ORAL LANGUAGE PRE-READING ACTIVITIES AT THE GRADE TWO LEVEL AND THEIR RELATIONSHIP TO ORAL LANGUAGE AND READING

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To measure the quality of oral language, the number of principles were counted, using Gagné's definition of principles.[1] The average number of words per principle was found by dividing the number of words expressed by the number of principles expressed.

To measure language output, it was found that the number of words expressed correlated significantly so that it would not be necessary to use both in the actual study.[2]

It was also found that the number of words expressed was not large enough to have a base for the number of different words per hundred running as Loban had done. Further, it was found that as children spoke more, the number of mazes increased proportionately.

Thus it was decided that for the actual study the following measures would be employed: the number of principles expressed, the average number of words per principle, and the number of mazes.

Another purpose of the pilot study was to determine the duration of the actual research. It was discovered that these students responded very well to the small group discussion method; by the third day each group was carrying on a good discussion. After the sixth day, post-testing showed reasonable increases in the number of principles

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[1] Gagné, p. 141. Also see page 7.

[2] $r=.97$, $N=8$.

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ABSTRACT

This study was designed to examine the effect of two oral language pre-reading activities upon the oral language and reading of grade two students.

Twenty-three grade two students from a rural school were placed in two groups according to their reading scores and then grouped randomly into above and below median to give a total of four groups.

Two groups, one above and one below median, were labelled control groups and given the traditional pre-reading activities that are common to most basal reading series. The other two groups, labelled experiment, were given time to discuss spontaneously about a given stimulus. This procedure was carried on for twenty sessions when post-testing was done in both oral language and reading. A delayed post-test was administered one month later.

Analyses of variance of repeated measures done at the conclusion of the study yielded no significant differences in reading comprehension or vocabulary.

Tabled results of oral language indicate growth in oral language for all four groups irrespective of treatment given. It appeared as if the small group discussion

whether spontaneous or teacher-oriented influenced oral language growth. It was also of interest that the retention of oral language in both below median groups was very good, both groups doing as well in the delayed post-testing as in the post-testing. Although this present study does not seem to favour spontaneous discussion over the teacher-talk-and-question, student-listen-and-answer discussion it does support small group discussion as being an aid in the growth and development of oral language because all groups grew in oral language from the pre- to the delayed post-testing.

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CHAPTER I

INTRODUCTION

Statement of the Problem

Much has been written concerning the importance of a good oral language base as an essential for children's reading. The language-experience approach which is heralded by classroom practitioners reflects the teacher's awareness of this importance and is outlined by Ashton-Warner,[1] Allen,[2] Hall,[3] Stauffer,[4] and Thorn.[5] The language-experience approach is a reading approach that emphasizes spontaneous discussion about a shared experience before the actual reading of related materials. Yet, in spite of the vast amount of literature related to the development of

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[1]Sylvia Ashton-Warner, Teacher (New York: Bantam Books in arrangement with Simon and Schuster, Inc., 1963).

[2]Doris M. Lee and R. V. Allen, Learning to Read Through Experience, 2nd ed. (New York: Meredith Publishing Company, 1963).

[3]Mary Anne Hall, Teaching Reading as a Language Experience, 2nd ed. (Columbus, Ohio: Charles E. Merrill Publishing Company, 1976).

[4]Russell G. Stauffer, The Language-Experience Approach to the Teaching of Reading (New York: Harper and Row, 1970).

[5]Elizabeth A. Thorn and Carl Braun, Teaching the Language Arts (Toronto: Gage Educational Publishing Ltd., 1974).

reading recommending the use of a language-experience approach, little actual research has been undertaken to determine what effects, if any, there are of this pre-reading discussion upon language and reading skills.

The study was designed to investigate whether opportunities for children to discuss spontaneously with each other as a pre-reading activity in the language-experience approach would significantly increase specific oral language skills than the conventional pre-reading activity which is generally considered a teacher-talk-and-questions, student-listen-and-answer type of discussion associated with the basal series approach. A related concern was the investigation into the differences between above and below median subjects in the acquisition of these specific oral language skills.

A secondary major purpose of the study was to examine if spontaneous discussion in the language-experience approach would significantly affect the comprehension and vocabulary growth as measured on a standardized reading achievement test than the traditional basal reading method. Again an attempt was made to see if there would be a difference between above and below median subjects in the reading achievement scores in the two specified areas.

Thus, the study investigated the following general question, "Does a spontaneous discussion type of pre-reading activity associated with the language-experience

approach have greater effects upon a) specific oral language skills and b) reading comprehension and vocabulary growth as measured by a standardized reading achievement test, than the conventional pre-reading activity associated with the basal reading series?"

Specific research hypotheses for the study were:

1. There will be a significant difference following the treatment, between the experimental and control groups on the reading comprehension section of the Metropolitan Achievement Test (MAT).

2. There will be a significant difference following the treatment, between the experimental and control groups on the vocabulary section of the MAT.

3. There will be significant correlation among the pre-, post-, and delayed post-test scores of the MAT, reading comprehension section of both control and experimental groups.

4. There will be significant correlations among the pre-, post-, and delayed post-test scores of the MAT, vocabulary section of both control and experimental groups.

5. There will be significant correlations between the reading comprehension and vocabulary pre-, post-, and delayed post-test scores of the MAT for both control and experimental groups.

6. There will be a difference in the number of principles expressed between the experimental groups and their control counterparts following treatment.

7. There will be a difference in the average number of words per principle expressed between the experimental groups and their control counterparts following treatment.

8. There will be a difference in the number of mazes expressed between the experimental groups and their control counterparts following treatment.

Significance of the Study

Many students in our school system are failing to learn to express themselves clearly in oral language.[1] Many also are failing to learn to read well. Though various methods of teaching reading are available, only one method stresses spontaneous discussion about a shared experience as a pre-reading activity. This activity is identified with the method commonly referred to as the "language-experience approach". Consequently, it would be worthwhile to know whether a spontaneous discussion about a common experience benefits children in specific oral language skills and certain reading abilities.

Several studies at the kindergarten and primary level have showed improvements in self-concepts and oral language as a result of shared experiences and the freedom to talk about these experiences with both peers and adults.

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[1] Paul C. Burns and Betty L. Broman, The Language Arts in Childhood Education, 3rd ed. (Chicago: Rand McNally College Publishing Co., 1975), p. 75.

In the Little Rock, Arkansas experiment, kindergarten children gained significantly in basic concepts, in giving directions to their peers, and in discussing things with which they were not familiar.[1] In a program where experiences were shared and discussed Baxley found that verbal responses improved greatly to a picture stimulus on a language development test.[2] Both of the above cited examples were done with disadvantaged children. Research of the current literature does not reveal what happens when a heterogeneous group is used; thus the aim of this study was to use such a group and examine above and below median subjects for any differences among children varying in specific reading abilities.

Definition of Terms

Certain terms used in this study are defined as follows:

Mazes - Words or other expressions that cannot be meaningfully or syntactically identified.[3]

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[1]Detection and Remediation of Deficiencies in Verbal Understanding of First Grade Students (Little Rock, Arkansas: Central Arkansas Educational Centre, ERIC Document Reproduction Service ED 080 967, 1972).

[2]Dan M. Baxley and Max Hinton, The Eloy Story. A Report from the Eloy Elementary Summer School Migrant Program for Kindergarten Through Second Grade Children (Phoenix: Arizona State Department of Education, ERIC Document Reproduction Service ED 067 219, 1971).

[3]Walter Loban, The Language of Elementary School Children (Champaigne, Illinois: National Council of Teachers of English Research Report No. 1, 1963), p. 5.

Below median students - The half of the class that scores below the median mark on the combined standard scores of the reading comprehension and vocabulary sub-tests of the Metropolitan Achievement Test, Primary 1, Form F, used as the pre-test.

Above median students - The half of the class that scores above the median mark on the combined standard scores of the reading comprehension and vocabulary sub-tests of the Metropolitan Achievement Test, Primary 1, Form F, used as the pre-test.

Experimental group - A randomly selected group of students who were asked to discuss spontaneously certain objects, topics, and experiences prior to reading about these objects, topics, or experiences. The teacher joined in the discussion only when it was necessary to correct misconceptions or errors and to provide opportunities to speak for the shy or hesitant students. This pre-reading discussion was a maximum ten minutes in length.

Control group - The randomly selected group of students who are taught by the teacher using the traditional basal reading guidebook as a pre-reading activity. In this approach the teacher talked about story background, asked a few questions, and had the pupils answer them. This randomly selected example from a teacher's manual is an illustration of the procedure:

> Have a pupil read the title. Call the pupils' attention to the picture on page 105 and have the characters identified. Say: "Patrick and his family are talking about the kind of dog Patrick should get. Patrick is having a hard time trying to decide which dog he wanted. Read pages 105-109 to find out why Patrick couldn't make up his mind about the dog he would like to have."[1]

Function words - Words with little significant meaning by themselves but necessary syntactically. e.g. The man is wearing a hat.

Concept - A generalization to a similar situation or thing but not identical; a "network of inferences that are or may be set into play by an act of categorization."[2]

Principle - Two or more concepts chained to make up knowledge.[3] An example of a principle is the simple clause, "People sing," made up of the concepts "people" and "sing". For the purposes of this study, a principle has at least two concepts, one a noun or pronoun, and the other describing the act or state of being of the first; thus a clause with all modifiers and function words of the clause will be the base for identification.

Concept development - The process whereby a person sees, hears, or experiences something new and in some unique way this experience takes on meaning for the person in such a

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[1]Alice M. Scipione, ed., Teachers' Annotated Edition and Guide Enchanted Gates (Toronto: Collier-Macmillan Canada, Ltd., 1969), p. 260.

[2]Jerome S. Bruner, Jacqueline L. Goodnow, and George A. Austin, A Study of Thinking (London: John Wiley and Sons, Inc., 1956), p. 244.

[3]Robert Gagné, The Conditions of Learning (New York: Holt, Rinehart, and Winston, 1967), p. 141.

way that he remembers it and can apply this new understanding in another situation.

Oral language skills - The child's ability to discuss a particular stimulus as measured in the pre-test, post-test, and delayed post-test of specific oral language skills. These oral language skills will be measured in terms of: the number of principles expressed, the average number of words per principle and the number of mazes.

Pre-reading activity - The activity that introduces or leads into the reading lesson but does not include the actual reading performance. A typical basal primary pre-reading activity is described by Spache and Spache as follows:

> The new words of the story or unit are presented by--
> 1. Using the word cards supplied by the publisher or writing them on the blackboard in a list or in sentences; having children read or point out words, phrases, sentences.
> 2. Reacting to their meaning by questions, prereading discussion of the story or children's related experiences; that is, weave new words into contextual settings.
> 3. Pointing out their phonic, structural, or configuration characteristics, in keeping with the pupils' status in such skills, that is, by taking into account number of syllables, presence of phonic rule, the base word or root, and the affixes, differences in shape, etc.
> 4. Reviewing briefly the familiar word recognition techniques or system of steps the pupils may employ with any unknown words they will meet in the story, that is, by distinguishing between long and short vowel sounds, recognizing a base word in a derived form.
> 5. Establishing some experiential background when beginning a new unit or topic, by a related film, film-strip, the pictures or selections read to or by the children. Into the discussions of these,

weave ideas, words, and concepts to be read in the unit.

6. Reviewing old vocabulary by word cards, blackboard presentation, as in steps 1 and 3 above.[1]

Spache and Spache also describe the language-experience pre-reading activity:

> From the first day of school each child is encouraged to share his ideas and experiences with others through his oral expression and the pictures he creates. As the child paints, works with clay, conducts science experiments, looks at books, the teacher helps him to summarize his ideas and discoveries. He dictates and the teacher writes the ideas on his drawing or elsewhere. The charts which result are then shared with others as the child reads (tells) his recorded stories. During the writing of the chart the teacher discusses word choice, sentence structure, the sounds of letters and words. But he does not censor or elaborate the story other than by preparing it in the proper experience chart manner.[2]

Spontaneous discussion - The children's spontaneous talking with each other about a particular picture, object, or activity with no teacher intervention except for initiating the discussion and for controlling the flow of discussion so that each child has an opportunity to talk, and for correcting misconceptions.

Reading - In this study, reading is that which is reflected by the scores on the reading comprehension and vocabulary sub-tests of the Metropolitan Achievement Test, Primary 1.

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[1]George D. Spache and Evelyn B. Spache, Reading in the Elementary School, 3rd ed. (Boston: Allyn and Bacon, Inc., 1974), pp. 156-7.

[2]Ibid., p. 245.

Syntax - The order in which words are arranged, or the grammar or structure of a sentence.

Semantics - The meaning given to words, phrases, and sentences.

Basal readers - A series of readers used by a particular group or a whole class of students that progressively grow more difficult; as students finish the first reader in the set they move to the next and then the next reader in the series. Basal readers come with a teacher's manual that gives instructions to teachers as to how to teach the class.

Language-experience - Language-experience as developed by Ashton-Warner, Allen, Stauffer, Hall and Thorn is a reading program which has the unique characteristic of beginning with the children's actual experiences, talking and listening about these experiences within their peer group and with their teacher. The teacher or the children then select and write about an experience leading to the children then reading what they have just dictated. In this way the experience and vocabulary are familiar and children can read something that is completely meaningful to them.

Limitations

The study is limited in several ways. It takes place in a rural community and involves only 23 students. This limits the study both geographically and numerically. Some of these children speak English as a second language and others speak only English. The study is further limited

by the length of the study; long term effects were not investigated and this must be considered a serious limitation. Another major limitation is in the fact that the investigator also served as the teacher for the control and experimental groups. Thus unconscious researcher bias may have set in and must, therefore, be taken into account in examining the results.

A major limitation was that in effect there were two experimental groups. Due to the fact that each group was removed from its classroom for its respective treatment, a high degree of "Hawthorne Effect" was operating. In reading this report, caution must be exercised that the "control" group was not a true control.

It should also be noted, that the study made no effort to ascertain whether the ten-minute oral language treatment given to the "control" group was in fact representative of the time allocated for reading readiness by those teachers using the basal series approach. The only effort to ascertain that the basal series approach was representative, was in the case of the suggested activities offered in the manuals.

Topics of Subsequent Chapters

A review of the research into the relationships between oral language and reading is presented in Chapter II. Chapter III contains the design and procedures utilized to gather data for the study, while Chapter IV is devoted to results of the study. The final chapter contains the summary, discussion, and implications of the study.

CHAPTER II

RELATED LITERATURE AND RESEARCH

Introduction

In perusing the literature on oral language and its relationship to reading the material divides into several sections: the importance of oral language, the development and growth of language with emphasis on the oral component, and finally the relationship of oral language and reading. In the first section the importance of oral language is discussed generally in relation to personal development and to education. This discussion is followed by a review of some noted language experts such as McCarthy, Piaget, Vygotsky, Gagné, and Bruner. The section on oral language discusses the history and research of measuring oral language as well as actual research into the development of oral language. This section is followed by an examination of the relationships of oral language and reading, bringing in evidence that oral language is a prerequisite to reading, and that it is interwoven with the actual act of reading. The chapter is concluded with a presentation of the research of reading-oral language relationships and a discussion of the language-experience approach which provides oral language as a basis for a reading program.

The Importance of Oral Language for Personal Development

Oral language is an important tool for man in deriving meaning from the world around him.[1] It enables all, except for the very young, to deal with experiences in the abstract.[2] Because of the intertwining of language with actual experiences, a person can tell another about his experience and the other person can understand it without actually having experienced it. Thus considerable meaning can be obtained without actual experience. On the other hand, if there is too little experience underlying the words being used, language becomes meaningless just as experience without language cannot be meaningfully communicated or shared.

Further, communication can foster a person's creativity and one's self concept can be enhanced.[3] As a person says something and another responds, new ideas arise. They are tested by or against another person's ideas from which gradually a new or better idea may be created. Such situations usually affect one's ego positively

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[1] E. Brooks Smith, Kenneth S. Goodman, and Robert Meredith, Language and Thinking in the Elementary School (New York: Holt, Rinehart, and Winston, Inc., 1970), p. 12.

[2] Alfred F. Deverell, Teaching Children to Read and Write (Toronto: Holt, Rinehart, and Winston of Canada, Ltd., 1974), p. 1.

[3] Lillian M. Logan, Virgil G. Logan, and Leona Patterson, Creative Communication-Teaching the Language Arts (Toronto: McGraw-Hill Ryerson, Ltd., 1972), p. 169.

and promote a sense of well-being. Through such opportunities a person is able to come to terms with the world; he forms various conceptions about it which increases his confidence in dealing with his environment. Thus it becomes imperative that such opportunities for communication occur frequently. But for such personal self-worth and knowledge to occur it must be noted that most of these opportunities must be selective. The language one learns must be accurately connected with the actual experience from which realistic and logical inferences can be drawn. "The use of language with the child in the interpretation of experience all through pre-school and school years is critical for sound personality development as well as for intellectual education."[1] Opportunities to use language, to explore it, and to become competent in using it are necessary and to restrict or deny its use may make a person a lesser person.[2]

> Speaking and listening form a set of habits which man uses in all his daily relations with his fellow men; they are the means of establishing or maintaining contact with other members of society; they serve the pure social instinct of wanting to feel oneself part of a group.[1]

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[1]Smith, Goodman, and Meredith, p. 72.

[2]Ibid., p. 8.

[3]Gertrude A. Boyd, Teaching Communication Skills in the Elementary School (New York: Van Nostrand Reinhold Company, 1970), p. 5.

Logan et al. state this need in another way: for people to "express ideas clearly and succinctly, to listen courteously but critically, and to evaluate introspectively yet objectively is important in a democratic society."[1] In summarizing his research into oral language, Loban concluded that people in our society need to speak a good standard English because a lack of good oral language is a barrier in our fluid society to economic and social fluidity.[2] Thus for one's personal well-being in today's society, proficiency in oral language is essential.

The Importance of Oral Language in Education

Many theorists have postulated the importance of oral language in education. Ruddell and Williams perhaps have best expressed the importance of speaking and listening by stating that the direct outcome is in meaningful reading and writing;[3] further, they argued that since the reading and writing skills are major concerns of education and since oral language is a base for these skills, then

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[1]Logan, Logan, and Patterson, p. 6.

[2]Walter Loban, Problems in Oral English, Kindergarten Through Grade Nine (Champaigne, Ill.: National Council of Teachers of English, 1966), p. 1.

[3]Robert B. Ruddell and Arthur C. Williams, A Research Investigation of a Literary Teaching Model, Project DELTA (Developing Excellence in Literary Teaching Abilities)(Berkeley, Calif.: School of Education, California University, ERIC Reproduction Service ED 085 652, 1972), p. 131.

educators must be vitally concerned with the development of oral language in all learners. There is, however, considerable evidence that oral language development in the schools is largely ignored. Many children in our school system by the end of elementary school show ineptness and reluctance in participating in speaking situations;[1] they are unable to explain arithmetic problems or make points in social studies or science, or even discuss playground problems.[2]

Horner in summarizing the research done by Friedlander with garbled and clear sound tracks, commented that probably the most crucial area that needs modification in our school system is in oral communication.[3] Working at the University of Hartford with 45 children, Friedlander played a tape where children could select a clear or a garbled sound track. Twenty-five students of this group had reading problems, eleven of whom preferred the garbled track. From these findings he concluded that oral communication was weak for most of this sample with a high probability that deficiencies were in the listening area.

