

TACHISTOSCOPIC ACTIVITIES FOR TEACHING READING
IN THE SECOND GRADE

TACHISTOSCOPIC ACTIVITIES FOR TEACHING READING
IN THE SECOND GRADE

By

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CHAPTER I

INTRODUCTION

Interest in reading problems has increased with gratifying rapidity among both educators and laymen, as shown by numerous local, state, regional, and national conferences devoted to the subject, frequent revisions of courses of study, the publication of a large number of professional books on reading, and more than a thousand scientific studies relating to reading.¹

This does not mean, however, that it is unnecessary to continue to search for still better ways of attaining goals that have been considered of importance in the past.

Two objectives of the reading program that have been recognized in both the traditional and progressive reading programs are the ability to read with speed and with comprehension. New methods are available for attaining these objectives. The use of devices and mechanical aids for directing eye-movements, improving the speed of perception of words, phrases, and sentences, and pacing reading have been recommended by authorities in the field.

Scientific studies relating to reading had their origin in the laboratories of Europe due to the curiosities of some psychologists concerning the nature of the reading act and the way in which words are recognized. As early as 1844 Valentius became keenly interested in the nature of perceptual processes in reading. His studies were followed by Cattell, Erdman and Dodge and others, the results of which supported the conclusion.

¹ William S. Gray, The Teaching of Reading: A Second Report, Thirty-Sixth Yearbook of the National Society for the Study of Education, Part 1. p. 6. Bloomington, Ill.: Public School Publishing Co., 1937.

that we read by phrases, words, or letters, according to the reader's familiarity with the reading matter and the difficulties which he encounters. A second series of studies grew out of interest in the behavior of the eyes in reading. About 1879 Javal made the important discovery that eye movements in reading are discontinuous consisting of alternate movements and pauses. This discovery was of considerable importance leading to many studies during the next thirty years concerning such problems as the nature, function, and relation of fixation movements and pauses, the possibility of vision during fixation movements and the location and length of fixation pauses.²

The experiments of Goldscheider and Mueller followed shortly, supplying evidence that reading takes place not solely by letters or by word-wholes but rather by phrases, words, or ... letters, according to the reader's familiarity with the reading matter and the difficulty which he encounters.³

This conclusion was very similar to that of an earlier study cited above.

Early studies made by Stone relating to speed of reading led in three important conclusions a) speed may be increased through appropriate methods at various levels of school progress. b) notable increases in speed may often be made without impairing comprehension. c) effect of speed drills on comprehension varies with emphasis which is placed on both speed and comprehension in training exercises. These studies showed also that the following methods and procedures are effective in increasing the speed of reading: speed drills on short passages; short exposure exercises supplemented by speed drills; training in rapid reading, training to reduce vocalization, and training to increase span of recognition; increasing amount of reading done; pacing eye movements; developing motives for improvement, securing favorable conditions for practice, studying the factors of success, and securing persistence in practice.⁴

² William S. Gray, Summary of Investigations Relating to Reading, Supplementary Educational Monograph, No. 28. pp. 4-5. Chicago, Ill.: University of Chicago Press, 1925.

³ Ibid., p. 6.

⁴ William S. Gray, Reading, Encyclopedia of Educational Research, p. 919. (Edited by Walter S. Monroe). New York: Macmillan Co., 1941.

"Scott secured evidence that drill in rapid recognition of isolated phrases does not materially affect fluent recognition of meaningful materials."⁵

All these early studies proved to be highly significant. First, the facts that were secured presented a new and interesting picture of the nature of reading and of some of the processes that were involved. Second, the findings suggested many new problems for investigation and stimulated deeper interests in the scientific study of reading. Third, rapid progress was made in the development of experimental techniques and mechanical devices with which to secure accurate, objective records. A broad foundation was thus laid for rapid progress during recent years in the study of reading problems.⁶

The motivating devices for controlling reading has been pointed out by Durrell and by Bear. As stated by Durrell,

Nothing is more important in an instructional program in reading than that every lesson, every exercise be so motivated that interest and attention will be maintained at a high level. The use of such devices as the metron-o-scope, tachistoscope, motion-pictures and lantern slide projector will help to vary the class-room instruction.⁷

Bear, in referring to the use of these devices in a remedial program said,

"It has value in motivation."⁸

Another possible value in the use of these devices has been pointed out by Louise Farwell Davis in the following words,

If most of us use our eyes most effectively at a far point, why don't we present more material in the metron-o-scope, or

⁵Robert E. Scott, "Flash Cards as a Method of Improving Silent Reading in the Third Grade," Journal of Educational Methods, V (November, 1925), 102-12.

