

1966

## The Impact of Remedial Language Arts Instruction on the Language Skills of Slow-Learning Fifth and Sixth Graders

Elsie D. Thompson  
*Central Washington University*

Follow this and additional works at: <https://digitalcommons.cwu.edu/etd>



Part of the [Disability and Equity in Education Commons](#), and the [Educational Methods Commons](#)

---

### Recommended Citation

Note: The terminology present in this thesis is a product of its time and may be seen as racist by today's standards.

This Thesis is brought to you for free and open access by the Master's Theses at ScholarWorks@CWU. It has been accepted for inclusion in All Master's Theses by an authorized administrator of ScholarWorks@CWU. For more information, please contact [scholarworks@cwu.edu](mailto:scholarworks@cwu.edu).

193

THE IMPACT OF REMEDIAL LANGUAGE ARTS INSTRUCTION  
ON THE LANGUAGE SKILLS OF SLOW-LEARNING  
FIFTH AND SIXTH GRADERS

---

A Thesis  
Presented to  
the Graduate Faculty  
Central Washington State College

---

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Education

---

by  
Elsie D. Thompson  
August, 1966

LD  
57713  
T4694i

SPECIAL  
COLLECTION

139109

APPROVED FOR THE GRADUATE FACULTY

---

Donald J. Murphy, COMMITTEE CHAIRMAN

---

E. E. Samuelson

---

John E. Davis

## TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM AND DEFINITION OF TERMS USED	1
The Problem . . . . .	2
Statement of the problem . . . . .	2
Statement of the hypothesis . . . . .	2
Importance of the study . . . . .	3
Definitions of Terms Used . . . . .	6
Experimental group . . . . .	6
Control group . . . . .	6
Basic Language Arts Program . . . . .	6
Small group instruction . . . . .	6
Regular class instruction . . . . .	7
Individualized instruction . . . . .	7
Matched pairs . . . . .	7
Limitations of the Study . . . . .	7
II. REVIEW OF THE LITERATURE . . . . .	9
Purpose and Goals in the Language Arts	
Program . . . . .	10
The Curriculum . . . . .	11
Speaking and Listening . . . . .	12
Spelling . . . . .	13
Grammar and Usage . . . . .	14
Development of Oral and Silent Reading . . . . .	16
Characteristics of Disabled Readers . . . . .	17

CHAPTER	PAGE
Summary of Research on Disabled Readers . . . . .	18
Areas for Research . . . . .	19
Remedial Instruction . . . . .	20
III. RESEARCH DESIGN . . . . .	24
Administrative Contact and Approval . . . . .	24
Experimental Group . . . . .	25
Control Group . . . . .	29
Control group . . . . .	29
Instrument to be Used . . . . .	30
First Test . . . . .	31
Second Test . . . . .	31
Matched Pair Approach . . . . .	32
IV. RESULTS OF THE STUDY . . . . .	35
Statistical Procedures Used . . . . .	35
V. SUMMARY AND IMPLICATIONS . . . . .	38
Summary . . . . .	38
Implications . . . . .	39
BIBLIOGRAPHY . . . . .	44
APPENDIX A. Class Schedule . . . . .	47
APPENDIX B. Test Schedule . . . . .	48
APPENDIX C. Iowa Tests of Basic Skills Raw Scores . . . . .	49
APPENDIX D. Computational Table . . . . .	50

LIST OF TABLES

TABLE	PAGE
I. Data for Matched Pairs . . . . .	34
II. Summary Table . . . . .	37

## CHAPTER I

### THE PROBLEM AND DEFINITIONS OF TERMS USED

How do schools meet the special needs of individual students? Usually the requirements of the regular curriculum are enriched for those children who are above average or gifted, and modified for those who are slow in maturing or are handicapped. In a sense, the modification for the slow learner is an enrichment for him. It is very difficult if not impossible for the slow learners to compete with children who operate in a more rapid way. They need praise and encouragement as much as any individual does. Just as the gifted need opportunities to be challenged, so do the slow.

A student who fails to acquire competence in language faces life with a handicap. The way a child uses his language skills is important to him both as a student learning to communicate and as an adult meeting the problems of a complex society. He will need to master such skills as handwriting, spelling, reading, composition and oral expression. Along with these basic skills he will need sensitivity to the beauty of prose and poetry, an understanding of words as the tools of communication, and an awareness that thoughts and ideas are the goals for which such skills are perfected.

This study is concerned with one school's attempt to strengthen the language skills of slow learning students and in doing so help them to develop the art of language.

## I. THE PROBLEM

Statement of the problem. This study is undertaken to determine the impact of remedial language arts instruction on the language skills of slow learning fifth and sixth graders. It will seek to determine whether slow learning fifth and sixth graders, receiving remedial instruction in the language arts, will achieve as well as, or better than, slow learning fifth and sixth grade students in a regular heterogeneous classroom situation.

Statement of the hypothesis. If slow learning pupils receive remedial instruction in the language arts, they will then achieve as well as, or better than, similar students in regular classrooms who do not receive special remedial instruction.

The specific hypotheses which will be tested are:

$$1. H_1 u_E > u_c$$

$$2. H_0 u_E = u_c$$

$u_E$  = Population mean of experimental group

$u_c$  = Population mean of control group

Importance of the study. One of the basic abilities needed in life is the ability to use language--to read, write, speak and listen. Language is a universal tool of communication. It can contribute to the growth of the individual personality and to unity among all peoples. The conditions of living in the world of today make it important to read and interpret a newspaper intelligently, to listen critically to radio or T.V. broadcasts, and to speak, write, read and listen with logic and honest. The people of the United States are depending on their schools to meet adequately the tremendous challenge of the times. The program in the language arts must help the individual student not only to develop his personal stature but to play his part in group life. It should attempt to develop in students the ability to think and to communicate in the English language and to appreciate the values of literature. Its goal is the ability to use the language as an effective instrument of thought, expression and communication. Young people need to develop a sense of security in the use of their own language. They need to be able to use sentences and paragraphs as an important means of expression. They need to develop a respect for words, to increase their vocabularies and to make their meanings clear. In short, they need to develop their personal ability to think, to speak, to write and to listen intelligently.