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[1] Burns and Broman, p. 131.

[2] Ibid.

[3] Vivian M. Horner, "Language and Reading," A Special Study Institute on Oral Language Skills Antecedent to Reading, ed. Eleanor DiMichael and Gavin O'Connor (Brooklyn, New York: New York City Board of Education, ERIC Document Reproduction Service ED 083 761, 1973), pp. 53-60.

In examining students in enrichment programs, Blank found that regardless of the orientation of enrichment programs, language appeared to be the common denominator of learning deficits.[1] Moffett concurred:

> The power of verbal interaction to developing thought and speech is so important that I would go so far as to say that it obliges every school to make room for it, whatever the effort requires.[2]

Development and Growth of Oral Language

Much has been written about the development and growth of oral language and ways in which development and growth can be encouraged.

In her comprehensive report, Dorothea McCarthy collated and reviewed the research done in language development until the early sixties.[3] Children's first utterances are vowel sounds. The first consonants uttered are m, p, and b. This may be because making these consonants' sounds is similar to mouthing in anticipation of feeding.[4] These are followed by g, x, k, r, and y associated

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[1]M. Blank, "Some Philosophical Influences Underlying Preschool Intervention for Disadvantaged Children," Language and Poverty: Perspective on a Theme, ed. F. Williams (Chicago: Markham, 1970), p. 9.

[2]James Moffett, A Student-Centered Language Arts Curriculum, Grades K-12: A Handbook for Teachers (Boston: Houghton Mifflin Co., 1968), p. 53.

[3]Dorothea McCarthy, "Language Development in Children," Manual of Child Psychology, ed. Leonard Carmichael (2nd ed.; New York: John Wiley & Sons, Inc., 1966), p. 506.

[4]Ibid., p. 507.

with swallowing after feeding.[1] It is probable that the small baby makes the sounds of all languages and then selects the ones he hears in his environment and for which he is reinforced, thus building up the language unique to this setting.[2] The building up of this language is largely done by imitation at first.[3] However, children understand a lot of what is said around them before they begin to speak.[4] McCarthy reported that speaking and listening vocabulary grows slowly at first, then very rapidly till about 5 or 6 followed by a gradual decrease in rate.[5] On the other hand, vocabulary often increases rapidly with new experiences such as during holidays and excursions which occur in different locations or give rise to new situations.[6] For McCarthy there is a great need to broaden the children's experiences during reading readiness periods and also to provide for a variety of experiences so that the child's knowledge of meanings is broadened and reinforced.[7]

According to Piaget, children go through various stages in their development.[8] The sensorimotor stage

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[1] Ibid., p. 506. [2] Ibid., p. 515.

[3] Ibid., p. 517. [4] Ibid., p. 520.

[5] Ibid., p. 527. [6] Ibid. [7] Ibid.

[8] Hans G. Furth, Piaget for Teachers (Englewood Cliffs, N.J.: Prentice-Hall, 1970), p. 18.

begins at birth when the child is very much oriented to experiencing his environment and he is not able to communicate thought intentionally. The preoperational stage begins at ages one or two when there is a beginning of functional relations and some use of symbols in play, but not enough words for all the things he sees and does. The concrete operational stage begins at about age seven when children are able to see someone else's view, begin to reason, and are capable of reversing.[1]

"Knowledge at all levels has a generalizable aspect which goes beyond given particular actions,"[2] stated Piaget; and knowing something then enables a person to carry out further action. By acting on his environment a child has the capacity to develop, but the type of environment is a crucial factor.[3] Intelligence is made up of operational schemes and not of symbols, thus focus during the preoperational and begining operational levels should be on operational schemes, not on symbols.[4]

But Piaget did not ignore the relationship of intelligence, thinking, and language. The growth of intelligence is evidenced by the way the child uses symbols, including words,[5] and in the use of language in general.[6] In defining a learned concept, Piaget claimed

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[1] Ibid., p. 33. [2] Ibid., p. 16. [3] Ibid., p. 23.
[4] Ibid., p. 35. [5] Ibid., p. 34. [6] Ibid.

that language is not necessarily a prerequisite:

> A person 'has' a concept when he assimilates a given situation to available general schemes, or, from another perspective, when he accomodates, that is applies general schemes to particular situations.[1]

Further, thinking operationally is possible without symbols as when classifying objects by placing them in separate piles; on the other hand, symbols without operations are not possible;[2] "It is knowing that is required to explain the symbol."[3] In other words, there must be understanding first before an explanation can be given; thus, Piaget was convinced that acquisition of concepts can arise in the absence of language but clarity of concepts comes through language usage:

> . . . articulating new ideas in your own words by talking things over with others and constantly referring theoretical statements to actual examples are just about the two most effective means of making . . . anyone else's ideas your own.[4]

Thus an aid in thinking clearly, is to give an example which will illustrate a concept which is most frequently performed through the use of language.[5] To foster this kind of ability then, it is important to develop both underlying adequate thinking structures and language abilities.

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[1] Ibid., p. 34. [2] Ibid., p. 47. [3] Ibid., p. 53.
[4] Ibid. [5] Ibid., p. 46.

With the exception of their observations about inner or egocentric speech, Vygotsky[1] and Piaget agree on the language-thinking interrelationship. Vygotsky considered every thought as a generalization rather than mere words. "Word meanings are dynamic rather than static formations. They change as the child develops, they change also with the various ways in which thought functions."[2] The relation of thoughts to word is a process which undergoes change as it moves from word back to thought and then from thought back to word. Thoughts connect to other things and to relationships. Thoughts move, grow, develop, fulfill functions, and solve problems.[3]

Vygotsky devoted considerable amount of research to the differences between inner and external speech, how they are different, how they grow in opposite directions, and how inner speech is gradually lost to thinking between the ages of 3 and 7 when thinking replaces verbalization.[4] Since inner speech does not need to focus on syntax and sound, it can focus on meaning and precede meaningful external speech.[5] Meaning, however, remains even when a

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[1] L. S. Vygotsky, Thought and Language, ed. and trans. Eugenia Hanfmann and Gertrude Vakar (Cambridge, Mass.: The M.I.T. Press, Massachusetts Institute of Technology, 1962).

[2] Ibid., p. 125.

[3] Ibid.

[4] Ibid., pp. 126-135.

[5] Ibid., p. 145.

different context appears and the words are changed: "A word acquires its sense from the context in which it appears; in different context it changes its sense. Meaning remains stable thoughout the changes of sense."[1] Like Piaget, Vygotsky was adamant that verbalization is crucial to the development of meaning.

As has been illustrated by Piaget, basic to language are the use of concepts. In examining concepts, Bruner developed a working definition of a concept as "A network of inferences that are or may be set into play by an act of categorization."[2] He noted the importance of a context within which the concept arises:

> . . . A context is a network of significant inferences to which one goes beyond a set of observed criterial properties exhibited by an object or event to the class identity of the object or event in question, and thence to additional inference about other unobserved properties of the object or event.[3]

He considered language as a pivot around which this categorizing occurs and that the act of categorization arises from a known class, such as "chairs," to the categorizing of different kinds of chairs, where the known class becomes the tool for further learning.[4] This categorizing by "a set of defining attributes reduces the necessity of constant learning" and allows further categorizing without

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[1] Ibid., p. 146.
[2] Bruner, p. 244.
[3] Ibid.
[4] Ibid., p. 12.

further learning."[1] Hence language plays a vital role in concept formation.

Attributes are defined as "any discriminable feature of an event that is susceptible of some variation from event to event" like a stone having attributes such as colour, weight, and shape.[2] In the process of learning to categorize events of a subset then, one is learning a rule that can be applied in new instances and this occurs most frequently or more easily through verbalization.[3] Thus Bruner concurs with Piaget and Vygotsky on the need for actively using language from an early age.

Gagné also concurred with the three men in this need:

> Learning a concept means learning to respond to stimuli in terms of abstracted properties like 'color,' 'shape,' 'position,' 'number,' as opposed to concrete physical properties like specific wave-lengths or particular intensities.[4]

He contended that once a concept is learned it can be applied correctly in a different situation,[5] that concept learning is "putting things into a class and responding to the class as a whole."[6] Once a concept has been acquired, a further process is undertaken: the development of a principle. According to Gagné, "A principle is a chain

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[1] Ibid., p. 26. [2] Ibid., p. 45. [3] Gagné, p. 47.
[4] Ibid., p. 49. [5] Ibid., p. 126. [6] Ibid.

of two or more concepts,"[1] which in turn make up knowledge.[2] Two concepts might be "children" and "jump". The person knowing the concepts "children" and "jump" when seeing a group of children jumping, demonstrates the acquisition of principle when he exclaims, "Children jump." Thus Gagné also joined Piaget, Vygotsky, and Bruner in the need for verbalization from an early age.

In summary, from the research cited into the development of language, it would appear that not only is oral language vital to the development of meaning but that growth in concepts and principles is dependent upon the active participation in using language. The literature strongly suggests that children at any level, with particular emphasis at the primary level, must be given opportunities to dialogue or to discuss in order that the operational thinking structures being formed will be congruent with their physical, social and emotional growth.

Measuring Oral Growth

To obtain documentation of oral language proficiency has always been a problem, but the use of protocols has shown to be one of the more effective methods of gathering oral data. Some of the researchers who have used this procedure are: McCarthy, Hahn, Thomas, Strickland,

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[1] Ibid., p. 53. [2] Ibid., p. 141.

Loban, O'Donnell, Griffin, and Norris.[1] The stimuli to obtain these protocols are varied, however. McCarthy recorded fifty responses to pictures; Hahn recorded a show-and-tell narration, a group discussion, verbalizing to a displayed toy, and an individual telling a story about a picture; Thomas recorded responses to three questions regarding home, life and play; Strickland motivated children to talk about family and pets, and kept the conversation going till children spoke easily and she was able to record 25 phonological units from each child; Loban got a child talking by asking questions and then recorded the child's response to six pictures; O'Donnell, Griffin, and Norris recorded the oral and written responses to two films with sound turned off.

Different ways of measuring length and complexity of language units have also been researched. McCarthy's communication units were marked off by utterances and pauses. Included in a complete sentence were simple sentences with or without phrases, compound sentences, complex sentences, and elaborated sentences with both clauses and phrases.[2]

Strickland defined a phonological unit as a "unit of speech with a distinct falling intonation which signals

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[1] Marguerite B. Bougeré, "Selected Factors in Oral Language to First Grade Reading Achievement" (unpublished Ph.D. dissertation, University of Chicago, 1968), pp. 24-29.

[2] Ibid., pp. 31-33.

a terminal point."[1] She used the mean length of the communication unit in her analysis as well as fixed slots (slots of different parts of the sentence like subjects and predicates), moveables (such expressions as times, place, cause, manner) and sentence connectors.[2]

The term communication unit was changed to minimal terminal unit or T-unit by Hunt, where the main clause with its modifiers and subordinate clauses were "a T-unit".[3] On the other hand type-token vocabulary measurement according to Carrol was found to be the best method of estimating oral vocabulary. This was the ratio of the number of different words to the total number of words in the sample of language.[4]

Loban defined communication units a little further, by saying they were groups of words that could not be further divided without losing meaning and that grammatically independent clauses were separate communication units;[5] thus he used the type-token ratio in hundred word samples. By using six pictures he got enough words per child to be able to use the number of different words per hundred. He found, however, that the type-token ratio did not discriminate between high and low groups.[6]

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[1] Ibid., p. 34.
[2] Ibid., pp. 34-35.
[3] Ibid., pp. 36-38.
[4] Ibid., pp. 41-42.
[5] Ibid., pp. 35-36.
[6] Ibid., pp. 41-42.

Beside the number of words spoken, the communication unit, and mazes, Loban also used analysis such as 1) amount of subordination which shows relationships, 2) class of conventional usage, syntax, and grammar, 3) vocabulary according to frequency of use in language, 4) and class of vocabulary according to diversity.[1] "Mazes" he defined as tangles that could not be phonologically or semantically identified.[2] Further, he regarded a communication unit, even though it was a syntactic structure, as a semantic unit, because it was a group of words that could not be further divided without loss of meaning.[3] "Yes" and "no" were counted as communication units if they replaced clauses, but not when included in a clause.[4]

Klassen reviewed research on language but worked chiefly with the analysis of written language. Beside Hunt's T-unit and Strickland's slots and moveables, he used Chomsky's transformational generative theory in regard to rules governing the rearranging of sentences by various processes[5] and the subordinate clause ratio.[6]

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[1]Loban, The Language of Elementary School, p. 17.

[2]Ibid., p. 5. [3]Ibid., p. 6. [4]Ibid., p. 10.

[5]Bernard Rodney Klassen, "A Transformational Analysis of the Syntactic Structures of Children Representing Three Varying Ethno-Linguistic Communities in Manitoba" (unpublished M.Ed. Thesis, University of Manitoba, 1969), p. 4.

[6]Ibid., p. 9.

He considered the sentence combining transformations the most significant linguistic maturity index.[1]

Parke measured oral language by the number of different words, the total number of words, and average sentence length. In the non-language experience approach in reading, she found little correlation between oral language and reading success.[2] For support, she quotes Howell's study where seven-year-olds wrote and dictated stories. Half the class wrote about assigned topics and half about shared experiences. The measures used were number of words, number of different words, and number of generalizations gathered from writings over a ten-month period. The shared experience group had more running words, more different words, more generalizations, and more generalizations per running word.[3]

Braun in getting grade one children to respond orally to a film and grades four and six children in writing found high correlation between reading and language in both mono- and bi-lingual students. As measures of language he used mean T-units, and number of sentence

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[1] Ibid., p. 10.

[2] Margaret B. Parke, "Composition in Primary Grades," Children's Writing: Research in Composition and Related Skills, eds. Alvina T. Burrows et al. (Champaigne, Ill.: National Council of Teachers of English, ED 090 546, 1961), p. 7.

[3] Ibid., p. 10.

combining transformations.[1]

Ruddell and Williams with kindergarten and primary pupils used standardized pre- and post-tests to measure reading comprehension, word analysis, listening, and reading readiness;[2] samples of written language, measures of dialect and self-concept, and video taping of the teacher questioning them were also considered. For oral and written language production, multiple picture stimuli were used and the average number of words per communication unit were measured.

Klassen measured the written language of grades four and six students of three different ethnolinguistic communities in Manitoba in regards to linguistic maturity.[3] Among various measures used to analyze the children's writing in response to a film, he found the sentence combining transformations as the most significant index of maturity and that the language at the sixth grade was superior to the fourth grade.

Bougeré sought to find if certain selected factors

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[1]Carl Braun, "Reading Achievement of Monolingual and Bilingual Children in Relation to Selected Linguistic Variables," Language, Reading and the Communication Process, ed. Carl Braun (Newark, Del.: International Reading Association, ERIC Document Reproduction Service ED 070 058, 1971), p. 7.

[2]Ruddell and Williams, p. 48.

[3]Klassen's study.

that were used as indices of maturity in children's language showed significant relationships to first-grade reading achievement. She chose 60 grade one children in suburban Chicago. To measure oral language she used the T-unit, mean length of T-unit, ratio of subordinate clause length to T-unit length, and ratio of sentence-combining transformations to T-unit.[1]

In summary, specific language skills can be measured in various ways. This study undertook the following measures to determine language development which from the review of the literature, seem to be effective: the number of principles expressed, the average number of words per principle, and the number of mazes.

Oral Language Development Program

A limited amount of research has been done in the area of oral language growth and instruction. One experiment in Little Rock, Arkansas with 55 low socio-economic children who had no Headstart or Day Care found that a wide variety of instruction experiences including extra audiovisual aids and field trips, and who were also allowed to talk freely with their teachers and peers, gained significantly

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[1]Bougeré's study.

in basic concepts as measured by a BOEHM Test of Basic Skills from October pre-testing to May post-testing.[1] The sample for the experiment was in a school in a district that scored in the lowest percentile of the Iowa Test of Basic Skills and the MacMillan Reading Tests. Teachers' subjective evaluation of the project stated that the students improved in giving directions to their peers and in talking about things with which they were not familiar.

Fox listed two examples.[2] One was Cazden's experiment where three groups of children were used. In the expansion group the teacher expanded the children's statements by adding to them. In the extension group the teachers added to the child's statement and asked a question or two to get the child to speak more. Both groups grew significantly in their use of oral language beyond the control group, but the extension group grew more.[3]

Baxley set up a summer program for Kindergarten to Grade two children in Arizona on the assumption that language is an outgrowth of experience and that reading

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[1] Detection and Remediation of Deficiencies in Verbal Understanding of First Grade Students.

[2] Sharon E. Fox, "Assisting Children's Language Development," The Reading Teacher, Vol. XXIX (April, 1976), p. 666.

[3] Ibid., p. 668.

is an extension of language.[1] The summer program included a wide variety of activities and field trips and was geared to all five of the children's senses. The children were also encouraged to interact within the group and with adults. The children's verbal response to pictures improved on the Munroe Test of Oral Language Development for Children. The teachers' subjective evaluation said that children's talk and their interest in books improved.

Sassenrath and Maddux experimented with 98 disadvantaged kindergarten children in a small city-rural school in California.[2] Fifty-four of the children were boys and 45 were girls; they were drawn from seven schools with nearly half being bilingual--English and Spanish. The 11 teachers who had these students in their classes were allowed to choose the language program they preferred: Distrar, Peabody, or Standard. Approximately 30 to 40 minutes a day was spent with the language program with the purpose of the study being to evaluate the effectiveness of the different instructional programs. All the groups made substantial gains in language from the pre- to the post-tests in the School Readiness Survey, Wepman Auditory Discrimination Test and the ITPA.

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[1] Baxley and Hinton's study.

[2] Julius M. Sassenrath and Robert E. Maddus, Language Instruction, Background, and Development of Disadvantaged Kindergarten Children (Burlingame, Calif.: California Teachers Association, ERIC Document Reproduction Service, ED 094 397, 1974).

Of 232 grade one and two children in a language-experience reading program in Seaford, Delaware, notebooks containing stories which the children had dictated in two different periods, September to January, and January to June, were randomly selected.[1] Seven categories were analyzed in the oral and written language skills: 1) average number of words per dictation, 2) average number of words per sentence, 3) words in the longest sentence in the selection, 4) number of prepositions, 5) number of pronouns, 6) number of different prepositions and 7) number of different words. The results showed significant improvement in all areas analyzed. Growth in the average number of words, the average number of sentences and the average number of prepositions was "impressive". The standard deviation for each variable increased suggesting that the difference in oral language skills grew more pronounced as time went on.

Loban chose 112 children from the larger sample of children he was experimenting with in Oakland, California, for an in-depth study of language difficulties non-standard speakers had.[2] He took 21 Caucasian children

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[1]Russell G. Stauffer and John J. Pikulski, "A Comparison and Measure of Oral Language Growth," Elementary English, ed. Iris M. Tiedt (Urbana, Ill.: National Coundil of English Teachers, Nov./Dec., 1974).

