful than grades. If a proper rapport had been established with parents, report cards need not be sent home. Parents could survey progress when they visited the room. At that time they could gain a fairly good idea of the activities in the room. Because they were aware of their own student's problem and had confidence in your desire to solve it, in most cases they should not be concerned with letter grades.

A narrative explanation of the student's progress might be sent home and should be placed in the permanent record. The standard report card, which was geared to show the student's standing in each subject as compared with others in his class, would simply be defeating one's purpose.

The investigator contended at this point that no matter what grading or leveling system was advocated, care should be taken to insure that slow students experienced success and remained in school.

Student Self-assessment

In productive thinking, as indicated previously, action which accompanied reflective thinking manifested itself along dimensions of the mental capacity. It found expression in personal debate over issues which in the opinion of the debating individual required decision.

The writer noted that when the Productive Thinking Approach for slow children was allowed to become part of the slow learners' school program, the individual decision factor seemed to take shape. Students were committed to produce ideas and to select the best of the ideas gathered. In time they learned to evaluate ideas and make significant suggestions concerning their school progress.

The creation of a responsive school environment often brought out the decision making abilities in students. This became apparent to the writer when he noted some positive characteristics of the slow students' school day.

It appeared that students were more likely to make decisions in an atmosphere where negative criticisms were not allowed; therefore, fears of timid students were relieved. In this situation, the student was encouraged to make decisions, assess himself, and evaluate his class.

From the previous discussion, a classroom which employed a productive thinking composite emerged with some or most of the above mentioned features. Above all else, this classroom should be under the leadership of a teacher who could assess himself and had solved enough of his own personal problems to be effective in helping others solve theirs. It appeared that this teacher believed education's purpose to be that of helping elementary children to reach fulfillment in all important areas of development. He conceived the end result of such

development to be the slow student who could make his own decisions and continue to develop.

Being a realist, and knowing that many of these factors must be imbedded in the skill, knowledge, and technique, he continually advocated thoroughness and competency. Yet, within this framework, he seemed to regard these attributes relatively realizing that some students because of their environment and genetic attributes would be more thorough and competent; others would be less so.

To insure that thoroughness and competency were continually taking place in his classroom, he looked to other means for information. The best source of this information seemed to be carried by the students he taught, because they were the people closest to the heart of the problem.

Assessment tool. Students' viewpoints and opinions in their assessment was best elicited through the use of a tool adapted from Educational Research Services ERS Circular No. 1 (1972). An example of the assessment tool can be found in Appendix G, pages 276-282. Evaluation questions in this tool were found to be helpful in presenting the teacher with an overview of the conditions existing in the class and allowed students to evaluate their own class progress.

In completing this questionnaire, students were to list statements describing life in the classroom as they assessed it. Then they were to tell how they would like their teacher to act in the classroom.

This followed with a section in which they were to list ideas for making life more interesting and important for everybody in the class.

Finally, they were to assess what happened in class that day.

The results of the student evaluations were then reviewed by the teacher. When the necessary adjustment was made in accordance with the students' assessment and the teacher's beliefs, the educational goal of the class became one based upon expressed need.

Administrative Commitment

An administrator who is faced with change occurring in his building should consider a number of important factors. Namely, no school would be exempt from change. The changes that occur seemed to bear upon community relations, student relations, concepts of discipline, and staff-administrator relationships. Because technology was continually making advancements, the role of the school in its development of the student should continually make an effort to provide him with a better preparation for life outside of the school room. It appeared to be the administrator's job to help influence the direction, the tempo, and the quality of change and to help the school adjust to change. Any administrator making an effort to foster change with his staff, in educational programs for slow learners, would do well to consider some of the following factors that related to approaches under a non-graded curriculum.

The writer recommended that prior to the enactment of a

slow-learner project research should be conducted. Considerations should be along the lines of what type of grading system would be best, what type of approach would be used, and what schools in your district would be most feasible for the type of approach that would be best suited for your slower children.

A variety of reasons existed for successful implementation in one school and failure to implement a plan in another school. Among the most notable reasons for success or failure had been how well the particular building staff worked together. If a slow-learner program was going to be undertaken by one or more teachers in their building, it seemed that some of the following questions had to be answered. Was the school adequately staffed to implement a project for slow students? Had all of the teacher's opinions been considered? Could you justify the proper teacher-pupil ratio in initiating the project? Had you reviewed all research evidence and considered it for your educational setting? Did you have teachers in your building that showed a willingness to take part because they wanted to and did not have to be assigned to teach slow learners? Had all the community views in respect to a program for underachievers been considered? These were mentioned to be just a few of the many facets that must be considered. The best way to choose a feasible approach would be to wisely use the research evidence available and strive for internal consistency. The writer believed that any school organization plan has its advantages and

disadvantages; and before an administrator recommended any program, consideration should be given to research, staff, community, and type of students.

Administration and school board members alike must commit themselves to the program and to the realization that teachers could make sound educational decisions where slow learners were concerned. Both groups should provide teachers with some firm backing in the matter of decision making. Often, with decisions that had to be made, there was not time to secure administrative approval. Therefore, it appeared that a decision-making endorsement along the lines of curriculum, noise factors in the classroom, and choice of a varied approach should be given to the teacher.

This writer contended that administrators and school board members must learn to recognize good classroom interaction. These key personnel should acknowledge that teachers, in order to be professional, must continually change their approaches. The teacher should be able to instigate varied approaches based on knowledge of his class without any major administrative decision having to be made. A varied approach that worked well one year may not necessarily be the approach to use the following year. Therefore, the decision to change must be left to the teacher's discretion.

It should be recognized from the outset that board members, administrators, and principals alike affected the educational tone from

district to classroom. If they were going to formulate educational policy in regards to the slow-learner classes, it was apparent that they should be responsible for knowing the conditions that existed in classes.

At this point, fostering individual initiative by providing a stimulating room environment was considered.

Individual Initiative

The following example may show one way that teachers might use available resources to foster individual initiative with students.

It was generally agreed that slow students needed to be exposed to a variety of educational opportunities, and that specialized facilities could not always be provided within the self-contained classroom. One way to mainstream under-achieving students into the regular school curriculum and yet provide specialized training was through a reading center which would contain a broad range of materials for individualized reading instruction.

One school maintained a centrally-located second floor classroom for use as a recreational and remedial reading center. They decided that this space could be used as an unstructured environment--one which would encourage creativity and self-expression.

The goal for the reading center was multi-fold: to provide a comfortable, relaxed setting where students could feel at home, to offer materials which were not "under lock and key," to provide

carefully planned specialized facilities, and to maintain a reading center which could be used with both discretion and freedom. In short, they wanted to create a sense of responsibility, and what better way to do it than through offering responsibility? They decided, therefore, to permit the students to design and construct their own reading center. While the faculty determined the appropriate materials and equipment for the room, students were permitted to use their imagination and creativity in planning the room's style and decoration.

Facilities. After cleaning out the room and scrubbing down the walls, the students elected to paint their reading center with a variety of colors. The walls were decorated with original designs and interesting murals in warm, bright colors which the students called "psychedelic."

The students collected rug remnants and sewed them together to make carpets for the room. The carpets not only muffled sound, but also allowed groups to sit on the floor while working, adding to the comfort and relaxed atmosphere which was sought.

Long tables were introduced in an effort to aid in student grouping. Tables added flexibility which permitted different activities to take place in different parts of the room; demonstrations and remedial programs interfered less with recreational reading in this room arrangement.

Equipment. Through their own initiative students designed and built a listening booth, using materials from buildings in the neighborhood which were being torn down. A variety of "listening experience" tapes were purchased, and many more were made by reproducing television and radio programs. The students did their own tape recording and coordinated listening experiences with reading activities.

An old movie screen was nailed to the wall and a projector was attached to a television stand. Students could sit on the floor to watch educational movies, and they were encouraged to do so.

Materials. In order for teachers to be innovative in individualizing the reading program, they needed a variety of materials at their disposal. Teachers selected basal readers and supplementary materials which could be used in the reading center or in the classroom according to the teacher's preference.

Members of the staff made an effort to obtain materials that would meet individual needs and develop specific skills. One of the examples of reading material that served this two-fold purpose was the Barnell and Loft Series (1966). This series was easily adaptable to remedial students, as well as to average students. It emphasized specific skills such as locating facts, finding answers, following directions, using the context, and hearing sounds.

The leveling had been centered around the Webster Reading Series (1969) of individualized workbooks. They found that students

could use these in groups, with partners, or alone. They made allowances for different rates of progress by purchasing other materials which correlated with the Webster Reading Series. These included the Webster Word Wheels for prefixes and suffixes and the Dr. Spello Series for vowel and blend emphasis.

For older students who were learning to read, they used the Sullivan Programmed Reader (1966), the Conquest in Reading Series (1966), Science Research Associates' Reading for Understanding (1971), and the Steck-Vaughn Remedial Series (1969). As the use of the reading center developed, teachers who had previously been skeptical began to reconsider its educational value. Materials which they had kept in their closets for use once or twice a year were now taken out and contributed to the center. They could now be used by more students, more often, according to individual needs and interests.

Use of the center. Slow students then learned to operate all equipment and to use materials fully, knowing that they would follow their own interests, take as much time as they needed to complete a task, and have the help and support of teachers in whatever they undertook.

The center became a favorite gathering place for teachers as well as for students. From its use had evolved new curricular units, new activities and field trips. The center was devoted to remedial recreational reading, educational movies, and listening experiences.

Equally important, the center had become a focus for the use of freedom with responsibility for demonstrating to students their importance as persons. Teachers were encouraged by the reading center's success and instituted an in-service training program.

In-Service Training

In order to learn Productive Thinking, teachers were asked to study in group sessions and learn that there could be variety in the way they think. The groups should discuss the thinking process, while considering on their own the method of thinking that each individual had been relying on over the years. The purpose of these "think sessions" was to inspire each person to consider all the factors relative to whether he or she had allowed one habitual method of thinking to dominate his life and force him into becoming a victim of the tradition where classroom activities were concerned. To replace this kind of thinking, teachers were encouraged to use new and fresh ideas on every occasion. They eventually realized that there were many ways to view situations and that every circumstance should be considered before one acts. The question was continually brought up, "Had each teacher in the past few years been presenting materials, solving problems, and working with students in the same continual manner day after day, year after year?"

Eventually, after the group participants began to visualize the method of thinking that had been dominant in their lives, they were

encouraged by the group leaders to face new problems and call them challenges. Labeling problems as challenges provided teachers with a fresh new outlook. Participants found that it was easier to be confronted with a challenge rather than a problem. Accepting a "challenge" seemed to have a positive connotation, while accepting a "problem" had a negative connotation. The imagination was allowed to come into play as teachers endeavored to develop innovative and imaginative ways to meet these new educational challenges.

Problems were presented to the group participants on large charts and on some individual handouts. Contents of the charts represented materials other than the traditional educational content to which they had become accustomed.

Leadership. Under the direction of a group leader who took charge of each session, teachers were shown how to incorporate variation in the present manner of thinking. From a list of "idea spurring" problems, situations, and conditions presented, they were required to use reflective thinking. To encourage reflective thinking the leader demonstrated that the "idea spurring" problems, situations, and conditions could be compared to nine challenging categories. These same "idea spurring" questions could then be adapted to selected school situations in an effort toward encouraging innovative thinking.

The nine categories for encouraging reflective thinking began with a category called put to other uses (Parnes, 1967). Respondents

were to modify their thinking by considering other uses for an idea or a thought. Next, they applied the category adapt and were asked what ideas or suggestions did this category suggest. Modify was the third category which asked participants to change the meaning of their suggestions. After this category, they were asked to magnify their suggestions. What might they add to make a greater frequency, stronger, larger, etc.? Following this category they were asked to minimize and confine their suggestions or ideas by subtracting as much data as possible. Then they were to substitute and consider what else would have worked instead. At this point in the session, they were asked to rearrange, reverse, and then combine their ideas or suggestions.

Participants were required to complete twelve supplementary exercises during the sessions (Appendix I, pages 286-291). Material for the exercises was adapted from Sidney J. Parnes' Creative Behavior Workbook (1967).

First phase--problems as challenges. Situations that were originally presented as problems could be viewed with an open mind and considered as challenges. Continual practice was needed to learn how to reverse a problem (which took on negative connotations) into a challenge (which reflected positive connotations).

Challenges rather than problems were stimulating as the individual made an effort to conquer his particular challenge. In an effort to stimulate thinking, teachers were given two vertical lists

of words from which they were to make word comparisons. These words were written on large charts with a marking pen. They served to stimulate thinking about challenges as group participants were required to select one word in the right-hand column and match it with a word in the left-hand column. From these word combinations they were to arrive at a challenge to be applied to a classroom teaching situation. Emphasis was placed on playing with these word combinations to stimulate reflective thinking, because problems encountered while making comparisons might later be used by the group during the Productive Thinking sessions. An example of two thought provoking words presented to the group might be "attitudes" in the right-hand column compared to "stimulate" in the left-hand column. These word combinations could suggest the challenge, "How might I stimulate the student's attitudes in my class?" An example of the chart to be used in teaching the reflective thinking skills for formulating problems as challenges could be found in Chart A, Appendix H, page 283.

Teachers were then encouraged to use role playing techniques as outlined in Chart B, Appendix H, page 284. These role playing situations could come from the challenges derived while making the word combinations in Chart A.

Second phase--individualism. The purpose of phase two was to encourage teachers to realize that they could be any type of individual they visualized themselves to be, if they only had the courage to try.

In utilizing productive thinking, one might discover the kind of teacher he would desire himself to be, and then endeavor to structure his everyday working life to meet this goal. Conditioning oneself to reach this goal could take place daily.

During this phase of the training session, the group leader emphasized (through open discussion) that one might be the type of teacher he desired to be if he made a sincere effort to do so. The positive attributes for becoming an innovative teacher could then be "brain-stormed" by the group and listed on the charts.

Third phase--listing "peeves." Every educator had "pet peeves" or irritations that seemed to bother him in one way or another. At this point it became the job of the group leader to inspire teachers to state some of their irritations. Placing these annoyances on charts where everyone could discuss them was the first step toward helping the teacher eradicate the annoyance. An example of listing "pet peeves" in order to reduce irritations was developed for use in Appendix H, Chart C, page 285.

Fourth phase--making associations. A creative teacher was deemed to be one who could adapt himself or his surrounding circumstances to meet the needs of the particular teaching situation which existed. Phase four dealt with training teachers to learn how to make new associations. Participants were required to take two unrelated objects

and by placing them together force a relationship. Each teacher was to employ Productive Thinking by compiling a list of relationships that could be derived after thinking about the objects for three minutes. All participants were encouraged to recall situations by utilizing their own background of experiences. In utilizing this phase during the sessions, the group leader emphasized that teachers could be imaginative as well as creative. They were to remember times when equipment or material for teaching was not available. What other adaptations could teachers have made if they were imaginative? Participants were now recommended to use supplementary exercise one concerning development of imaginative ideas (Appendix I, page 286). Participants were informed by the leader that the supplementary exercises would be helpful in developing the more difficult task of attacking individual classroom problems later in the course.

Fifth phase--perplexing school situation. Teachers were then told that the manner in which a situation was handled consistently depended upon what viewpoint one took.

Each participant was then asked to describe a perplexing school situation and tell how the situation was handled. They were to list all the facts and persons involved (fictitious names) and were to describe what part each person played in the situation (see Supplementary Exercise two concerning creating the situation (Appendix I, page 286). After teachers completed this exercise, they were to take into

consideration all the factors involved from the viewpoint of each character they described. This exercise was to help each individual visualize that there was variation in viewpoints for each situation. Participants were then asked to complete supplementary exercises three and four concerning how various viewpoints may be considered and dealt with (Appendix I, pages 286 and 287).