For many years teachers and administrators have had objective evidence that all children do not mature at the same rate, nor do they progress to the same final level. One of the important tasks of the school is to arrange the learning situation so that it is within the capacities of the child. After the needs, interests, abilities and experiential background of each pupil have been identified, language experiences can be planned which are stimulating and satisfying to the individual. Shane summarizes his conclusions:

There is considerable agreement that some types of modifications are appropriate for the reading program especially for the mentally handicapped and for the normal but retarded child. There is widespread acceptance of the importance of individualizing reading instruction; less agreement regarding the form in which grouping for instruction should be implemented. Considerable attention has been directed toward the relation of the reading program to the total development of the child. While ability grouping schemes have been criticized they also have their proponents (21:15-16).

Segregation of students into small groups makes it possible for each person to receive individual help, to share his experiences and to develop security in his language experiences. Sometimes the basis for grouping is the need to improve reading skills or to find material in the library. Sometimes it is in spelling, or in English usage, pronunciation or articulation. Grouping on the basis of need is a long-established practice in many schools. The Commission on the English Curriculum of the National Council of Teachers of English has this to say:

Though experiments and experiences with homogeneous grouping in terms of mental ability and scholastic achievement yield conflicting opinions, there is favorable evidence that both educationally and socially slow-learning children benefit from being taught with other slow-learners. Gifted pupils are challenged to do their best when they are grouped with other gifted children. Always within any such group there is still a range of abilities; and in the total pupil population in any school a great enough range to furnish socializing experiences for both the slow-learner and the gifted (7:267).

In an effort to develop means of caring for the language needs of slow-learning pupils, a Basic Language Arts program was initiated at Columbia School, Wenatchee, Washington, in the fall of 1965. The greatest need appeared to be in grades five and six, involving six classrooms. Selected students were given intensive remedial instruction in the language arts on a half-day basis. Though these pupils are segregated in a homogeneous grouping for small group instruction, they are not isolated from the rest of the school's program and activities. They retain contact with their home room for the remainder of the day. This study will seek to evaluate the program and give concrete evidence to the administration of pupil achievement.

Since this Basic Language Arts program is the only one of its kind in the Wenatchee schools, it is hoped that the results of this study may be useful to other schools or other districts contemplating remedial instruction in the language arts.

Finally, the study will serve to evaluate the reme-

dial instruction and will serve as a guide in planning and refining the present language arts curriculum.

## II. DEFINITIONS OF TERMS USED

The definitions used in this study are the ones existing in the current literature.

Experimental group. The experimental group is the Basic Language Arts Program in Columbia Elementary School, Wenatchee, Washington, where remedial instruction in the language arts is being offered to slow-learning fifth and sixth graders.

Control group. The control group is a group of slow-learning fifth and sixth graders in heterogeneous classes in a nearby elementary school in a comparable district and on the same socio-economic level.

Basic Language Arts Program. The Basic Arts Program is a homogeneous grouping of slow-learning fifth and sixth grade students, segregated for half of each school day, for the purpose of receiving intensive remedial instruction in the language arts, which consists of reading, oral and written language, library, spelling and penmanship.

Small group instruction. Instruction of a group of eight to fifteen pupils grouped by ability, need, strengths

and/or weaknesses.

Regular class instruction. Instruction of twenty-five to thirty-five pupils in a heterogeneous grouping in a normal classroom situation.

Individualized instruction. Instruction designed to fit the needs of an individual child.

Matched pairs. In order that statistical results can be compared, two groups of children were matched individual by individual according to three variables: Iowa Tests of Basic Skills;-Test L, percentile scores, chronological age, and sex.

### III. LIMITATIONS OF THE STUDY

This study by necessity has certain limitations. It is limited to a comparison of fifth and sixth grade students only. The fact that the control group is taught by different teachers while the experimental group is taught by one teacher may be a limiting factor.

Although both schools receive similar supplies and materials, there may be considerable variation in how extensively they were used.

The number of matched pairs was determined by the size of the Basic Language Arts classes. Students were matched in three areas only as sufficient information was

not available for all children on such items as I Q scores and socio-economic background.

The study is limited also by the fact that the Iowa Tests of Basic Skills Form I was administered by individual classroom teachers and not by the investigator.

Form 2 of the Iowa Tests of Basic Skills was administered by the investigator to both experimental and control groups during a two-weeks period in May, 1966.

The outcome of the study could also have been affected by such unmeasurable variables as pupil health and attitude, home backgrounds and emotional stability of the children involved. This study was further limited by the lack of any standardized evaluative tool for measuring pupil achievements in such areas as listening, oral discussions, dramatics, creative writing or critical analysis.

## CHAPTER II

### REVIEW OF THE LITERATURE

A survey of the current literature on the language arts indicates that there are many view points regarding the functions and purposes of the language arts on the school program, numerous trends in its instruction, specific needs which are felt and various goals which have been set for the promotion of successful ideals. In their review of the research Searles and Carlsen indicate some of the areas which present problems to teachers:

Although language-arts teachers in the average school are beset with many problems, there are six major ones that have grown out of the research findings of recent years: (a) the role of English grammar, (b) the role of American usage, (c) the organizational pattern in which language can best be taught, (d) the development of oral language skills, (e) class size, (f) the implications of semantics in the development of language abilities (20:461).

The language arts--oral and written composition, spelling and handwriting, and reading--all have a common purpose, the exchange of ideas. One art contributes to another as reading to spelling, composition to reading, and reading to language in such areas as vocabulary and sentence forms. Research in approaches to these problems and areas of instruction will be included in this review in so far as it has significance for this study.

## I. PURPOSE AND GOALS IN THE LANGUAGE ARTS PROGRAM

The American people are more conscious than ever before of the need to maintain a staunch democracy, strong in the support of individual liberty, yet understanding that education must develop in children and young people "deep-seated loyalties to their fellow-men and to the principles which underlie their life together" (6:7). The Commission on the English Curriculum defines the aim of the language curriculum this way and states the goals of the schools in promoting attitudes, ideals and patterns of behavior which are characteristic of our basic tradition:

In the schools of a democracy the program in the language arts must at the same time help the individual student to grow into the fullness of his personal stature and to play a responsible part in the group life. Only as an individual creates for himself a sound hierarchy of values can he make an important contribution to society as a whole. While it is true that the individual is fashioned in significant measure by his environment, it is also true that individual men and women who develop assurance and authority in their own right exert a powerful influence upon society.

The teaching of the language arts attempts to develop in students the ability to think and to communicate in the English language and to understand the humanizing values of literature. Its goals are, in a word, the linguistic abilities and the awareness of the values of life which are required by the fully mature civilized human being (6:7-8).