⁶William S. Gray, Summary of Investigations Relating to Reading, op. cit., p. 7.

⁷Arthur E. Traxler, "Value of Controlled Reading: Summary of Opinion and Research," Journal of Experimental Education, XI (June, 1943), p. 284.

⁸Ibid.

similar instruments. Why do we depend almost entirely on purely visual approach at the near point in teaching children to read when examiners other than ourselves discover the visual mechanism to be inadequate for the constant use which school activities require?⁹

In one of his summaries of research in reading Gray pointed out that,

The general procedure referred to have been supplemented by a series of special remedial techniques which have excited wide attention. Among them are the kinaesthetic method of promoting word recognition; the use of the flashmeter in developing greater accuracy in perceiving words; the use of the metron-o-scope and films in presenting reading material under controlled conditions of word spacing and time in order to stimulate directional movements of eyes in reading; to increase span of recognition and to increase speed of reading. Evidence has been secured of the value of each of these devices. Their superiority to other methods of achieving the same ends has not been experimentally established.¹⁰

After conducting an investigation of the education value of flash cards, Gates proposes two uses:

The flash-cards should be used to emphasize the need of comprehending several words in a single glance and to establish a "set" or habit of trying to take in phrases as wholes. The short exposure device should be very helpful for these purposes.¹¹

Betts, who uses the metron-o-scope in his Reading Clinic, states that,

Instruments such as the metron-o-scope are frequently called 'pacing devices'. The implication is that by a direct mechanical pacing of the eye movements, rhythmical and efficient reading habits will be established. Although the value of such instruments is not questioned the typical explanation of what is actually happening needs scientific appraisal. Three situations are created: 1) The individual is given practice in reading materials in large-size type. 2) Habits of rapid perception are

⁹ Ibid.

¹⁰ William S. Gray, Reading. op. cit., p. 923.

¹¹ Arthur I. Gates, Improvement In Reading, pp. 111-114. New York: Macmillan Co., 1935.

established. 3) Work is well-motivated, the goal being to get the meaning of phrases and sentences during short exposure period. In certain situations, those three items alone probably are sufficient to bring about improvement in reading ability which is reflected in more efficient eye-movements. Devices of this nature are effective for the development of rhythmical reading and rapid perception.¹²

When the basic vocabulary list is used for teaching purposes it becomes a source of words for quick perception drill. As soon as a few words have been mastered they are used in simple but meaningful two-word phrases as the basis of further flash exercises. The early combination of the words into phrases and then short sentence units is important to keep ever before the child the necessity of meaning in all reading. If success counts for anything and research and experience have proved that it does, the confidence built by automatic response to needed words is vital.¹³

Case studies of children show that the majority of retarded readers suffer from lack of basic skills. Many of them are wholly dependent on sight reading. They must know a word by heart, or they cannot read. They have neither the power of visual analysis, nor of phonetic analysis and synthesis. Without independence in recognition they neither can nor do read unless they are required to do so. All but the very dullest children improve greatly when they are given specific training in word recognition.

The main requirement is that whatever the techniques that are taught, they should be taught so that they work. If this were done, we should soon find that many of our difficulties would disappear.¹⁴

Common experience and the findings of many research studies both indicate the fact that a surprisingly large percentage of children

¹² Arthur E. Traxler, op. cit. p. 281.

¹³ Ullin W. Leavell, "Reading Recognition Vocabulary Test as a Diagnostic Instrument," Peabody Journal of Education, XXII (November, 1944), 157-169.

¹⁴ Gerlad A. Yoakum, "An Ounce of Prevention in Reading," Journal of Educational Research, XXXVII (October, 1943), pp. 100-109.

encounter serious reading difficulties or are unable to engage successfully in required reading activities.