Sixth phase--listing attributes. It appeared that teachers might never be able to inspire their students to initiate creative endeavors if they themselves lacked development of a measure of their own creative potential. A lack of inspiration on the part of slow students was often apparent when the teacher could not first demonstrate his own creative abilities. Students were told to be more aware of their surroundings in an effort to inspire them to write creatively; but did we as teachers learn to notice our surroundings?

What then might a teacher do who was uncreative in order to sensitize himself for creative teaching? He could begin to notice all objects and situations which existed around him in his day-to-day travels. Recording these objects in his mind and being ever conscious of their presence enabled him to adapt them creatively to situations which were brought up with his students in the classroom. This was the essence of Productive Thinking. Supplementary exercise five was then offered to teachers in an effort to foster an awareness to their own senses (Appendix I, page 287).

An uncreative person usually did not realize that the little pencil in his hand possessed numerous attributes. The group leader encouraged the teachers to "brainstorm" and arrive at a multitude of ideas in each of the descriptive categories. He continually stressed the point that this same application could be used with slow students in the classroom.

Group efforts were encouraged during this pencil exercise which had the purpose of forcing participants to think beyond what could ordinarily be seen. The remaining exercise which had practical application to the classroom involved use of the senses. Participants were next asked to list sounds they heard and odors they smelled. Consideration was also given to the senses of touch and sight. These exercises were developed in supplementary exercises six through nine in order that teachers might learn to develop an awareness to the senses (Appendix I, pages 288 and 289).

Seventh phase--fostering a sense of awareness. Learning to condition the sense of observation for teachers as well as students was the next factor considered.

Participants were informed that to establish a sense of awareness to the beauty of the things around them took practice, especially when one had been a teacher that had been too busy to notice the little details in the objects that surrounded him every day.

When teachers discovered through the in-service training

sessions that they really did not notice the intricate details of things that surrounded them, they could be given daily exercises concerning becoming aware of the persons, places, and things in their environment. In order to initiate thinking concerning heightening an awareness to the sense of observation, teachers were divided into groups. Each group was given an assignment concerning making observations and listing improvements in supplementary exercise ten (Appendix I, page 290).

Eighth phase--manipulative verb test. One might improve the environment around him by considering this environment from a different perspective. Teachers were shown that an object or situation which existed in their environment could be considered from a different perspective when the manipulative verb test was applied.

Exercise eleven (Appendix I, page 290) could be presented to teachers in a manner that might elicit open discussion. Each teacher would then be asked to submit an idea for the other teachers to consider. They were to use the nine idea-spurrers from exercises eleven and twelve to stimulate creative thinking. This exercise had practical value in the classroom. It seemed that many avenues of thought could be opened to a teacher who learned to reconsider the situation from nine possible viewpoints.

Examples of these classroom uses were: learning how to combine ideas for correlating two or more subject areas; demonstrating the

ability to minimize an uncomfortable situation with a student who had experienced difficulty; reversing the process by maximizing a small successful accomplishment by a student in order to praise him for his work; being able to rearrange, reverse, or combine activities in order that students would understand them better.

After the teachers realized that the process concerning viewing situations from various perspectives had value, a multitude of learning experiences seemed to evolve. The slower children, when guided and challenged by an imaginative teacher, might possibly become stimulated to experiment more and meet less failure.

Manual

A manual was developed in order to emphasize some specific activities and innovations considered relevant to the slow learner curriculum (see Appendix J, pages 292-324). Through the teacher questionnaire, personal interviews, and school observations, the writer had noted some inadequacies in specific subject content; namely-- language arts, history, science, geography, and an individualized approach in mathematics.

Emphasis in the language arts area was concerned with making the learning activities functional in nature and applicable to life situations. Language arts for slow learners was intended to increase skills in oral and written communication. It is understood that a student's ability to communicate with people was fundamental to success

in life. Successful language efficiency meant a more meaningful perception of the world.

The language arts for slow students comprised listening, oral expression, written expression, creative writing, and spelling. Each subject within the language arts curriculum emphasized specific objectives geared to slow learners. Every objective mentioned contained a list of specific experiences geared for the slow child. These experiences were flexible enough to be adapted to the unique classroom situations in various school districts.

Another subject area that needed unique teaching strategies was history. The writer was concerned with the fact that for remedial students, the history program should de-emphasize the memorization of dates. In place of specific dates, the students could develop specific class units based on how and why events happened in history. The writer recommended and cited some specific examples concerning how teachers could present students with initial concepts in order to initiate a unit. Then, through research, discussions, and utilization of the Productive Thinking Approach for elementary students, other avenues for understanding history would be discovered which would be far beyond what underachievers usually gained from a textbook.

A science program based on self-discovery was emphasized next. A one-year science program was recommended for slow classes, and

specific activities and materials which would take the place of a science textbook were mentioned. Activities were structured by the writer in order that flexibility would be allowed in the program.

A basic mathematics curriculum for slow learners was recommended. It was contended that teachers should plan instruction to include real life situations, actual objects, and manipulative and pictorial devices to aid children in dealing with the abstractions of number relations. A specific approach for intermediate graders was mentioned to include addition, subtraction, multiplication, division, fractions, decimals, measurement, geometry, and per cent. Recommended ideas and techniques were included to be used with each mathematics component (see Appendix J, page 316).

Geography was mentioned as a subject which had formerly emphasized the memorization of names, countries, and faraway places often unfamiliar to slow students. The writer contended that this subject could be altered in order to a more pleasurable subject with significant meaning. Specific examples were presented.

SUMMARY

The writer attempted to develop an approach that would aid educators in establishing methods for implementing their own slow learner education programs in their particular school districts. The chapter was arranged in fourteen divisions in order that educators,

intending to develop remediation procedures, could take "selected" information from any of these divisions and adapt the information to meet their educational needs.

The Productive Thinking Approach as advocated in this chapter could be used by both teachers and slow learners but must be adapted to the particular educational needs of the district. The writer intended, by outlining the approach and mentioning concrete examples, to provide a sense of direction and purpose for slow-learner education.

The first division outlined the student selection procedure of three major Montana school districts and reviewed basic strengths, objectives, and goals of these programs. It made some positive indications as to how school districts could determine their own programs.

After a program had been determined, the next area that should be dealt with would be that of advisory services. In division two, recommendations as to the utilization of parents, social workers, and university consulting teams were considered.

Because many educators indicated that they needed some concrete material to use in initiating their program, the investigator recommended studying creative problem solving. A brief description of the creative problem solving course was given, because the course content from creative problem solving was used in the Productive Thinking Approach that followed in division four.

Division four involved developing Productive Thinking at the

elementary school level and demonstrated how the five steps in the creative problem solving process could be adapted to five specific stages of Productive Thinking for elementary students. It emphasized the stages of fact-finding, problem-finding, idea-finding, solution-finding, and acceptance-finding. The writer then emphasized how this same approach could be used by teachers in developing innovative lesson plans for slow learners. It cited some specific examples of methods that the classroom teacher could use to turn problem areas into innovative learning experiences.

In order for innovative learning experiences to take place, the teacher must have the time and curriculum structure arranged in order that innovation may occur. In division six, the writer made some recommendations to be considered in structuring a flexible curriculum. The matter of arranging a time schedule that would allow educators to make changes was also considered.

The next most important factor that was considered in developing a program was that of communications. In division seven, the writer discussed the facets of communications and indicated that before any remedial approach could be planned the various viewpoints of the educators who are to work on the program should be considered. In division eight, the factors concerning the involvement of families from low income homes in the educational planning and securing community help were considered.

Division nine discussed leveling, reporting to parents, and grading. The writer gave some positive recommendations concerning placing the slow child on a level commensurate with his ability. The most noted methods for reporting a slow child's progress when his school work was individualized were given.

In division ten, the factors involved in allowing students to assess their own progress was reviewed. An evaluation tool that would allow students to make some positive recommendations in order to provide the teacher with some insight was considered. In division eleven, the administrative commitment was considered in an effort to provide administrators with some important factors to consider before allowing change to occur in his building. From this point the writer cited an example of an individual initiative center in a building that did allow change to occur. Recommendations were made as to how a center such as this could be developed.

Another factor considered was teacher training. The writer outlined a complete Productive Thinking program to be used with teachers during in-service sessions. Involved educators were to become familiar with the approach so that they could increase their own ability to produce original and high quality ideas as leads to solutions for problems, in addition to enhancing and encouraging students' productivity.

A manual was developed for the purpose of improving instruction in language arts, history, science, geography, and mathematics.

Chapter 8

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In this chapter the writer presented a general thesis summary, described the various conclusions reached, and presented the recommendations made as a result of the study.

SUMMARY

The specific area of concern in this dissertation dealt with the development of a Productive Thinking Approach for the teaching of slow learners in the intermediate grades. Consideration was given to the importance of developing every individual child to the full extent of his potential. An aspect of this potential was related to creative production and the development of the individual's ability to think and act productively.

The problem of effectively teaching the slow learner appeared to be common to many school districts. Although it was currently a recognized problem, the number of slow learners in the nation's public schools increased annually. Effective procedures and teaching strategies to remedy this educational problem had not yet been established.

Part of the problem seemed to stem from the situation that the reasoning underlying what constituted a sound slow learner curriculum had not yet been completely established. Although there had been many articles written concerning the slow learner problem, most articles did

not appear to provide basic information or guides for developing educational programs.

There appeared to be sufficient evidence proving that the problems of the slow learner were varied, and specific curricula had not been adequately developed to meet these variances. It was determined that school districts were by no means professionally ready to develop a method effective in every instance for intermediate grade slow learning students. Based on the need for further study in the slow learner area, a Productive Thinking Approach for teaching slow intermediate grade students was considered as one method flexible enough to meet the various needs of the different school districts.

The general procedures that were followed were:

1. To provide a clarification of the slow learner concept.
2. To conduct a thorough review of the related literature.
3. To submit a questionnaire to teachers in the slow learner field.
4. To conduct personal interviews and observations with a selected sample of the teachers of slow learners.
5. To develop a Productive Thinking Model, applicable to slow learner programs in the various school districts.
6. To describe steps for implementing teachers' in-service training sessions.
7. To develop an activities manual for teachers working with

slow learners.

The following limitations were noted:

1. This paper was a theoretical study only. The actual implementation and evaluation of the process found in the devised method would not be tested at this time. It would be up to the individual school districts to adapt the method to their school situation and hopefully conduct action research concerned with its effectiveness.

2. Only a selected group of educators were contacted for assistance in gathering data. These people were persons who had taught or were presently teaching slow learners in the intermediate grades.

3. The Productive Thinking Approach to be developed in this study was not suggested as a cure-all for the problems often encountered with slow learners in all school districts. The Productive Thinking Approach was not to be a "cookbook" type package, which if understood and adopted would somehow solve every problem encountered with slow learners. Rather, the approach was intended to provide a set of procedures that would give an individual teacher or a school district a sense of direction and purpose in working to develop a program for slow learning elementary students in their area.

4. The investigator utilized a variety of resources in the development of this paper. A main source of information was secured from current educational journals and psychological journals available to the writer from the Montana State University Library. The second

source was taken from the investigator's personal library, which contains over one hundred texts on learning disabilities in elementary school children and another fifty texts on creative classroom endeavors with elementary school children. A third source of information was taken from the many available special education journals located in the Rocky Mountain Resource Center for Special Education in Butte, Montana. In addition, the remaining source of information for the paper was taken from the ERIC resources available through the Montana State University Library.

In order that the reader might become familiar with the type of child who was often labeled "slow," an effort to clarify the concept "slow learner" was deemed necessary.

The term was considered to be an unsatisfactory one because it had often been used to categorize all children of below average intelligence. A few states even used the term to refer to the mentally retarded child. There existed a variety of reasons for children being classified as slow elementary students. In order to show causes for these classifications, the investigator reviewed intelligence quotient scores, factors concerning school environment, family socio-economic status, and emotional-behavioral characteristics.

Authorities' opinions differed as to what constituted the IQ range for slow learner classification. This situation came about because the area of intellectual exceptionality had been most often

determined by test results. Past consideration had not been given to the fact that the developmental rate for slow learners was from three-fourths to nine-tenths that of the normal learner.

It was reported that lack of consistent numerical agreement as to what constitutes the slow learner's IQ range had caused much confusion. For the purpose of this study, the investigator determined that the slow learner intelligence range as classified in this study was to be from 75 to 90 as measured on a standardized intelligence test.

In considering the school environment, authorities agreed that the slow student should be placed in a classroom environment which would allow him to meet his individual needs. The investigator recommended that all persons concerned could meet the slow learner's needs by recognizing his weaknesses and strengths and by helping him to develop to the limits of his abilities. It was mentioned that where programs had been instituted and designed to meet the specific needs of slow learners, most antisocial behavior was reduced and attitudes of disinterest and dislike for school often appeared to vanish.

Socio-economic home conditions were considered to be a major concern in the students' academic development. The investigator believed that part of the cause for "slowness" was the child-rearing factors which had taken place in the home. Literature indicated that most slow learners came from deprived homes, where, as compared to other elementary students, there was little scholastic motivation. Evidence existed that

many of these students would be able to operate at higher intellectual levels if early environmental motivation were provided in the home. Home life and lower socio-economic influences were examined, and it was determined that delinquency and levels of concern could be associated with lax or erratic disciplinary practices.

It was found that the social values of lower class cultures were an inversion of middle class standards. They seemed to be derived from the disadvantaged position in which members of the lower class found themselves. The reaction of a lower class group placed in a disadvantaged position because of their social status could often be brought out in elements of nonutility, negativism, and maliciousness. It was indicated that when this occurred, the family standards and socio-economic expectations appeared not to be compatible with those of the school.

In order to effectively teach these children, the school must understand the conditions which influenced their lives. Once these conditions were understood and appropriate teaching strategies employed, the detrimental influences of poor socio-economic conditions and inadequate home direction would be reduced.

The final area of consideration dealt with the concern for the emotional and behavioral characteristics often associated with slow children. Emotional and behavioral disorders were defined in terms of dynamics of personality or in terms of the effect of a child's behavior

on himself and on other people.

It was reported that no sound evidence existed from research or reported studies that slow learners had uniform emotional and behavioral characteristics. Despite these indications, it was noted that slow learners had often been labeled withdrawn, neurotic, autistic, schizophrenic, and maladjusted. It was mentioned further that the slow learner needed more understanding than any other student. He should be regarded as a definitely normal person, being identified in terms of the kind and degree of behavior that existed and the situation in which the behavior occurred.

Twenty out of every hundred pupils chosen at random were considered slow learners. Therefore, the slow learner concept as it effected the public schools had to be considered from the standpoint that if these children were allowed to grow up as illiterate and uncultured, the American public would have to pay the price.

In most cases, the slow learner lived in lower socio-economic areas where education was not stressed. Lax child-rearing methods were mentioned as often bringing about deviant emotional and behavioral characteristics. Because school programs were usually not geared to his needs, he usually faced puzzled states of mind and developed inferiority complexes.

The next procedure was to conduct a thorough review of literature. The review included the following general areas: (1) historical

perspectives, (2) special class placement, (3) theoretical background concerning the creative potential, (4) nurturing creativity in slow learners, and (5) the relationship between creative and productive thinking ability.

Historical developments showed that education had made significant progress from the time when the Spartans first killed the deviant or malformed infant to the educational programs that were currently in existence during the 1970's. The child who had been unable to learn concerned researchers for many years. Prior to the 1800's, there existed many mixed feelings concerning the slow child. The research indicated that he was often neglected, mistreated, as well as pitied. It now appeared that in more recent times progress had been made to integrate the slow learner into the correct educational programs of the school.