As society grows continuously more complex and depends increasingly upon the use of the written and spoken word, the ability to read, write, speak and listen is essential to earning a living and to sharing in community life in an effective way.

Speaking and listening have always been recognized as necessary to any kind of satisfactory social and community living, but parents of a hundred years ago, although they valued reading increasingly, did not consider it indispensable to a good life. Today, the child who does not learn to read cannot participate intelligently in the common life and is therefore a source of concern to his parents, to the school he attends, and to the community as well. Writing, once an accomplishment of a very few people, is now recognized as a needed skill for all children in meeting the common demands of day-by-day living (7:16).

## II. THE CURRICULUM

Relatively little research has been done in determining how and when children shall be introduced to various phases of the language arts program.

The problem is one of determining what should be taught, to whom, and when; in other words, defining the scope of the experiences to be offered, deciding upon the sequence or order of presenting them, and planning to care for the needs of individual pupils. What is taught depends on the basic philosophy of the school. The sequence in which experiences are offered grows out of knowledge of how pupils mature and how learning takes place. Caring for individual differences requires a careful diagnosis of the stage of growth of each individual within the classroom and the adjustment of instruction to the needs discovered (6:55).

Searles and Carlsen find that variations in content, grade-placement, emphasis, and methodology in the language curriculum are very great and that the curriculum often lags appreciably behind the recommendations. They indicate two major trends in the curriculum area. One is the placement of materials in growth sequences based upon knowledge of the order in which language skills are normally learned. The other is the interrelationship of the language arts to one

another in a course of study which is not narrowly departmentalized but attempts to acknowledge the importance of language to school and community life (20:458-459).

The Commission on the English Curriculum summarizes it this way:

Curriculum-building, therefore, involves gearing the various powers and skills in the language arts program to the broad aspects of child development as found in most normal children. Effective teaching carries out such a program by finding the teachable moment for each child's learning of each of the skills involved (7:40).

### III. SPEAKING AND LISTENING

Before a child comes to school, he usually has acquired considerable proficiency in the use of the spoken word, although this ability will vary markedly from individual to individual. This fluency has been developed in the home and is a product of his own mental power to benefit from experiences he has had, examples he has heard and opportunities he has been given to exchange communications with others. Hildreth contends that the development of a child's language may provide "an index of his capacities for thinking and reading as well as the extent of his learning from experiences" (12:50). Betts suggests that through listening, speaking, reading and writing "the individual acquires recognition and control over the use of words as a part of his pattern of living (4:96). Though different numbers have been suggested in various studies it is usually considered that "the typical child on entering school uses over two

thousand words in speaking and is able to express ideas in simple sentences averaging five to seven words in length" (12:51). No matter how capable the child may be in the use of oral language when he comes to school, the teacher has the responsibility of improving and extending his competency and helping him toward more mature oral language achievements.

Many teachers bemoan the fact that children do not listen. Hearing the sound does not insure understanding unless there is thoughtful reaction. Teachers need to be good listeners themselves. Herrick believes that:

. . . teachers must help children become aware of the world of sound, of the satisfactions inherent in this symphonic world, and the safety and life adjustment values which correlate with being selective, adaptable, and utilitarian listeners (11:170).

Skill in listening may be a real aid to the enrichment of life. There is much esthetic satisfaction to be gained in listening to music, poetry reading and drama. Vocationally speaking, knowing when to listen and what to listen for should pay high dividends in promotion and personal satisfaction.

#### IV. SPELLING

Research shows that many elementary school children are retarded in spelling. Diagnosis and remedial instruction are highly important, not only for spelling in the elementary school, but also for writing activities in later life. If the cause for poor work is determined, it can

usually be eliminated. The causes for poor spelling may be summarized briefly as follows: the child did not study the words; he did not use an effective method of learning; he did not appraise his written work to determine his errors; he did not correct his spelling errors. Physical factors such as poor memory, poor hearing, excessive slowness in writing and poor vision may be contributing factors. Sometimes there are several causes combined which give great difficulty. Careful remedial work will usually eliminate most difficulties. The Commission on the English Curriculum places the responsibility for mastery of important spelling skills on both teacher and pupils:

Learning how to attack the spelling of new words, sensing how words are put together, and developing power to see and hear them, to compare what one sees with what one hears, to write words accurately, and to use them with due regard for meaning are as important skills for mastery as the learning of specific words. Most important of all is a sense of responsibility for spelling words correctly in order to make one's communication intelligible. Ability to use the dictionary is a necessary skill, but it can never take the place of an interest in words and insight into how they are built. Instruction of this kind is important in every year from the first grade through the thirteenth--always in relation to the expression of ideas or remediation of difficulties revealed in the pupils' own writing (6:325-326).

## V. GRAMMAR AND USAGE

Children learn the use of language long before there is any need for them to analyze its structure. In the elementary grades the major emphasis is upon the actual use of language and the improvement of skills through use, rather than upon knowledge about the language itself and attention

to rules. Herrick has this to say concerning instruction in the elementary grades:

Grammar in the elementary grades means growth in speech form and manners, growth in the conventions of writing, and growth in the discrimination of appropriate word usage. Since instruction leading to such growths must include descriptions of how English is spoken and written, together with practice in the socially preferred forms, it may properly be called "grammar," even though it will generally postpone the analysis of parts of speech and the study of structural parts of the English sentence (11:289).

In their review of the research, Searles and Carlsen recognize that the clearest current trend in the teaching of grammar and usage is toward functionalism. In support of this development they suggest specific concepts which may result:

The functional approach to grammar assumes a reduction in the number of grammatical concepts to be taught, a definition of the concepts which are demonstrably useful in the improvements of expressional powers, and observation and practice of language uses as the most reliable means of achieving proficiency (20:460).

The scientific approach to language usage discards the concept of right and wrong and applies the concept of appropriateness to language structures. Although such a concept liberalizes the curriculum considerably, it still implies a standard toward which the teacher may move.

Searles and Carlsen contend that:

. . . language instruction is best accomplished if a student is constantly placed in situations where he needs to communicate with others through writing or speaking in order to accomplish his goals. In such a situation, the teacher brings to bear the understandings about language that will help the student be successful in his undertakings. Although there is little documentary evidence to support the contention, the recommendations of experts in the field have persistently supported such a change in the language-arts program (20:463).