It is the assumption of the writer that these failures may be due, in part, to the lack of specific skills and abilities such as an insufficient basic vocabulary, poor perception, lack of speed, and an inadequate understanding of the materials read. It is, also, assumed that these disabilities can be prevented and overcome by proper reading techniques. Therefore, it is the purpose of this study to investigate the value of quick exposure devices in word recognition and perception as a remedial technique in overcoming these disabilities; and to determine what relationship, if any, exists between rapid perception and comprehension.

CHAPTER II

THE MATERIALS AND SUBJECTS USED IN THIS STUDY

The children selected for this study are in the Second Grade of the Lincoln School, Stillwater, Oklahoma. Approximately thirty-six children participated in this investigation. Eighteen made up the control group which is designated as Group A, and eighteen made up the experimental group which is designated as Group B.

The children were given the pre-tests on March 18, 1946, and the end tests on May 3, 1946. The purpose of the testing program was to equate the two groups as nearly as possible and to measure in several ways the effect of the study.

The Stanford Binet Individual Intelligence tests Form M, was given using all verbal directions. This test was selected for the following reasons: a) generally is accepted as the most valid and reliable instrument for measuring intelligence. b) it did not require the child to do but a very limited amount of reading. Therefore, it would not penalize the child with low reading ability.

The Durrell-Sullivan Reading Achievement and Capacity Test was used. The Spelling Test was omitted, and the twenty minute time limit was used in the speed and comprehension test.

The Detroit Reading Test Form A and B were, also, used. The eight minute time limit was used. Since there was a time limit this test checked both rate of reading and comprehension.

An individual word perception test was given each child. The Keystone Flashmeter set at one second exposure was used. In giving this test the child's vocabulary could be sampled; the manner in

which he attacked the words could be determined; and any reversal possibilities could be observed. A group recognition test was, also, given. These two tests were based on the one hundred words selected for this study.

These one hundred words at the second grade level were selected from the first five hundred words in each of the following lists:

Rinsland, Henry D., A Basic Vocabulary for the Elementary School.

Thorndike, E. L., A Teacher's Word Book of 30,000 Words.

The following readers on the second grade level:

Gray, William S., Arbuthnot, Mary Hill, Friends and Neighbors.

_____, More Friends and Neighbors.

Hildreth, Gertrude, Felton, Allie L., Henderson, Mabel, Meighen, Alice,

The Story Road.

_____, Along the Way.

O'Donnell, Mabel, Carey, Alice, Friendly Village.

Smith, N. B., Steel, Mary, Bayne, Stephen, Hopkins, Johanna, The World

Around Us.

Gates, A. I., Huber, M. B., Peardon, Celeste, Friends and Workers.

_____, We Grow Up.

Dopp, Katharine, Pitts, May, Garrison, S. C., Outdoors and In.

Yoakam, Gerald, Veverka, M., Abney, Louise, Stories We Like.

The individual perception test was somewhat different from the other tests that were given. The one hundred selected words were made up into hand-made glass slides $3\frac{1}{4}$ " by 4". The flashmeter was used to project the words on the screen with timed-exposure of one second. The light was flashed on the screen for each child so that he would know where to look each time for the word. The words were flashed one

at a time. If there was no response to the word, it was flashed a second time. Incorrect responses were recorded, correct responses checked, and if there was no response the blank opposite the word on the checking sheet was left blank. A maximum score of one hundred was possible. A second test was given at the close of the study, and the same procedure was used; however, the word list had been rearranged.

The word recognition test was given to the entire group at the same time. The test was arranged so that there were three words in each group, and they were asked to circle the word that was pronounced. A maximum score of 100 was possible.

CHAPTER III

PROCEDURES USED IN THIS STUDY

In Group A, the children were given an extra drill other than that which the teacher felt would be beneficial to the entire group during their scheduled reading periods.

Group B was given intensive drill every morning for twenty minutes. The children were taken to a room in another part of the building. During the five weeks of the study twenty words were presented on each Monday morning. Intensive drill on these words were given each Monday and Tuesday mornings using the Keystone Flashmeter set at timed exposure of one second. Wednesday morning meaningful short phrases were used that contained the words. Thursday morning short sentences were used containing the words. In each case the flashmeter was set at timed exposure of one second. Friday morning a story was presented on timed exposure. These stories were taken from the work-books that accompany the readers used in selecting the words. The stories were altered so as to contain all the words that were used during the week. The children read the story silently, and then were given short test questions to determine the comprehensiveness of their reading. After the test the story was read orally to check phrasing and mispronounced words.