A review of the literature concerning special class placement showed that writers' opinions varied as to what constituted the most appropriate approach to slow learner education. Controversies were generated as to whether slow students should be integrated with or segregated from the regular class students. Despite the various controversies, the number of children currently being serviced in special classes had increased.

After 1900 special education legislation came into being. It also opened the door for the establishment of teacher certification

standards for the teaching of slow learners. Consequently in 1930, the Federal government established a division on Exceptional Children and Youth and, in 1967, the division was recognized under Public Law 84-750 to form the Bureau of Education for the Handicapped. Historically, then, educational progress for the slow learner had made continued gains.

Some earlier studies in 1932 found that special class placement did not result in increased achievement. However, later research in 1970 considered that these earlier studies could be open to a number of criticisms. Many of the previous studies failed to test the important factors of age on academic performance and the number of daily subjects taken by each student. The research indicated further that favorable attitudes toward teachers and toward achievement resulted in better relations between student and teachers. This factor was not considered in the previous studies. Placement in slower classes for the most part was made on the basis of IQ scores. The literature, however, indicated that in this placement the IQ score should not be the only factor considered. It was felt that home patterns which dominated the slow students' life as well as IQ should be considered in recommending special class placement.

The investigator, in citing a previous article which he had written entitled Developing Creative Problem Solving Skills in Slow Learning Elementary Students (1969), emphasized that student ability

rather than disability should be the first priority in special class placement. Recommendation was given that teachers should approach the education of slow learners with a positive rather than a negative attitude, and that the learning activities should be both meaningful and purposeful.

The theoretical principles supporting the creative potential were not considered to be an integral part of intelligence, and no attention was given to self-initiated ideas when it came time to evaluate achievement. It then became apparent that creativity and intelligence were compatible processes both leading to the development of the individual's intellectual development. It was determined that the common intelligence test and achievement test to some degree correlated poorly with creativity. Intelligence tests rarely accounted for more than one-quarter of the variance in such crucial factors as school achievement and academic performance. The research and related literature varied, for some authorities claimed that intelligence was an index of inherited ability, while the environmental researchers claimed that it was largely a product of cultural factors.

Research concerning creative thinking and intellectual thinking ability indicated that, as students were encouraged to use their creative thinking abilities in acquiring knowledge and intellectual skills, a larger number of slow students would become educable. The IQ was considered to be a useful metric but did not consider all the avenues

of learning as mentioned in the various divisions of the intellect. It was felt that creative and evaluative thinking abilities should also be considered. The school seemed to be the best fitted of all the agencies to assume this responsibility, because it came in contact with the student during the most impressionable stages of development. It was believed that the development of creativity should be a definite aim, carefully cultivated, rather than left as a by-product of social conditions.

At this point, a suggestion was made that a process which would nurture Productive Thinking with slow learners might be a means of raising the slow student's self-esteem, self-confidence, and perseverance, while alleviating graded failure. In order to allow for creativity to be nurtured, it was mentioned that a revision of the present slow learner curriculum was in order. Consideration was given to the fact that this curriculum should be more than just a student centered approach. Approximately one-sixth of the time should be given to development of concepts and experiences related to creative endeavors.

It was noted that in the many articles and professional periodicals few contributions seemed to provide the basic help, information, or guides required to develop educational programs for the slow learner. As a result of "limited treatment of the slow learner problem," these articles had tended to "confuse and discourage" rather than "clarify and point out" directions and solutions. There existed evidence to

indicate that a creative approach for slow learners might be a sound way of instilling self-confidence and personal worth in students.

Next, the investigator endeavored to point out that there was a high degree of similarity between steps in Creative Problem Solving and Productive Thinking. Both problem solving and productive thinking involved a high degree of creativity and, therefore, both were deemed compatible processes which could be taught to slow elementary students. The investigator mentioned that the term "creativity" as employed in Productive Thinking and in Creative Problem Solving itself had been much too loosely employed and often promoted negative connotations. Present literature contended that creative learning was a highly effective way of learning. E. Paul Torrance indicated that substantial educational advancement could be made when creativity was allowed to appear.

In the past, schools primarily taught skills through convergent thinking processes. Creativity seemed to bring about focus on another kind of thinking process--that of divergent thinking. In this process, individuals were required to take facts, concepts, understandings, and skills and put these to new and better uses. The research indicated that in the past, creativity as advocated in divergent thinking was considered to be an intangible quality, found to be possessed by only a few individuals. It was felt that this quality could not be researched, and people who possessed this talent were thought to be "different."

Guilford, in his classic articles on the structure of the intellect, first opened the door to the realization that there were a large number of components which covered a large number of intellectual abilities. He indicated that the typical intelligence and achievement tests measured only a slight segment of the various divisions of the students' intellect. This segment represented the convergent thinking skills and did not consider divergent thinking skills. Research into creativity alerted educators to the fact that the development of divergent thinking skills had been grossly neglected in our schools up to the present time.

Both Creative Problem Solving and Productive Thinking appeared to be compatible processes because in both there was an initial sensitivity to a problem which utilized all phases of thinking ability. The obvious aspects of both processes depended upon the ability to do divergent-productive thinking and the ability to effect transformation of information.

There appeared to have been historical advancements made in the field of slow learner education. Although advancement had been made, there were still many other considerations which had not yet been reviewed. The first consideration would be to gather consensus of opinion as to whether special class placement was appropriate. The second consideration deemed necessary was to formulate ideas concerning the classroom environment conducive for stimulating creativity for students.

The review of literature and related research indicated that there were many theories underlying intelligence, creativity, and the creative potential as it related to learning. The investigator contended that by teaching creative problem solving skills to slow learners many avenues for developing productive thinking abilities would be opened.

After reviewing the many theories concerning creativity and productive thinking, the writer proposed that the Five-Phase Productive Thinking Approach should be taught to slow students. The elements mentioned were fact-finding, problem-finding, idea-finding, solution-finding, and acceptance-finding.

The next step in the study dealt with a teacher questionnaire. The investigator attempted to develop a greater understanding of problems confronting educators in the slow learner field. He discussed results of a mailed questionnaire returned by 156 of 180 prospective respondents. This was an 86.67 per cent return rate.

Some 61.54 per cent of the educators who worked with or taught slow learners in Montana were female under thirty-five years of age. In this group, 15.39 per cent claimed first-year experience, while 41.66 per cent claimed two to five years experience. The educators who were presently teaching indicated an average class load of 35.62 students. When asked to report educational preparation, 19.87 per cent indicated they held Special Education Masters degrees, 13.46 per cent

held a Master of Education degree, 10.90 per cent an Educational Doctorate, and 7.69 per cent had Ph.D.'s. These same respondents mentioned an average of 32.86 undergraduate credits and 24.59 graduate credits in courses directly related to the slow learner.

Respondents next categorized their concept of the slow learner. Some 55.13 per cent indicated that the slow learner was a student with an IQ score from 75 to 90 who was experiencing difficulty in all subjects. Another 12.82 per cent indicated that the IQ score under this classification should be lower than 75. Other educators mentioned specific learning disabilities, lower grade levels, and the delinquent child in their classification.

Evidenced in the survey was the fact that 92.30 per cent of those persons queried claimed that using creative activities with slow learners was feasible. In signifying a way to foster creativity, an individualized approach was deemed the best approach to take by 78.85 per cent of the respondents. Only 7.69 per cent felt that the unit approach was best. Twenty-five respondents believed that combinations of the two was feasible.

Montana educators surveyed had mixed beliefs concerning classroom arrangements. There were 22.44 per cent in favor of a self-contained class. A combined class consisting of slow, average, and above average elicited 26.92 per cent in favor, while 38.46 per cent mentioned a remedial class for one or two periods per day. Indication

was given that teachers were using a variety of classroom approaches.

Section II of the questionnaire concerned perceptions of assistance given to slow learner programs by outside agencies. Some 92.31 per cent indicated that they could use assistance but varied in opinion as to what agency would be best to consult. Given categories for university consultants, social workers, parents, or "other," some 33.33 per cent indicated a wide variety of responses under "other." The most frequently mentioned category was "other teachers" who had experience in the slow learner area. In mentioning specific problems encountered in developing their own program, some 76.92 per cent indicated that they were experiencing problems. Another 23.08 indicated that they were experiencing no difficulty. The most frequently mentioned problem area was "finding enough material and time."

When asked to mention the important factors that were to be recognized and dealt with in initiating a program, the most noted responses were "more time for in-service or planning sessions" and "individualizing the program." Montana educators agreed that a Productive Thinking Approach was a feasible approach for slow students, because the opinion that slow children could think productively was checked by 97.44 per cent of the respondents.

Respondents were then asked if they thought they could learn to teach productive thinking skills to slow learners. Some 153 respondents indicated "yes"; while some 70.51 per cent of this same group mentioned

that they had never been taught a Productive Thinking Approach or how to implement it.

The next point considered was to ask respondents if they participated in in-service training sessions. Some 25 per cent indicated that they took part in in-service sessions, while another 75 per cent indicated that no provision for in-service training was provided, although some 73.08 per cent of the entire group mentioned that they could use a method for organizing their in-service sessions.

The investigator, next, conducted a mini-survey to out-of-state respondents. The states surveyed included Washington, Oregon, Utah, Florida, Maryland, Missouri, and North Dakota. This data was used to make comparisons with Montana educators.

A 100 per cent return rate was elicited from the nineteen persons queried in the mini-survey. In this group, 63.16 per cent were female and 36.84 per cent were male with the average age being twenty-five to thirty-four. As indicated in Montana, two to five years experience was the average and the mean number of students indicated per class load was 20.33 per cent. A majority of slow learner programs outside of Montana were also located in schools with large enrollments of 201 to 601. Undergraduate credits in specialized course work was averaged as 20.5, while graduate credits beyond the bachelor's degree was 23.44.

Out-of-state respondents presented a classification of their

concept of the slow student which was somewhat similar to that of Montana educators. They considered the slow student to be in the 65 to 90 IQ range and experiencing difficulty in one or more subject areas. A positive response indicating prevalence for an individual and creative approach was then elicited, but out-of-state comments were not compatible with Montana responses as to beliefs for the best approach. Some 47.36 per cent favored a combined class of slow, average, and above average.

In Section II of the mini-survey, 94.74 per cent of the respondents indicated that they needed assistance from outside agencies. Social workers were indicated by 63.15 per cent as the best agency to consult. Some 52.63 per cent indicated that they had encountered problems in endeavoring to develop their own program.

Of the nineteen persons surveyed, 100 per cent indicated that the slow child could develop the ability to think productively, but indicated that the Productive Thinking Approach had never been demonstrated to them.

An overall indication that was expressed by Montana educators as well as the small sample of out-of-state respondents was that they had completed some preparation to teach with or work with slow children, but this often was not enough to meet the current trends and changing problems. They believed that they should be allowed to develop their own program based on specific "needs" and their concept of who the slow

child was and what he could do. Conceptions of the term "slow learner" varied with educators mentioning IQ scores, "environment," and "cultural deprivation" as some of the major causes for students being behind.

The majority of these educators from the various regions mentioned that they had specific problems which in many cases were relevant to their region only. All agreed that they could use an adaptable approach which would suit their local needs. They pointed out the fact that in-service sessions were a necessity if progress was to be made with slow children. A method that would allow them to continually keep abreast with slow learner education was advocated by a majority of the respondents.

These respondents felt that program modification and development, teacher in-service training, and varied class activities were necessities for progress in the slow learner education field.

The next area in the study was a discussion of results gained from personal interviews conducted with educators experienced in working with slow learners in the state of Montana.

The purpose of the interview sessions was to ascertain problems and possible solutions experienced by Montana educators who worked with slow intermediate students.

The majority of teachers contacted agreed that a goal of special class placement was to help children organize themselves for increased independent learning so that they might be able to return to the

regular classroom. Those teachers who were not in favor of special class placement suggested that a "precision" teacher be assigned to work on a ten to twenty minute daily basis with learning disabled children. These students were to remain in the class for the remainder of the day.

Teachers in some districts were in favor of a trained specialist who would diagnose the child's problem, develop a teaching plan, and implement the plan into the student's daily class program.

The investigator tried to determine teachers' beliefs concerning discipline problems. Respondents were asked to comment on whether discipline problems who were not "slow learners" were being placed in their classes. The responses ranged from the contention that "in a flexible curriculum arrangement problems concerning discipline were non-existent," to an extreme case who had mentioned that his class was a "dumping ground" for children with problems. The majority of teachers mentioned that to avoid problems, varied teaching strategies should be employed and individual initiative should be fostered.

During the interview, teachers were then queried concerning using and maintaining creativity. The responses indicated a positive confirmation that creativity could be employed. Variations were given from "how creativity could open the door to new learning experiences" to the belief that "creative aspirations could inspire the student to make an effort in school."

Assistance from persons in an advisory capacity, either from outside agencies or from experts, was deemed necessary. Teachers contended that "outside" agencies might be able to detect unforeseen problems not readily observed by those working in the program. It was expressed that consultants who visited the program might point out evidence of teacher behavior patterns that might stifle slow learner's progress.

Reading and mathematics were determined to be the two subject areas that enhanced creativity. The investigator believed that the other subject matter components in the slow learner's program were not mentioned frequently and might possibly be neglected.

As to testing procedures utilized, standardized and teacher-made tests were used by teachers. The most frequently used tests were teacher-made tests for diagnosing performance in different levels of learning. Standardized tests had been utilized for quantifying learning disabilities, but their use was not widespread.

The problem areas concerning in-service workshops ranged from not being able to contribute during the sessions to administrators who were very directive. The majority of teachers were interested in participating in in-service sessions.

During the observations made of slow student classrooms in the nine schools, it was found that the classroom management systems and approaches varied in each city. In two city school systems, the students

were grouped according to mental age and chronological age. Their progress was based on mental age for intellectual pursuits and on chronological age for social and emotional development. In these two systems, the methods of grouping seemed to be geared for children from poor communities.

Another school district advocated grouping students during certain periods of the day for diagnostic work. Responsibilities were divided between a diagnostic specialist and remedial teacher. Screening, testing, and evaluating were completed through this plan.

One educational endeavor that was noted was to place emphasis on detecting slow learners at the kindergarten level. After the specific learning disabilities were detected, the child would be mainstreamed into classes for specific remedial help. This remediation process would be given to the child in the primary grades and could possibly be given in the intermediate grades if the disability was not alleviated.

The next consideration was given to the specific steps for implementing the Productive Thinking Approach to be used with slow learners.

It was considered in order to develop an approach that would aid educators in establishing methods for implementing their own approach to slow learner education in their particular school district. The chapter was arranged into thirteen divisions in order that educators,

intending to develop remediation procedures, could take "selected" information from any of these divisions and adapt the information to meet their educational needs.

As mentioned previously, the Productive Thinking Approach could be used by both teachers and slow-learners, but must be adapted to the particular educational needs of the district.

The first division outlined the student selection procedure of three major Montana school districts and reviewed basic strengths, objectives, and goals of these programs. It made some positive indications as to how school districts could determine their own programs. After a program had been determined, the next area that should be dealt with would be that of advisory services. In division two, recommendations as to the utilization of parents, social workers, and university consulting teams were considered.

Because many educators indicated that they needed some concrete material to use in initiating their program, the investigator recommended studying creative problem solving. A brief description of the creative problem solving course was given, because the course content from creative problem solving was used in the Productive Thinking Approach that followed in division four.

Division four involved developing Productive Thinking at the elementary school level and demonstrated how the five steps in the creative problem solving process could be adapted to five specific

stages of Productive Thinking for elementary students. This division progressed into division five, in which the writer emphasized how this same approach could be used by teachers in developing innovative lesson plans for slow learners. It cited some specific examples of methods that the classroom teacher could use to turn problem areas into innovative learning experiences.