[2]Loban's Problems in Oral English study.

who rated high in language proficiency, 21 low language proficiency Caucasian, 20 low language proficiency Negro, and 50 in a random group. Their oral responses to six picture stimuli were recorded annually and then transcribed for nine consecutive years. Deviations from standard English were studied. The results showed that the children in the Negro low language group demonstrated a greater number of deviations per 1000 words than the other two groups.

The foregoing literature suggests a direct positive relationship of oral language and instruction. This lent support to the language experience approach to reading which was under investigation in this study.

Oral Language and Reading

Bougeré[1] researched oral language with the aim of finding correlations between oral language and reading at the grade one level. Her research discovered that oral language and reading ability were considered interrelated as early as Huey's study in 1906.[2] Gray and Robinson have documented similar findings.[3] Through her studies, Hildreth questioned whether a child can learn to read fluently or comprehensively without a solid oral language,[4]

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[1] Bougeré's study.

[2] Ibid., pp. 12, 13.

[3] Ibid., p. 13.

[4] Ibid., p. 55.

while Munroe and Roger contended that oral language was basic to learning to read.[1] Carroll's investigation gave support to these positions when he found that most children beginning reading also have adequate oral language abilities.[2]

There are certain assumptions underlying the statement that oral language skills are antecedent to reading. Chapey outlines four of these: 1) Meaning of an utterance is more than a combination of its elements. 2) Oral language affects academic achievement; restricting it impedes learning to read. 3) Gaps in language need to be identified so attention can be given to them. 4) Reading is indeed only the tiger's tail--oral language is its head.[3]

What was lacking, however, was some kind of theoretical framework which psycholinguists such as Smith, Goodman, and Meredith provided in the 60's. They stated that traditional approaches in developing readiness to read are not as

> . . . important as the firm base in language and experience that the learner must bring to reading. This base is so important that it may be desirable to delay reading instruction for some children and

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[1] Ibid., p. 15. [2] Ibid., p. 17.

[3] Geraldine D. Chapey, "Preface," A Special Study Institute on Oral Language Skills Antecedent to Reading, eds. Eleanor DiMichael and Gavin O'Connor (Brooklyn, N.Y.: New York City Board of Education, ED 083 761, 1973), p. 6.

> to concentrate on building their confidence and effectiveness in oral language.[1]

Frank Smith expanded this framework:

> A major thesis . . . is that the brain--our prior knowledge of the world--contributes more information to reading than the visual symbols on the printed page.[2]

The psycholinguists' hypotheses are based on the fact that the deep structure or meaning is the first requirement of oral language which must come through experience: the language of the environment is heard by the child and here he learns the basic syntax of his language. The meaning and syntax are put together and the word is spoken which becomes the surface structure.[3] The same ideas had been conveyed earlier by such researchers as Gray who said it was essential for teachers to make sure children had background before trying to teach concepts and vocabulary and that if these were lacking, to arrange for experiences to teach them.[4] Others who lend support to this position are Anastasiow[5] who quoted Kirk as saying that oral

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[1]Smith, Goodman, and Meredith, p. 277.

[2]Frank Smith, Understanding Reading (New York: Holt, Rinehart, and Winston, Inc., 1971), p. 3.

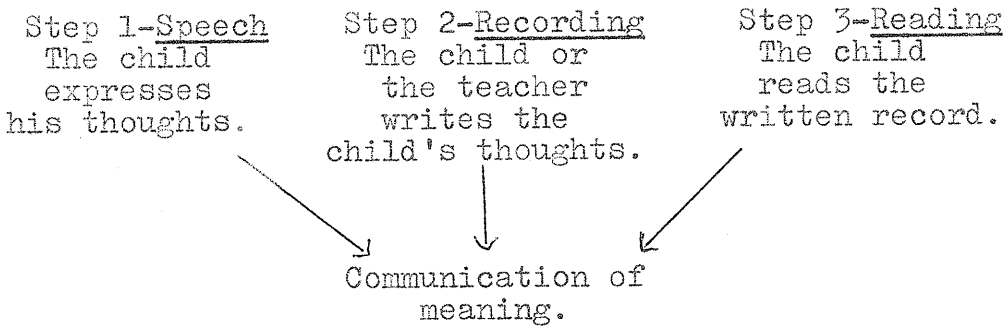
[3]Ibid., p. 29.

[4]William S. Gray, "Reading and Understanding," Interpreting Language: An Essential of Understanding, eds. J. Seegers, et al. (Urbana, Ill.: National Council of Teachers of English, ED 089 358, 1951), p. 21.

[5]Nicholas Anastasiow, "Oral Language and Learning to Read," Language, Reading and the Communication Process, ed. Carl Braun (Newark, Del.: International Reading Association, ERIC Document Reproduction Service ED 070 058, 1971), p. 36.

language was the foundation needed to excell in reading and Braun who quoted Hildreth, saying that "deficient readers are deficient in oral language."[1]

Allen and Allen in outlining a language-experience approach to reading stated that oral language is the basic ingredient for word recognition.[2] Hall went even further when she said that oral language is the base for decoding and comprehension.[3] Thus the language-experience approach to reading appears to reflect these theorists in the following sequence:[4]



From this model it would appear that some kind of cue system operates with the language-experience approach

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[1]Braun, p. 36.

[2]Roach Van Allen and Claryce Allen, Language Experiences in Reading, Level 3 (Chicago: Encyclopedia Britannica Press, Inc., 1967), p. 1.

[3]Mary Anne Hall, Teaching Reading as a Language Experience (Columbus, Ohio: Charles E. Merrill Publishing Co., 1970), p. 3.

[4]Mary Anne Hall, Teaching Reading as a Language Experience, 2nd Edition (Columbus, Ohio: Charles E. Merrill Publishing Co., 1976), p. 2.

which facilitates reading. Smith, Goodman, and Meredith attempted to define four cue systems that readers need: they are 1) within words (the shape of words, phonics, structure), 2) the flow of language (syntax), 3) within the reader (his experience, also his physical well-being), and 4) external cues (pictures, charts, objects).[1] Frank Smith elaborated on the significance of the non-visual and visual aspects of reading: the more the reader already knows about reading, the world around him, and language, the less he depends on the visual in the actual reading.[2] "I . . . propose that the actual marks on a printed page are relatively less important than the knowledge of language that a skilled reader has before he even opens a book."[3] The emphasis is thus on the non-visual, the flow of language and the experience the reader brings to reading.

Deverell also stressed the necessity of the careful presentation of the relationships between the spoken and written code as the best way to transfer from a child's oral language to the written orthography of words: the child has to discover the transfer and interpret it in his

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[1]Smith, Goodman, and Meredith, pp. 251-266.

[2]Frank Smith, Psycholinguistics and Reading (New York: Holt, Rinehart, and Winston, Inc., 1973), p. 6.

[3]Frank Smith, Understanding Reading, p. 9.

own mind before he learns to read.[1] Wardhaugh emphasized the same point in another way:

> In teaching comprehension one must understand exactly what must be comprehended. And it is not just words. A good part of what must be comprehended must be accounted for by a knowledge of the deep syntactic relationships in the sentences presented for comprehension. Another part of what must be comprehended can be accounted for if one has a parallel knowledge of the semantic projections which are possible.[2]

Thus learning to read depends to a large extent on the understanding of words which comes from oral language. According to Deverell, reading is the process of responding to the language behind the print.[3] Goodman and Niles support this by saying that a reader is a user of language and that reading is a psycholinguistic process where interaction occurs between thought and language.[4] "Reading is not a matter of going from words to meaning, but rather from meaning to words."[5] There must be meaning; there must be understanding or the words are useless and empty and reading them becomes a parroting of words.

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[1]Deverell, p. 2.

[2]Ronald Wardhaugh, "The Teaching of Phonics and Comprehension: A Linguistic Evaluation," Psycholinguistics and the Teaching of Reading, ed. Kenneth S. Goodman and James T. Fleming (Newark: International Reading Assoc., 1968), p. 87.

[3]Deverell, p. 56.

[4]Kenneth S. Goodman, "Behind the Eye: What Happens in Reading," Reading Process and Program, ed. Kenneth S. Goodman and Olive S. Niles (Urbana, Ill.: National Council of Teachers of English, 1970), p. 6.

[5]Frank Smith, Understanding Reading, p. 35.

When there is underlying meaning and there are words representing these meanings, reading then becomes a matter of applying particular rules. According to Smith: ". . . basically a child is equipped with every skill that he needs in order to read and to learn to read; all that he needs to discover is the particular rules that apply."[1]

According to the psycholinguists then, the more proficient the learner is in this oral language, the simpler will be the learning to read in that language. Thus one of the best ways to begin this reading would appear to be through the language-experience approach.[2] This approach to reading was first written about by Ashton-Warner: "First words must have intense meaning for a child. They must be a part of his being."[3] Then, said Ashton-Warner, the love for reading can arise.[4] Other language-experience theorists have lent support to the idea of the children's first reading experience to be made up of words with which they are familiar. Lee and Allen,[5] Stauffer,[6] Hall,[7] and Thorn[8] all stress that beginning reading should be with the

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[1] Ibid., p. 55.

[2] Smith, Goodman, and Meredith, p. 276.

[3] Ashton-Warner, p. 30. [4] Ibid., p. 31.

[5] Lee and Allen's book.

[6] Stauffer, The Language-Experience Approach to the Teaching of Reading.

[7] Hall's book. [8] Thorn and Braun's book.

children's own vocabulary because the deep structure and syntax are then familiar to the child and only the learning of the written code is necessary. These writings are, however, in the domain of theory and a search was necessary into research of oral language and reading ability.

Research into Relationships of Reading with Oral Language

To document this influence of oral language development upon reading performance a search of studies into the relationship of reading and oral language was undertaken.

Loban studied 338 subjects in Oakland, California, kindergarten through grade six.[1] The children represented a wide socio-economic divergence with the median being middle class. Sex, race, and intelligence were also considered in the selecting. Loban followed the children through their school years and tested them at various intervals. At the end of the ten year period he had a sample of 200 students. Areas in which data were collected included: vocabulary, oral and written language, reading and listening proficiency, teacher feeling, and background on the health and homes of the subjects. In order to collect oral language specimens, Loban had the children talking individually and then recorded each child's talking about six picture stimuli. This was done on a regular

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[1]Loban, The Language of Elementary School Children.

annual basis. The specimens were transcribed and analyzed into communication units and mazes in the first level of analysis. In the second level of analysis several other aspects such as vocabulary according to frequency of use in language, vocabulary diversity in relation to the number of words in the sample, categories of words in each of the parts of speech, and amount of subordination were measured and correlated with reading and IQ scores. High correlations were found between oral language and reading at the intermediate level, reading and writing, oral language and listening, with the highest correlation being between vocabulary and IQ. Correlation between those high in oral language in kindergarten and good reading achievement in grade three were also high.

Loban summed up his research thus:

> It would be difficult not to conclude that instruction can yet do more than it has with oral language. Many pupils who lack skill in using speech will have difficulty in mastering written tradition. Competence in the spoken language appears to be a necessary base for competence in writing and reading.[1]

Braun in working with two groups of bilingual children, a German-speaking group, and a French-speaking group, as well as a monolingual group of children in Manitoba found a fairly high positive relation between the language and reading.[2] In his sample he used 24

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[1] Ibid., p. 88. [2] Braun's study.

children from each community at each of three grade levels. The correlation was higher at the grade four and six levels where children responded to a silent movie by writing about it than in grade one where children responded orally. Both groups responded to two films so he had two samples per child. Braun used the mean T-unit length and the number of sentence transforming combinations in his measuring of language and both were found to correlate highly with the reading achievement.

Ruddell and Williams began a research study with primary children involving various language arts skills, including word analysis skills, listening, reading readiness (in K and 1), oral language, and writing over a concentrated one month of instruction. They used their particular program, DELTA (Developing Excellence in Literary Teaching Abilities) which is based upon the assumption that "Oral language development should provide a base for reading and writing language development in the integrated language skills curriculum."[1] Their aim was to design, implement, and evaluate an in-service professional development model to enhance the teaching of literary skills and thus to improve children's language and reading achievement. Berkeley, California was chosen for the site of this experiment which was funded by the U. S. government. The

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[1]Ruddell and Williams, p. 47.

reading scores in the selected school were the lowest in the district. The data were collected through standardized pre- and post-tests in reading comprehension, word analysis, listening and readiness while oral and written language pre- and post-tests were interviews with different stimuli. The oral language was measured by the average number of words per T-unit. Dialect and self-concept were measured and a video-tape of teacher questioning was made. The teacher recorded observations as well and spot checks were made by an observer. When the results were analyzed, the oral language gains were not significant. Ruddell and Williams suggested that this may be due to the fact that research techniques for measuring oral language at the primary level were quite limited.[1] On the other hand, all groups showed more than one month's gain in reading except the black grade two class.

Smith and Morgan supervised an experiment in Lewiston, Idaho with grade one and two children where children dictated stories and these were typed up for them to read as a supplement to a basal reader.[2] The experiment continued for two years so one of the three classes had the extra reading for two years and the other groups just for

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[1] Ibid., p. 125.

[2] Lewis B. Smith and Glen D. Morgan, Cassette Tape Recording as a Primary Method in the Development of Early Reading Material (Moscow, Idaho: ERIC Document Reproduction Service ED 083 544, 1973).

grade one or grade two. The control group were children randomly chosen from seven other schools in the district. The Stanford Achievement Test post-test showed that the experiment group significantly outscored the control group and as a result of the experiment, large-scale operation of the recording of children's stories and then reading them as a supplement to the basal approach was initiated.

Of particular importance to the study undertaken is Holman's study since it undertook certain elements of the language-experience approach. Holman used the kindergarten population from two schools in a small midwestern community and divided them into low and high groups using the WPPSI and the WISC.[1] He chose 20 randomly selected students from each sex in the high and 24 from the low. These 96 students were grouped into eight each of 12 treatment groups. Four treatment groups learned their own self-selected words. Four other groups learned the words selected by the children in the first groups, and four groups learned selected words common to children this age. The groups learning their self-selected words scored significantly higher than either of the control groups. The total responses of the children over six trials, seven words per trial, were used to test the

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[1]Glen C. Holman, Jr., Interest and Evaluative Meaning as Factors in the Acquisition of a Sight Vocabulary. Paper presented at the Annual Meeting of the American Educational Research Association (ERIC Reproduction Service ED 078 939, 1973).

number of words the children knew. Holman's research supported Ashton-Warner's theory that children learning words which they select themselves, learn more quickly than the words given to them from someone else's selection. The conclusion made was that the language-experience approach to reading appeared to be one of the most effective methods in helping children learn to read. This warranted then a closer look at the constituents of the language-experience approach to reading.

The Language-Experience Approach to Reading

The language-experience approach to reading as developed by Ashton-Warner, Allen, Stauffer, Hall, and Thorn has the unique characteristic of being a reading program which begins with the children's actual experiences with the children talking about and listening within their peer group and with their teacher. The teacher or the children then select and write about an experience so they can read what they just dictated. In this way the experience and vocabulary are familiar and children can read what is completely meaningful to them.

The basis for this approach is a sensitivity to the child's own environment and providing opportunities for the child to talk about this environment. The environment can take many forms such as actual observations, field

trips, art, and films,[1] making language a natural outgrowth: "A child can use language as a substitute only where he can supply, out of his own past experience, word symbols that mean to him what the experience itself means."[2] Experience becomes one very important element because having actually "lived through" an experience children have interesting things to talk about, they are more eager to talk about these things thereby improving their oral language and their ability to communicate effectively. The other important ingredient is the discussion with their peers: "As children speak their powers of communication are sharpened."[3] Thus the verbalizations among peers as a pre-reading activity are vital to the actual reading in this approach.

According to Ashton-Warner, the key to the language-experience approach is the vocabulary children bring to the reading. The words used and read are the words that the children themselves have selected thereby ensuring the underlying meaningfulness. When these are the words read by the child, he experiences less frustration and he retains the written form longer because of their importance and relevancy to him.

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[1]Allen and Allen, pp. 1-10.

[2]Ruth G. Strickland, "How the Curriculum May Contribute to Understanding," Interpreting Language: An Essential of Understanding, ed. J. Seegers and others (Urbana. Ill.: National Council of Teachers of English, ED 089 358, 1951), p. 33.

[3]Hall, 1970, p. 3.

Research Related to Language Experience and the Basal Reading Approaches

The language-experience approach to reading has been compared to the basal approach in various studies. Only those studies relevant to this study will be considered in this section.

Stauffer's study involved a group of primary children in Delaware which he followed from the beginning of grade one through grade III. He compared the effectiveness of the language-experience approach to the basal approach. At the end of the first year in testing involving 433 pupils the results on the Stanford Achievement Test, Primary 1, showed the language-experience groups scoring significantly higher scores (at the .01 level) than their basal counterparts in both the word meaning and paragraph meaning sub-tests.[1] By the end of the second year the significant differences between the groups on the SAT, Primary 2, had disappeared.[2] Neither were significant differences evident at the end of the third year.[3]

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[1]Russell G. Stauffer, "The Effectiveness of Language Arts and Basic Reader Approaches to First Grade Reading," The First Grade Reading Series: Findings and Investigations (Newark: International Reading Assoc., 1967), p. 143.

[2]Russell G. Stauffer and W. Hammond Dorsey, The Effectiveness of Language Arts and Basic Reader Approaches to First Grade Reading Instruction-Extended to Third Grade. Final Report. (Newark: University of Delaware, ERIC Reproduction Service, ED 027 163, 1968), p. 60.

[3]Ibid., p. 68.

Harris and Morrison followed 1,228 disadvantaged children from the beginning of grade one through grade three. The classes were divided into those using language-experience and those using the skills-centred or basal approach. The results as measured by the SAT and analyzed by an analysis of variance showed greater differences within the method for various classrooms than between the methods. No significant differences were recorded from grades one to three although the basal classes scored slightly higher scores in the first two grades.[1]

Harry Hahn compared three methods: ITA, language-experience as developed by Allen, and the traditional basal. At the end of the first year the ITA and language-experience groups scored significantly higher in the word reading sub-test on the SAT, but not in word and paragraph meaning.[2] However, by the end of grade two the language-experience groups scored significantly better (at the .01 level) than their basal reading counterparts.[3]

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[1]Albert J. Harris and Coleman Morrison, The CRAFT Project: Final Report of a Three-Year Project on Teaching Reading to Disadvantaged Urban and Negro Children (Brooklyn, N.Y.: New York City Board of Education, ERIC Reproduction Service ED 035 511, 1968), pp. 1, 2.

[2]Harry T. Hahn, "Three Approaches to Beginning Reading Instruction - ITA, Language Arts, and Basic Readers," in The First Grade Reading Studies: Findings and Investigations, ed. Russell G. Stauffer (Newark: IRA, 1967), p. 33.