The children liked the stories, and looked forward to each Friday. They were enthusiastic about the program and were an excellent group of children with which to work.

Words, Phrases, and Sentences Used in the Study

First Week

Words	Phrases	Sentences
grow	<u>grow</u> big and tall	Flowers <u>grow</u> in the yard.
hundred	one <u>hundred</u> boys	Dick has a <u>hundred</u> chickens.
last	<u>last</u> to come	That is the <u>last</u> apple.
never	<u>never</u> is here	He is <u>never</u> on time.
quick	<u>quick</u> for me	Come <u>quick</u> , Dick.
bring	<u>bring</u> the toy	<u>Bring</u> me the book.
catch	<u>catch</u> for me	<u>Catch</u> the ball.
clothes	pretty <u>clothes</u>	Your <u>clothes</u> are new.
even	<u>even</u> he did	<u>Even</u> she can see.
feet	see his <u>feet</u>	A bird has two <u>feet</u> .
country	to the <u>country</u>	Jane lives in the <u>country</u> .
don't	<u>don't</u> come here	<u>Don't</u> you want to go?
only	<u>only</u> for her	There is <u>only</u> one left.
knew	<u>knew</u> about it	Dick <u>knew</u> about the game.
suddenly	<u>suddenly</u> came	<u>Suddenly</u> it rained.
along	<u>along</u> the walk	She came <u>along</u> the road.
alone	all <u>alone</u> here	Peter is <u>alone</u> today.
behind	<u>behind</u> the book	Spot is <u>behind</u> the door.
delighted	<u>delighted</u> to see	I am <u>delighted</u> she came.
ever	<u>ever</u> see it	Will he <u>ever</u> come?

The Pet Crow

Dick and Jane had just moved to the country to a big farm. They were delighted with their new home. They could bring one pet with them, so Black Tim came along.

One morning Mother had some clothes on the line behind the big apple tree.

Suddenly Black Tim flew down and walked on the clothesline.

"Tim! Get off!" shouted Mother.

"Take your feet off the clothes! Don't come back again."

And so Tim flew away to the tree.

Then Mother put all the clothes on the line and went into the house.

By and by she looked outdoors.

What a surprise she had:

Her clothes were on the grass. Only one dress left on the line.

The children thought the wind had pulled the clothes off the line.

Jane thought the wind had played a funny trick.

But Dick did not laugh.

"It just makes more work than ever for Mother," he said.

Mother put the clothes back on the clothesline, and went into the house again.

Soon she heard the children shout. Quick as could be she ran out, and saw Tim drop clothes on the grass. She called to Dick to catch Black Tim. I knew he would come back.

"The wind did not do that trick after all," said Jane.

"Now we know who did it. I would never have guessed Black Tim."

John thought that Tim had played enough tricks.

So he took Tim away and tied him in the barn. He was alone. All the other animals were gone.

"Mother has enough work to do," said Dick. You have played your last trick on her today."

"Caw, caw," said Black Tim. He knew he had been a bad crow.

But he didn't think it was funny to be tied in the barn.

Dick said, "I guess Black Tim won't grow up, even if he lives to be a hundred."

Comprehension Test

1. What pet did Dick and Jane take to the country with them?

- | | |
|---------------------|------------------|
| 1) White Pony | 2) Gray Squirrel |
| 3) <u>Black Tim</u> | 4) Yellow Duck |

2. Which word tells what kind of a crow Tim was?

- 1) good 2) funny 3) bad 4) cold

3. What did Dick do with Black Tim?

- 1) put him in a cage
2) tied him to a tree
3) tied him in the barn
4) let him fly away