In order for innovative learning experiences to take place, the teacher must have the time and curriculum structure arranged in order that innovation might occur. In division six the writer made some recommendations to be considered in structuring a flexible curriculum. The matter of a time schedule arrangement that would allow educators to make changes was also considered.

The writer then discussed facets of communications and indicated that before any remedial approach could be planned the various viewpoint of the educators who were involved in the program should be considered. Communicating to the various individuals progressed, naturally, into the next division concerning involvement. In division eight, factors concerning involving low income families and securing community help was considered.

Division nine discussed leveling, reporting, and grading. The writer gave some positive recommendations concerning placing the slow child on a level commensurate with his ability. The most noted methods for reporting a slow child's progress when his school work was leveled

were emphasized.

In division ten, the factors involved in allowing students to assess their own progress were reviewed. An evaluation tool that would allow students to make some positive recommendations in order to provide the teacher with some insight was considered. Then in division eleven, the administrative commitment was considered in an effort to provide administrators with some important factors to consider before encouraging change to occur in his building. From this point the writer cited a specific example of an individual initiative reading center developed in a school that allowed change to occur.

Another area considered was teacher training. The writer outlined a complete Productive Thinking program to be used with teachers during in-service training sessions. This program was based on stimulating teachers to think creatively. It provided participants with group assignments and supplementary exercises.

Last, the writer developed a manual which proposed activities in some deficient subject areas in the slow learner curricula.

CONCLUSIONS

Based on the review of related literature and on the recipients' responses in this study, the following conclusions were drawn.

1. The term "slow learner" was often interpreted without uniform agreement as to its definition.

2. There existed a lack of consistent numerical agreement as to what constituted the intelligence quotient range for classification of the slow learner.

3. The term "creativity" had often been much too loosely employed and seemed to promote negative connotations.

4. After considering the many theories concerning creativity and productive thinking, the Five-Phase Productive Thinking Approach was concluded to be a valuable learning experience for slow learners.

5. Detecting specific learning disabilities at an early age would allow students to be placed into specific classes for remedial tutoring.

6. What constituted an educationally sound slow learner program had not yet been established in Montana.

7. No sound evidence existed from research or reported studies that slow learners as a group had uniform emotional and behavioral characteristics.

8. Emotional and behavioral disorders took on various forms and seemed to be derived from numerous causes. Proper identification of these symptoms might aid the classroom teacher in planning specific teaching strategies.

9. School districts contemplation development of slow learner programs expressed a need of assistance from consultants. The persons in these advisory capacities could come from the ranks of university

consultants, social workers, parents, or other teachers.

10. Program modification and development along with varied classroom activities appeared as necessities for making continued progress.

11. Discipline problem students, who were not necessarily slow learners, were being placed in classes provided for slow students.

12. A flexible time schedule that would allow educators to make necessary changes in class programs appeared necessary.

RECOMMENDATIONS

Based upon this study, the following had been recommended.

1. That some uniformity as to what constituted a slow learner classification be formulated for the state of Montana.

2. The intelligence quotient score was often the only factor considered for special class placement. Consideration should also be given to home conditions and environmental factors which dominated the student's life.

3. Creative potential was believed to be an integral part of intelligence, therefore, consideration should be given to self-initiated ideas.

4. Slow students should have success in their school program. The remediation approach employed in the various school districts, whether it involved a self-contained approach or tutoring for select

periods, should advocate a Productive Thinking Approach.

5. The Productive Thinking Approach advocated in this study should be "piloted" in a number of selected classes for the purpose of planning a program for slow intermediate grade students.

6. The Productive Thinking Approach should be used as a tool for elementary class planning, teachers' individual lesson plans, or for teacher in-service.

7. Teachers, as well as students, should learn to become productive thinkers in order to increase their ability to produce quality ideas and original ideas that lead to solutions for problems.

8. More meaningful progress would be made in Montana slow learner education programs if time to exchange ideas, work out problem areas, and determine individual class programs were provided to teachers on an in-service training basis.

9. School districts intending to implement programs should first consider and develop basic staff strengths, program goals, and long range objectives.

10. We must examine further why the child who came from a low socio-economic background often was unable to achieve at average levels of expectation.

11. Reading and mathematics were the two subjects emphasized most in slow learner programs. School curricula should also emphasize language arts activities in: listening, speaking, writing, and

spelling as well as other curricular areas.

An adequate school program for slow learners will develop after problem areas are identified and modification in course content and teaching strategies are made to challenge these problems.

APPENDICES

APPENDIX A

TEACHER LETTER OF TRANSMITTAL
IN STATE

Member
Montana Council Exceptional Children

Dear

Programs for children with recognized handicaps have been instituted in many school systems, and course of study have been developed to meet these students' particular needs. As you are undoubtedly aware, many children whose handicaps are not easily recognized haven't had appropriate programs developed to meet their educational requirements. The problem concerning the child characterized as being a "slow learner" appears to be one of the more pressing problems facing the public schools.

Because of the need for a more effective means of teaching the slow learner, I have undertaken a research project under the direction of the College of Education at Montana State University. The study will attempt to determine some of the problems and possible solutions often encountered in developing slow learner programs in the state.

Your name was obtained from Mr. Ray Beck, Montana Council of Exceptional Children. Mr. Beck has cited you as a person with much expertise and knowledge in the area of exceptional children. He feels that the contributions that you could make would be valuable to the study.

Hopefully, through compiling information from those persons who work with or teach slow learners, we can make some recommendations for more effectively teaching these students.

I realize that your time is valuable and would not make this request if I did not consider this study to be important to all concerned.

Your help and cooperation in completing the enclosed questionnaire will be genuinely appreciated.

Respectfully,

Tim Sullivan, Graduate Student
Department of Elementary Education
Montana State University
Bozeman, Montana 59715

APPENDIX B

TEACHER LETTER OF TRANSMITTAL
OUT OF STATE

Dear Teacher:

The enclosed questionnaire has been mailed to teachers in the state of Montana. This study, which is under the direction of Montana State University, will attempt to determine some of the problems and possible solutions often encountered in developing slow learner programs in Montana.

As a point of interest, five questionnaires each are being mailed to teachers in the states of Utah, Oregon, and Washington. Your responses will be used to compare attitudes of teachers outside of the state of Montana.

Hopefully, through compiling information from persons who work with or teach slow learners, we can make some recommendations for more effectively teaching these students.

I realize that your time is valuable and would not make this request if I did not consider this study to be important to all concerned.

Your help and cooperation in completing the enclosed questionnaire will be genuinely appreciated.

Respectfully,

Tim Sullivan
Graduate Student
Department of Elementary Education
Montana State University
Bozeman, Montana . 59715

APPENDIX C

TEACHER QUESTIONNAIRE

Slow Learner Study

For the purpose of this study, the slow learner is defined as "the child whose educational requirements differ from the average or normal child to such an extent that his school program must be modified to compensate for less than normal achievement." In order for this child to develop to his maximum capacity, the modification of his school program must be commensurate with each child's special needs.

The investigator realizes that some of the following questions may not be relevant to you in your present occupation. If this is the case, please respond only to questions that apply to you and your special situation.

1. Sex: a. Male
 b. Female

2. Age: a. Under 25
 b. 25-34
 c. 35-44
 d. 45-55
 e. Over 55

3. Number of years experience teaching or working with the slow learning child:
 - a. First year experience
 - b. 2-5 years experience
 - c. 5-10 years experience
 - d. More than 10 years experience

4. Teacher of slow children:
 - a. Presently
 - b. Have taught slow children in the past

5. If presently teaching, specify number of children in your class
 # _____

If your profession involves working with slow children, please list the number of slow learners presently on your case load

6. If you are presently teaching, what is the estimated student enrollment in your school?
- 1-40
 - 41-100
 - 101-200
 - 201-601
 - Over 600
7. What is the highest degree you have earned?
- Bachelor's
 - Master's (Education)
 - Master's (Special Education)
 - Other Master's
 - Ed.D
 - Ph.D
8. How many years since you completed your last college level course geared for the remedial child or slow learners?
- 1-3
 - 4-6
 - 7-9
 - 10-12
 - Over 12
9. How many quarter credits of specialized courses, related to the slow learning child, have you completed?
- Undergraduate _____
- Graduate _____
10. In what category do you place the term "slow learner"?
- Child having difficulty in all subject fields, with I.Q. 75-90
 - Child experiencing difficulty, with I.Q. below 75
 - Other (specify) _____
11. In your present teaching or working capacity, do you try to develop creative activities with students?
- Yes
 - No
12. The approach that you believe best for instruction of the slow learner is/was:
- Individualized approach
 - Unit approach
 - Other (specify)

13. Specify the classroom arrangement that you consider to be the best approach for slow learner education:
- a. Self-contained class consisting entirely of slow learning children
 - b. Combined class consisting of slow, average, and above average students
 - c. A remedial class one or two periods per school day
 - d. Other (specify) _____

SECTION II

14. In your present position, would it be advantageous or of assistance to you in teaching slow learners to consult outside agencies or resource persons?
- a. Yes
 - b. No

Please specify why _____

If yes, specify the agency that would be most helpful to you in your program.

- a. University consultants
 - b. Social workers
 - c. Parents
 - d. Other _____
15. Do you believe persons teaching slow children should be able to adapt their program in any manner deemed necessary?
- a. Yes
 - b. No

Please comment _____

16. Have you encountered any problems in trying to develop your own program with slow children?
- a. Yes
 - b. No

If yes, please comment _____

17. Please describe one or two of the most important factors to be recognized and dealt with in attempting to initiate a slow learner program:

SECTION III

The Productive Thinking Approach for slow learners mentioned in questions 18-21 requires five specific techniques in learning how to question facts, survey problems, generate ideas, arrive at solutions, and accept alternatives.

Other added components to this process might include: Brainstorming: The rules are established as (1) no criticism of any idea presented; (2) the wilder the ideas the better; (3) the greater the number of ideas the better. Then a question is posed such as: What can we do to make school more interesting? Stimulating sensitivity to problems. Children might be asked to discuss circumstances such as: What would happen if everyone in the world became deaf, or if we all had three fingers, or if someone invented a pill as a substitute for food? Encouraging ideation fluency. Children are asked questions such as: Can you list all the ways a brick can be used? Encouraging originality. Children can be given assignments or activities in class, in an effort to deliberately seek to produce uncommon or unusual responses. Pupils may be asked to look for a different way of doing something.

The Productive Thinking Approach emphasizes divergent production and evaluation of ideas.

18. Do you believe that the slow learning child could be taught a Productive Thinking Approach and in turn develop the ability to think productively?
 - a. Yes
 - b. NoPlease comment: _____
19. Do you believe that you could learn to teach productive thinking skills to the slow children who are under your charge?
 - a. Yes
 - b. No
20. Has anyone ever demonstrated to you how to initiate a productive thinking approach that might be applicable to the children you work with?
 - a. Yes
 - b. No

21. Do you presently have in-service training with other teachers of the slow learner in your building or in your area?
- a. Yes
 - b. No

If yes, please comment on how applicable these sessions are to your own teaching situation:

22. If 21 is no, then in your in-service sessions, could you and your fellow teachers use a method that would allow you to continually keep abreast of the immediate problems facing the slow learners in your classroom?
- a. Yes
 - b. No

APPENDIX D

QUESTIONNAIRE RESULTS

SECTION II

14. In your present position, would it be advantageous or of assistance to you in teaching slow learners to consult outside agencies or resource persons? Yes _____ No _____

	<u>Number of "Yes" responses</u>	<u>Percentage of "Yes" responses</u>
	144	92.31
<u>Please specify "why"</u>	<u>Number of "No" responses</u>	<u>Percentage of "No" responses</u>
102 responses	12	7.69
<u>Reasons for needing assistance</u>	<u>Number of responses per stated reason</u>	<u>Percentage of responses per stated reason</u>
(1) Exchange ideas and learn about new materials	15	14.71
(2) Develop new approaches to problems	13	12.75
(3) Keep abreast of new trends	11	10.78
(4) Consultants are better prepared to deal with specific problems	10	9.80
(5) Team of professionals could help us individualize	10	9.80
(6) Learn how to keep new developments moving	7	6.86
(7) Teachers are busy preparing for class and have not time to research	6	5.88
(8) To draw from the experiences of others	6	5.88
(9) To better understand the problem and become aware of new teaching methods	4	3.92
(10) Individual situations arise which require expertise and references	3	2.94
(11) Learn how to spur childrens' interests	3	2.94
(12) Some students might not be slow and might require an in-depth diagnosis	3	2.94

<u>Reasons for needing assistance</u>	<u>Number of responses per stated reason</u>	<u>Percentage of responses per stated reason</u>
(13) No one program or person has all the answers	2	1.96
(14) Many children are emotionally disturbed as well as slow	1	.98
(15) To help me better meet the needs of each individual student	1	.98
(16) Help me discover areas of strengths to build on	1	.98
(17) The close rapport one develops often disguises the problem	1	.98
(18) Outside assistance might make recommendations for effective carry over programs	1	.98
(19) Learn how to enrich and expand the program	1	.98
(20) Slow children also have speech problems	1	.98
(21) Some slow learners are also physically handicapped	1	.98
(22) A peculiar situation exists with the home life of our Indian children	1	.98

If yes, please specify the agency that would be most helpful to you in your program.

	<u>Number of responses</u>	<u>Percentage of responses</u>
University consultants	36	23.68
Social workers	32	21.05
Parents	36	23.68

The 33.33 per cent of respondents who indicated "other" mentioned specific agencies as listed in order on the following page.