[3]Harry T. Hahn, Teaching Reading and Language Skills in Grades Two and Three (Rochester: Oakland State University, ERIC Reproduction Service ED 022 645, 1968), p. 40.

Vilscek and Cleland in comparing the basal and the language-experience approach in first grade found significant differences at the .01 level favouring the language-experience approach on both the word meaning and paragraph meaning sub-tests of the SAT.[1] However, they did not find significant differences at the end of grades two and three.[3]

Conclusion

There is much theoretical writing about the importance of oral language as a basis for reading instructions. Out of the available research there is considerable evidence for a language-experience approach to reading. However, no studies were uncovered which examined specifically the impact of the discussion aspect of the language-experience approach upon specific language skills or upon certain reading skills. Thus the question for research in the present study became: "At the grade two level, does the spontaneous discussion type of pre-reading activity identified with the language-experience approach to reading have a greater effect upon specific oral language and reading skills than

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[1]Elaine C. Vilscek and Donald L. Cleland, Comparison of the Basal and Co-ordinated Language Experience Approaches in First Grade Reading Instruction (Pittsburgh: University of Pittsburgh, ERIC Reproduction Service ED 012 687, 1964), p. 124.

[2]Elaine C. Vilscek and Donald L. Cleland, Two Approaches to Reading Instruction. Final Report (Pittsburgh: University of Pittsburgh, ERIC Reproduction Service ED 022 647, 1968), pp 43, 89.

the conventional teacher-talk-and-question, pupil-listen-and-answer type of pre-reading activity identified with the basal reading approach?"

CHAPTER III

DESIGN OF THE STUDY AND PROCEDURES FOR COLLECTING DATA

Introduction

The present study sought to determine the effects of a spontaneous discussion as a pre-reading activity used in the language-experience approach upon specific oral language and reading abilities of second grade students when compared with the conventional pre-reading activity of the basal reading approach.

The first section of this chapter describes the pilot study which was undertaken to develop specific strategies for data collecting and the training of the instructor in initiating and conducting the pre-reading discussion. Following the description of the pilot study, the design, sample, pre- and post-testing, and the procedures of the actual study are presented.

Question for Study

The general question investigated in this study is, "Does a spontaneous discussion type of pre-reading activity associated with the language-experience approach have greater effects upon a) specific oral language skills and

b) reading comprehension and vocabulary growth as measured by a standardized reading achievement test, than the conventional pre-reading activity associated with the basal reading series?" From this general question the following specific null hypotheses were formulated:

1. There will be no significant difference following the treatment, between the experimental and control groups on the reading comprehension section of the Metropolitan Achievement Test (MAT).

2. There will be no significant differences following the treatment, between the experimental and control groups on the vocabulary section of the MAT.

3. There will be no significant correlation among the pre- post- and delayed post-test scores of the MAT, reading comprehension section, of both control and experimental groups.

4. There will be no significant correlation among the pre- post- and delayed post-test scores of the MAT, vocabulary section, of both control and experimental groups.

5. There will be no significant correlation between the reading comprehension and vocabulary pre- post- and delayed post-test scores of the MAT for both control and experimental groups.

6. There will be no significant difference in the number of principles expressed between the experimental groups and their control counterparts following treatment.

7. There will be no significant difference in the average number of words per principle expressed between the experimental groups and their control counterparts following treatment.

8. There will be no significant difference in the number of mazes expressed between the experimental groups and their control counterparts following treatment.

THE PILOT STUDY

The purpose of the pilot study were three-fold: 1) to develop techniques for measuring both the quantity and quality of specific oral language skills; 2) to determine the duration of the actual research; and 3) to train the investigator-instructor in discussion strategies which will guide a small second grade group in a spontaneous discussion.

Subjects

Fifteen grade two students ages 6-7 from a rural Mennonite farming community were used in the pilot study. Of the 15, seven were girls and 8 were boys. They were similar in ethnic origin and socioeconomic strata to the students who participated in the actual study. They were the only grade two students in this particular rural school, thus all 15 subjects were used in this pilot study.

Procedures

Eight of these 15 subjects were given a pre-test in oral language in the form of an oral language response to a

picture stimulus. This was done on an individual basis and oral responses to the picture stimulus were recorded on a cassette tape recorder. No distractions occurred because each child was taken out of his/her classroom into a small seminar room for this activity. The investigator sat back and listened while the individual child responded to the picture. The children's responses were later transcribed verbatim and analyzed into the following categories: number of words spoken, number of principles expressed, the average number of words per principle, the number of mazes, and the number of different words expressed.

The total grade two class of 15 subjects was randomly divided into three equal groups because it was expected that there would be about five students per group in the actual study. It seemed advisable to have the groups of similar size to what was expected to be in the actual treatment because the investigator wanted to find how easily such a group could be taught to participate in a spontaneous discussion without teacher help since this ability was an integral part of the procedures in the actual study.

Information and directions for group discussion were given to all subjects and it was explained that following the discussion the group would make up a story about the picture.[1] The teacher would write this story on chart paper later.

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[1]See Appendix A.

During the next six days each group was instructed in the same method: a picture stimulus was presented to the group and children were asked to talk about it among themselves. Then the investigator allowed the children to discuss among themselves up to a maximum of ten minutes. The instructer intervened only when some student was not participating or a misconception was arising and required clarification. After the discussion, each group made up a story about the picture and the investigator recorded it verbatim on chart paper. The activity concluded with the children as a group reading the story aloud. This procedure was followed for each of six consecutive school days.

Evaluation of the Pilot Study

One of the main purposes of the pilot study was to develop techniques for measuring both the quantity and quality of specific oral language skills. Following the transcription of the oral language pre-tests, analyses of various oral language skills were begun using several measures which had been developed by Loban:[1] number of words expressed, number of different words per hundred running words, number of mazes, number of words per maze, and the average number of words per maze.

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[1]Loban, The Language of Elementary School Children.

expressed by each individual student. Thus it was decided to use a 20-day, or one school month experiment period in the actual study which is more typical in time when any new activity is considered for implementation into the regular classroom curriculum.

The third purpose of the pilot study was to train the investigator-instructor in developing adequate discussion strategies which would lead a small second grade group in a spontaneous discussion. Guidelines for group discussion elicited from the students were as follows: 1) stay with the topic being talked about, 2) listen politely till others finish talking, 3) contribute something worthwhile and relevant to the discussion, 4) do not try to do all the talking, 5) ask questions of someone who says something you do not understand, and 6) ask another person a question if he or she is not entering the discussion.[1] With these the transition into spontaneous discussion occurred quickly and easily. The children were able to carry on a productive discussion with each other after a few days without the investigator's aid: they allowed each other to participate, to maintain a focus on the topic of discussion, and to question each other when statements were made that were incorrect. It appeared that such groups of children could learn the strategies of a group

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[1]See Appendix A for a more detailed description of these strategies.

discussion within a few days, and thereafter, carry on a spontaneous discussion among themselves with very little teacher direction.[1] It was also evident that children's oral language responses to picture stimuli increased as they were given opportunity to talk spontaneously among themselves for several periods.

THE RESEARCH STUDY

Sample

The sample used in this study was a complete grade two class of 23 students, 7 of which were girls and 16 of which were boys. Two of the students were 9-year-olds, the others were 8. This was the only grade two class in this particular rural school located about 35 miles from Winnipeg. This 11-room, K-9 school, located in a Mennonite farming community was similar in socio-cultural and economic background to the school used in the pilot study.

Pre-Testing

The sample was pre-tested on the Metropolitan Achievement Test (MAT), Primary 1, Form F, in two areas: reading comprehension and vocabulary. The MAT was chosen because it is regarded as one of the best survey tests of reading achievement: the review in Buros[2] states that, the reliability of

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[1]For a transcript of one of the childrens' discussions see Appendix F.

[2]H. Alan Robinson, Reviewer, in The Sixth Mental Measurements Yearbook, ed. Oscar Kristen Buros (Highland Park, N.J.: Gryphon Press, 1965), pp. 797-798.

the sub-tests is high (.79-.96); some work has been done to assure validity by studying the curricula, judgment of experts, and repeated experiments. The test is not meant to be diagnostic; rather it is a measure of reading achievement for the purpose of comparison.

The combined standard scores of the two sub-tests of the MAT were used to place students into two groups, above and below median. The above median students' names were then placed randomly into two groups: above median control (AMC), and above median experimental (AME). The below median group was then randomly grouped into below median control (BMC) and below median experimental (BME). A t-test was applied to see if the means of the two independent groups AMC and AME were equal and similary, if the means of the groups BMC and BME were equal. Analysis showed that the AMC and AME were not significantly different (t=1.192 where t critical=2.23 at the .05); BMC and BME also proved to have equal means (t observed=.0.230 where t critical=2.23 at the .05 level).[1] This gave assurances that the two below median groups and the two above median groups were relatively equal at the beginning of the experiment.

All the children were then given an oral language pre-test in which each child individually responded to a picture. The picture used in the pre-test was one of a family around the table enjoying a special meal such as

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[1]See Appendix B for raw scores.

possibly a Thanksgiving dinner. As developed during the pilot study, each child was taken by the examiner into a room away from the other children, shown the tape-recorder with explanations as to the functioning and purpose of the recorder, shown the picture, and asked "to talk about the picture or to tell a story about it." No interruptions were allowed: the examiner merely sat beside the child and listened. Whenever the child stopped during the activity, the examiner asked, "Is there something else you'd like to tell about it?" The child was then allowed to continue if he chose to do so; if not, the session was terminated and the pupil returned to the classroom.

Each child's oral language was then transcribed verbatim and analyzed into the following categories: number of words spoken, number of principles expressed, average number of words per principle, and the number of mazes.[1]

Procedures

Each of the four groups of children was taken from the classroom as a unit. The investigator then elicited brief instructions from the children in the group as to how to carry on a small group discussion. This was done for both control and experimental groups so that no difference between the control and experimental groups could

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[1]See Appendix C for a complete transcript of one child's oral performance.

be attributed to a difference in treatment other than the pre-reading activity. Points were made as follows: 1) stick to the topic being discussed, 2) listen politely till others finish talking, 3) contribute something to the discussion, 4) do not try to do all the talking, 5) ask questions of someone who says something you do not understand, and 6) ask another person a question if he or she is not entering the discussion.[1]

After checking through questioning, that the children understood what was required in a discussion, the four groups, AMC, AME, BMC, and BME met with the investigator as individual groups four times during a six-day cycle for 20 sessions.[2] The groups met in the seminar room away from the regular classroom so that the treatment of the experimental groups could in no way effect the control groups and thus contaminate the results in this way.

The control groups were given the conventional teacher-talk-and-question, student-listen-and-answer pre-reading activity as suggested in reading guidebooks for basal reading series. This included introducing the new vocabulary, giving some information by the teacher relevant to the story to be read, and then asking some related questions for clarification. The stories about to be read

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[1]See a detailed description of this set of instructions in Appendix A.

[2]See a time table of the schedule for this experiment in Appendix D.

were aided through some stimulus used. The stimuli included pictures, slides, objects, short science experiments, poems or short stories read or told to the children, physical activity, as well as calling upon the children to use their imagination for additional motivation.[1] This pre-reading activity was a maximum 10 minutes in length. The children then read a related short story or part of a story from their regular instructional reading material. A question or two followed the reading for purposes of checking for comprehension of the material read. Thus the total "lesson" was approximately 15 minutes.

The two experimental groups, BME and AME, were given exactly the same stimulus as their control counterparts on the very same day.[2] After the stimulus was presented they were asked to talk about it among themselves. The tape recorder was turned on and the investigator moved away from the circle of children so as not to interfere more than when absolutely necessary, or to ask a question of some group member who was not participating.[3] In no other way was the investigator involved in the discussion. The

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[1]See Appendix E for a complete list of stimuli used.

[2]The stimuli for the above median and below median groups, however, were different because the two groups were reading at different levels in the basal readers and stimuli suitable to their reading material had to be used.

[3]See Appendix F for a transcript of a discussion.

discussion continued until it came to a natural stop or had carried on for the maximum ten minutes permitted. An experience story then was dictated by the children about the stimulus and written down by the investigator on chart paper. If there was time left of the 15-minute activity the students read the experience story either individually or as a group. It should be noted that this was the pre-reading activity only and that both groups of children continued in the same reading program when they returned to their classroom. For the purposes of the pre-reading activity the books used for the control groups were from the Gage reading program; levels two and three were used with the BMC, and level four for the AMC. These readers were chosen first, because none of the students in either the control or experimental groups had been in the Gage program, and secondly, because these books were available in large enough quantities for the control groups. The experimental groups had no readers. Their reading during the pre-reading activities consisted of the short experience stories they had dictated to the investigator.

Post-testing

Following the 20 sessions as described above with each group, all children were given a post-test in reading and oral language. The reading post-test, Form G, of the Metropolitan Achievement Test, Primary 1, reading comprehension and vocabulary, was administered to the whole class. Following the reading test the oral language post-test was

administered individually and out of class. Each child responded to a picture, this time of a family having a picnic by the lake, with the same instructions as were conducted during the pre-testing. In the absence of the child, the oral language was transcribed verbatim and analyzed for the same components as for the pre-testing.

Delayed Post-test

One month after the post-tests were given, a retention or delayed post-test was administered. For reading, Form H of the Metropolitan Achievement Test, Primary 1 was administered: reading comprehension and vocabulary sections; in oral language a picture of a family enjoying fun and relaxation on the beach was presented with the same identical directions.

CHAPTER IV

ANALYSIS OF THE DATA

Following the presentation of the main question for the study, the specific hypotheses under investigation are restated in this chapter. The analysis of data for each specific hypothesis is then presented and explored.

Main Question for Research

Does a spontaneous discussion type of pre-reading activity associated with the language-experience approach to reading have greater effects upon a) specific oral language skills and b) reading comprehension and vocabulary growth as measured by a standardized achievement test, than the conventional pre-reading activity associated with the basal reading series?

Research Hypotheses

1. There will be a significant difference following the treatment, between the experimental and control groups on the reading comprehension section of the Metropolitan Achievement Test (MAT).

2. There will be a significant difference following the treatment, between the experimental and control groups

on the vocabulary section of the MAT.

3. There will be significant correlation among the pre-, post-, and delayed post-test scores of the MAT, reading comprehension section of both control and experimental groups.

4. There will be significant correlations among the pre-, post-, and delayed post-test scores of the MAT, vocabulary section of both control and experimental groups.

5. There will be significant correlations between the reading comprehension and vocabulary pre-, post-, and delayed post-test scores of the MAT for both control and experimental groups.

6. There will be a difference in the number of principles expressed between the experimental groups and their control counterparts following treatment.

7. There will be a difference in the average number of words per principle expressed between the experimental groups and their control counterparts following treatment.

8. There will be a difference in the number of mazes expressed between the experimental groups and their control counterparts following treatment.

Method of Analysis

An analysis of variance for repeated measures with the pre-test as covariate was employed to test for significance

the effects of the experimental program as compared to the control program for reading comprehension and vocabulary test scores. Using the pre-test as a covariate in the analysis of variance adjusts the post-test and delayed post-test means on the basis of the pre-test, and then compares these adjusted means to see if they are significantly different from each other. A Pearson product moment coefficient of correlation was employed to test for significant correlations among the pre-, post-, and delayed post-test scores in both reading comprehension and vocabulary.

In the oral language analysis the three variables, number of principles expressed, average number of words per principle expressed, and the number of mazes, were counted for each individual subject. The group mean for each of the three oral language variables will be presented in chart form.[1]

Following are the presentation of data with each hypothesis listed with its pertinent analysis.

Hypothesis One

> There will be no significant difference following the treatment between the experimental and control groups on the reading comprehension section of the MAT.

A two by two by two repeated measures analysis of variance

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[1]This information is presented in chart form only because insufficient research has been done to the present time to give validity to statistical analysis at this level.

with the comprehension pre-test as covariate was computed. The results are presented in Table I.

TABLE I

SUMMARY OF ANALYSIS OF VARIANCE FOR READING COMPREHENSION SCORES IN MAT

Source	df	ss	ms	F-Ratio
BETWEEN				
Above and Below Median (G)	1	0.31	0.31	0.01
Experimental and Control (H)	1	0.03	0.03	0.001
Interaction G x H	1	14.53	14.53	0.61
1st Covariate	1	188.38	188.38	7.96*
Error Between	18	425.79	23.65	
WITHIN				
Post-Retention (R)	1	0.01	0.01	0.0006
Interaction R x G	1	0.55	0.55	0.04
Interaction R x H	1	6.45	6.45	0.51
Interaction R x G x H	1	0.36	0.36	0.29
Error Within	19	238.89	12.57	

*$p < .05$ = F critical = 4.41 (df= 1, 18); 4.38 (df=1, 19)

Table I yielded only one significant F-ratio and this was on the pre-test covariate at the .05 level. This significant F-ratio was expected because the children were grouped into below and above median before the pre-test. Hence the null hypothesis could not be rejected.[1]

Table II shows the cell means for the various groups. Figure 1 depicts them graphically.

[1]For raw scores see Appendix H.

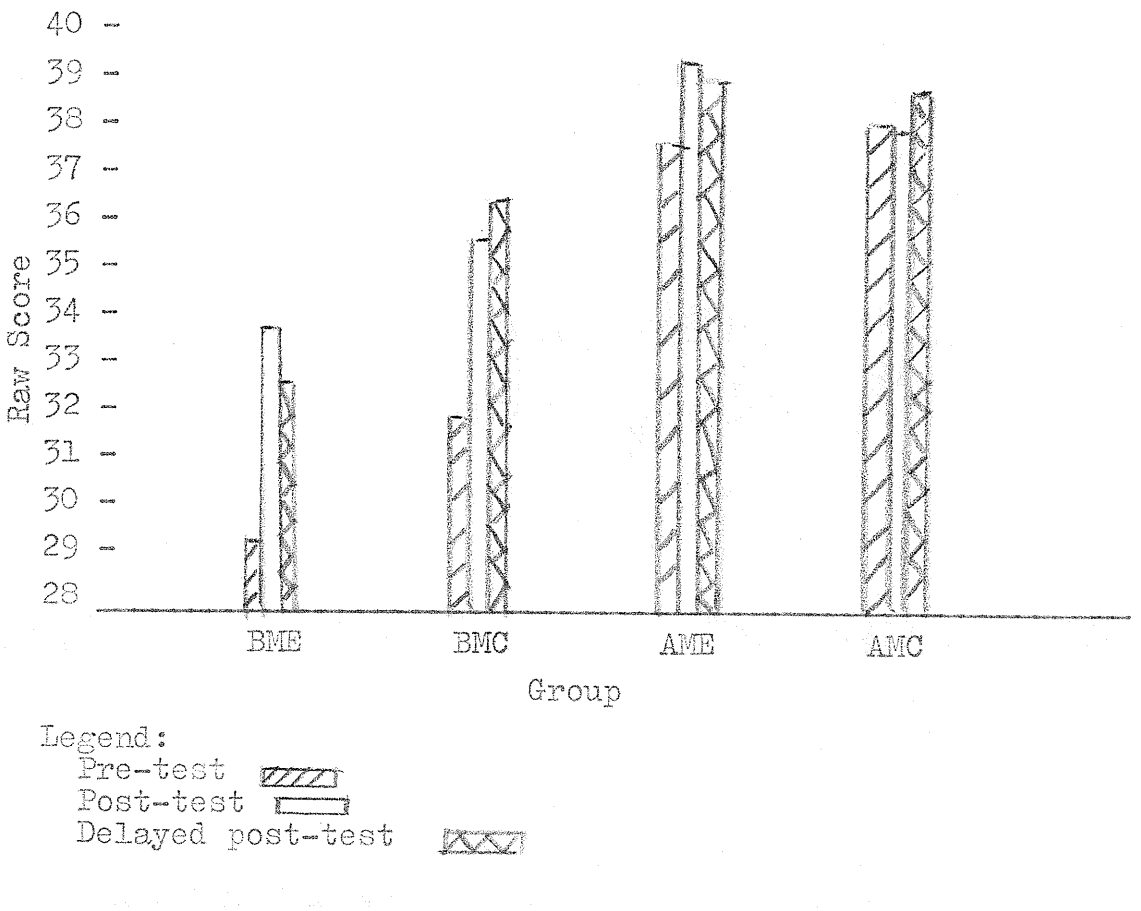
TABLE II

UNADJUSTED CELL MEANS OF READING COMPREHENSION SCORES IN MAT

	Pre-Test	Post-Test	Delayed Post-Test	Marginal
BME	29.1	33.7	32.6	
BMC	31.8	35.5	36.3	34.14
AME	37.3	39.0	38.7	
AMC	37.7	37.5	38.3	38.38

FIGURE 1

UNADJUSTED CELL MEANS OF READING COMPREHENSION SCORES IN MAT



From Table II it appears as if there is considerable difference in the gains of the above and below median groups (above median - 38.38, below median 34.14). The information from Table II would suggest that the above median group gained more during the time of treatment than the below median group. This, however, is not significant due to the fact that once the pre-test covariate adjustment has been made there is not evidence of significance (above median 36.31, below median 36.38) as shown in Table III.