## VI. DEVELOPMENT OF ORAL AND SILENT READING

There has been some controversy about the value of non-oral methods versus oral methods of teaching reading. Instruction in silent reading begins in first grade at the same time as in oral reading; the two are inseparable and develop simultaneously. Durrell states that "there is little conflict between the skills required by oral and by silent reading" (8:175), but while he recognizes that they have many skills in common, he warns that "success in one does not insure equal success in the other" (8:174). Children may show inattention and insecurity in silent reading but find oral reading interesting and informative. At any level oral reading presents an excellent opportunity for diagnosis and analysis of children's reading difficulties. Faulty habits and confusions become immediately apparent to the teacher and may reveal reasons for the child's lack of progress and his failure to comprehend material. Oral reading has other important values: it motivates reading, it encourages the exchange of ideas and is essential for pupil reports and discussions of library materials. It has the obvious disadvantage that only one pupil can read at a time. It may also encourage lip movements and word pronunciation in silent reading which may later require remedial attention.

Silent reading is a much duller process for slow or beginning readers. Special attention to silent reading practice may need to be instigated to provide security in the first stages. Durrell warns that:

Over-emphasis on word analysis, or materials so difficult that oral reading becomes "word wrestling," may eliminate meaning from reading entirely, and make attention to meaning--the primary purpose of silent reading--almost impossible for the child. When he attempts to read silently, he continues his oral word-wrestling. Too much drill on the "name" of the word in word-recognition practice may empty words of their meanings (8:176).

## VII. CHARACTERISTICS OF DISABLED READERS

Learning to read is a highly complex process which provides countless opportunities for confusion and difficulty. Kingston suggests that it seems likely that a number of apparently different causal factors of reading disabilities converge in producing a common effect (14:102). Aaron indicates that:

By and large disabled readers are average or above average in intelligence. Children below average in intelligence are found among disabled readers, but it is generally believed that those below average in intelligence come nearer to reaching their potential in reading than do those who are average or above in ability (2:103).

While no common characteristic distinguishes all disabled readers, surveys indicate that the following description may be considered fairly representative:

The typical extreme underachiever is a boy who comes from a home experiencing cultural and economic deprivation. The home history indicates little language training which would have stimulated conceptual thinking, vocabulary development, and appreciation for stories and language. The pupil, often pseudo-bilingual or Negro, attends a primary grade in which his peers come from similar social and cultural background. Neither has this culturally handicapped child sufficient training with oral language and listening before initial reading instruction (18:223).

A study of the characteristics of pupils of high and low reading ability reaffirms the need for more research in this area. Ramsey suggests that:

The repetition of studies of this type in individual reading classes would provide a teacher with information that would enable him to more adequately help his students to become better readers (19:94).

#### VIII. SUMMARY OF RESEARCH ON DISABLED READERS

There is evidence in support of the statement that reading disability is a widespread educational problem with multicausal factors. Aaron indicates that intelligence does not seem to present the greatest handicap:

It has an effect on progress and may be of more significance to certain children, e.g., the child with low intelligence who may be pushed too hard, or the child with high intelligence who may be bored. Other physical factors such as varying degrees of impaired sight or hearing are contributing causes to reading disabilities but seldom are associated with a large majority of severe cases (2:104).

Vernon asserts that "there is no clear evidence as to the existence of any innate organic condition causing reading disability, except perhaps in a minority of cases" (23:115). Physical causes for reading disability should, of course, be corrected when possible. Information about the nature of physical handicaps and the kind of help available for diagnosis and correction should be obtained, but it should not be assumed that these measures will solve all reading difficulties.

Emotional factors may interfere with learning to read but the question of which came first, reading disability or

emotional problems, is often raised. In Kottmeyer's experience with clinic cases he has found "no evidence to substantiate the belief that a high percentage of disabled readers originally become so because of emotional disturbance" (15:22). He has observed that many pupils with manifestations of maladjustment tend to adjust themselves after they have mastered basic reading skills. He estimates that "in only about six per cent of our cases have we been fairly sure that emotional disturbance was a significant factor in the original cause of failure to learn" (15:22).

Left-handedness occurs frequently among disabled readers, but it need not in itself constitute a barrier to reading. Betts makes these observations on laterality or dominance:

It is well known that some individuals prefer to use the left hand for writing activities and the like and the left eye for sighting. Furthermore, there is evidence to the effect that one hemisphere of the brain dominates in the control over hand preference and language. Studies of hand, eye, and foot preference have led neurologists to advance ideas about the relationship between a confusion of dominance, or a clearly established dominance, and certain types of speech disorders and reading disabilities. A discussion of the technical aspects of laterality and language disabilities cannot be justified at this point. So far as this problem is concerned, the teacher should be aware of the possible educational implications of a change of handedness and permit each child to use his preferred hand for all unimanual, or one-handed, activities such as writing (4:137).

## IX. AREAS FOR RESEARCH

Many research studies through the years have centered attention upon single isolated factors, implying that when

such a causative factor is eliminated reading retardation will also disappear. Workers in the field now conclude that reading disability is usually caused by a complexity of several factors and that poor teaching or poor learning conditions are probably responsible for more reading problems than all the other causes put together. Aaron asserts his belief:

. . . that educational factors play one of the largest roles in reading disability. The majority of reading disabilities have associated with them educational factors and the disability frequently begins with educational factors (2:106).

Durrell indicates that the greatest cause of reading difficulties results from failure to adjust to individual differences. He states; "The chief problem in teaching is providing for individual differences" (8:5). Durrell contends that a skilled, experienced teacher is a basic element in any therapy:

The analysis of reading difficulties is primarily an educational-analysis task, and is best done by an experienced teacher who knows the essential elements in reading instruction. The only outside assistance required for an analysis of difficulty in reading is that of thorough medical examinations, with special emphasis on sight and hearing (8:354).

## X. REMEDIAL INSTRUCTION

Research on remedial instruction establishes the value of remediation and indicates certain principles which may be helpful in formulating a program. Strang contends that:

If classes are large, if rigid grade standards are maintained, if teachers let the poor reader just sit and do busy work and the able learners languish in idleness,

if the range of reading materials and equipment is too narrow to meet varied needs, and if the students cannot read well enough to profit by the regular class work--then a need for special groups is indicated. In other words, if the teachers cannot, in regular classes, give all the students the stimulation, instruction, and practice they need, then special groups should be formed (22:222).

Gray supports this view by saying that "a review of the results of research shows conclusively that the value of diagnosis and remediation has been well established" (10:1130).