<u>Other</u>	<u>Number of responses per stated reason</u>	<u>Percentage of responses per stated reason</u>
(1) Other successful teachers or someone who has worked in the area	14	26.92
(2) Persons with expertise in the curriculum field	12	23.08
(3) Medical consultants and psychologists	8	15.38
(4) Specialists in area of learning disabilities	5	9.62
(5) Specialists working with remedial students	3	5.77
(6) Team of experts such as those in the Child Development Center in Missoula, Montana	3	5.77
(7) Services in the area of emotionally disturbed	1	1.92
(8) Method and material persons from Special Education Instructional Material Center in Butte, Montana	1	1.92
(9) Various therapists	1	1.92
(10) Mental Health department	1	1.92
(11) Specialists in area of visual aides	1	1.92
(12) Field level consultants	1	1.92
(13) Community resource persons	1	1.92

15. Do you believe persons teaching slow children should be able to adapt their program in any manner deemed necessary? Yes _____
No _____

<u>Number of "Yes" responses</u>	<u>Percentage of "Yes" responses</u>
148	94.87
<u>Number of "No" responses</u>	<u>Percentage of "No" responses</u>
8	5.13

<u>Specific positive comments</u>	<u>Number of responses per stated comment</u>	<u>Percentage of responses per stated comment</u>
(1) To meet specific needs of children	54	36.49
(2) Flexibility is essential to good management	35	23.65
(3) Each teacher has personal techniques	24	16.22
(4) Vocational objectives could be considered	13	8.78
(5) Learning rates could be considered	8	5.41
(6) Specific programs could be established to teach basic curriculum	7	4.73
(7) A student's interest can be awakened	4	2.70
(8) Space, budget, and school philosophy can also be considered	3	2.02

16. Have you encountered any problems in trying to develop your own program with slow children? Yes _____ No _____

	<u>Number of "Yes" responses</u>	<u>Percentage of "Yes" responses</u>
	120	76.92
	<u>Number of "No" responses</u>	<u>Percentage of "No" responses</u>
	36	23.08
<u>Comments concerning problems encountered</u>	<u>Number of responses per stated reason</u>	<u>Percentage of responses per stated reason</u>
(1) Finding enough material and Planning time	36	30.00
(2) Finding enough time to assess each student	22	18.33
(3) Lack of financial support	18	15.00
(4) Keeping productivity levels up	11	9.17

<u>Comments concerning problems encountered</u>	<u>Number of responses per stated reason</u>	<u>Percentage of responses per stated reason</u>
(5) Resistance of traditional teachers to change	7	5.83
(6) Not enough program guidelines	7	5.83
(7) Lack of understanding on part of the administration as far as "laziness" and "educational handicaps" are concerned	5	4.17
(8) Difficulty in knowing exactly what to do for individualization	4	3.33
(9) Stigma of segregation	3	2.50
(10) Getting a continuity of expectation	2	1.67
(11) Other teachers dislike working with slow learners	1	.84
(12) Other teachers in the program not willing to understand or try new approaches	1	.84
(13) Adequate testing	1	.84
(14) Lack of coordination	1	.84
(15) Location limits many situations	1	.84

17. Please describe one or two of the most important factors to be recognized and dealt with in attempting to initiate a slow learner program:

220 responses		
<u>Factors to be recognized and dealt with</u>	<u>Number of responses</u>	<u>Percentage of responses</u>
(1) Time should be provided for teachers to plan in in-service sessions	30	13.64
(2) Programs should be individualized	22	10.00
(3) Children need an extremely versatile program with exposure to things outside of school	21	9.55
(4) Means for identification of slow learners	16	7.27

<u>Factors to be recognized and dealt with</u>	<u>Number of responses</u>	<u>Percentage of responses</u>
(5) Proper methods of assessment	15	6.82
(6) Proper evaluation	13	5.91
(7) Cooperation from the administration and other staff members	12	5.45
(8) Adequate facilities and materials	11	5.00
(9) Students must be slow learners and not discipline problems	11	5.00
(10) Unending amounts of resource materials	9	4.09
(11) Curriculum designed to ability level	8	3.64
(12) Gaining parent acceptance and cooperation	8	3.64
(13) Making sure the slow learner has success	8	3.64
(14) Planning objectives such as: vocational skills, socialization skills, and wise use of leisure time	6	2.73
(15) Dealing with children on an individual basis	5	2.27
(16) Discrimination of objectives, concentrate on the most important	3	1.36
(17) Lack of time tested methods and materials in a relatively new field	3	1.36
(18) Educate other teachers as to proper attitudes toward the slow learners in the building	3	1.36
(19) Communication with parents	2	.91
(20) Picking well qualified perceptive teachers	2	.91
(21) Funding for the program	2	.91
(22) Setting up realistic goals with the child's future in mind	1	.45
(23) Excessive labeling should be avoided	1	.45
(24) Success should be built into the program	1	.45

<u>Factors to be recognized and dealt with</u>	<u>Number of responses</u>	<u>Percentage of responses</u>
(25) Classes should not be overloaded	1	.45
(26) Sympathetic administration	1	.45
(27) A master teacher plus assistants are needed for a one-to-one relationship	1	.45
(28) Start with very primary instruction	1	.45
(29) Being able to look at alternative approaches	1	.45
(30) A need for such a program must be demonstrated to all	1	.45
(31) Insure against "corner room in basement" labeling	1	.45

APPENDIX E

TEACHER INTERVIEW

Background Information

Name of School _____

City _____

Teacher's Name _____

Type of School _____

Total enrollment in elementary school _____

Teacher's Class Load:

Number of slow learner classes _____ Enrollment in each _____

Number of class periods with slow learners per week:

Length of class periods:

Information directly from the teacher

1. What is your opinion concerning special class placement for the slow learner?
2. How are students selected for your class or class period?
3. Do you believe that students with discipline problems who are not necessarily slow learners are placed in your class?
4. What are some of the most successful teaching strategies that you use in your classroom?
5. Have you initiated any new teaching techniques with your class of slow learners? (Either the teachers' own or someone else's)
6. If it is important to incorporate demonstrations with class work, how do you provide for classroom demonstrations?

7. To what extent do you feel that you foster creativity or innovative ideas in your class?
8. If it is important to employ creativity with slow students, how do you accomplish this?
9. Do you presently use any specific techniques for class planning? (Problem Solving/Productive Thinking)
10. Could you utilize the services of outside agencies or advisory services in maintaining your program?
11. How might you enhance creativity while teaching the various subjects?

Language Arts

Geography

Math

Science

History

12. Is there an annual budget available for purchasing remedial material?
13. How is testing conducted?
Teacher-made or standardized: Tm _____ Std _____
14. What kind of varied activities do your students participate in?
Field trips _____
School club _____
Science fair _____
Guest speakers _____
Other _____
15. Is provision made for you to participate in in-service workshops?
If so, indicate how often:

APPENDIX F

OBSERVATIONAL RATING SCALE *

	No Evidence	Weak Infrequent	Moderate Occasional	Strong Frequent Evidence
1. Students in the class are grouped according to ability.	1	2(3)	3(4)	4(2)
2. Provision is made for experience, verbal and conceptual level of learning (field trips, etc.)	1	2(2)	3(6)	4(1)
3. Classroom arrangement is consistent with the purpose of the lesson.	1(4)	2(3)	3(2)	4
4. Remedial materials are provided and used by the slow students in the class.	1	2	3	4(9)
5. Creativity is being fostered in some manner in this classroom.	1(3)	2(3)	3(2)	4(1)
6. The teacher becomes involved in creative endeavors.	1(6)	2(2)	3(1)	4
7. The teacher knows how to set conditions in her classroom that will allow creativity to appear.	1(2)	2(5)	3(2)	4
8. There is evidence of student involvement in projects and group activities.	1(3)	2(3)	3(2)	4(1)
9. Free movement is allowed in this classroom.	1	2(5)	3(1)	4(3)
10. Children in the class are frequently allowed to respond to questions as a group using the multiple response technique.	1(8)	2(1)	3	4
11. Slow students are encouraged to work together in a partnership basis.	1	2	3(3)	4(6)

* Items in parentheses represent the incidence of response in the nine schools visited by the investigator.

	No Evidence	Weak Infrequent	Moderate Occasional	Strong Frequent Evidence
12. There is evidence that a flexible class curriculum is being followed.	1	2(6)	3(3)	4
13. There is evidence that the teacher utilizes some degree of problem solving.	1(1)	2(4)	3(4)	4
14. Children use some form of Productive Thinking or Problem Solving Process.	1	2(2)	3(5)	4(2)
15. Children's activities, products, and ideas are displayed in the classroom.	1	2	3(4)	4(5)
16. The teacher uses an individualized approach with her underachievers.	1	2	3(1)	4(8)
17. The emotional climate is warm and accepting.	1	2	3(1)	4(8)
18. The teacher promotes a positive environment with slow learners.	1	2(1)	3(3)	4(5)
19. There is evidence that both the teacher and students employ creativity in the following subject areas:				
Language Arts	1(3)	2(4)	3(2)	4
History	1(5)	2(4)	3	4
Science	1(6)	2(2)	3(1)	4
Geography	1(8)	2(1)	3	4
20. There is evidence that the teacher uses some method for grading individually.	1	2(1)	3(8)	4

APPENDIX G

CLASSROOM LIFE *

Here is a list of some statements that describe life in the classroom. Circle the letter in front of the statement that best tells how you feel about this class. There are no right or wrong answers.

1. Life in this class with your regular teacher has
 - a. all good things
 - b. mostly good things
 - c. more good things than bad
 - d. about as many good things as bad
 - e. more bad things than good
 - f. mostly bad things

2. How hard are you working these days on learning what is being taught at school?
 - a. Very hard
 - b. Quite hard
 - c. Not very hard
 - d. Not hard at all

3. When I'm in this class, I
 - a. Usually feel wide awake and very interested
 - b. Am pretty interested, kind of bored part of the time
 - c. Am not very interested, bored quite a lot of the time
 - d. Don't like it, feel bored and not with it

4. How hard are you working on school work compared with the others in the class?
 - a. Harder than most
 - b. A little harder than most
 - c. About the same as most
 - d. A little less than most
 - e. Quite a bit less than most

* Adapted from Educational Research Services ERS Circular No. 1 (1972).

5. How many of the pupils in this class do what the teacher suggests?
 - a. Most of them do
 - b. More than half do
 - c. Less than half do
 - d. Hardly anybody does

6. If we help each other with our work in this class, the teacher
 - a. likes it a lot
 - b. likes it some
 - c. likes it a little
 - d. doesn't like it at all

7. How good is your schoolwork compared with the work of others in the class?
 - a. Much better than most
 - b. A little better than most
 - c. About the same as most
 - d. Not quite as good as most
 - e. Much worse than most

8. How often do the pupils in this class help one another with their school work?
 - a. Most of the time
 - b. Sometimes
 - c. Hardly ever
 - d. Never

9. How often do the pupils in this class act friendly toward one another?
 - a. Always
 - b. Most of the time
 - c. Sometimes
 - d. Hardly ever

Date _____

Class _____

(don't write your number)

MY TEACHER

Pretend that you could have your teacher change in some way. For each number check the box that best tells how you would like your teacher to act in this class. There are no right or wrong answers.

	Much more than he does now	A little more than he does now	The same as he does now	A little less than he does now	Much less than he does now
1. Help with work					
2. Yell at us					
3. Make sure work is done					
4. Ask us to decide about how we will work					
5. Smile and laugh					
6. Make us behave					
7. Trust us on our own					
8. Make us work hard					
9. Show that he understands how we feel					

Date _____

Your Number _____

Class _____

CLUES ABOUT CLASSROOM LIFE

So that members of a class and their teacher may get ideas about how to make life more interesting and important for everybody in the class, each person needs to contribute his or her ideas of what needs to be improved. What things happen that shouldn't happen? What ought to happen but doesn't? Try to imagine you are a detective looking for clues to a "good day" and a "bad day" in your class. Jot down what you might look for or might see to answer these questions. There are no right or wrong answers.

What are some clues to a good day in our class? What things happen that are signs of a good day?

1. _____
2. _____
3. _____
4. _____
5. _____

What are some clues to a bad day in our class? What things happen that are clues that class is not going the way it should or that you would like it to?

1. _____
2. _____
3. _____
4. _____
5. _____

What are some things that should happen a lot more than they do to make it a better class for learning and having fun?

1. _____
2. _____
3. _____
4. _____
5. _____

Date _____

Your Number _____

Class _____

POSTCLASS REACTIONS

Here are some questions about what happened in class today. Circle the letter in front of the statement that best tells how you feel about what happened. There are no right or wrong answers.

1. How much do you feel you learned today?

- a. Don't think I learned much
- b. Learned a little bit
- c. Learned quite a lot
- d. Learned a lot today

Please write why you feel this way _____

2. How clear was it why we were doing _____
(refer to some specific activity)?

- a. Very clear to me
- b. Pretty clear to me
- c. Not so very clear
- d. Not clear at all.

What do you think was the reason we did what we did? _____

3. How often did you feel lost during this class period?

- a. Lost most of the time
- b. Lost quite a few times
- c. Lost a couple of times
- d. Not lost at all

What made you feel lost? _____

4. How often did you feel you wanted some extra help during this class period today?

- a. Wanted help quite a few times
- b. Wanted help several times
- c. Wanted a little help once or twice
- d. Wanted no help

What kind of help did you want? _____

5. How often did you see somebody else needing help during our class period today?

- a. Saw somebody needing help a lot
- b. Saw somebody needing help quite a few times
- c. Saw somebody needing help a few times
- d. Saw nobody needing help.

How could they be helped? _____

6. How do you feel about your participation in the discussion this last period?

- a. Not satisfied at all
- b. Not very satisfied
- c. Fairly satisfied
- d. Very satisfied

Why do you feel this way? _____

7. How do you feel about what the teacher did in this last class period?

- a. Very satisfied
- b. Pretty well satisfied
- c. Only a little satisfied
- d. Not satisfied

What makes you feel this way? _____

APPENDIX H

CHART A

Problems as Challenges

Friends?	Special attention?
Groups?	Happiness?
Neighbors?	Misunderstandings?
Slow?	Complications?
Class?	Comprehension of context?
School?	Rut of habit?
Responsibility?	Attitudes?
Promotion?	Anxieties of fears?
Intelligence?	Anger or disgust?
Social life?	Complaints?
Personality?	Individual differences?
Hobbies and leisure time?	Awareness?
Stimulate?	Performance?
Plans and goals?	Obedience?
Hopes and desires?	Participation?
Rapport?	Popularity?

Participants are encouraged to use reflective thinking by matching words in the left-hand column with words in the right-hand column.

CHART B

Role Playing

Steps:

1. Take five minutes to let your imagination run away with you. Close your eyes and visualize the kind of educator you would want to be, in any class or in any position--now or in the future.
2. Now, pretend you have passed away and someone is reading your obituary. What are they going to state about you and your accomplishments as an educator? Take five minutes to write your own obituary.
3. Humorous activities can stimulate thinking. Record these on a tape recorder to be heard by the group.

CHART C

Pet Peeves

On a sheet of paper state your most pressing educational "peeve." After you have stated this peeve, list fifteen ideas for reducing this irritation. Remember--be imaginative and think of unique ways. The most ridiculous idea might be the one that works.

APPENDIX I

SUPPLEMENTARY EXERCISES *
TEACHER'S IN-SERVICE SESSIONS

Supplementary Exercise 1

Choose from the previous list of ideas in the forced relationship stage, one good idea that seemed most promising. State the idea on the hand-out and then develop a brief plan for action in putting the idea to use.

IDEA: _____

PLAN FOR USING THE IDEA: _____

Supplementary Exercise 2

CREATE THE SITUATION: _____

Supplementary Exercise 3

FACTORS FROM THE VIEWPOINT OF _____ (list below):

FACTORS FROM THE VIEWPOINT OF _____ (list below):

* Adapted from Sidney J. Parnes' Creative Behavior Workbook (1967).

Supplementary Exercise 4

FACTORS FROM THE VIEWPOINT OF _____ (list below):

HOW THE SITUATION MIGHT HAVE BEEN HANDLED BETTER (describe below):

Supplementary Exercise 5

CHART E

Take the pencil in your hand and start brainstorming as a group, the various descriptive categories pertaining to the pencil. Force relationships as you did on Chart D--if necessary.

Descriptive Categories

Function	Substance	Structure	Color	Shape
----------	-----------	-----------	-------	-------

An uncreative person usually does not realize that the little pencil in his hand possesses numerous categories. The group leader "pushes" the teachers to "brainstorm" and come up with a multitude of ideas in each of the descriptive categories. He continually stresses the fact that the same application is used with students.

Supplementary Exercise 6

Record all the sounds and odors you can observe as you sit where you are. Examples: ticking of watch, cigarette smoke, etc.

Supplementary Exercise 7

Observe carefully everything you can see in the room or through the windows. Note something particularly interesting that you observe. Then try to apply the observation to something else. Where else or in what other ways might it be valuable? List below as many ideas as you can. (For instance, you might be attracted to a wallpaper design. You might then think of applying it, for example, to dress material or to the design for a necktie.)

Supplementary Exercise 8

Think of a taste you enjoy. Then list as many ways as you can that you might apply that particular taste to other foods or articles. (For example, peppermint flavor has been applied to the glue on envelope flaps; pizza flavor has been applied to ketchup.)

Supplementary Exercise 8 (continued)

Think of an odor you enjoy. Then list as many ways as you can that you might apply that particular odor to other items. (For example, a particular perfume applied to a photo.)

Supplementary Exercise 9

Think of a sound you enjoy. Then list as many ways as you can that you might apply that particular sound to other situations, including its substitution for unpleasant sounds. (For example, bird's chirping substituted for alarm-clock clang.)

Think of a touch-sensation you enjoy. Then list as many ways as you can that you might apply that particular touch-sensation elsewhere. (For example, feel of velvet added to steering wheel cover.)