Table III shows the cell means as adjusted by the pre-test covariate.

TABLE III

ADJUSTED CELL MEANS OF READING COMPREHENSION SCORES IN MAT

	Pre-Test	Post-Test	Delayed Post-Test	Marginal
BME	36.5	35.4	35.9	36.38
BMC	36.8	37.5	37.2	
AME	37.0	36.7	36.9	36.31
AMC	35.3	36.2	35.8	

Hypothesis Two

> There will be no significant differences following the treatment between the experimental and control groups on the vocabulary section of the MAT.

A two by two by two repeated measures analysis of variance with the vocabulary pre-test as covariate was done. The results are presented in Table IV.

TABLE IV

SUMMARY OF ANALYSIS OF VARIANCE FOR VOCABULARY SCORES IN MAT

Source	df	ss	ms	F-ratio
BETWEEN				
Above and Below Median (G)	1	26.69	26.69	9.05*
Experimental and Control (H)	1	0.12	0.12	0.04
Interaction G x H	1	0.24	0.24	0.08
1st Covariate	1	0.34	0.34	0.01
Error Between	18	53.07	2.95	
WITHIN				
Post-Retention (R)	1	2.89	2.89	3.30
Interaction R x G	1	3.90	3.90	4.46*
Interaction R x H	1	0.10	0.10	0.11
Interaction R x G x H	1	2.89	2.89	3.30
Error Within	19	16.63	16.63	

*$p < .05$ = F critical = 4.41 (df=1,18) 4.38 (df=1,19)

Table IV, which examines the analysis of variance for vocabulary, shows there are two significant F-ratios at the .05 level. The significant F-ratio (9.05) of above and below median groups was expected. Since the groups were divided into above and below median before treatment this significant F-ratio was expected.

The interaction of the significant main effect of the delayed post-testing and the above and below median groups is graphed in Figure 2.

FIGURE 2

INTERACTION OF SIGNIFICANT MAIN EFFECT OF POST-DELAYED POST-TESTING AND ABOVE AND BELOW MEDIAN GROUPS IN THE VOCABULARY SECTION OF THE MAT

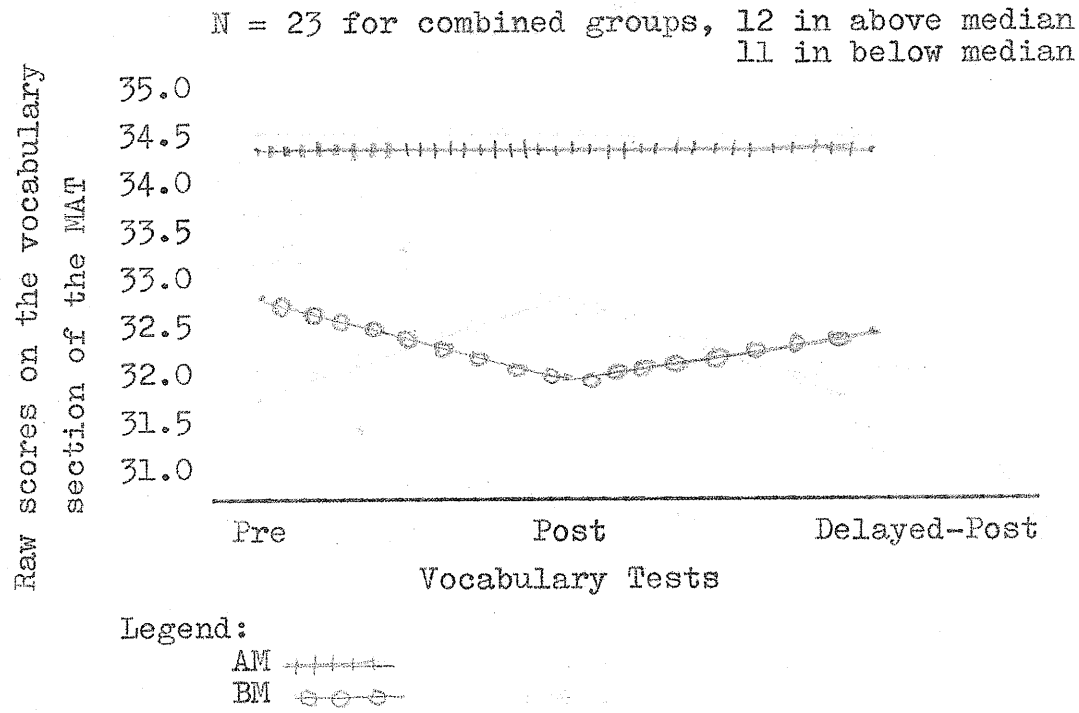


Figure 2 shows that the above median groups remained fairly constant in their scores throughout the experiment while the below median groups dropped considerably from the pre-test to the post-test and then rose on the delayed post-test. The significant F-ratios that resulted were not between the experimental groups and their control counterparts. The hypothesis, therefore, must be rejected.[1]

[1]For raw scores for vocabulary tests see Appendix J.

Table V and Figure 3 show the unadjusted cell means for the four groups.

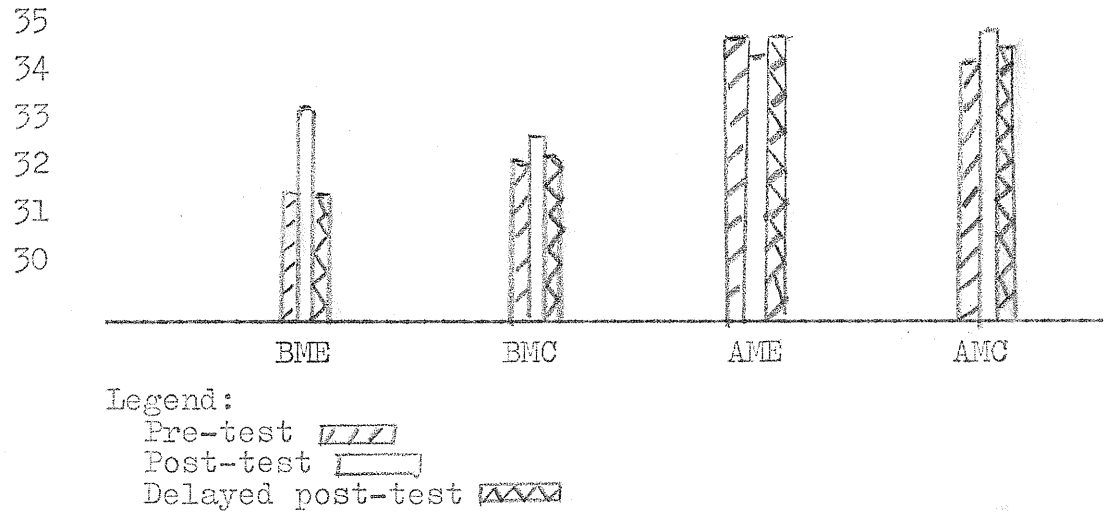
TABLE V

UNADJUSTED CELL MEANS OF VOCABULARY SCORES IN MAT

	Pre-Test	Post-Test	Delayed Post-Test	Marginal
BME	31.4	33.1	31.4	32.28
BMC	32.0	32.5	32.0	
AME	34.5	34.0	34.5	34.38
AMC	34.0	34.7	34.3	

FIGURE 3

UNADJUSTED CELL MEANS OF VOCABULARY SCORES IN MAT



From Tables V and Figure 3 it appears as if both below median and above median groups gained similar amounts in vocabulary from the time of pre-test to the time of delayed

post-test in that the unadjusted scores show the below median groups on the pre-test at 31.4 and 32.0 and at 31.4 and 32.0 respectively in the delayed post-test; the above median unadjusted scores on the pre-test show 34.5 and 34.0 and on the delayed post-test 34.5 and 34.3 respectively. Table VI shows that even when the pre-test scores were adjusted there was considerable difference between the below and above median groups.

TABLE VI

ADJUSTED CELL MEANS OF VOCABULARY SCORES IN MAT

	Pre-Test	Post-Test	Delayed Post-Test	Marginal
BME	33.2	31.5	32.3	32.30
BMC	32.5	32.0	32.3	
AME	34.0	34.5	34.2	34.35
AMC	34.7	34.3	34.5	

Hypothesis Three

> There will be no significant correlation among the pre-, post-, and delayed post-test scores of the MAT, reading comprehension section of both control and experimental groups.

Table VII shows the correlation matrix of the MAT reading comprehension test for the experiment groups and Table VIII shows the correlation matrix for the control groups.

TABLE VII

CORRELATION MATRIX FOR READING COMPREHENSION TEST SCORES IN THE MAT--EXPERIMENTAL GROUP

N=13	Comprehension Pre-Test	Comprehension Post-Test	Comprehension Delayed Post-Test
Pre-	1.00		
Post-	0.50	1.00	
Delayed post-	0.76**	0.53	1.00

*p< 0.05 r critical = 0.553 df(11)
**p< 0.01 r critical = 0.684 df(11)

TABLE VIII

CORRELATION MATRIX FOR READING COMPREHENSION TEST SCORES IN THE MAT--CONTROL GROUP

N=10	Comprehension Pre-Test	Comprehension Post-Test	Delayed Post-Test
Pre-	1.00		
Post-	0.50	1.00	
Delayed post-	0.46	0.73*	1.00

*p< 0.05 r critical = 0.632 df(8)
**p< 0.01 r critical = 0.765 df(8)

Table VII yielded one significant correlation in reading comprehension and this was where the pre-test correlated significantly at the 0.01 level with the delayed post-test. Table VIII yielded one significant correlation at the 0.05 level where the post-test correlated with the delayed post-test; hence hypothesis three must be rejected. Figures 4 and 5 show why these correlations failed to occur.

FIGURE 4

MEAN SCORES IN READING COMPREHENSION IN THE MAT--EXPERIMENTAL GROUPS

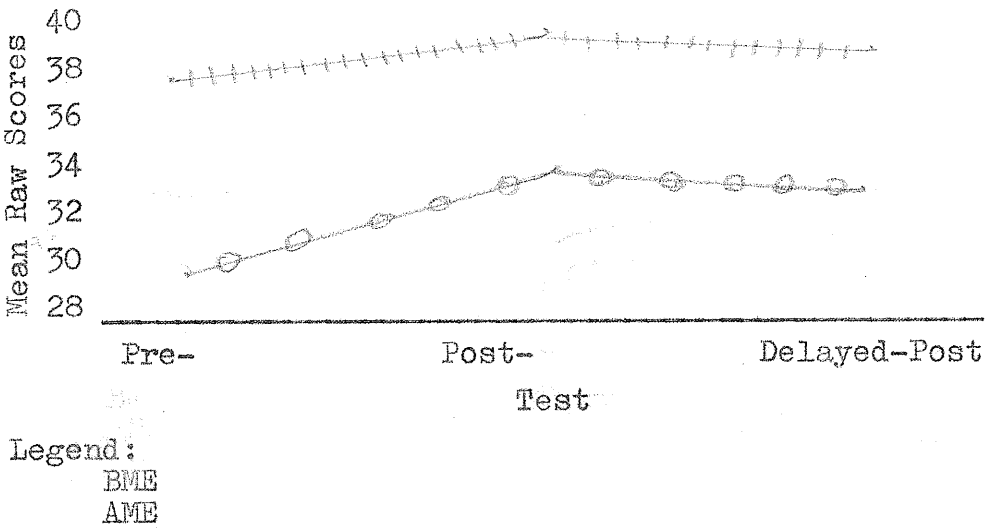


Figure 4 shows the BME starting quite low whereas the AME starts quite high. Both groups rose on the post-test but since the BME rose more rapidly than the AME the correlation is not significant. The AME remained steady for the delayed post-test and the BME dropped, resulting in another significant correlation. However, this final drop brought both delayed post-test scores close enough to the pre-tests to correlate significantly between pre- and delayed post-tests.

FIGURE 5

MEAN SCORES IN READING COMPREHENSION
IN THE MAT--CONTROL GROUPS

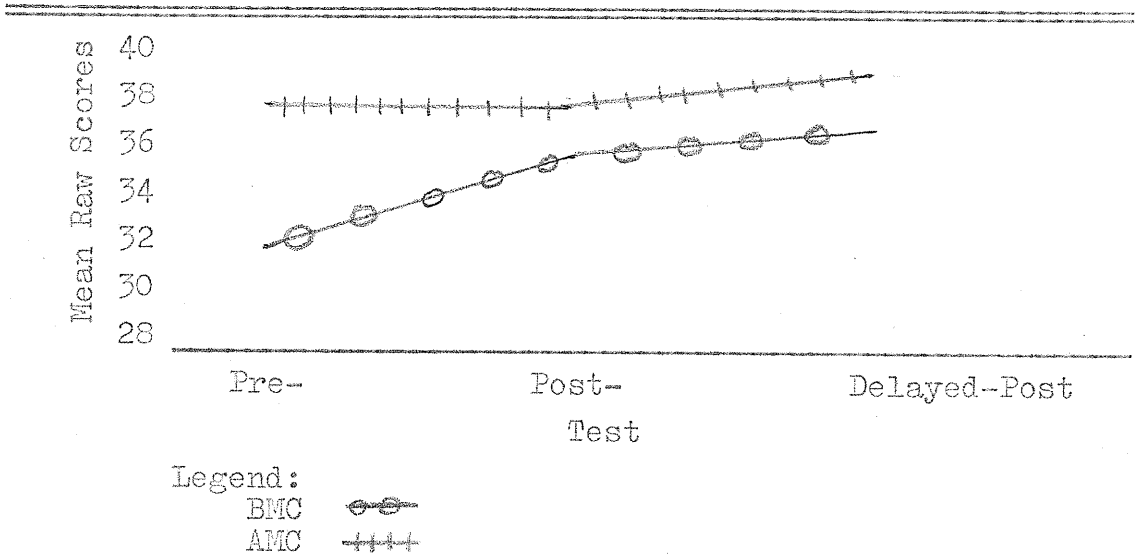


Figure 5 shows the BMC group starting quite low whereas the AMC group starts quite high. By the post-test the groups are much closer in scores and continue in this manner for the delayed post-test thus resulting in low correlations of the pre-test with both post- and delayed post-tests. Since, however, the marks remain consistent between the post- and delayed post-tests, a significant correlation occurs here.

Hypothesis Four

> There will be no significant correlation among the pre-, post-, and delayed post-test scores of the MAT vocabulary section of both control and experiment groups.

Table IX shows the correlation matrix for the experiment groups and Table X shows the correlation matrix for the control groups.

TABLE IX

CORRELATION MATRIX FOR VOCABULARY TEST SCORES
EXPERIMENTAL GROUP

N=13	Vocabulary Pre-Test	Vocabulary Post-Test	Vocabulary Delayed Post-Test
Pre-	1.00		
Post-	-0.16	1.00	
Delayed Post-	0.57*	0.59*	1.00

* $p < 0.05$ r critical = 0.553 df(11)
** $p < 0.01$ r critical = 0.684 df(11)

TABLE X

CORRELATION MATRIX FOR VOCABULARY TEST SCORES
CONTROL GROUP

N=10	Vocabulary Pre-Test	Vocabulary Post-Test	Vocabulary Delayed Post-Test
Pre-	1.00		
Post-	0.65*	1.00	
Delayed post-	0.86**	0.68*	1.00

* $p < .05$ r critical = 0.632 df(8)
** $p < .01$ r critical = 0.765 df(8)

Table IX yielded two significant correlations at the 0.05 level of significance. They were between the delayed post-test and the pre-test and between the delayed post-test and

the post-test. The negative correlation between the pre- and post-test occurred when the AME group scores remained steady from the pre- to the post-test while several BME students scored considerably higher on the post-test than on the pre-test. Table X yielded three significant correlations, two at the 0.05 level and one at the 0.01 level. In other words, all three sets of vocabulary scores correlated significantly. Hence, hypothesis four must be rejected. Figures 6 and 7 show how these correlations occurred.