There is no sharp distinction between typical classroom instruction and remedial instruction. The techniques and activities which classroom teachers use to develop in their pupils the reading skills which are so desirable can be used successfully by the remedial teacher. The difference in practice is one of degree. Remedial instruction emphasizes attention to individual needs. Difficulties and deficiencies in abilities of individual children are diagnosed and a prescription is formulated to correct weaknesses and inappropriate habits. But the objectives sought by the remedial teacher are essentially those of every good teacher--techniques and skills in reading, but also the broad objectives of a normal program: enrichment of ideas, enjoyment of literature, the development of artistic and aesthetic appreciation, and other abilities.

Gates makes the following suggestions to be followed in the formulation of a remedial program:

1. Remedial instruction should not be substituted for enjoyable activities.
2. Remedial instruction should be managed so as not to classify the pupil in an embarrassing way.
3. The time allowance for remedial work should be generous.
4. The teacher should have sufficient time to arrange and supervise the remedial work.
5. Remedial work may be either individual or cooperative.
6. Remedial work should be begun at a favorable time.
7. Success should be emphasized in remedial work.
8. Improvement should be measured and the record shown.
9. The pupil's particular errors and successes should be detected.
10. The teacher's attitude should be optimistic and encouraging.
11. The teacher should help the pupil avoid over-anxiety and unduly extreme effort.
12. Practice should be so distributed as to avoid fatigue and boredom.
13. A variety of exercises and activities should be provided.
14. A plan should be dropped when it fails to produce results after a fair trial.
15. Individual supervision should be continued until the pupil has his improved techniques well habituated.
16. The pupil must be induced to read widely in order to ensure further growth in reading (9:129-138).

Educators will continue to seek a solution to some of the problems experienced by students seeking achievement in

reading and the related language arts. The following investigation is an attempt to determine whether fifth and sixth grade students, receiving remedial instruction in the language arts, will achieve as well as, or better than, similar students in a regular heterogeneous classroom situation where no special remedial instruction is given. With the basic principles of learning in mind, it would seem that a remedial program which allows for individual differences and is based on the abilities and interests of the children would result in significant changes in learning.

## CHAPTER III

### RESEARCH DESIGN

The principal purpose of this study was to determine the impact of a remedial language arts program on the language skills of slow-learning fifth and sixth grade pupils as compared to slow-learning fifth and sixth grade pupils taught in a class with heterogeneous grouping.

An experimental group of pupils, in a remedial situation, was compared to a control group of pupils from heterogeneous classes. Pairs were matched for comparison purposes.

#### I. ADMINISTRATIVE CONTACT AND APPROVAL

The success of this research study depended to a great extent on the approval and cooperation of the administrative personnel of Wenatchee School District 246. The initial administrative contact was with the assistant superintendent of schools who expressed his interest in the research and gave approval to the plans for the study. Permission to contact principals of the control and experimental schools was given. Conferences with these principals were held and their approval and consent to the plans for testing and investigation were secured. Fifth and sixth grade teachers in both schools were contacted and they consented willingly to

cooperate in the study.

## II. EXPERIMENTAL GROUP

Experimental group. A small remedial class of fifth and sixth graders at Columbia School, Wenatchee, Washington, is designated as the experimental group in this study. This is known as the Basic Language Arts Program and has been in progress at Columbia School for the school year of 1965-1966.

This remedial language arts program involves one teacher, one group of slow-learning fifth graders who receive basic remedial instruction in the language arts in the mornings, and one group of slow-learning sixth graders who receive similar instruction in the afternoon period. The students involved in this program thus spend half a day receiving remedial instruction in the language arts and half a day on other subjects in a heterogeneous group in a regular classroom.

The remedial classroom is furnished with movable desks, library tables and chairs, numerous textbooks, reference books, library books and magazines. Groups are arranged quickly and easily as the teaching program dictates.

Three types of instructional situations are used in this program: (1) whole-group instruction of the twelve to fifteen students involved in the program, (2) small group instruction of from four to eight students, and (3) individ-

ual instruction. The second method, involving small groups of four to eight pupils, is used most extensively. Such a group comes for instruction each morning at 8:15 for a 30-minute period before regular school hours begin. At the close of the morning session they then are released half an hour earlier than the remainder of the group, to return to the regular classroom or to have lunch. By this means it is possible to give instruction in small groups most of the morning. A large part of each day is also devoted to individualized instruction and tutorial assistance. A smaller portion of time is scheduled for whole group instruction. By these means the children are re-grouped a number of times each day, thus enabling the instructor to respond to the varying needs of the children.

Scheduling for the Basic Language Arts Program involved detailed planning with the home-room teachers, the remedial teacher and the principal. The home-room teachers adjusted their schedules so that this experimental group would receive instruction in other basic areas, such as mathematics, social studies and science, in the remaining half day when they returned to their regular classrooms. Every effort was made by the home-room teachers to establish the slow learners as part of the regular classroom situation.

The Basic Language Arts Program, as initiated at Columbia School, consists of remedial instruction on a half-

day basis in the related language arts. The program encompasses the teaching of reading for comprehension and vocabulary growth as well as reading for interest and recreation. Remedial instruction is given in word attack skills, including how to use context clues, phonetic clues, configuration, structural clues and sight words. Dictionary skills are re-taught and reinforced. Daily oral reading sessions give the pupil opportunities to apply his sound blending and structural analysis skills in a natural reading situation. At the same time some of his bad reading habits such as guessing at words, omitting words or phrases or substituting new words can be corrected.

Students are also given opportunities to develop ability in listening, speaking and writing. The mechanics of language--grammar, punctuation and spelling--are recognized as important skills for effective expression. These skills are developed through meaningful drill and significant use. While it is recognized that instruction in language skills is a day-long activity, it is supported by a planned period set aside for that special purpose. It includes the study of language structure, form and usage. Although formal grammar is not taught, the basic habits of good usage and the ability to write effectively are given close attention. The usage taught is current, recognizing that the levels of language will vary with the demands of

the situation. Drill on usage is oral and grows out of the needs which the students reveal in their speech and writing. Since the child's basic dialect has been acquired at an early age mostly by ear, the task of remedial education, or changing these basic patterns, is a slow process. Errors are called to his attention after he feels accepted by the group and by the teacher. Anderson has this to say about the correction of errors in oral language: "The spirit in which corrections are made is perhaps the most important single factor in the child's language development" (1:391).

Emphasis is placed upon having the pupils practice correct usage by creating their own sentences and stories rather than having them fill in blanks in prepared sentences. In the teaching of sentence structure the emphasis is on how to express ideas and how the pupil can make his meaning clear. Exercises in the textbook or workbook reinforce the correct usage he has acquired.