Supplementary Exercise 10

Carefully observe any object you have with you. List your observations, and then list the possible improvements each observation suggests.

OBJECT: _____

OBSERVATION

IMPROVEMENTS

What observations might you make during "lulls" in your work if you were an attendant in a parking lot? List observations that might be of value to you, your employer, or your customers.

Example: Tires that look like they need air.

Supplementary Exercise 11

Illustrate below the application of each of the nine idea-spurrers to some situation in your life. For example, under "other uses" you might find a new use for a get-together with friends--to practice idea-production. Under "adapt" you might use the illustration of the "teach-in," adapted from the "sit-in."

1. Put to other uses
2. Adapt
3. Modify
4. Magnify

Supplementary Exercise 11 (continued)

5. Minimize
6. Substitute
7. Rearrange
8. Reverse
9. Combine

Supplementary Exercise 12

Choose anything in your life that you would like to improve. Apply the manipulative verbs to your observations about the situation or object and see how many new ideas you can create. List your observations and your ideas as indicated, on this and the following page.

OBJECT OR SITUATION: _____

OBSERVATIONS

IDEAS (Defer Judgment)
MAGNIFY, MINIMIZE, REARRANGE

OBJECT OR SITUATION: (You may continue with the same one as appears above; or you may choose something different for each exercise):

OBSERVATIONS

IDEAS (Defer Judgment)
MAGNIFY, MINIMIZE, REARRANGE

APPENDIX J

MANUAL

In this division the writer has developed a manual for teaching slow learners in the intermediate grades. It speaks to essential subject areas involved in the slow learner education program and is geared to help each teacher organize his individual class program in the areas of language arts, history, science, mathematics, and geography.

Gratitude is owed to Dr. Gerald Sullivan of Montana State University for his untiring effort in aiding the writer to form the philosophy underlying the various subjects in the manual. The first subject dealt with concerned Language Arts.

Language Arts Curriculum

The instruction in the language arts area is designed to prevent school "dropouts" by giving each child success-oriented experiences which are intended to overcome feelings of insecurity and failure previously met in normal classrooms. The learning activities developed are functional in nature and applicable to problem-solving in life situations. All experiences are based on child interest and hold the possibility for student involvement.

While suggested objectives and experiences are recommended, the teaching strategy must be flexible, and teachers must constantly evaluate the level of interest for each child. There must be acceptance of each child at his respective level of attainment and provision for continuous growth of learning skills.

The language arts curriculum is intended to increase skills in oral and written communication. It is understood that a student's ability to communicate with peers, teachers, parents, and others is fundamental to success in life and could be the core of his future well-being. Language efficiency offers each child a more meaningful perception of his experience.

LISTENING

We must learn to listen before we can listen to learn. The listening skills comprise at least one-half of the communication process.

Listening was a two-part process including reception and reflection and was the first used and most used of the communication processes in life. Listening skills appear to be at least as important to teach as the reading skills. To set the stage for more accurate and effectual awareness or reception, the slow learning child must be made as comfortable as possible and free from distractions, recognizing, however, that it does take energy to listen. His reflections would bring more self-expansion if he is trained to be not just an imitative listener but creatively thoughtful about what he heard. Most slow learners have become slow because they usually listen only part of the time; continually tuning out what is difficult for them.

A side benefit would be that the teacher, through teaching the listening skills, would become a better listener.

General Objectives of the listening skills program are:

1. Understand the importance of good listening habits.
2. Develop courteous listening habits.
3. Listen to improve our own speech.
4. Listen effectively to discriminate sounds.
5. Listen effectively to be aware of signals.
6. Listen effectively to increase vocabulary.
7. Listen effectively to follow directions.
8. Listen effectively to identify main ideas.
9. Listen effectively to recognize sequence.
10. Listen effectively to see cause and effect relationships.
11. Listen effectively to predict outcomes.
12. Listen effectively to appreciate and enjoy spoken language.
13. Listen effectively to understand speaker's purpose.
14. Listen effectively to create.
15. Listen effectively to distinguish fact, fiction, and opinion.
16. Listen effectively to find effect of stress, pitch, and juncture.
17. Listen effectively to eliminate irrelevancies.
18. Listen effectively to recall details.
19. Improvement of listening attention span.
20. Listen effectively for relaxation, quietness, excitement, enjoyment, entertainment, or to create a mood.

OBJECTIVE: to understand the importance of good listening habits.

Experiences:

- * "Multiples of 4" game--teacher names four items in a series, students repeat back.
- * Group discussion--by some members of class. Silent students will summarize what was said later. Students choose topic.
- * Fill-ins--read story and skip some words.
- * List sounds you remember listening to in a period of time. (From recess to lunch time.)
- * Write a story illustrating the importance of listening.
- * The teacher tells a story while children intermittently plug their ears. The purpose is to show how a poor listener keeps tuning out and losing the train of thought.)
- * Play gossip by whispering a short message to a child at one side of the classroom. Ask him to relay the material in a whisper to the child nearest him. Continue this procedure until the message has been passed to every child around the room.
- * Send 6 students out of the room. In the same manner as in the gossip game, repeat a short dramatic passage from a story to the remaining students in the room. Call student A back. Ask him to listen carefully as a classmate who remained in the room repeats the story that was read. Ask student A to repeat the story to student B as he enters the room. B tells C. C tells D. D tells E. E tells F. Student F finishes the relay by reporting what he heard to the class. Record on a tape each version of the story including the one that was read aloud. After the exercise is complete, play back the entire recording. Did the story change as it passed from student to student? If so, what caused the changes? Discuss the project, giving special attention to how emotions can actually change what we hear. Repeat the experience to make repetition more accurate.

OBJECTIVE: to develop courteous listening habits.

Experiences:

- * Write an essay on "What I don't like my audience to do while I'm talking."
- * Drop your name in a box after telling 3 or 4 facts about yourself. Then draw names and see how much each student can recall.

- * Do you remember--what Suzie did on the first day of school? Recall situations that happened in the past.

OBJECTIVE: to listen effectively to improve our own speech.

Experiences:

- * Practice enunciation by listening for beginning and ending sounds. Read list of words, then check to see if the student hears beginning, middle, or ending sounds of words.
- * Tape record and listen to student's pronunciation. Have students evaluate how they say word endings. Be particularly concerned with ing and en word endings.
- * Be concerned with correct usage of is, are, an, isn't and aren't, doesn't and don't, and any and no. Boys versus girls--teams check each other's grammar mistakes. Team with least points at end of week wins contest. Students keep track by recording scores on a chart.

OBJECTIVE: to listen effectively in order to discriminate between sounds.

Experiences:

- * Pick out different sounds in a series. The teacher or another student can read the list.
- * Teach students to close their eyes and listen for sounds around them for three minutes. At this point they can list all the sounds they heard.
- * Hear a sound and guess the occupation from which the sound is derived. These sounds can be recorded on a tape recorder.
- * Record some sounds, play them back and guess what they are (bacon frying, dishwasher, doorbell, running water, mower, etc.)
- * Listen to an orchestra and tell what instruments are being played. What does this music tell you do do? Draw a picture of what music sounds like.

OBJECTIVE: to listen effectively to be aware of signals.

Experiences:

- * Listen to various signal warnings. These warnings can be recorded on tapes.

Rattle of snake
Hiss of snake
School fire drill
Siren
Railroad crossing
School bell
Church chimes
Game whistle or gun
Wind
Storm
Civil Defense
Police car
Ambulance
Screeching tires
Screams
Horns honking
Baby crying

- * Go on a listening walk. Return to class and have a race to see how many sounds students can list. The students who can list the most words are winners.
- * Listening game--have a box or tray full of sound making objects. The students are allowed to view all objects. The teacher has students close their eyes while the sound of the object is made. Children are to list in order the noises and what objects made the noise.

OBJECTIVE: to listen effectively to follow directions.

Experiences:

- * Have students color blocks on graph paper while directions are given by the teacher. The final product should result in a picture.
- * Do as I say: Read complicated directions and have the class follow by doing (paper folding, scrap craft, knot tying).
- * Listen to directions for playing a game. One student teaches another the directions to the game.
- * If lost, listen and follow directions. Place students in imaginary locations in the city and give them directions to return.
- * The teacher gives geographical directions. The student gives the location. (Go south three blocks, north two-- where are you?)

OBJECTIVE: to listen effectively in order to increase vocabulary.

Experiences:

- * Make a word bank or notebook containing all new words heard.
- * Have children locate and bring to class a new word each day.
- * Learn about rhyming words. Then make rhyme charts.
- * Learn about colorful adjectives. Then make colorful adjective charts.
- * Consider repetition of same beginning sounds. Make up poems using alliteration (Sweet Sue smiles sweetly).
- * Listen for descriptive verbs. Have students list these words. Listen for colorful adverbs. Have students list these words. Have students devise jargon for an occupation or trade in your region.
- * Assign children homework in which they listen to a certain TV program. They are to return with a list of words that are used frequently during the program.

OBJECTIVE: to listen effectively in order to identify main ideas.

Experience:

- * Read paragraphs, short poems, and dialogues, little stores, news articles, and sport articles to the class. Have the students discuss what main idea the article contained.

OBJECTIVE: to listen effectively in order to recognize sequence.

Experiences:

- * Have students repeat some stories and sequential events.
- * Repeat the directions given in a game.
- * What is the first thing you do when you get up in the morning? Have students tell these sequences while the other students listen. Provision should be made for recall.
- * Plan a dinner--what to plan first, second, and third can be listed.
- * Start reading a story. Have students summarize it and then add on. The next child summarizes and adds on--and on--etc.

OBJECTIVE: to listen effectively for cause and effect relationships.

Experience:

- * Read history events. Student can state the cause and effect of the event. Pretend that the cause was not there. How would history be effected? Rewrite history from this stand-point.

OBJECTIVE: to listen effectively to predict outcomes.

Experiences:

- * Start a story--how do you think it will end?
- * Students listen to an argument and predict the outcome after establishing opposite points of view.
- * Plan a court room trial. Present the circumstances in the trial and have students predict the outcome.

OBJECTIVE: to listen effectively to appreciate and enjoy the spoken language.

Experiences:

- * Listen to dialects of our country--Irish, Indian, Italian, Negro. Using a dialect record, have students listen in order to tell what dialect is being spoken.
- * Listen to rhyming poetry or music.
- * Use choral reading or dramatizations while children listen.

OBJECTIVE: to listen effectively to understand speaker's purpose.

Experience:

- * Students should be able to understand the reasoning for statements such as people saying, "Cross the street at the corner." Have some students make similar statements and ask others to define their reasoning.

OBJECTIVE: to listen effectively to distinguish fact, fiction, and opinion.

Experiences:

- * One student can play a news commentator and add his own opinion to an article from the daily news. The other student can discuss his opinion of the daily news, while listening to the news commentator.
- * Use "once upon a time" fiction stories. Listen to these stories and discuss why they are fiction.
- * Students can write their own fiction commercial ads after listening to television and radio ads.
- * Students can report on books they have read. Others in class will classify the book as either fact or fiction.

OBJECTIVE: listening to create.

Experiences:

- * Listen to music for the purpose of creating a Hawaiian dance, or any other country's dance.
- * Paint to music.
- * Illustrate a story.
- * Listen to details in a story and decide if the tree would be tall, deciduous, short, etc. (Draw a picture.)
- * One student describes a person, place, or object. The other students draw a picture of what they hear.

OBJECTIVE: to listen effectively to determine effect of stress, pitch, and juncture.

Experiences:

- * Have students repeat "I want you" softly--then repeat phrase with snarl, then repeat very abruptly.
- * Ask one question to be answered by yes or no, then ask one that can't be answered by yes or no. Have students note change in pitch when questions are asked.

OBJECTIVE: to listen effectively to eliminate irrelevances.

Experiences:

- * Mystery stories can be read in the dark around a lantern. The teacher adds parts that should not be in the story as students listen for irrelevance.
- * Students can tell stories to each other while adding irrelevant sections.
- * Compose riddles that are different and have students locate the parts that are different.
- * Add a different ending to a story. Have students tell why this cannot be so.

OBJECTIVE: to listen effectively to recall details.

Experiences:

- * Recall details of a wreck scene, an earthquake, or other events.
- * Recall a robbery scene from a television program.
- * The teacher can read directions for building models or making dresses, while students complete these projects.
- * Student or teacher leads "repeat-after-me story." Each sentence in the story has more details added.

OBJECTIVE: to improve the listening attention span.

Experiences:

- * Teachers voice during any activity can be animated and varied.
- * Allow students to follow a story in a book, while listening to a tape recording of the same story.
- * Speak softly and then more softly to increase students' listening power.
- * Use choral reading and emphasize the different voice parts.
- * The teacher and student can read aloud together.

OBJECTIVE: to listen effectively for relaxation or quietness or to create a mood of excitement.

Experiences:

- * Play classic record albums, using a variety of music such as sad music, stirring music, and mood music. Discuss beat, origins, and history. How does this music make you feel?
- * Play "shopping center music" in classroom while students are completing other subjects.

ORAL EXPRESSION

The best way to prepare children for ease in social conversation in real life is to give them practice in directed conversations in school. This practice must continue throughout the child's educational experience, using an approach that will leave him free from fear or embarrassment.

The child needs guidance and direction in developing effective speech habits. In school, oral communication experiences are of primary importance because fundamental oral abilities are usually in use by the time the child enters school. Also, oral work must be the basic median of instruction in the early years, because habits of oral communication form the basis for all later written language development within classes.

Teachers of slow learners should emphasize that with listening, oral communication is the language art most frequently used. Students should be taught to understand that throughout life, a person converses, discusses, announces, telephones, and reports orally. Thus, being able to speak effectively is of great importance to everyone.

The needs for a planned oral language program in the schools are strongly supported by the fact that many individuals, even though they may have had sound and constructive ideas, are unable to express themselves effectively. A good oral program is needed to prepare children, so they will not be handicapped in their social effectiveness nor in their business or professional activities.

The general objectives of an oral skills program are to:

1. Develop oral vocabulary
2. Improve enunciation skills
3. Build word usage skills
4. Develop a pleasing and effective voice quality
5. Increase confidence in speaking

OBJECTIVE: develop oral vocabulary

Experiences:

- * Listen to visitors (firemen, baker, etc) for the purpose of learning new words. Then have the students make word charts.
- * Build new words from base words by using prefixes and suffixes.
- * Story telling
 1. Group
 2. Individual
- * Show students how to develop discussions in group sessions
 1. Small group
 2. Large group
 3. Entire class
- * Instruct students in how to make speech presentations
- * Have students present oral reports on an area of interest
- * Utilize creative writing to develop new ideas. Students can then report their writing experience orally.
- * Specific experiences that seem to work well with slow learners for developing oral vocabulary skills are:
 1. Giving directions
 2. Telephoning--ask telephone company for two display models, to be used in teaching telephone conversations and telephone manners.
 3. Grouping for leadership--allow students to take direct charge of groups.
 4. Making announcements
 5. Making introductions
 6. Describing pictures from magazines, books, etc.
 7. Allowing students to be creative in organizing their own show and tell period.
 8. Building an experience center--store, garage, etc.
 9. Using the "repeat after me" story by the teacher.
Example: "Going on a lion hunt"
 10. Using hand puppets in all subject areas
 11. Using a large "walk-in" television set made from a packing crate. Students can make up their own television commercials.
 12. Touching objects and describing how they feel.
Example: fuzzy, hot, cold
 13. Enumerating a list of items in pictures
 14. Describing certain events from history.
 15. Telling about a television program they have seen
 16. Making word charts for "new" words found

OBJECTIVE: to improve enunciation skills.