FIGURE 6

MEAN SCORES IN VOCABULARY OF THE MAT--EXPERIMENT GROUPS

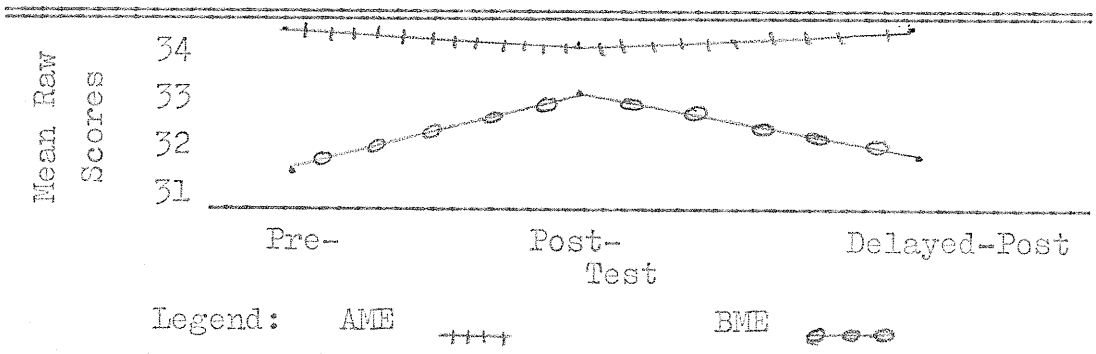


FIGURE 7

MEAN SCORES IN VOCABULARY OF THE MAT--CONTROL GROUPS

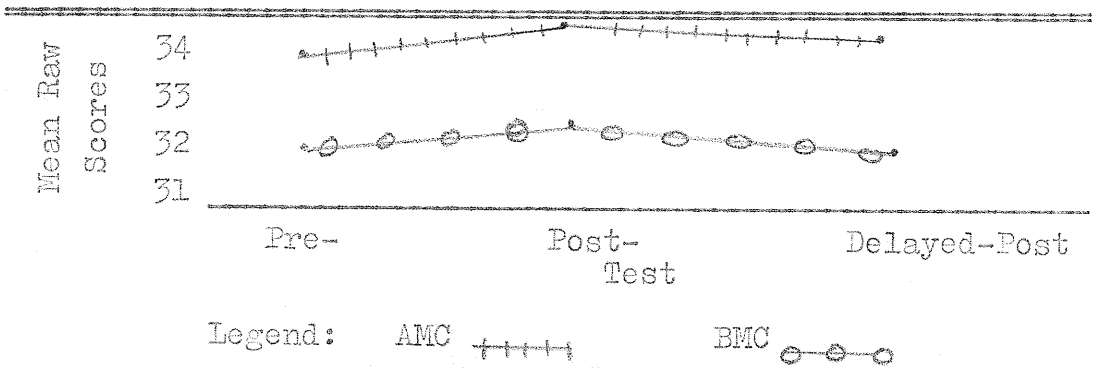


Figure 6 shows how the AME dropped from pre-to post-test while BME rose during the same period resulting in an insignificant negative correlation. The AME rose again by the delayed post-test while the BME dropped, creating a significant correlation between the pre- and delayed post-test.

Figure 7 shows both AMC and BMC rising slightly from pre- to post-testing (34.0 to 34.7, 32.0 to 32.5) resulting in a significant correlation. Then both dropped slightly (34.7 to 34.3, 32.5 to 32.0, respectively) for the delayed post-test again resulting in a significant correlation. Since both groups were slightly higher on the delayed post-test (34.3, 32.0) than on the pre-test (34.0, 32.0) another significant correlation occurred there.

Hypothesis Five

> There will be no significant correlation between the reading comprehension and vocabulary pre-, post-, and delayed post-test scores[1] of the MAT for both control and experimental groups.

Table XI (page 82) shows the correlation matrix.

Table XI yielded six significant correlations, one at the .05 level and five at the .01 level. The one at the .05 level was between the reading comprehension pre-test and the reading comprehension post-test. At the

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[1]The pre-, post-, and delayed post-test represent forms F, G, and H of the MAT, primary 1 respectively.

TABLE XI

CORRELATION MATRIX OF READING COMPREHENSION AND VOCABULARY SCORES IN MAT FOR TOTAL GROUP

N=23	Pre-Test Comprehension	Post-Test Comprehension	Delayed Post-Test Comprehension	Pre-Test Vocabulary	Post-Test Vocabulary	Delayed Post-Test Vocabulary
Comprehension Pre-	1.00					
Comprehension Post-	0.49*	1.00				
Comprehension Delayed post-	0.73**	0.56**	1.00			
Vocabulary Pre-	(0.33)	0.29	0.37	1.00		
Vocabulary Post-	0.52*	(0.35)	0.23	0.13	1.00	
Vocabulary Delayed post-	0.74**	0.55**	(0.62**)	0.66**	0.63**	1.00

* $p > .05$ r critical = 0.413 df(21)
** $p > .01$ r critical = 0.526 df(21)

Meaningful correlations are in circles and triangles.

.01 level of significance the differences were between: (1) reading comprehension pre-test and the reading comprehension delayed post-test, (2) reading comprehension post-test and the reading comprehension delayed post-test, (3) reading comprehension delayed post-test and the vocabulary delayed post-test, (4) vocabulary pre-test and the vocabulary delayed post-test, and (5) vocabulary post-test and the vocabulary delayed post-test. However, no particular pattern of correlation emerges. Thus the null hypothesis must be rejected.

Hypothesis Six

> There will be no difference in the number of principles expressed the experimental groups and their control counterparts following treatment.

The results are presented in Table XII and Figure 8.[1]

TABLE XII

COMPARISON OF THE MEAN NUMBER OF PRINCIPLES EXPRESSED IN THE ORAL LANGUAGE PRE-, POST-, AND DELAYED POST-TESTS FOR ALL GROUPS

Group	Pre	Post	Delayed-Post
BME	5.7	13.4	12.3
BMC	6.0	16.0	16.8
AME	6.0	30.0	16.0
AMC	8.0	24.5	12.5

[1]For the actual number of principles expressed per subject see Appendix L.

FIGURE 8

COMPARISON OF THE MEAN NUMBER OF PRINCIPLES EXPRESSED IN THE ORAL LANGUAGE PRE-, POST-, AND DELAYED POST-TESTS FOR ALL GROUPS

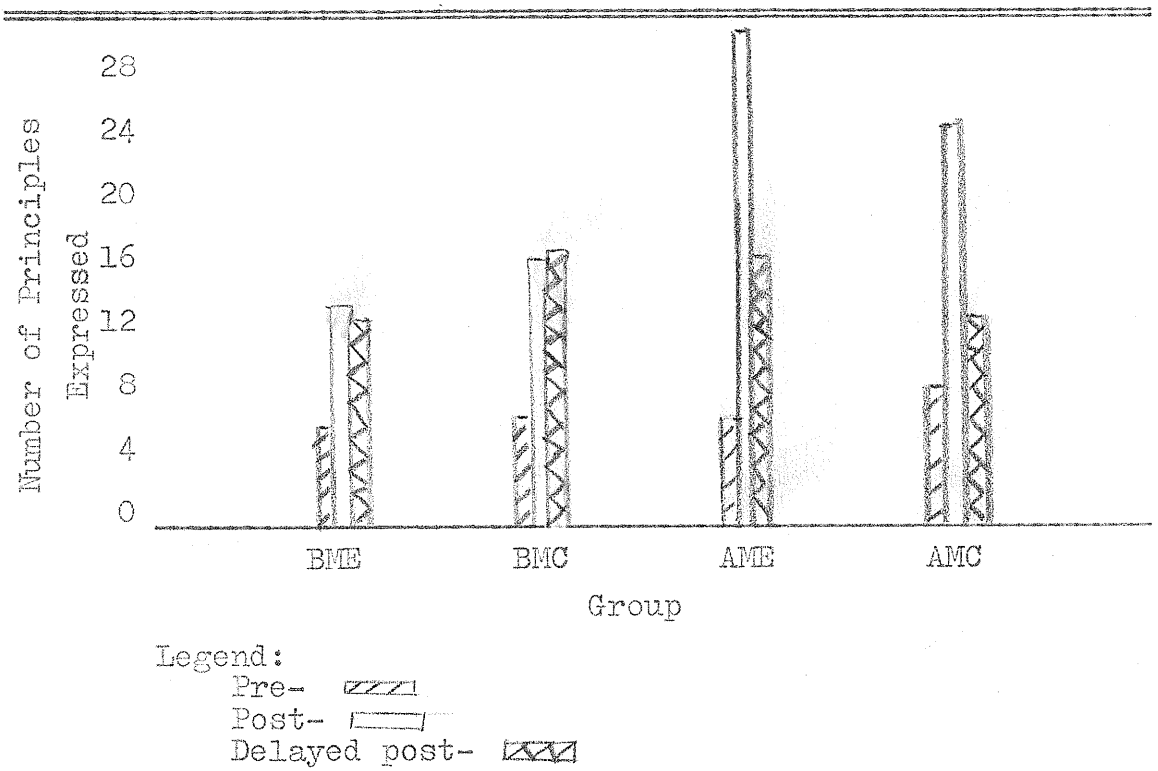


Table XII shows considerable growth in the number of principles expressed for all groups with considerably more retention for the below median groups. Nevertheless, the null hypothesis can not be rejected because the BMC group expressed considerably more growth than the BME and it was speculated by the research hypothesis that the experimental groups would grow to a greater extent than their control counterparts during the time of treatment. Figure 8 shows the same results in the form of a graph.

Hypothesis Seven

There will be no difference in the average number of words per principles expressed between the experimental groups and their control counterparts following treatment.

The results are presented in Table XIII and Figure 9.[1]

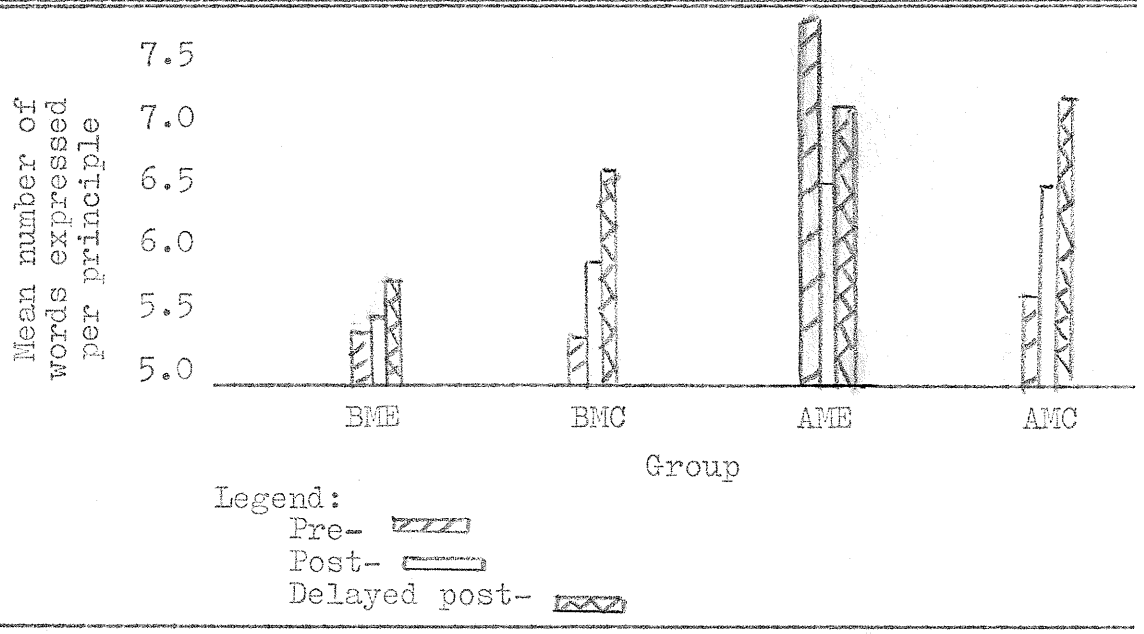
TABLE XIII

COMPARISON OF THE MEAN NUMBER OF WORDS PER PRINCIPLE EXPRESSED IN THE ORAL LANGUAGE PRE-, POST-, AND DELAYED POST-TESTS FOR ALL GROUPS

Group	Pre	Post	Delayed Post
BME	5.3	5.4	5.7
BMC	5.3	5.8	6.6
AME	7.9	6.4	7.1
AMC	5.6	6.4	7.2

FIGURE 9

COMPARISON OF THE MEAN NUMBER OF WORDS PER PRINCIPLE EXPRESSED IN THE ORAL LANGUAGE PRE-, POST-, AND DELAYED POST-TESTS FOR ALL GROUPS



[1]For the average number of words per principle expressed for each subject see Appendix M.

According to Table XIII and Figure 9 the experimental groups did not show evidence of greater growth than the control groups as the research hypothesis speculated; rather, both control groups increased in the average number of words per principle for the post-test and again for the delayed post-test in a fairly consistent manner, while the below median experiment group increased very little and the above median experiment group decreased; thus the null hypothesis can not be rejected. The evidence indicated that the control groups increased to a greater extent in the average number of words per principle than their experimental counterparts.

Hypothesis Eight

> There will be no difference in the number of mazes expressed between the experimental groups and their control counterparts following treatment.

The results are presented in Table XIV and Figure 10.[1]

TABLE XIV

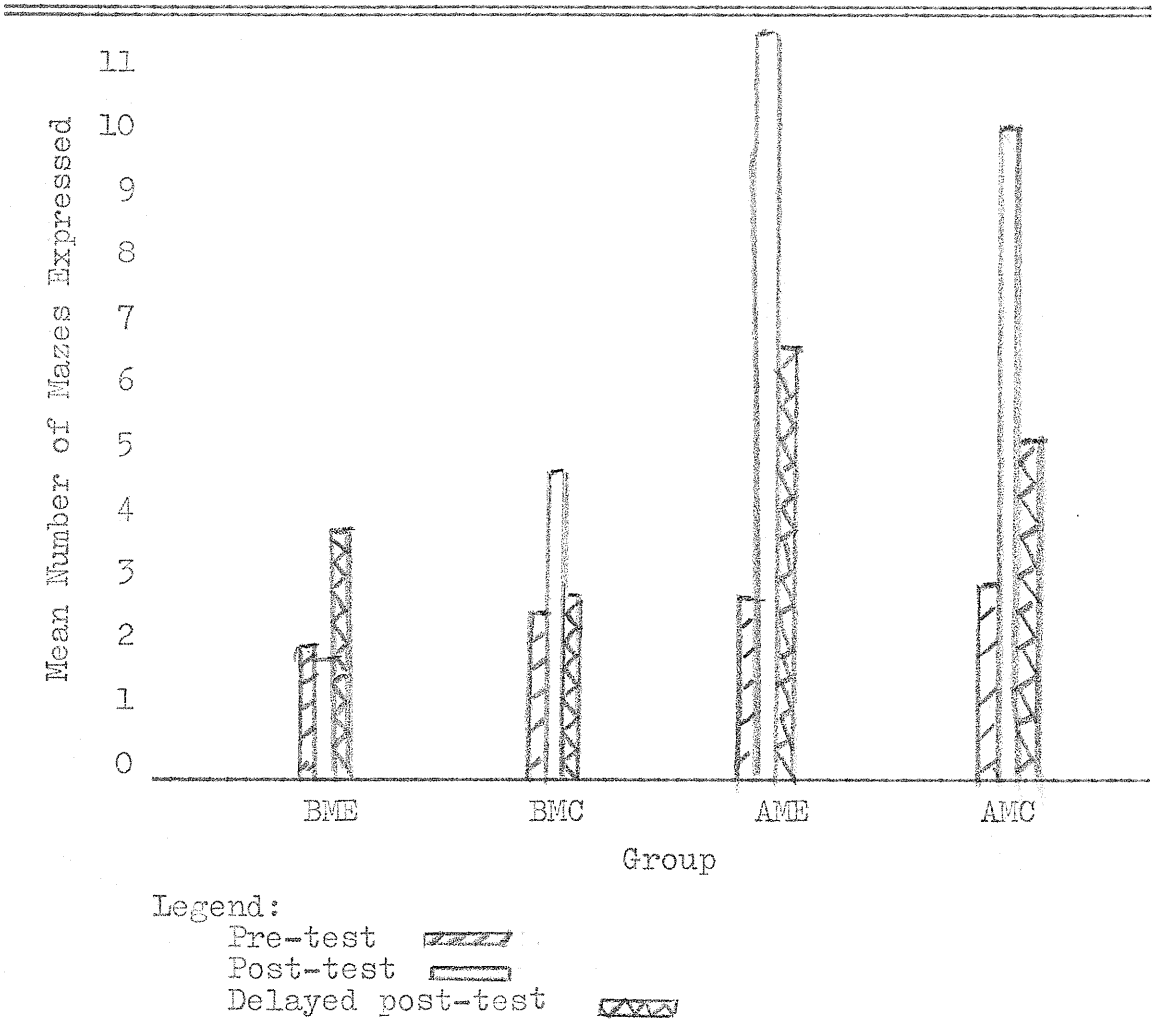
COMPARISON OF THE MEAN NUMBER OF MAZES IN THE ORAL LANGUAGE PRE-, POST-, AND DELAYED POST-TEST FOR ALL GROUPS

Group	Pre	Post	Delayed Post
BME	1.9	1.7	3.7
BMC	2.3	4.5	2.5
AME	2.5	11.8	6.5
AMC	2.8	10.0	5.0

[1]For the actual number of mazes per subject see Appendix N.

FIGURE 10

COMPARISON OF THE MEAN NUMBER OF MAZES IN THE ORAL LANGUAGE PRE-, POST-, AND DELAYED POST-TEST FOR ALL GROUPS



According to Table XIV the experimental groups did not show evidence of expressing significantly more mazes than the control groups. Three groups, BMC, AME, and AMC increased in the number of mazes from the pre-test to the post-test and then dropped in the number of mazes in the delayed post-test. The below median experiment group dropped

slightly in the number of mazes from the pre-test to the post-test and then increased greatly from the post-test to the delayed post-test.

Summary of Findings

The present study sought to determine the effects of a spontaneous discussion as a pre-reading activity used in the language-experience approach upon specific oral language and reading abilities of second grade students when compared with the conventional pre-reading activity of the basal reading approach.

The findings are:

1. There was no significant difference in reading comprehension scores as derived from the Metropolitan Achievement Test (MAT) from the pre-test to the delayed post-test between experimental and control groups.

2. There was no significant difference in the vocabulary scores of the MAT from the pre- to the delayed post-testing between the experimental and control groups.

3. When the reading comprehension scores were examined within the two groups there was a significant correlation among the scores found in the pre-, post-, and delayed post-testing of the MAT for each of the two groups: in the pre- and post-test for the experimental group; and in post- and delayed post-test for the control group.

4. When the reading vocabulary scores were examined there were several significant correlations within the two groups in the pre-, post-, and delayed post-testing of the MAT for each of the two groups: for the experimental group, these were between the pre-test and delayed post-test and between the post-test and the delayed post-test. In the control group the significant correlations were found between the pre- and post-test, and between the post- and delayed post-test.

5. When the scores in reading comprehension and vocabulary were examined for all the pupils as a group, there were several significant correlations among the scores found in the pre-, post-, and delayed post-testing of the MAT. The pre-, post-, and delayed post-test represented Forms F, G, and H of the primary 1 battery of the MAT respectively. The significant correlations in the reading comprehension tests were as follows: Form F with Form G, Form F with Form H, Form G with Form H.

The significant correlations in the vocabulary tests were as follows: Form F with Form H, and Form G with Form H.

When the scores of the reading comprehension were examined with the scores in the vocabulary of the MAT there was significant correlation in Form H where reading and vocabulary correlated significantly. No particular pattern of significant correlations appeared.

6. Both experimental and control groups increased during the experiment in the number of principles expressed with the below median group retaining what they had gained at the end of the treatment. The above median groups who had shown greater gains from the pre-test to the post-test dropped on the delayed post-test to the level of the below median groups.

7. The experimental groups did not show evidence of greater gains in the average number of words per principle expressed than their control counterparts from the pre- to post- to the delayed post-testing.