Much of the teaching of punctuation and capitalization is done incidentally. The teacher points out the uses of commas, periods and question marks in the reading selection. Or she may point out their use as she writes a dictated group-story on the board. Many of the punctuation rules are learned when the student expresses himself in the writing of group or individual letters. Handwriting, too, is taught as part of the process of communication. The

pupil is encouraged to diagnose his own handwriting skills and work independently toward improvement.

Spelling ability, also, is directly linked to general language ability and is a part of the Basic Language Arts Program. Different methods of attack are used by different students to improve spelling skills. Some approach words best through visualization, some need an auditory approach and some must trace words in order to "feel" how they are spelled. The important aim in spelling instruction is to guide each child to learn to spell correctly the words which he uses in writing. He learns to study the meaning of words and to use them expressively in writing. He is encouraged to take pride in spelling well and to use the dictionary as a spelling aid. Pupils are encouraged to drill individually on basic sight words and spelling lists of most difficult words, and to keep individual spelling lists of hard-to-spell words.

### III. CONTROL GROUP

Control group. The control group is located in a nearby elementary school of similar size and socio-economic background.

The classrooms from which the control group was taken are organized on a self-contained basis. The school librarian is in charge of library instruction. The language arts

program is taught by the class-room teacher and there is no special remedial instruction in the language skills other than what is normally given in the regular classroom situation.

The same course of study is followed and the same textbooks are used by both the experimental group and the control group. The same resource material and supplementary textbooks and readers are available to both groups. Both schools are well equipped with a variety of reading materials, reference books and magazines. Each school has an attractive library with a full-time librarian in charge. Equipment and supplies in the control school are comparable to those of the experimental school.

Some students in both groups have been involved in the Science Research Reading Program and in the Developmental Reading Program Project 101, P1 89-10 initiated with federal funds. For these reasons and for the purpose of this study, only the language skills involved in spelling, capitalization, punctuation and usage are being tested, investigated and compared.

#### IV. INSTRUMENT TO BE USED

All sixth grade students involved in this study had been administered the Iowa Tests of Basic Skills - Form I in a two-week period during October, 1965. It was decided

to use the language skills test results in this study as a means of comparison. Form 2 of the same tests would be administered in May by the investigator.

The Iowa Test of Basic Skills provide for measurement of the following fundamental areas: vocabulary, reading, the mechanics of correct writing, methods of study, and arithmetic. The purpose of the tests is to reveal how well each pupil has mastered the basic skills. The Iowa Tests of Basic Skills consist of eleven separate tests for Grades 3-9, all of which are contained in a single booklet. For the purposes of this study, Test L, consisting of L-1: Spelling, L-2: Capitalization, L-3: Punctuation, and L-4: Usage, is the instrument used.

#### First Test

In October, 1964, Form I of the Iowa Tests of Basic Skills was given to all the fifth grade students involved in this study. In October, 1965, Form I of the Iowa Tests was given to all the sixth grade students involved in this study. The tests were administered by the classroom teachers. In 1965 the tests were machine scored.

#### Second Test

In May, 1966, Form 2 of the Iowa Tests of Basic Skills was used. Test L: Language Skills was administered to the matched pairs involved in this study according to

the procedures laid down in the Examiner's Manual and the scoring and recording was done by the investigator by hand. The tests were administered to both control and experimental groups in small group situations.

The raw scores of Form 2 were submitted to statistical analysis; the results are reported in Chapter IV. Only results for the students who were present for both forms of the test are included in the analysis.

#### V. MATCHED PAIR APPROACH

Method of collecting data. Each pupil's permanent record was consulted and the necessary data for matching pairs was accumulated. This consisted of the pupil's name, sex, chronological age and scores from L-4, Form I of the Iowa Test of Basic Skills, including grade equivalent scores and percentile ranks. I.Q. scores were examined and considered but no attempt was made to match pairs. Socio-economic levels were not examined in any great depth but similar conditions prevail in both school areas.

Each student in the experimental group was matched with a student in the control group, according to chronological age, sex and percentile rank in the Language Skills of the Iowa Tests of Basic Skills, Form I. Twenty pairs of slow-learning students were matched by these means.

The age interval of the matched pairs is zero to six

months for both boys and girls. The percentile scores of the matched pairs have an interval of zero to five points for both boys and girls.

Code numbers were assigned to each matched pair as a means of identification for the purposes of this study. Data for the matched pairs is given in Table I.

TABLE I  
DATA FOR MATCHED PAIRS

Coded Student	Age Yr/Mo	Sex	Percentile Rank	Coded Student	Age Yr/Mo	Sex	Percentile Rank
1-EG	8-10	F	62	1-EB	10-8	M	62
1-CG	9-3	F	62	1-CB	10-0	M	64
2-EG	9-8	F	46	2-EB	9-1	M	51
2-CG	9-11	F	44	2-CB	9-7	M	54
3-EG	12-3	F	43	3-EB	10-6	M	46
3-CG	12-0	F	48	3-CB	10-7	M	41
4-EG	11-8	F	37	4-EB	9-8	M	41
4-CG	11-6	F	39	4-CB	9-5	M	36
5-EG	9-4	F	33	5-EB	10-9	M	36
5-CG	9-6	F	36	5-CB	10-3	M	41
6-EG	13-2	F	29	6-EB	10-1	M	30
6-CG	12-8	F	24	6-CB	10-5	M	30
7-EG	12-4	F	24	7-EB	11-2	M	27
7-CG	12-4	F	27	7-CB	11-5	M	31
8-EG	12-8	F	11	8-EB	12-10	M	16
8-CG	12-7	F	16	8-CB	12-6	M	13
				9-EB	13-4	M	13
				9-CB	13-6	M	14
				10-EB	12-0	M	13
				10-CB	12-4	M	13
				11-EB	12-6	M	10
				11-CB	12-9	M	10

## CHAPTER IV

### RESULTS OF THE STUDY

This study was undertaken in order to determine whether slow-learning fifth and sixth grade children, receiving remedial language arts instruction, would achieve as well as, or better than, slow-learning fifth and sixth graders in a regular heterogeneous classroom who did not receive remedial help.

#### I. STATISTICAL PROCEDURES USED

In order to ascertain whether or not there was a significant difference in the achievement of language skills of children in either the experimental school or the control school, the investigator tested the null hypothesis by using a "t" test. The "t" test is a test of the significance of the difference between the means of independent populations.