Experiences:

- * Have students speak into the tape recorder. They can later evaluate each others manner of enunciating words.
- * Practice mouth movements in front of a mirror.
- * At appropriate times have class members criticize each other.
- * Do imitations of well-known persons who do public speaking.
- * Make up a character and give a monologue of this character's reaction to a situation.
- * Have students describe how speech got started. What were the first words spoken? Why?
- * The following equipment and texts can be helpful in improving enunciation skills:
 1. Lanugage master
 2. Tape recorder
 3. Films (sound)
 4. Pictures and charts from magazines. Say the sounds and words in the pictures.
 5. Synonyms, homonyms, rhymes--found in various educational books
 6. Dictionary

OBJECTIVE: to build word usage skills.

Experiences:

- * Use direct conversation.
- * Encourage creative dramatics.
- * Have one-half of the class give incorrect oral statements, while the other half corrects.
- * Compose humorous stories and tell these to other classes.
- * State an event, such as a fire in a drug store, and act out what different people might say (owner, shopper, onlooker, fireman).
- * Allow the students a limited period of time to say something. Example: telephone call 3 minutes, TV advertisement 10 seconds. Use props to motivate.

OBJECTIVE: to develop a pleasing and effective voice quality.

Experience:

- * Listen to tape recordings, films, conversations, discussions, story-telling, reports, direction giving, introductions, and announcements in order to depict:
 1. Letter sounds
 2. Pauses
 3. Pitch changes
 4. Where stress is placed
 5. Sequence
 6. Classification and generalization

OBJECTIVE: to increase confidence in speaking.

Experiences:

- * Have students use hand puppets.
- * Do role playing.
- * Encourage impromptu speeches.
- * Practice making introductions, giving directions, and asking questions.

OBJECTIVE: making creative reports by oral expression.

Experiences:

- * After reading a story tell it to musical accompaniment.
- * Read orally to the class and emphasize beautiful passages.
- * Present a sales talk to sell a book you have read.
- * Hold a round-table discussion under the direction of a student chairman: four or five students read the same book and discuss it.
- * Be a reporter at the scene: describe a crucial scene on the spot, as a TV or radio reporter would.
- * Hold an imaginary interview with an author or character in a book: one student can ask the questions of another who pretends to be the author or character.
- * Present a TV program concerning good books. Each student is a guest on the program telling about either the best book he has read or the worst book he has read.

WRITTEN EXPRESSION

Written expression is that type of writing which the student does for practical useful purposes. The teaching of effective writing procedures and the development of standards have to be taught in the practical writing which the children has occasion to use.

This type of writing demands that the writer write with clarity, organization, correct form and mechanics, and that he develops a style which is appropriate to the writing task. With underachievers in the elementary school, these often seem to be among the most difficult writing areas.

It should be remembered that even though the problem is the same for the entire group, the level on which each child deals with it depends upon his maturity and his previous experience. Thus, the teaching and guidance are of necessity highly individualized. An individualized approach with these students is essential.

The purpose of the practical writing phase of the language arts curriculum is geared to motivate the students toward a desire to express their thoughts as clearly and in as varied a manner in writing as they did in oral expressions. The students should learn that writing is essential for entering the everyday world of work.

General objectives of the mechanics of written expression programs are:

1. To provide experiences that will stimulate children to express written ideas in a conventional manner that is appropriate to the situation.
2. To know the meaning and function of punctuation to meet contemporary needs.
3. To organize thoughts and ideas in a manner easily conveyed to others.
4. To have a basic understanding of the use of reference tools.
5. To understand the principles of alphabetizing.
6. To understand the procedures in filling in forms and applications.
7. To teach only those elements of grammar that have an application to the student's needs.

OBJECTIVE: organization of written expression.

Experiences:

- * Write plays on the social studies material or famous scientific discoveries. These must be organized in proper time sequence.
- * Practice alphabetizing with spelling words.

- * Have students outline their own writing. Students should help each other in organization.
- * Write letters, invitations, and thank you notes as a means of learning organization.
- * Write a script for a radio sports announcer. Pupils can work in partnerships to organize these.
- * Write directions on "how to _____."
- * Read words from a well-known popular song and have them write what you read. Correct for punctuation and grammar mistakes.
- * Have a student select an occupation that he thinks he might like to study. Conduct a research from magazines, talking to people, or visiting the place where the occupation is taking place. A written report to the class can later be organized.

OBJECTIVE: Making creative reports by written expression.

Experiences:

- * After reading a book, write the most humorous incident, the most exciting happening, the most interesting event, or the part liked best.
- * Write one's own story from a book title. Then, after having read the book, show the class the difference between the two plots.
- * Write a series of questions which students think other readers should be able to answer after reading the book.
- * Write a magazine ad for a book.
- * Write a simple book review for the school newspaper.

CREATIVE WRITING SKILLS

Each individual's writing is considered the expression of his personality, experience, ideas, and ability. Because all children are creative and need to have an opportunity to express themselves in writing, creative writing has a definite place in our slow-learner, success-oriented program. Creative writing could serve to help students add to their ability to express themselves in clear, vigorous, and descriptive language. It is important that there be no restrictions on the children's writing, as these would only check the flow of ideas or frustrate the writer. A creative atmosphere advocated no frustration and desired ideas to flow.

The teacher has to act only as a catalytic agent in motivating the students in their written expression. The real values of creative writing lay in what is happening to the child, not necessarily what he has produced. If the child is growing in depth of thinking, in

imaginative creation, in respect for the worth of his own ideas, and in ability to be himself, the work is good and his quality of work will also undoubtedly increase.

The main objective of a creative writing program is to foster sensory awareness, emotional release, and use of imagination through the use of creative writing.

General objectives of a creative writing program are to:

1. Recognize, respect and give credit for individual effort or achievement; whenever possible, build up the underachiever's self-concept.
2. Give the child the opportunity to express his own thoughts, discover himself and his competency, to bring his imagination into play, and to express sensory experiences in writing.
3. Recognize and learn the use and effect of different forms of language, and improvement of language skills.
4. Share ideas and feelings through written language and foster appreciation for colorful language.
5. Help enrich experiences and enjoyment of literature.
6. Help those who have the talents get a start in writing.
7. Foster social acceptance.
8. Enjoy a fun experience while learning.

OBJECTIVE: To foster sensory awareness, emotional release, and use of imagination through the medium of creative writing.

Experiences:

- * Make up crossword puzzles. Have students make up the form and definitions for these puzzles.
- * Newspaper--uses for creative writing are almost endless.
- * Develop a special creative writing notebook. Students should save papers for the entire year.
- * Use file cards like "I wonder" or "Can you imagine?" to be used when they want to write.
- * Set up a creative corner for quiet writing with a few stimulating questions or articles available. Examples:
 1. If you could go to any place in the universe, where would you go and whom would you take with you?
 2. What would be your ideal vacation?
 3. Describe the smallest or biggest thing you saw while walking or riding to school today.
 4. What do you wonder about?
 5. Describe an article inside and out.
 6. Describe your yard. Tell about an ideal yard.
- * Pick out someone you know very well and describe him. Tell not only what he looks like, but what he's like inside. Is he kind? Brave? etc.

- * Cut pictures out from magazines and paste on pieces of paper. Have students write about the picture. The most effective are baby pictures. (A varied perspective in the way we perceive.)
- * Have the children write their own puppet play from some historical event. This activity is correlated with art by making their own characters: (1) make scenery; (2) dress characters; (3) students complete all designs. (Foster a seeing-and-doing approach for creative writing)
- * Students can compile a list of characters, a list of actions, and a list of endings to stories. These lists are numbered, and the students draw numbers. They complete creative writing from the three combinations chosen.

OBJECTIVE: to think beyond what is commonly understood.

Experience:

- * Organize a weekly question corner. Have each student write one question per week which is to be answered by other members of the class. Prizes can be awarded for the most imaginative answer to the following "kinds" of questions:
 1. In what ways are snakes useful to man?
 2. What was Buffalo Bill's real name? How did he get this name?
 3. Where is the deepest part of the ocean?
 4. Is a spider an insect?
 5. Can bears really climb trees?

OBJECTIVE: to discover how to think.

Experience:

- * Children who can't seem to think what to write about on their own shouldn't be assigned a topic. A game that is helpful in encouraging thinking is to have the student write out every letter of the alphabet and suggest a word that starts with each letter. After each letter, write the word that starts with this letter, then think of something that this word means to you.

Example:

Allowance: Does your family provide you with an allowance?

Bus: Do you ride a bus or walk to school each day?

Carnival: What would happen if you were to travel with the carnival?

Dinosaurs: Where would you put a pet dinosaur? How much would it cost to feed him?

Teachers might also use the same kind of alphabetical list to generate ideas in other subject areas. After some experience and practice, most students would be able to come up with a multitude of unique ideas.

SPELLING

A complete mastery of spelling concepts is often difficult for the slow learner.

This difficulty is apparent in slow classes, because students with diverse family backgrounds and varied experiences are usually placed in these classes. Students living in homes where two languages are spoken usually do not live in an environment which is conducive to developing underachievers' spelling skills. When these students try to sound out and spell words the way they hear them at home or the way their peers pronounce these words, they usually spell them incorrectly.

Slang and mispronunciations on the part of the student at home, in school, or with his peer group seem to be indicative of the type of spelling ability he possesses. Naturally, students spell words the way they hear them pronounced outside the classroom.

When the student's initial concept of the word is inaccurate, he usually does not learn how to spell it long enough to retain it for use outside of the class. Ordinarily, when he does gain mastery, he learns how to spell the word for a quiz and forgets it immediately after the quiz.

With students who might never become exceptional spellers, the goal should be to give them the words that they might ordinarily have occasion to use.

Phonics (previously advocated in the Language Arts section) may be very helpful, but teachers should not consider this to be the only answer to the slow learner's spelling problems. Phonics serves to develop the mechanics of spelling, but the way the student (1) hears the word, (2) associates it with his surroundings, (3) pictures it in his mind are also very important, because spelling is a visual skill.

Those students who are deemed to have the lowest ability should receive help from their teachers and classmates whenever needed.

In an effort to review the words that students have difficulty mastering, teachers might use a card game experience. Each word that the student can not master might be placed on a card, which is designed to represent a playing card. As in a deck of playing cards, the misspelled word cards would represent "kings," "queens," "jacks," "diamonds," and "spades." These cards could be placed in folders. The object of the game is to show that each student who has a large pack of playing cards is losing, because he has the largest pile of misspelled words.

Teachers during any time of the day might take the student's cards from the pack and ask students to spell the words. When a student can spell a word twice, it is removed from his pack. Students with no cards in their pack are leading the game; while students with many cards are losing. Students have the responsibility to study whenever they have spare time to do so, because they never know when the teacher would decide to "play cards."

As the year progresses, students usually like to challenge each other in spelling the words from their card packs.

For slow learners words are not given as "tests" but as "quizzes," because many slow students are completely failure-oriented where spelling tests are concerned. In some cases even when they can comprehend the word, they usually miss it if it is presented to them in the form of a "test."

Spelling Bingo

The teacher places twenty words on the board for the students to copy. These words are to be mixed up and placed five over and four down on one-inch squared sheets. The teacher in turn plays bingo with these words by playing:

1. Bingo for word recognition
2. Bingo for definitions
3. Bingo for rhyming words
4. Bingo for "black-out"

Sounding

Many underachievers are poor spellers because they can not discriminate between vowel sounds. Many phonics mistakes concerning short vowel sounds have been allowed to go unchecked by teachers. Frequently, the student is told to study his spelling more and he will become a better speller.

Studying spelling more does not seem to be the answer when the student is continually reinforcing phonetic mistakes and can not discriminate between short vowel sounds. When he can not distinguish a difference between the sounds, he often guesses.

An example of some short spelling vowels that students often cannot distinguish a difference are:

the sound a for o or u
 the sound o for a or u
 the sound u for o or a

the sound e for i
 the sound i for e

Learning to distinguish the difference between short vowels is important because every word contains a vowel sound. Teachers might give slow students spelling words forever without seeing any significant progress when the student is unable to hear the sounds. Only when the student has learned to hear the sounds and fixes these sounds clearly in his mind will successful spelling come to him. It is apparent then that the student must first learn his vowels and then completely master his phonetic alphabet from A to Z (Ah, ba, ca, da, eh, fa, etc.).

Teachers might learn to train the students to hear the vowel sounds by giving them quizzes. In these vowel quizzes, the teacher says a word that contains only one vowel and the student is to list only the vowel that can be heard in that particular word. Instant reinforcement must be provided; therefore, the teacher immediately gives the vowel answer. This exercise is repeated for weeks or months until slow students have learned to hear these vowel sounds.

The following list which emphasizes short sounds of a, e, i, o, or u can be used frequently by teachers in their daily quizzes. The purpose is to train students to hear the vowel sounds, first, before spelling words are given.

wilt	plot	slot
trunk	trap	clap
wept	crisp	stock
trot	plus	strip
scalp	spell	slam

It is recommended that slow students not be required to follow a rigid schedule for spelling. Rather, they should complete at will the activities concerning:

1. using the word in a sentence
2. writing the definitions
3. using the words in creative writing experiences

Low ability students who can not read even the smallest words in the spelling units might be given a "crutch" by drawing small pictures along the side of each word. In this manner, slow students who cannot read the words extend association capacity by using the pictures.

Spelling might be fun and meaningful if both teachers and students make an effort to engage in the subject enthusiastically. Consequently, slow learners can become enthusiastic when the teacher accentuates their positive attributes and works understandingly with their negative faults.

HISTORY

History classes can allow students the opportunity to build projects, construct maps, rewrite and act out historical events.

How well the students become motivated depends on how enthusiastic the teacher feels for the lesson. Teachers who take an active part seem to inspire underachievers; while those who sit on the sideline and expect students to be enthusiastic just do not seem to arouse interest.

Creative teachers usually do not teach the history events they like best, rather they present students with historical problems from which the students are to become inspired and construct a unit. The teacher secures a variety of educational materials concerning the historical event.

Course content in history, as well as in every other academic area, can be determined by a group of teachers during an in-service session. Each teacher can aid the others in determining the historical content. Content can be geared to the age and ability of students in the room. A usual program for slow learners is to present fourth and fifth graders with American History content.

Teachers in a group session might outline a series of texts concerning a particular era. In order to provide scope and content to the subject, teachers can then select the sequence of events which can be taught for that particular time in history.

Some of the more noteworthy examples of creative history derived by students developing and then constructing their own units are:

Civil War

1. Making paper mache map emphasizing northern and southern states.
2. Students rewriting the entire history of Civil War battles.
3. Students enacting all major battles using small toy soldiers.
4. Students learning songs of the Civil War era.
5. Students making puppets and holding conversations between famous persons of the Civil War era.
6. Teacher and students acting out all historical events during this era (Example: Surrender at Appomatox Court House).

Thirteen Original Colonies

1. Students construct salt and flour maps.
2. Students paint each colony for the year that it joined the other colonies.

3. Students create their version of what they think the Boston Tea Party was like.
4. Students write a "letter" to the King of England using feathers and ink. (Their version of the Declaration of Independence.)
5. Students make candles.
6. Students re-write their own version of the two scenes from the Boston Tea Party.
Scene I. The Old Meeting House
Scene II. Indians on the Dock
7. Students make and produce their own movie, using puppets as the actors.