4. What is the best name for this story?

- 1) A Home In The Country
2) The Pet Crow
3) Mother's Helper

Words, Phrases, and Sentences Used in the Study

Second Week

Words	Phrases	Sentences
quiet	<u>quiet</u> and dark	It is <u>quiet</u> here.
quite	<u>quite</u> slow	You are <u>quite</u> slow.
queer	a <u>queer</u> child	Quack is a <u>queer</u> duck.
pink	new <u>pink</u> dress	Jane's dress is <u>pink</u> .
mouth	<u>mouth</u> is big	What a funny <u>mouth</u> .
ready	<u>ready</u> to go	Are you <u>ready</u> ?
should	<u>should</u> come	He <u>should</u> come soon.
think	<u>think</u> of me	I <u>think</u> she can.
very	<u>very</u> cold	You are <u>very</u> nice.
which	<u>which</u> way	<u>Which</u> one is mine?
above	<u>above</u> the school	The plane is <u>above</u> the trees.
inside	<u>inside</u> and out	Come <u>inside</u> , please.
ground	hard <u>ground</u>	He fell on the <u>ground</u> .
keep	<u>keep</u> coming	You <u>keep</u> my books.
late	<u>late</u> for me	Peter is <u>late</u> again.
more	<u>more</u> than	Give me <u>more</u> paper.
people	<u>people</u> came too	The <u>people</u> are coming.
own	<u>own</u> his cart	I have my <u>own</u> ball.
leaves	<u>leaves</u> are green	The <u>leaves</u> are gone now.
left	<u>left</u> and right	He <u>left</u> the letter for you.

Little Bear and the Fish

Long ago a little bear lived in a big forest all alone. It was winter and there were no leaves on the trees.

One quiet evening quite late she went to the river and caught just one fine fish in her big mouth. She was hungry enough to eat it all in one bite. But she was a queer little bear for she wanted the other animals to see the big fish she had caught.

So with the fish in her mouth she walked proudly through the forest looking to the left and the right for her friends.

"Now everyone will be sure to see this fine fish I caught," she said to herself. "And that sly fox who lives above the river inside a big den will be sure to ask for a taste. But I won't give her even one bite of my very fine fish."

Just then along came the fox. She could see that a nice fish hung from the bear's mouth and oh, how she wanted it for her own dinner. So she tried to think of some way of having the bear give it to her.

"M-m-m," grunted the bear trying to call to the fox. But she couldn't very well say anything else, because her mouth was full of fish.

"Hello," said the sly fox. "Is that you Miss Bear? Was it easy to catch that nice fish? Should I be able to catch one too?"

"M-m-m" answered the bear. She was trying hard to keep her fish.

"Talk louder," said the sly fox. "I can't tell what you mean."

Now little bear was getting angry. "No, it wasn't!" she shouted.

But when she shouted, she opened her mouth wide. And then the

fish dropped to the ground. The sly fox was ready to catch it.

Quick as could be she ate up the fish all in one bite.

She ran off calling, "Ha! Ha!" Why didn't you shake your head?"

"Then you could have answered me without dropping the fish."

Comprehension Test

1. Where did Little Bear live?
 - 1) in a house
 - 2) at the zoo
 - 3) in a big forest

2. Why didn't Little Bear eat her fish soon after she caught it?
 - 1) she wasn't hungry
 - 2) she wanted her friends to see it
 - 3) she was going to give it away