The standard error of the difference is shown by formula 12:8 in Blommers and Lindquists' Elementary Statistical Methods in Psychology and Education (5:348):

$$t(df = n_1 + n_2 - 2) = \frac{X_1 - X_2}{\sqrt{\frac{n_1 S_1^2 + n_2 S_2^2}{n_1 + n_2 - 2} \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

The results of the computations of the Iowa Tests of Basic Skills--Form 2, Language Skills, are summarized in Table II. The raw scores will be found in Appendix C and the computations will be found in Appendix D.

Applying the test of the significance of the difference between the means of the control group and the experimental group, using the achievement of pupils on the Iowa Tests of Basic Skills--Form 2, Language, as a criterion variable, it was found that there was a significant difference in L-4, Language Usage, favoring the experimental group. In this instance the obtained "t" was 2.278 and the tabled "t" .05 (df = 30) was 2.04. The difference also favored the experimental group in Spelling, L-1, and in Capitalization, L-2, but the difference was not statistically significant so the null hypothesis must be retained in those two areas. The difference in the Punctuation, L-3, test scores favored the control group but it was not a statistically significant difference, therefore, the null hypothesis was retained in that area.

TABLE II  
SUMMARY TABLE

SUBTEST	Exper- mental Mean	Control Mean	Differ- ence	t
Language				
L-1 Spelling	20.79	19.63	1.16	1.353
L-2 Capitalization	22.52	22.21	.31	.504
L-3 Punctuation	18.68	18.74	-.06	.103
L-4 Usage	14.84	13.84	1.00	2.278*

\*This was the only test that was statistically significant at the five per cent level of confidence ( $.05 t_{30} = 2.04$ ).

## CHAPTER V

### SUMMARY AND IMPLICATIONS

#### I. SUMMARY

The purpose of this study was to ascertain the achievement of the pupils in the experimental group, in the hope that the information could be made available to the school administration to inform them on the pupil achievement in the Basic Language Arts program.

The pupils in the remedial program have achieved better in Language Usage than did the pupils in a regular classroom. They have also shown as much achievement in the other three areas as did the pupils in regular classrooms.

Ruth Strang emphasizes, however, that there are many factors which test results do not show and it is the opinion of the investigator that these factors are of equal, if not greater importance.

These results do not show the growth that may have occurred in other reading skills; nor do they reflect increased confidence in one's ability to learn, changed motivation, sharpened interest, improved concentration or other attitudes that may eventually lead to improvement. These important outcomes of special reading groups can be evaluated only by supplementing standardized tests with informal tests, questionnaires, reading inventories, reading autobiographies, charts of progress, and day-by-day observation of students' responses (22:237).

## II. IMPLICATIONS

Educators have reason to be concerned about those who fail to learn, especially in the important areas of communication--reading, writing, listening and speaking. The following implications are suggested as a result of this study:

1. Another year, it would seem advisable to conduct a more detailed study of the same methods, using similar criteria, but incorporating reading tests. Because of the unexpected bias of federal programs in reading, initiated during the period of this experiment, reading skills were not evaluated in this testing program. Although it was therefore not one of the findings of this study, reading was emphasized in the Basic Language Arts program and a major portion of time was spent in teaching reading skills. Significant progress in reading ability was observed and those teachers and administrators involved with the students, as well as the investigator, judged the remedial instruction to be "highly successful." There were noticeable gains in reading comprehension and vocabulary as well as in certain intangibles that cannot adequately be measured by group achievement tests but were apparent to the investigator and to the other educators.

2. While a strong administrative program of remedial instruction cannot be made on the data of this study it

would seem that follow-up studies over a greater period of time would be desirable. The writer strongly suggests that more comprehensive measures be initiated to ascertain the achievement of these pupils in the next two or three years and that the evaluation should be broad enough to include observation and inventories, as well as the results of more objective measures.

3. In grouping children for remedial instruction, more refined tests might be used in order to diagnose their needs and give them the proper instruction. Neither standard test scores alone nor teacher judgment alone should be the basis for selection. The main consideration should be the possibility for progress in a remedial situation. Only those pupils whose attitude, interests and capabilities indicate a strong possibility of success should be accepted for remedial training.

4. Should the remedial program be expanded in the schools of the district, the possibility of using teachers' aides to assist with non-teaching<sup>h</sup> duties might be given consideration. The aide could work with the teachers on a paid part-time basis, relieving the teachers of clerical and other routine duties so they may concentrate on instructional activities. The aide would be responsible for such tasks as record keeping, duplicating, setting up audio-visual equipment and grading objective work.

Research indicates that the following implications, also, need to be considered:

1. More emphasis should be placed on early identification of the disabled reader. Durrell suggests that remedial instruction is most effective in Grade Three and above.

2. The values and goals of education relative to the slow learner's needs should be reassessed by educators, parents and the general public.

3. Every effort should be made, through scientific experimental research, to find the methods of instruction which improve pupil performance.

4. The merits of continuing reading instruction and remedial help where needed throughout the secondary school should be considered. Possibly the number of school drop-outs and failures would diminish considerably if such a program were pursued.

5. Diagnosis and selection of pupils for remedial groups should be done at the end of the school year so that valuable time will not be lost and remedial instruction may start early in the fall. Early planning permits better scheduling of remedial classes, avoids conflicts with regular classroom schedules and results in better integration of the remedial program with classwork.

6. Relative to the size of remedial classes, Durrell

suggests that:

Remedial groups should be kept small enough to permit close attention to pupil needs. Groups should usually be not more than five or six, although they may be larger if the pupils are very similar in reading level (8:342).

7. In conclusion, the diagnosis of the disabled reader's problems requires the assistance of many to insure proper identification and treatment of the problems. The remedial teacher should call upon the resources of parents, educators, psychologists, specialists and medical personnel to assist in formulating an adequate diagnosis.