North American Indian Unit

Students study the various Indian Tribes on the North American continent. The main theme of this unit is to emphasize how the North American Indian was pushed back by the migration of settlers. Procedures in this unit are:

1. Students write letters of inquiry asking for literature from various Indian Bureaus.
2. The class is divided into groups which represent different tribes.
3. Students construct a model Indian village for each tribe.
4. Students bring Indian artifacts, bead work, and relics to the class.
5. Students make Indian pottery.
6. The class can grind up corn and bake Indian bread.
7. Students make beef-jerky meat from actual deer venison.
8. Students write an Indian skit to be acted out by each tribe.
9. Students make Indian picture writing, by actually grinding up colored rocks as the Indians did.
10. Each member of class, including the teacher, selects his own Indian name. They call each other by their Indian names for the remainder of the week.
11. Students bring in resource persons to perform Indian dances and tell Indian Legends.
12. The class plays Indian hoop games for physical education. All equipment for these activities is hand made by students.
13. Students visit a modern-day Indian reservation.
14. Many Indian boys and girls who are students in the class have much to contribute. Some mail letters home and request relatives to send Indian clothing to the school.

15. Students complete research to find various Indian symbols. When they find the symbols, each symbol is placed on large charts. Students then compose Indian stories and legends using Indian picture writings with the symbols. It is a challenge for the other class members to decipher the stories.
16. Students study and build models of Buffalo jumps in an endeavor to show how Indians obtained their winter meat supply.

A slow-learner history program should de-emphasize the memorization of dates. Rather than dates, slow students can develop class units based on how and why events happened in history. Teachers can present students with an initial concept in order to start developing a unit. Then through research, discussions, and utilization of the Productive Thinking Approach other avenues for learning history can be discovered that are far beyond what underachievers usually gain from a text. The key to learning then becomes an activity-centered approach based upon the students' own ideas in history.

SCIENCE

A science program for slow learners should be based on the process of self-discovery. In using this process, the teacher usually presents the initial experiment, while the students are to arrive at a later conclusion.

A recommended one-year science program for slow classes should include the following areas:

1. Animal study
2. Space study
3. Nature study
4. Electricity
5. Mechanical apparatus
6. Human body

Reliance on a standard text for science should be de-emphasized. In place of a text, the teacher can use:

1. Remedial duplicator sheets.
2. Old newspaper, magazines, or periodicals.
3. Teacher-made diagrams.
4. Student-made notebooks.
5. Group discussion.
6. Objects collected for students to feel and touch in an effort to heighten awareness to the senses.

The following experiments and exercises are recommended for use in the slow learner science curriculum. These experiences endeavor to lengthen the attention span without the use of a traditional textbook.

- * Hatch chicken eggs for correlation with a life study unit. Eggs are cracked periodically and placed in alcohol to show growth and development.
- * Grow plants and chart growth on one-quarter inch squared paper.
- * Collect x-rays from various doctors' offices and clinics. Collect enough samples so the class has a complete skeleton. Scotch tape the entire diagram to a window frame for use during a health unit.
- * Entire class visits a pet store and purchases fish. Every student names his own fish and completes creative writing activities concerning his fish.
- * Gold fish can be used to demonstrate circulation of blood during a unit on body circulation. Place a wet piece of cotton over the fish gills. Place tail under the microscope and allow students to view blood being pumped through fish tail. If cotton is kept damp, the fish can be returned to the tank unharmed.
- * Demonstrate friction by rubbing wire vigorously across a block of wood. Experiment is also applicable for correlation with early man and fire (social science units).
- * Buy a large sheet of plastic and hang it completely across the ceiling of room. Students are to draw the Solar System and constellations on the plastic sheet. These very large sheets can be purchased for a nominal fee at any paint store. For rigidity, attach long poles to each end of plastic.
- * The electricity unit can be taught by dismantling old electrical appliances. Allow students to "tinker" with these for a few days before commencing the unit.
- * Secure an entire beehive in the fall when bees can do no harm. Place bees in large glass aquarium and cover until spring. A plastic hose will serve as an outlet from the classroom to a hole in the school window. When properly covered, students can observe activities inside the hive. A unit on social insects can follow.
- * Build a mock model of a satellite. Use a rose bowl that can be turned upside down. Students glue to inside of bowl-- old blinking Christmas lights, old test tubes, and used radio tubes. Two or more aerials can be attached to rose bowl for effectiveness.

- * Secure a small hand turning generator. Build your own electric city with model electric light poles. Cranking the handle of the generator will turn on your model city lights.
- * Make murals after viewing science movies.
- * Grow seeds from every available agricultural crop in your state. Grain companies will usually give students samples of each kind of seed.
- * Boil small animal bones. Dry and reassemble the bones with glue. Use the models for study during a health and science unit.
- * Construct models of local industries and study the jobs related to the industry.
- * Search for ways to study local environment.
- * Collect specimens of frogs, eggs, bugs, etc. Preserve these in alcohol, for use in your science units.
- * Allow students to start scientific hobby clubs. Model airplanes, model ships, etc.
- * Collect butterflies and other insect specimens.
- * Collect spider webs by spraying the web with gold or silver spray paint. Remove the web by picking it up on a sheet of dark construction paper. Cover web and paper with cellophane.
- * Bring in resource persons to present a drug seminar. Scientific discussions should follow.
- * Collect bees and study the life of the "social insect."

The writer has chosen to mention a few of the varied science activities for slow students. He believes that science units based on students' interest should be developed.

MATHEMATICS

Teachers should plan instruction to include real life situations, actual object, manipulative and pictorial devices to aid children in dealing with the abstractions of number relations. Continuous appraisal of each child's progress will allow the teacher to ascertain strengths and weaknesses, provide appropriate learning activities, and select effective material.

The following basic slow learner math curriculum is recommended.

Addition

Two addends _____
 Double column _____
 Single column _____
 Three column _____
 Four column _____
 Money _____

- * Can count from 1 to 100.
 Can spell numerals and write numbers adequately for age and grade.
 Can recognize numbers in a series.
 Can count by two's and by five's.
 Recognizes money signs.
 Knows the value of penny, nickel, dimes, quarters, dollars.
 Can make practical comparison value of items and price to be paid.
 Can identify addition facts in story problems.
 Can identify place value for addition of columns with 1-4 digits.

Subtraction

Two digit _____
 Three digit _____
 Four digit _____
 Across zeros _____
 Knows how to prove by addition _____
 Money _____

- * Can subtract tens.
 Can express single digit subtraction with number sentences.
 Knows inverse operations addition and subtraction.
 Can subtract using money.
 Learns and understands the concept of borrowing (habit of continually taking small number from larger number without concept of where number is located.)

Multiplication

Without carrying _____
 With carrying _____
 With zeros _____
 One digit _____
 Two digit _____
 Three or more digits _____
 Money _____

- * Can understand the multiplication sign.
Knows multiplication tables sufficiently for grade and age.
Understands the concept of factor and product.
Can understand multiplication facts with factors of 1, 2, 3, 4, etc.
Can understand that multiplication and division are opposite.
Can multiply using money and can relate these to purchasing.
Can estimate answers in multiplication.

Division

One digit divisor _____
 Two digit divisor _____
 Larger quotients _____
 Money _____

- * Can divide and understand concepts 2, 3, 4, etc.
Can apply the class-made rule (See what divisor goes into, mark an X above number that divisor will divide into, estimate on every step of the problem.)
Can understand that division and multiplication are opposite.

Fractions

Add like fractions _____
 Add mixed like fractions _____
 Find common denominators _____
 Add unlike fractions _____
 Add unlike mixed fractions _____
 Subtract unlike fractions _____
 Subtract like fractions _____
 Subtract like and unlike mixed fractions _____

- * Can understand that fractions are parts of things.
Knows halves, quarters, eighths, sixteenths, etc.
Can understand the fractional number with the smaller demoninator is the greater number.
Can express fractions in lowest terms.
Understands like and unlike denominators.

Fractions

Multiplication of fractions _____
 Whole number times fraction over one _____
 Mixed number times fraction _____

Mult. three fractions _____
 Mult. three mixed numbers _____
 Division of fractions _____

- * Can multiply and divide fractions with unlike and like demoninators.
- Can multiply mixed numbers.
- Can divide mixed numbers.

Decimals

Addition of _____
 Multiplication of _____
 Subtraction of _____
 Division of _____

- * Can understand decimal place value related to money; notating dollar signs and cents.
- Can understand proper placement of the decimal point.
- Can understand tenths, hundredths, thousandths, and express these in decimal and fraction form.
- Can add, subtract, multiply, and divide decimal for age and grade.

Measurement

Inches _____
 Feet _____
 Yards _____
 Liquid measure:
 Quarts _____
 Pints _____
 Gallons _____

Telling time as a unit of measure _____
 Roman numerals _____
 Place value _____

- * Can estimate length of objects in inches.
- Can distinguish between inches, feet, yards. Use as a unit of length measure.
- Can tell time in hours. Develops entire concept of telling time throughout the school year.
- Can choose the proper kind of measurement for story problems.
- Can understand pint as a unit of measure that is very common.

Can learn to read and write Roman numerals commensurate with age.

Can show inches in a foot and feet in a yard.

Eventually tell time to the hours, half, quarter, and minute.

Compare quart, pint, and half pint.

Measure objects to uneven units such as half inches, and quarter inches.

Learn to measure large spaces--school room, playground, street, block, etc.

More progressive students could learn to measure to eighth inch.

More progressive students use time and distance to find speed.

Learn place value through millions depending on age and level.

Measure their own progress through remedial bar graphs.

Geometry

* Identify right angle.

Identify and draw rectangle, square, triangle, circle.

Can recognize shapes in surroundings.

Measure surface areas.

Measurement of volume.

Understand line, segment, point.

Can know and understand surfaces or the idea of a plane.

Can learn to solve simple volume problems using length, width, height. Must be able to draw these three dimensional figures.

Can learn the concept radius and diameter. Can solve some simple problems using both.

Can learn and spell a number of geometric terms commensurate with ability.

Can learn perimeter as a distance around.

Can learn formulas for finding area. Can solve some simple problems using both.

Per cent

Addition _____

Subtraction _____

Multiplication _____

Division _____

MANIPULATION

Manipulative objects for use in the creation of math problems included:

1. Bottles or cartons--half pints, pints, quarts, gallons.
2. Measuring--ruler, yard stick, tape measure, string, cord, etc.
3. Play money.
4. Factory produced or teacher-made math games--including musical records, multiplication games, playing cards, dice, colored rods, colored cubes, and an adding machine.

TEACHER'S EDITIONS

Math materials for slow students could include old workbooks, remedial math kits, standardized texts, or newspapers. Because students present problems to each other and are trained to help each other, teachers can purchase series of Teacher's Editions to standardized texts. Student tutors can use the texts while helping other students.

There are innumerable other math areas that slow students must deal with in life situations. These should be provided within the curriculum whenever possible. Some examples of these areas follow:

- A. Compare different amounts of money.
- B. Know that any number multiplied by zero is zero.
- C. Figure out cost of groceries, or other items, by using the newspaper.
- D. Figure addition, subtraction, multiplication, and division in problems relative to purchasing.
- E. Read and write written numbers.
- F. Make change using play money and play coins.
- G. Know and understand the concept of the calendar.
- H. Know all the seven days of the week and the twelve months of the year.
- I. Compare most liquid measures.
- J. Tell time and relate it to real life situations.
- K. Use some Roman numerals.
- L. Read a thermometer and recognize degrees.
- M. Learn to estimate in all phases of math.
- N. Learn to read graphs, and use them to chart his own school progress.
- O. Learn the different facets of time (year, month, day, hour, minute, second).
- P. Learn to figure averages.

GEOGRAPHY

A subject which formerly emphasized the memorization of names, countries, and far away places often unfamiliar to slow students can be altered by the teacher in order to be a pleasurable subject with significant meaning. The teacher can pretend that he is running a travel agency and take his students on tours.

The Teacher's Travel Agency can take students on life-like tours of each country on the map. The teacher and class can pretend the entire time that they are on a tour bus riding throughout the country. The teacher, as tour guide, points out and describes significant towns, different places, and scenic points along the way. Students pretend that they are actually taking the tour and try to imagine the points that the tour guide (teacher) is emphasizing.

The teacher can hold pictures of scenic points of interest in her hand, but should never rely on a textbook. Through the windows of a make-believe bus, she points out and brings up a multitude of points that the slow learner would never note by reading.

Subsequent experiences would have the entire tour party (class) viewing movies and reviewing pictures to fill in the details of the places where they had actually "pretend" visited while on the tour with their tour guide. The travel-agency approach can be utilized for every country that the teacher desires to visit. It serves to motivate students who ordinarily lose interest in geography.

Depth can be added to this unit when the students compile lists of words relative to observations they have made while touring the country. These student-made lists can then be used for spelling and writing activities.

Teachers may use various follow-up activities. In order to determine how much the student knows and what he has remembered about the country he has visited, through the pretend travel agency, the teacher can initiate a very innovative quiz.

The quiz is under the disguise of a long-distance phone call which the student makes home. The call comes from the country that the students are visiting. During this call, they tell what they saw while touring the country. They are requested to mention and tell every little detail about their tour over the phone to the parents during this make-believe telephone conversation.

The teacher tape records all of these pretend calls as a means of testing. Each conversation on the tape is evaluated by the teacher, and every child is judged in accordance with his abilities and age.

This type of experience adds depth to the subject of geography. The approach encourages both student and teacher to take an active part in the learning process. Teachers who have made actual tours of countries can call upon first-hand experiences to heighten their students' awareness to other countries.

Later, during the school term, the students form their own Travel Agencies. Two or more students study together everything they can find about one country and then form their own agencies. As part of this travel agency, they design their own Brochures depicting scenes from the country. These brochures can be distributed to other members of the class in an effort to get these students to visit this particular country. In essence, students are "selling" each other on the idea, "My country would be better to visit than any other country." They can then make large murals which usually depict customs and traditions from that particular country.

Geography activities which complement the travel agency and travel bureau approach to learning follow:

- * Students write their own geography book concerning each country they study.
- * Students make their own postcards from the country they are currently visiting, and mail these cards to friends in the class. (Cards can also be used to inform teachers as to how much the students have learned in the unit.)
- * Walk-on maps can be drawn on large sheets of plastic. Students can then:
 - measure distances
 - discuss the various kinds of transportation required to travel from one country to another
 - initiate discussions concerning different sizes and population density of countries
 - label and record continents, countries, oceans, and seas
- * Students can dress up in the traditional country dress. Cook and serve the meal from the country.
- * Dance to the countries' music for physical education activities. Learn these dances.
- * Make dioramas and murals concerning scenic points within the country.
- * The teacher can draw remedial maps to be reproduced on duplicator sheets. Students fill in rivers, cities, highways, etc. concerning the country.
- * Send for lists of free materials from the country's embassy.
- * Students can write original plays about their country.
- * Have a festivity day, representative of the country being studied.
- * Contact resource persons to speak about various countries and locations.
- * Make craft work, bead work, pottery, etc. from the country.
- * Students write to pen pals in foreign lands. Report back to class concerning the letters received.

- * Students make and keep up to date a scrap book concerning events currently happening in that country.
- * Make models of the kind of transportation used in each country.
- * Play bingo as a means of testing. Use geography terms. (See section of Spelling for Rules to Play.)
- * Play time zone math. What time is it in various parts of the world if one lives in certain time zones.
- * Write to United Nations for information on various countries.
- * Teacher reads humorous stories or regular stories concerning the country's lore.
- * Teacher reads "spooky" stories concerning the country's folk lore.

OTHER ACTIVITIES--Geared for Lower Ability Students:

- * Get city map and plan how to get from place to place.
- * Practice giving directions.
- * Make a city using cereal boxes, streets can be made from salt and flour.
- * Collect pictures and models of animals from various countries.
- * Use a newspaper--what is happening in different countries.
- * Secure school district films about countries being studied.
- * Each student studies a different country and presents it to other classes.
- * Observe TV programs from countries. Use the TV Guide.
- * Study country's music as to kind of cords, pitch, notes, etc.
- * Take field trips: to places that display art work from different countries.

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