3. Who did Little Bear meet?
 - 1) the wolf
 - 2) a lion
 - 3) sly fox

4. Why did Little Bear lose her fish?
 - 1) because she talked
 - 2) by hiding it
 - 3) because she ran

5. What is the best name for this story?
 - 1) The Sly Fox
 - 2) Little Bear and the Fish
 - 3) The Proud Bear

Words, Phrases, and Sentences Used in the Study

Third Week

Words	Phrases	Sentences
found	<u>found</u> the ball	I <u>found</u> the penny.
gone	<u>gone</u> alone	The rabbit is <u>gone</u> .
herself	by <u>herself</u>	She is by <u>herself</u> .
just	<u>just</u> one	<u>Just</u> one ball for Dick.
letter	a big <u>letter</u>	I have a <u>letter</u> .
most	<u>most</u> for me	It rained <u>most</u> of the day.
much	<u>much</u> time	I like you very <u>much</u> .
feel	<u>feel</u> the rain	I <u>feel</u> so good.
drink	<u>drink</u> of water	Bring me a <u>drink</u> .
covered	<u>covered</u> over	Snow <u>covered</u> the ground.
quit	and he <u>quit</u>	He <u>quit</u> playing ball.
reach	<u>reach</u> the doll	Did you <u>reach</u> the city?
through	<u>through</u> the door	Peter came <u>through</u> the house.
would	<u>would</u> come too	<u>Would</u> you like to play?
same	<u>same</u> as ever	This is the <u>same</u> place.
tired	cold and <u>tired</u>	Are you very <u>tired</u> ?
heard	<u>heard</u> the story	I <u>heard</u> the bells ring.
jolly	<u>jolly</u> old man	He is such a <u>jolly</u> boy.
kind	good and <u>kind</u>	Be <u>kind</u> to animals.
hurried	<u>hurried</u> away	Jane <u>hurried</u> to the store.

Mrs. White Goose's Party

One day Mrs. White Goose had a letter from her old friend, Mrs. Fat Goose.

The letter said, "I am coming to pay you a visit."

Mrs. White Goose said to herself:

"How glad I will be to see her. She is such a kind, jolly friend.

But tomorrow is Saturday, and I haven't much time, so I will hurry and get ready.

I must bake some corn cakes and clean my house and yard."

Mrs. White Goose began looking for things to make the corn cakes.

She didn't have any milk or eggs or corn in her house.

She had used them all up, and didn't know just what to do.

Soon Mrs. Yellow Duck came along. Mrs. Goose said, "Oh,

Mrs. Duck. A friend is coming tomorrow, and I can't bake cakes. I haven't found any milk or corn or eggs.

And I won't have time to clean my house before she comes!"

"Wait", said Mrs. Duck, "I'll see if our neighbors will quit their work to help you."

So she asked all the neighbors to help Mrs. White Goose.

Soon Mrs. White Goose heard her neighbors coming. Each one brought something.

"Moo, moo! Milk for you to drink", said Mrs. Black Cow.

"And eggs", said Mrs. Red Hen.

"And corn", said Mrs. Brown Pig.

"There! said Mrs. Yellow Duck.

"You can make the cakes now. You have just what you need."

We will sit here and visit until the cakes are ready to bake.

Then we will all do the cleaning.

So Mrs. Goose worked fast. Soon she was through with the cakes, and they were ready to bake.

Everyone worked until they were tired, but the house and yard were clean.

"Wonderful!" said Mrs. Goose. "Now I am ready for Saturday."

"Saturday? Saturday?" shouted all the neighbors.

"Tomorrow is not Saturday. Saturday is day after tomorrow."

"Is that so!" said Mrs. Goose. "Well, how wonderful! I'll just sit and wait for Saturday to come.

"Would you good neighbors come for Tea on Saturday. I would be most happy to have you meet my friend Mrs. Fat Goose."

Soon her friends hurried away saying they would return at the same time on Saturday.

After they were gone Mrs. Goose began to feel sleepy, so covered herself with her apron for a nice nap in her chair by the window. She was a tired, but happy Goose.

Comprehension Test

1. Mrs. White Goose had a letter from
 - 1) Mrs. Yellow Duck
 - 2) Mrs. Brown Pig
 - 3) Mrs. Fat Goose

2. Who came to help Mrs. Goose get ready for her friend?
 - 1) Mrs. Squirrel and her children
 - 2) Mrs. Dog and her puppies
 - 3) Mrs. Yellow Duck and her neighbors

3. Why couldn't Mrs. Goose make cakes?
 - 1) she didn't have time
 - 2) she had no eggs, corn or milk

4. Who did Mrs. Goose invite to have tea at her house?
 - 1) all the barnyard animals
 - 2) all her good neighbors
 - 3) the animals of the forest