8. Both experimental and control groups increased in the number of mazes expressed from the pre- to the delayed post-testing with three groups, the below median experimental, above median experimental, and above median control, reaching a high number of mazes in the post-test, then dropping in the delayed post-test.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This chapter examines the findings concerning the growth of certain oral language and reading skills when two different methods of pre-reading activities were employed at the grade two level. First the summary of the findings will be presented, followed by the conclusions. Implications for the curriculum developers and classroom teachers are then discussed, and the chapter concludes with implications for further research.

The general question for research was, "Does a spontaneous discussion type of pre-reading activity associated with the language-experience approach have greater effects upon a) specific oral language skills and b) reading comprehension and vocabulary growth as measured by a standardized reading achievement test, than the conventional pre-reading activity associated with the basal reading series?"

One rural Manitoba grade two class of 23 students served as the sample. This class was randomly grouped into four groups: below median experiment, above median experiment, below median control, and above median control.

Each group met with the teacher for 20-15 minute sessions as a part of the "treatment". The two experiment groups met for a spontaneous discussion about the presented stimulus. The discussion techniques had been developed in the first two sessions of the experiment and the youngsters were able to discuss according to the guidelines established in the training for the remaining eighteen sessions. After ten minutes of spontaneous discussion the experiment groups dictated a short language-experience story which the teacher recorded on chart paper. The two control groups met for the same number of sessions with the teacher in the conventional basal pre-reading activities which included the presentation of the same stimulus as the experiment groups had had, the teacher giving some background to the story to be read, asking some related questions of the students, and introducing the new vocabulary. The groups then read a short story or part of a story from their basal readers.

The following specific hypotheses were investigated in this study:

1. There will be a significant difference following the treatment, between the experimental and control groups on the reading comprehension section of the Metropolitan Achievement Test (MAT).

2. There will be a significant difference following the treatment, between the experimental and

and control groups on the vocabulary section of the MAT.

3. There will be significant correlations among the pre-, post-, and delayed post-test scores of the MAT, reading comprehension section of both control and experimental groups.

4. There will be significant correlations among the pre-, post-, and delayed post-test scores of the MAT, vocabulary section of both control and experimental groups.

5. There will be significant correlations between the reading comprehension and vocabulary pre-, post-, and delayed post-test scores of the MAT for both control and experimental groups.

6. There will be a difference in the number of principles expressed between the experimental groups and their control counterparts following treatment.

7. There will be a difference in the average number of words per principle expressed between the experimental groups and their control counterparts following treatment.

8. There will be a difference in the number of mazes expressed between the experimental groups and their control counterparts following treatment.

SUMMARY

Findings

The preceding research hypotheses yielded the following findings:

1. There were no significant differences in reading comprehension scores as derived from the MAT from the pre-, to the post-, to the delayed post-test between the experimental and control groups. However, both groups experienced growth. Thus the oral language pre-reading activities of the basal readers and of the spontaneous discussion of the language-experience approach produce approximately equal growth in reading comprehension.

2. There were no significant differences in the vocabulary scores as derived from the MAT from the pre-test to the post-test, to the delayed post-test between the experimental and control groups. Again, the oral language pre-reading activities of the basal approach and of the language-experience approaches both yielded approximately the same growth in vocabulary as measured by the standardized vocabulary test.

3. There were several significant correlations among the scores found in the pre-, post-, and delayed post-testing for reading comprehension scores of the MAT for each of the two groups. They were significant in the

comprehension pre-test correlation with the comprehension delayed post-test in the experiment group, and in the correlation between the comprehension post-test and the comprehension delayed post-test in the control group.

4. There were several significant correlations among the scores found in the pre-, post-, and delayed post-testing for the vocabulary test of the MAT for the experimental and control groups. For the experimental group, these were between the vocabulary pre-test and vocabulary delayed post-test and between the vocabulary post-test and the vocabulary delayed post-test.

5. There were several significant correlations among the scores found in the pre-, post-, and delayed post-testing for vocabulary and reading comprehension scores for the whole group of students as found in the MAT. The pre-, post-, and delayed post-tests represent forms F, G, and H, respectively, of the MAT, primary 1. The significant correlations in the reading comprehension tests were as follows: Form F with Form G, Form F with Form H, and Form G with Form H.

The significant correlations in the vocabulary tests were as follows: Form F with Form H, and Form G with Form H.

When the scores of the reading comprehension were examined with the scores in vocabulary of the MAT one significant correlation occurred. This was in Form H

where reading comprehension and vocabulary correlated significantly.

6. Both experimental and control groups increased during the experiment in the number of principles expressed. By the time of the post-testing, all groups had more than doubled the scores obtained in the pre-test. The below median groups retained this greater number of principles for the delayed post-testing while the above median groups who had showed greater increase from the pre-test to the post-test dropped in the delayed post-test to about the same level as the below median groups. This suggests that opportunities provided for each pupil to discuss produces growth in the number of principles expressed. The reason for the above average pupils dropping in their scores at the time of delayed post-testing may be due to the similarity of the stimulus picture to the previous picture stimulus;[1] they appeared to be less enthusiastic discussing it, while this similarity provided confidence to the below median students and encouraged them to discuss more freely.

7. The experimental groups did not show evidence of greater gains in the average number of words per principle expressed than their control counterparts

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[1]Both the post-test and delayed post-test were scenes near a lake with people in the picture. In the one the people were enjoying a big meal on the grass near the lake while in the other they were engaged in activities on the sand with waves coming in off the lake.

from the pre- to post- to delayed post-testing. However, three groups showed slight upward increases throughout the study. The one exception, the AME, was strongly influenced by one student who began a principle and kept on adding "and" and listed in that principle practically every item on the picture thus giving him a very high number of words per principle. This evidence indicated that all students, given opportunities to talk grow slowly in the average number of words per principle expressed.

8. Both the experimental and control groups increased in the number of mazes expressed from the pre- to the delayed post-testing with three groups, the BME, AME, and AMC, reaching an even greater number of mazes in the post-testing than in the delayed post-testing. Generally the number of mazes expressed increased with the number of principles expressed, so it appeared that as children talk more they will also use more mazes.

Assumptions and Limitations

The findings should be viewed in the light of several assumptions: 1) The teacher, who was also the investigator was assumed as being typical of the average teacher at the primary level. 2) It was assumed that the investigator could objectively divorce her biases from the two approaches. 3) Further, it was assumed that the children were typical of a grade two class in a rural community.

There were also several limitations which need to be discussed in light of the findings. Time of treatment was 20 ten-minute sessions which becomes a very small portion of a total school year. Thus the training period is not a true representation of an on-going program during a school year.

The sample size was small. A total of 23 subjects in four groups produced very small group sizes and was seen in the analysis of data in Chapter IV, one score in such a small group can greatly influence a group mean.

The study was limited to grade two students in a rural area.

Another limitation of this study was the exact matching of the stimuli used with both groups and the story read by the control group. In the basal reader the recommended practice is to follow the given sequence of stories. This destroyed at least some of the effectiveness of the spontaneous discussion of the language-experience approach due to the fact that the stimuli on a given day may not have been as provocative for spontaneous discussion as it might have been at another time.

The sample population drawn from one small rural community prevented generalizations to any other area, rural or otherwise.

The very serious limitation was that in effect both groups were experimental in that both groups were removed from their classroom for their respective treatments, the control group for the traditional basal pre-reading activity and the experimental group for a spontaneous discussion type of pre-reading activity. Due to the fact that the control group received treatment of a type, there was no true "control" group that was uneffected by some kind of treatment.

CONCLUSIONS

Reading

Results from the study showed no significant difference in reading comprehension growth between the experimental groups and their control counterparts. This concurs with Harris who found no significant difference between the skills-centered basal approach, and the language-experience approach in reading comprehension as measured by the Standford Achievement Test (SAT) in a study involving students over the period of grades 1-3.[1] On the other hand this study's findings are in disagreement with Stauffer who did find significant differences in paragraph meaning on the SAT favoring the language-experience approach at the end of the first year;[2] he, however, concurs with Harris in that the results in the second and third year were not significantly higher in spite of the fact that the language-experience students did score higher scores than the basal groups.[3] Vilscek also found significant differences for grade one students

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[1]Harris and Morrison, p. 2.

[2]Stauffer, The First Grade Reading Studies: Findings and Investigations, p. 143.

[3]Stauffer and Dorsey, p. 60.

favoring the language-experience approach over the basal on the SAT in paragraph meaning[1] but these differences had disappeared by the end of Grade 2 and were not regained by the end of Grade 3,[2] while Hahn found that the language-experience groups maintained significantly higher scores through the second grade when compared to the basal group as measured on the SAT for paragraph meaning.[3]

The present study found no significant difference in vocabulary growth in the achievement test between the experimental groups and their control counterparts. This concurs with Harris who found that word meaning scores on the SAT for grades 1-3 children did not vary significantly from the language-experience approach to the basal approach.[4] Stauffer concurs with Harris[5] but Vilscek did find significant differences favoring language-experience at the grade one level[6] and Hahn found word meaning scores significantly higher in grade two as well.[7]

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[1]Vilscek and Cleland, Comparison of the Basal and Language Experience Approaches, p. 124.

[2]Vilscek and Cleland, Two Approaches to Reading Instruction, pp. 43, 89.

[3]Hahn, Teaching Reading and Language Skills, p. 40.

[4]Harris and Morrison, p. 2.

[5]Stauffer, The Effectiveness of Language Arts and Basic Reader Approaches to First Grade Reading, p. 60.

[6]Vilscek and Cleland, Comparison of the Basal and Co-ordinated Language Experience Approaches, p. 124.

[7]Hahn, Teaching Reading and Language Skills, p. 40.

Although neither below median or above median experimental groups showed significant growth over their control counterparts there is a suggestion of growth in another dimension which was not explored in this experiment. To illustrate, there was one pupil who scored in his reading comprehension pre-test: 29, post-test: 33, and delayed post-test: 40. On the pre-test his reading score was fourth from the bottom of the class, on the post-test he was sixth from the bottom and on the delayed post-test he was eighteenth from the bottom or fifth from the top of his class of 23 students. It appeared as if the experience of group discussion led to a better achievement in the two specific reading skills and the three specific oral language skills under examination in this study. This finding finds agreement with Synder in her summary in an article on reading and the self-concept:

> In small group situations children are more open and eager to contribute to the learning process. They learn to cooperate and use social skills that are not required of pupils working in isolation.[1]

Results from the present study showed that the experimental groups performed fairly reliably throughout the study except for the above median vocabulary pre- to post-test. Most of the above median students scored the higher scores on the three tests and most of the below

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[1]Doris C. Synder, "Said the Mirror, 'It is Good'," The Reading Teacher, Vol. XXVIII (Dec., 1974), p. 276.

median students scored the lower marks on the same tests. The findings showed a similar reliability with the control group where correlations appeared to be slightly better. The higher scoring students generally maintained higher scores and lower scoring students maintained the lower scores. Thus the results of the experiment appear to be valid in that better achieving students generally remained weaker students.

The significant correlations among the comprehension and vocabulary sub-tests suggested some reliability between the reading comprehension and vocabulary scores as measured by Forms F, G, and H of the MAT, primary 1 for this particular group of students even though no clear pattern emerged. This does not concur with the findings of Dyer who assessed the reliability among the sub-tests of the different forms adequate except for the math problem solving test on some forms.[1] The results of this study, however, are based on only 23 students suggesting there may have been more significant correlations had the number of students been larger.

In summary, this study indicated that spontaneous discussion and the traditional basal reading pre-reading activity generally produced similar growth for the same

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[1]Henry S. Dyer, Reviewer in The Sixth Mental Measurements Yearbook, ed. Oscar Kristen Buros (Hyland Park, N.J.: Gryphon Press, 1965), p. 60.

ability groups in reading comprehension and reading vocabulary as measured by the MAT.

Language

In this study all four groups grew in the number of principles expressed over the time of the study. It would appear that the time spent with the students in both types of pre-reading activities: spontaneous discussion or the conventional teacher-pupil dialogue, resulted in more expressions of principles. This is in agreement with Sassenrath and Maddux who found that the oral language of disadvantaged kindergarten children improved when extra time was spent in oral language activities;[1] in their particular program three different oral language approaches were used: Distar, Peabody, and Standard and no particular program appeared to be better than another; rather all groups improved.

Parke found that the groups which shared experiences produced more running words, more generalizations, and more generalizations per running word than her non-sharing groups.[2] Her shared experience groups shared in an oral activity while her non-sharing groups had no opportunities to share in an oral language experience. In the present study the control groups shared in an oral language experience even

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[1] Sassenrath and Maddux's study.

[2] Parke, p. 7.

though it was teacher-structured and teacher-controlled and in this way the findings concurred with Parke's findings that sharing experiences increases in the number of principles expressed.

The gains in the number of principles expressed appear greater for the below median groups where both groups more than doubled their scores in the number of principles expressed from pre- to post-test; in fact, the below median control group gained in the number of principles expressed from the post-test to the delayed post-test as well. On the other hand, above median groups gained a greater number of principles from the pre-test to the post-test than the below median groups but the retention was not as high: by the time of the delayed post-test they were down to about the same score as the below median groups at the time of the delayed post-testing.

Thus the scores obtained by the below median groups and retained in this study strongly supported the value of more oral language especially for the below median students. One example of this phenomenon may be useful for illustration: a pupil in the BME group expressed only three principles on the oral language pre-test and these principles were totally unrelated to the picture stimulus. After several days of spontaneous discussion he began to participate quite actively. On the post-test he expressed 27 principles fairly coherently and all were related to

the picture stimulus. Even though this student dropped down to eight principles by the time of the delayed post-test, they still were related to the picture stimulus and there was evidence that the child had gained self-confidence in a group situation. Further investigation revealed that this student was a recent immigrant to Canada and that he was just learning to express himself in the English language. His reading scores, as was noted earlier, also had increased.

With one exception, that of the AME, all groups increased in the average number of words per principle. In the AME, the group mean was strongly influenced by one student who began a principle and kept on adding "and" and listed in that principle practically every item he could see on the picture, thus averaging 14.7 words per principle, while no other subject in the class averaged more than 8.7 words per principle. This increase in the average number of words per principle was not great, however, and thus lends support to Ruddell and Williams's findings that the average number of words per T-unit was not significant over a one-month period but might have been significant when measured annually as in Loban's studies.[1]

Since it was found that all groups of children gained in the number of principles expressed it was not surprising to find that both experimental and control

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[1]Ruddell and Williams, p. 125.

groups increased also in the number of mazes. This occurred between the pre- and post-testing for three groups (AME, AMC, BMC), with all groups expressing more mazes on the delayed post-test than on the pre-test. The BME group continued to grow in the number of mazes expressed from the post-testing to delayed post-testing, while the other three groups dropped. Further, for both above median groups the delayed post-test showed about half the number of principles expressed on the post-test. This correlates with the number of principles expressed on the delayed post- and post-tests. This finding is in disagreement with Loban who found that the number of mazes decreased as children spoke more.[1] It must be noted, however, that Loban measured children's oral language annually whereas, in the case of this study it was only a matter of about four months from the time of the pre-test to the time of the delayed post-test.

The evidence produced by this study that all groups increased in oral language ability through small group activities supports the need for more small groups in which opportunity is provided either for spontaneous or teacher-guided discussion. For example, Trosky and Wood developed small group discussion techniques with elementary children, and they argue that for everyone

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[1]Loban's study.

to have a chance to discuss, small numbers of participants are essential.[1] This study also illustrated the value of each pupil having an opportunity to talk, regardless of the stimulus or the type of reading situation. What is perhaps of most significance is that the weaker pupil was able to retain much of the language growth gained in the actual training period.

Implications for Further Research

Since there were no significant differences between the two groups under study, this section will be devoted exclusively to implications for further research.

The following recommendations for future research are:

1. It is desirable that an investigation be undertaken wherein there is a "true" control group in addition to the two groups reported in this study. The control group should be a true representative of the basal series method commonly used by the classroom practitioners. This group would be left in its classroom except for the testing when it would be examined under conditions and with tests similar to the other two groups. It would be necessary

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[1]Odarka S. Trosky and Clifford C. Wood, "Discussion: A Chance for Everyone," The Elementary School Journal, Vol. LXXIII (march, 1973), p. 328.

to include in the report a description of the procedures and/or activities followed by this group in their regular classroom during the experimental period of time.

2. The time of the study should be extended over a whole school year or even longer. In this way it would be possible to see if spontaneous discussion groups would improve to a greater significance in both reading and oral language variables than the control groups, or whether the method is of less importance than the time spent in discussion.

3. A larger sample is necessary. It should be drawn from a variety of communities and include a suburban as well as an inner city school to see if results would be similar.

4. Grade one students should be included in the study because they may be reading less and their speaking may be less mature. It would be worthwile to see qualitatively and quantitatively how growth in reading and oral language occur. Similarly it would be useful to study older school children to see how qualitatively and quantitatively reading and oral language growth occurs there also.

5. A wider selection of reading material in group-size quantities should be available for the group

using the basal series approach. In this way teachers would have more freedom in choosing stimuli for pre-reading activities because the stimuli could be matched up with suitable stories rather than the teacher trying to match stimuli with available stories.

6. An examination of different stimuli for different age groups would be valuable. It would be worthwhile to see if grade one and grade three children would respond as well, better, or not as well to stimuli such as the ones used in this study.

7. In setting up future research some changes in the taping procedures would be adviseable. Better taping facilities are needed so that children could begin their discussion as the stimulus is being presented instead of having to wait till they gather around the microphone before beginning a spontaneous discussion. It was found that the waiting effected the spontaneity of the discussion.

8. Time should also be provided for the re-teaching of discussion skills if this is required after the experiment has started because some students will need renewed guidance or reinforcement in how to handle discussion skills correctly. Some questions asked of the quieter students may require only one- or two-word answers and thus do not help these students

to get into the discussion. This probably could be handled satisfactorily by a second training session after several days.

9. In setting up future research it would be useful to vary the group sizes in order to see if the same results would occur if children were placed in groups of ten or twelve as compared to groups of five or six.

10. It would be beneficial in any replication of this study to explore biases of the teachers and/or investigators toward one or another approach as well as the biases that may be harboured by the children toward an approach with which they are already familiar. For example, it is conceivable but has to be proved, that the nonsignificant results may have been due to the familiarity and comfortable attitude with the basal series approach which they have experienced for two years.

11. It would be useful to investigate if there are standardized reading tests which examine more than one or two of the reading comprehension dimensions. It was noted that the Metropolitan Achievement Tests tended to concentrate on the recognition and inferential dimensions of reading comprehension. It is conceivable, but it has to be proved, that reading

tests which would call for dimensions such as prediction and evaluation, might show that the spontaneous discussion groups in pre-reading activities are better in their reading performance.

APPENDIX A

INSTRUCTIONS FOR SMALL GROUP DISCUSSION

INSTRUCTIONS FOR SMALL GROUP DISCUSSION

The following were the main points elicited from the students about group discussion, but reported in adult language.