B I B L I O G R A P H Y

## BIBLIOGRAPHY

1. Anderson, Paul S. Language Skills in Elementary Education. New York: The MacMillan Company, 1964.
2. Aaron, I. E. "Characteristics of the Disabled Reader," Journal of Developmental Reading, 4:103-109, 1961.
3. Bernetta, Sister M. "Visual Readiness and Developmental Visual Perception for Reading," Journal of Developmental Reading, 5:82-86, 1962.
4. Betts, Emmett Albert. Foundations of Reading Instruction. New York: American Book Company.
5. Blommers, Paul and E. F. Lindquist. Elementary Statistical Methods in Psychology and Education. Boston: Houghton Mifflin Company, 1960.
6. Commission on the English Curriculum of the National Council of Teachers of English. The English Language Arts. New York: Appleton-Century-Crofts, Inc., 1952.
7. Commission on the English Curriculum of the National Council of Teachers of English. Language Arts for Today's Children. New York: Appleton-Century-Crofts, Inc., 1954.
8. Durrell, Donald D. Improving Reading Instruction. New York: World Book Company, 1956.
9. Gates, Arthur I. The Improvement of Reading. New York: MacMillan Company, 1947.
10. Gray, William S. Research of Reading. Encyclopedia of Educational Research, ed. Monroe. New York: The MacMillan Company, 1960.
11. Herrick, Virgil E. and Leland B. Jacobs. Children and the Language Arts. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1955.
12. Hildreth, Gertrude. Teaching Reading. New York: Rinehart and Winston, 1958.
13. Iowa Tests of Basic Skills Teacher's Manual. Boston: Houghton Mifflin Company, 1956.

14. Kingston, Albert J. "Characteristics of the Disabled Reader," Journal of Developmental Reading, 4:102-103, 1961.
15. Kottmeyer, William. Teacher's Guide for Remedial Reading. St. Louis: Webster Publishing Company, 1959.
16. McCallister, James M. Remedial and Corrective Instruction in Reading. New York: D. Appleton-Century Company, Inc., 1936.
17. McKee, Paul. The Teaching of Reading in the Elementary School. New York: Houghton Mifflin Company, 1948.
18. Mingoa, Edwin. "Possible Causes of Underachievement in Reading," Elementary English, 39:220-223, 1962.
19. Ramsey, Wallace. "A Study of Salient Characteristics of Pupils of High and Low Reading Ability," Journal of Developmental Reading, 5:87-94, 1961.
20. Searles, John R. and G. Robert Carlsen. Research on English. Encyclopedia of Educational Research, ed. Monroe. New York: The MacMillan Company, 1960.
21. Shane, Harold G. Research Helps in Teaching the Language Arts. Association for Supervision and Curriculum Development, National Education Association, Washington, D. C.: 1955.
22. Strang, Ruth, Constance M. McCullough and Arthur E. Traxler. The Improvement of Reading. New York: McGraw Hill Book Company, Inc., 1961.
23. Vernon, M. D. Backwardness in Reading. Cambridge: University Press, 1958.
24. Warfel, Harry R. "Prolegomena to Reading Instruction," Journal of Developmental Reading, 1:35-45, 1960.
25. Woolf, Maurice D. "Areas for Research in Reading," Journal of Developmental Reading, 4:94-101, 1961.

A P P E N D I X

## APPENDIX A

## CLASS SCHEDULE--REMEDIAL ROOM

Grade Five 8:15 a.m.--11:45 a.m.

8:15 - 8:45 Reading--Groups A and B  
8:45 - 9:10 Teacher Preparation Time  
9:10 - 9:50 Language, Oral and Written--all groups  
9:50 - 10:10 Penmanship--all groups  
Recess and Lavatory  
10:30 - 11:00 Reading--all groups. Library on Wednesdays.  
11:00 - 11:20 Spelling--all groups  
11:20 - 11:45 Reading--Group C

Grade Six 12:45 p.m.--3:15 p.m.

12:45 - 1:00 Penmanship  
1:00 - 1:30 Spelling  
1:30 - 2:10 Language. Library on Wednesdays.  
Recess and Lavatory  
2:30 - 3:15 Reading--oral and silent

## APPENDIX B

## TEST SCHEDULE

## IOWA TESTS OF BASIC SKILLS

## EXPERIMENTAL AND CONTROL SCHOOL--GRADES FIVE AND SIX

May 11-18, 1966

GROUP	DATE	TIME	TEST	WORKING TIME	LENGTH OF SESSION
Experimental 5	May 11	9:10 - 9:50	Spelling Capitalization	12 minutes 15 minutes	1st Session 40 minutes
	May 11	10:00 - 10:50	Punctuation Usage	20 minutes 20 minutes	2nd Session 50 minutes
Experimental 6	May 11	1:00 - 1:40	Spelling Capitalization	12 minutes 15 minutes	3rd Session 40 minutes
	May 11	1:50 - 2:40	Punctuation Usage	20 minutes 20 minutes	4th Session 50 minutes
Control 5 and 6	May 18	1:00 - 1:40	Spelling Capitalization	12 minutes 15 minutes	5th Session 40 minutes
	May 18	1:50 - 2:40	Punctuation Usage	20 minutes 20 minutes	6th Session 50 minutes

## APPENDIX C

## IOWA TESTS OF BASIC SKILLS RAW SCORES--FORM 2

## LANGUAGE SKILLS

	L-1		L-2		L-3		L-4	
	E	C	E	C	E	C	E	C
1.	29	30	22	33	25	26	12	20
2.	24	25	27	25	20	20	15	16
3.	16	18	29	33	19	26	12	16
4.	41	25	26	30	21	26	21	14
5.	18	17	24	16	25	15	19	18
6.	26	28	22	19	19	14	14	12
7.	24	20	26	19	19	14	12	7
8.	15	10	20	20	22	22	11	13
9.	23	25	23	30	20	26	14	20
10.	29	35	20	26	21	23	21	19
11.	18	26	20	15	18	12	14	14
12.	24	17	25	23	20	16	17	20
13.	12	22	23	24	23	14	10	8
14.	29	11	18	29	15	24	14	13
15.	18	13	14	10	12	16	9	8
16.	6	11	24	11	12	14	13	16
17.	20	11	20	18	12	19	17	12
18.	17	15	30	21	15	18	21	9
19.	6	14	15	20	17	11	16	8

## APPENDIX D

## COMPUTATIONAL TABLE

SUBTEST	GROUP	$\bar{x}$	$\bar{x}^2$	N	M	S.E.	t
L-1 Spelling	E	395	9495	19	20.789	.855	1.353
	C	373	8299	19	19.632		
L-2 Capitalization	E	428	9970	19	22.52	.615	.504
	C	422	10214	19	22.21		
L-3 Punctuation	E	355	6923	19	18.68	.503	.103
	C	356	7164	19	18.74		
L-4 Usage	E	282	4430	19	14.84	.439	2.278
	C	263	3993	19	13.84		