1. Adhere to the topic being discussed. Comments and questions expressed are to have some connection with the stimulus presented; if they are about something else either the student who makes them or another student should bring the discussion back to the stimulus related content.
2. Listen politely till others finish speaking. Students should not interrupt while someone is talking but wait until the other person is finished and then begin.
3. Contribute something worthwhile or new to the discussion. Speak up, either to ask questions, share information, or to comment on information or questions given by another group member.
4. Do not try to do all the talking. Give other quieter children opportunities to speak as well.
5. Ask questions of someone who says something you do not understand. Do this if something unfamiliar is discussed and also when someone makes a remark that is incorrect so that the misconception can be corrected.
6. Ask another person a question if he or she is not entering the discussion. In this way, you politely help someone who is shy or hesitant because it helps him to speak up and contribute to the discussion.

APPENDIX B

COMBINED STANDARD SCORES BY GROUP

APPENDIX B

COMBINED STANDARD SCORES BY GROUP

Subject Number	BME	Subject Number	BMC	Subject Number	AME	Subject Number	AMC
25	92	23	98	20	117	7	108
4	90	13	89	16	119	1	118
6	95	22	100	8	115	2	118
3	102	17	98	9	107	14	105
10	102	8	93	11	110	19	112
24	94	15	99	21	122	5	105

Subjects number 13 and 15 left before the experiment was completed so are not included in the figures after this point.

APPENDIX C

TRANSCRIPT OF A CHILD'S ORAL LANGUAGE PERFORMANCE ON THE PRE-TEST

APPENDIX C

TRANSCRIPT OF A CHILD'S ORAL LANGUAGE PERFORMANCE ON THE PRE-TEST

Subject No. 8

Once upon a time there was a story and they were. They had a whole bunch of food and they were so hungry they almost fell off their chairs and and they were so glad that they ate so much they almost died.

Number of words: 44

Number of principles: 7

Average number of words per principle: 5.7

Mazes: 2

APPENDIX D

TIMETABLE FOR TREATMENT

TIMETABLE FOR TREATMENT

The following is a timetable followed on Days 1, 3, 4, and 6 on the six-day cycle for 20 treatment days:

1:32 - 1:47	BME
1:49 - 2:04	BMC
2:06 - 2:21	AME
2:23 - 2:38	AMC

The two minute intervals between the sessions allowed for one group to move out of the seminar room, back into the regular room and for the next group to come from their classroom into the seminar room.

APPENDIX E

COMPLETE LIST OF STIMULI USED

COMPLETE LIST OF STIMULI USED

Different stimuli were used for above and below median students because these students were reading at different levels in the basal readers and stimuli had to be found to suit the stories in the basal at the group's reading level.

Session	Below Median
1	Picture where the mother is waving to a child leaving the house entitled, "Follow Me." The children were asked to talk to each other about the picture.
2	Each child brought his or her overshoes. The children were asked to look at their own overshoes carefully and then to see how they were the same or different from other childrens' overshoes and then to talk about the overshoes.
3	Caption on the blackboard read, "Call the Doctor." The children were asked to talk about what they thought of when they read the title.
4	The children were shown a large picture with a small girl holding a basket of chickens. The children were asked to talk about the picture.
5	The teacher's coat pocket was explored to see if anything was in it. The children found some items like a toy scissor, a wooden mouse, a marshmallow, and a balloon. They were then asked to check to see if they had anything in their pockets and to talk about things they like to "hoard" or "collect".

Session	Below Median, continued
6	The question was asked, "What could you do if your pet cat got lost?" The children were asked to think about their pet cat or another pet they had and to talk about what they would do to try to find it.
7	The children were shown a paper snowflake and a big piece of cardboard; they were asked to pantomime what they might do on a snowy day with a big piece of cardboard and after the pantomiming to talk about it.
8	A short story was told to the children about a child who learned to take on the responsibility for putting away his outdoor clothes. They were asked to talk about being responsible in putting their things away so they could find them, and what sometimes happens when they do not take on some responsibility.
9	The children were shown several pictures of children happily playing in groups and several of children playing happily alone. They were asked to talk about some of the things they liked to do when they played alone.
10	Each child made up a riddle about what he would like to be when she or he grew up and the other children guessed what the answers were. The children were asked to talk about what they would like to be when they grew up, what they would do at their job, and other things about the job.
11	The poem, "Animal Children" by Rachael Field was read to the groups. The children were asked to talk about which pet they would choose if they could pick a pet from the pet store or buy it elsewhere and how they would take care of the pet once they had it.
12	The children were shown several slides of animals at the zoo and the acquarium and asked to talk about animals at the zoo.
13	The children listened to a short story about a man who was very angry because some boys were trespassing on his property. The story ended with the question, "What should the boys do?" and the children were asked to discuss what the boys should do?

Session	Below Median, continued
14	The children were asked to list all the different kinds of transportation they knew about. The teacher then showed the children a globe and explained what it was. The question was asked, "How could people go around the world?" and the children were asked to talk about the possibilities.
15	Five pictures of lovely things in nature--bear and cubs, deer and fawn, mountain reflecting in water, butterfly, sun among the clouds--were shown to the children and they were asked to talk about pretty things.
16	A short story about work was read to the children. The children were asked to talk about work that they do.
17	The poem "Sky Rocket" by Harold Brodie was read to the children. The children were asked to talk about rockets, where they travel, and why.
18	The children were asked to observe their own shadows for a minute just before coming into the seminar room. The teacher started off the discussion by asking them how many had ever played shadow tag.
19	A picture of a family having a wiener roast by the lake was shown to the children. The children were asked to tell about things they did with their families.
20	Al Oeming and his pet cheetah were in the school two days ago. The students were asked to tell the teacher about his visit.

Session	Above Median
1	A picture of a girl going into a house while two boys remained on the steps was shown to the children. The picture was entitled, "Kate's Other Friends." The children were asked to talk about the picture.

Session	Above Median, continued
2	The children were shown a picture of a giraffe and asked to talk about it.
3	The children were shown a collection of pictures all about the Royal Family. They were asked to talk about collections they have.
4	The children were shown several pictures of the northern lights and were asked to talk about them.
5	Each child was told to find a spot on the floor away from the others; then the lights were turned off and children were left to think what it was like to be alone in the dark. The flashlight was turned on, and then the lights. The children were asked to talk about flashlights and their use in the dark.
6	The children were presented with two questions and asked to talk about them. The questions were, "What kind of mischief do boys and girls sometimes get into? What happens then?"
7	The children were asked to pantomime what they would do if they had missed the school bus. They were then asked to talk about their imaginary experience and what might happen next.
8	The children were asked to imagine what it would be like to be in a new place where they had no friends and then to talk about how to make new friends in a strange place.
9	The poem, "One, Two, Three," was read to the children. A few pictures of a child playing with someone quite a bit older or someone quite a bit younger were shown to the children, too. They were then asked to talk about experiences they had had in playing with someone who was quite a bit older or quite a bit younger than they.
10	The children were shown a picture of two beavers and also one where Grey Owl was feeding a beaver. They were given a bit of information about who Grey Owl was and what he did and then asked to talk about Grey Owl's work and/or about beavers.

Session	Above Median, continued
11	The children were shown two pictures, one of a dairy farm and one of a city skyline. The children were asked to talk about nice things connected with both country and city living, and then to talk about problems connected with each.
12	The children were shown several slides of animals at the zoo and at the acquarium and asked to talk about animals at the zoo.
13	The children performed a little experiment. A balloon was put under a pile of books and then the balloon was filled with air and the books gradually rose as more air was blown into the balloon. The children were asked to talk about what air pressure could do, what other things can be filled with air and what happens if they are filled with air.
14	An abbreviated version of "How the Elephant Got His Trunk" was told to the children and they were asked to make up similar imaginary stories.
15	The teacher did a quick demonstration to show children how some jobs can be done much more quickly when time savers are used. The particular demonstration was cutting six circles from six pieces of paper all at once, instead of cutting one at a time. They were asked to talk about other time savers that have been invented.
16	The poem, "Choosing Shoes" by Frieda Wolfe was read to the students. Pictures of several kinds of shoes were shown as well and students were asked to talk about different kinds of shoes.
17	The children were given some information about a mayor, a town council, councillors, and a village council, and the work that these jobs involved. They were then asked to discuss the following question: "What could you as a group of children do if you were not given ice time for skating and hockey in your community's skating rink?"

Session	Above Median, continued
18	The children were asked, "How do parents teach their children to walk, to play, and to be safe?" They were then shown a picture of baby bears and baby skunks and asked how mother bears and mother skunks might teach their babies how to find food and how to keep safe.
19	The children were shown four pictures, one depicting each of the four seasons. The statement was made that some places do not have seasons like we have in Manitoba. They were then asked to discuss how they would enjoy living in a place that had summer all year round, or winter.
20	Al Oeming and his pet cheetah were in the school two days ago. The students were asked to tell the teacher about his visit.

APPENDIX F

TRANSCRIPT OF ONE OF THE CHILDREN'S DISCUSSIONS

APPENDIX F

TRANSCRIPT OF ONE OF THE CHILDREN'S DISCUSSIONS

This particular discussion was on the ninth day of treatment in the BMT group. The stimulus was several pictures of children playing alone happily and several of children happily playing with others. Stimulus #9 for Below Median groups, see Appendix E.

T Today I would like for you to talk about some of the things you do when you play alone.

S I like to play on trees.

S That's what my friend always does when his brother isn't around.

S I like to see the trees in the winter when the snow is one there and I like to make tunnels by myself because then my brother little brother can't wreck them when I'm by myself.

S I like to make forts.

S Me and Kevin and Chrys and Rochelle we made a fort.

S I like to slide down the hill.

S I like to go skiing by myself.

S I would like to go skidooing.

S I like going skidooing.

S We have one. That's why I like it. I drive it by myself already and we as soon as I'm in grade 3 I'm going to give Abe rides.

S His dad gave me and my brother and Keven and his brother a ride already.

S And then we nearly tipped over. And Abe was and Abe flew off and then and he hurt his foot.

S We're not talking about stories. We're always now we're just talking about now before Miss Fre. Miss Janzen said that we were going to talk about what we're doing by ourselves not what we're doing with other kids.

S We don't do it with other kids because kids are goats.

S Children, then.

S That makes more sense than kids.

S If I can't go away then I always go outside and play by myself.

S Why can't Wayne say something? I'd sure like him to say something.

S He should say something in the summer about what he does.

S In the winter.

S At fall. Like we always play in the leaves.

S In spring.

S I always make a big pile of leaves and then I climb a tree and then I jump into the leaves.

S Sometimes I like driving a bike in the summer.

S I take pop wheelys along our driveway, cause we don't have it too big and then I can take really nice pop wheelys.

S Sometimes in the summertime I made such a high pop wheely that my seat went right to the ground. Then I fell down.

S Sometimes I make such big pops that my bike tips right over on the back.

S Why doesn't Wayne say something? I'd sure like him to say something.

S Wayne, would you like to say something nice?

S Do you have a boat, Wayne?

S No.

S In the summer I like to play in the sandbox. And I make and I make hills in it, too.

S Do you got a bike?

S No, but I once had one.

S My my bike my bike is raggedy Ann. The seats all raggedy and then I could hardly drive.

S My bike is a mustang. I always, sometime, one time, I drove about 20 and then I was I was going about 10, I think, yeh, it was ten or five miles an hour on our road, on our gravel road, and then I fell down cause I was going with one hand.

T Wayne, would you like to tell us what you play when you play all by yourself?

S Sometimes I read by myself.

T Isn't that a good idea. What else?

S And in the summer I I sometimes got on the horse and then I always slapped him and then I then the cow mooed and then that horse jumped and I fell off of him.

S I sometimes ride pigs at our place. They buck that I nearly fly off because I go free hand.

S One last time when I went to my uncle's farm then I went to see the cows, the calves. I was all by myself so I went to see the calves and both of them were getting ready to bite, to take a bite of my mitten because they liked it and then I just slapped that calf, that newborn calf that was just born and then that cow I heard dee that thing was making such a racket cause it always wanted to see the baby.

S At our place I take our dog and then tie a rope unto there and then I go on the toboggan and she gives me a ride.

S That's what happened at my grandma's.

S Ron and Lynn's dog,Dale sometimes ties a rope to to our toboggan when we were living close to them and then the dog was supposed to give me my little brother a ride and that was only a little dog and that dog was spinning away at the toe toboggan wasn't going a bit further.

S I don't do very much by myself.

S I do quite a bit, in fact lots of things.

S I do lots of things, too.

S I mostly do things with my Dad like going fishing.

S Sometimes when when my dad's home at winter finish eating then he goes down on his knees and then I sit on his back and he gives me a ride.

S Maybe this winter I might go fishing like we did last winter. We we went to the gravel pit and then I cracked the thing all by myself, the ice and then, I then, we got water but we just got a little fish in the water and a stone.

S Sometimes I like to play with my brother.

S I often go snowmobiling in the winter with my dad and then in the summer my dad sometimes rides my bike and he often tips over cause it's too small on my dad.

S Some every summer I want to go by myself for a bicycle ride in all over town and then and then my brother says, "I want to go along, please" and then once my mom and dad went away so we had to stay at home and then we just took our bicycles and rode all over town and then I was always first. I wanted I wanted to be by myself.

S I've gone two miles already on my bike. That's why my seat got so raggedy.

S My dad he drives my sister's bike and then I drive mine and I give my brother a ride on it and then we go for a bicycle ride.

T We're going to have to stop here boys and girls. Our time is up.

APPENDIX G

RAW SCORES ON THE READING COMPREHENSION SECTION OF THE METROPOLITAN ACHIEVEMENT TESTS

APPENDIX G

RAW SCORES ON THE READING COMPREHENSION SECTION OF THE METROPOLITAN ACHIEVEMENT TESTS

Group	Subject	Pre-Test	Post-Test	Delayed Post-Test
BME	25	25	31	22
	3	29	33	40
	4	19	37	23
	6	26	26	29
	10	36	40	39
	12	35	28	34
	24	34	41	41
BMC	23	30	28	32
	22	34	41	39
	17	31	38	41
	8	32	35	33
AME	9	36	39	41
	16	41	39	35
	11	38	41	39
	18	34	39	38
	20	36	37	41
	21	39	39	38
AMC	2	37	32	38
	5	38	37	35
	1	37	39	38
	19	39	41	42
	14	38	40	39
	7	37	36	38

APPENDIX H

CELL MEANS FOR READING COMPREHENSION SCORES

APPENDIX H

CELL MEANS FOR READING COMPREHENSION SCORES

Group	Pre-Test	Post-Test	Delayed Post-Test	Mean
BME	29.1	33.7	32.6	31.8
BMC	31.8	35.5	36.3	34.5
AME	37.3	39.0	38.7	38.3
AMC	37.7	37.5	38.3	37.8
MEAN	33.96	36.39	36.35	37.9

APPENDIX I

RAW SCORES ON THE VOCABULARY SECTION OF THE METROPOLITAN ACHIEVEMENT TESTS

APPENDIX I

RAW SCORES ON THE VOCABULARY SECTION OF THE METROPOLITAN ACHIEVEMENT TEST

Group	Subject	Pre-Test	Post-Test	Delayed Post-Test
BME	25	31	32	30
	3	34	31	31
	4	32	34	31
	6	33	31	30
	10	33	34	34
	12	28	35	31
	24	29	35	33
BMC	23	33	34	33
	22	33	34	33
	17	33	31	33
	8	29	31	39
AME	9	34	33	33
	16	34	35	35
	11	34	32	34
	18	35	34	35
	20	35	35	35
	21	35	35	35
AMC	2	35	34	35
	5	33	35	34
	1	35	35	33
	19	34	35	35
	14	33	35	34
	7	34	34	35

APPENDIX J

CELL MEANS FOR VOCABULARY SCORES

APPENDIX J

CELL MEANS FOR VOCABULARY SCORES

Group	Pre-Test	Post-Test	Delayed Post-	Mean
BME	31.4	33.1	31.4	32.0
BMC	32.0	32.5	32.0	32.2
AME	34.5	34.0	34.5	34.3
AMC	34.0	34.7	34.3	34.3
MEAN	33.0	33.08	33.65	

APPENDIX K

NUMBER OF PRINCIPLES EXPRESSED PER TEST

APPENDIX K

NUMBER OF PRINCIPLES EXPRESSED PER TEST

Group	Subject Number	Pre	Post	Delayed Post
BME	25	8	13	21
	24	10	13	8
	3	3	27	8
	4	6	7	21
	6	3	14	3
	10	3	8	5
	12	7	12	20
MEAN		5.7	13.4	12.3
BMC	8	7	10	6
	23	9	7	28
	22	3	40	8
	17	5	8	25
MEAN		6	16	16.8
AME	9	3	14	13
	16	3	17	20
	11	3	51	17
	18	6	19	16
	20	11	69	12
	21	10	10	18
MEAN		6	30	16
AMC	1	16	5	13
	2	4	9	7
	5	7	16	12
	7	1	12	4
	14	13	97	35
	19	7	8	4
MEAN		8	24.5	12.5

APPENDIX L

AVERAGE NUMBER OF WORDS EXPRESSED PER PRINCIPLE PER TEST

APPENDIX L

AVERAGE NUMBER OF WORDS EXPRESSED
PER PRINCIPLE PER TEST

Group	Subject Number	Pre	Post	Delayed Post
BME	25	7.5	7.0	6.2
	24	4.9	6.2	7.5
	3	5.3	6.3	5.1
	4	8.1	6.3	6.2
	6	3.7	5.0	5.0
	10	4.0	4.9	5.0
	12	3.3	6.5	5.2
MEAN		5.3	5.4	5.7
BMC	8	5.7	6.6	5.8
	23	5.3	5.7	6.8
	22	4.7	4.5	7.8
	17	5.4	6.3	6.1
MEAN		5.3	5.8	6.6
AME	9	14.7	6.4	10.3
	16	8.7	7.4	7.5
	11	5.7	5.8	5.9
	18	5.1	5.7	5.6
	20	6.5	7.1	6.6
	21	6.8	5.8	6.8
MEAN		7.9	6.4	7.1
AMC	1	4.3	5.2	7.5
	2	2.5	7.7	6.1
	5	7.7	4.9	8.5
	7	5.0	7.6	5.3
	14	5.8	8.3	6.0
	19	8.5	4.5	10.0
MEAN		5.6	6.4	7.2

APPENDIX M

NUMBER OF MAZES EXPRESSED PER TEST

APPENDIX M

NUMBER OF MAZES EXPRESSED PER TEST

Group	Subject Number	Pre	Post	Delayed Post
BME	25	1	4	11
	24	3	2	3
	3	0	1	1
	4	3	0	7
	6	1	1	2
	10	0	1	0
	12	5	3	2
MEAN		1.9	1.7	3.7
BMC	8	2	2	0
	23	4	3	2
	22	0	12	1
	17	3	1	7
MEAN		2.3	4.5	2.5
AME	9	2	3	5
	16	1	2	8
	11	2	27	4
	18	3	4	4
	20	5	33	7
	21	2	2	11
MEAN		2.5	11.8	6.5
AMC	1	3	0	5
	2	1	7	3
	5	7	6	8
	7	1	3	1
	14	4	43	10
	19	1	1	3
MEAN		2.8	10	5

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