Words, Phrases, and Sentences Used in the Study

Fourth Week

Words	Phrases	Sentences
friends	<u>friends</u> of mine	Peter and Jane are <u>friends</u> .
end	<u>end</u> of story	This is the <u>end</u> of the road.
believe	never <u>believe</u>	I <u>believe</u> the story.
before	<u>before</u> the car	What did you do <u>before</u> ?
beautiful	a <u>beautiful</u> day	This is a <u>beautiful</u> dress.
tried	<u>tried</u> to open	He <u>tried</u> again to see you.
under	<u>under</u> the table	Spot is <u>under</u> the chair.
used	<u>used</u> many times	He <u>used</u> to play, too.
watch	<u>watch</u> for some	<u>Watch</u> for Father to come.
might	<u>might</u> come too	They <u>might</u> go to town.
neck	<u>neck</u> is long	Wash your <u>neck</u> , too.
need	<u>need</u> to work	I <u>need</u> many things.
picture	a fine <u>picture</u>	The <u>picture</u> is here.
soon	coming too <u>soon</u>	Dick will come <u>soon</u> .
yard	a big <u>yard</u>	You must play in the <u>yard</u> .
toward	<u>toward</u> the city	He went <u>toward</u> the house.
while	<u>while</u> I wait	Wait <u>while</u> I eat dinner.
across	<u>across</u> the street	He came <u>across</u> the river.
your	<u>your</u> own home	Bring me <u>your</u> book.
seem	<u>seem</u> to know	I <u>seem</u> to have the chair.

The Biggest Little Pigs In Pigtown

Mother and Father Pig were ready to go to visit their friends, the Jolly Pigs. It was a beautiful day.

But before they went Mother Pig called Little Pig and Wiggles to her.

"I believe you little pigs are big enough to eat your dinner and go to sleep while we are not here", said Mother Pig.

"Yes", said both pigs. "We seem to be the biggest little pigs in Pigtown."

"Fine! said Mother and Father Pig.

You may play in the yard under the tree or look at your picture books. Watch the clock and come inside before six o'clock. Put on your night clothes and be sure to wash your necks good.

Your dinner is ready now, but wait until after six o'clock before you eat."

Good-by, my dears. We will go across the lane that used to go toward town. We might be back before very long.

In no time at all the baby pigs came inside and put on their night clothes.

They smelled their dinner.

Little Pig said, "I am ready to eat the biggest dinner I ever ate. I am hungry and I want to eat now."

But Wiggles said, "No, no! We need to wait until six o'clock.

They waited and they waited, and they waited.

They tried to stay awake, but they got so, so sleepy.

Soon after six o'clock the big pigs came back home.

They found the baby pigs sleeping.

And right in front of them was their fine dinner.

"Oh, dear me!" said Mother Pig. "Why didn't they eat dinner?"

Father Pig looked at the clock.

He laughed and said, "I know why they didn't eat. They were waiting for six o'clock to come.

The clock fooled them. It had stopped, but they didn't know it."

Mother and Father Pig laughed until they couldn't laugh anymore.

"We have the best children I have ever seen," said Father Pig.

"But we will have to tell them that sometimes a clock stops."

Comprehension Test

1. Where did Mother and Father Pig go?
 - 1) to the circus
 - 2) to visit the Jolly Pigs
 - 3) to the zoo

2. What did the little pigs do while their Mother and Father were gone?
 - 1) ran away
 - 2) played in the yard
 - 3) went to visit the neighbors
 - 4) waited for six o'clock to come

3. Why didn't the little pigs eat their dinner?
 - 1) they weren't hungry
 - 2) they went to sleep
 - 3) they didn't like their dinner

4. What did Father Pig say?
 - 1) Our little pigs didn't eat their dinner
 - 2) We will have to tell them that sometimes a clock stops

Words, Phrases, and Sentences Used in the Study

Fifth Week

Words	Phrases	Sentences
close	<u>close</u> to him	Please come <u>close</u> to me.
could	<u>could</u> see it	<u>Could</u> you hear me?
does	<u>does</u> like it	He <u>does</u> so much for Dick
every	not <u>every</u> day	Father comes home <u>every</u> day.
grass	<u>grass</u> in yard	Who will cut the <u>grass</u> ?
himself	all for <u>himself</u>	He did it <u>himself</u> .
ice	<u>ice</u> on road	The <u>ice</u> is thin.
isn't	<u>isn't</u> there now	<u>Isn't</u> Jane coming today?
jump	<u>jump</u> and run	Peter can <u>jump</u> now.
nothing	<u>nothing</u> to do	He did <u>nothing</u> for Spot.
noise	much <u>noise</u> now	What a funny <u>noise</u> .
often	<u>often</u> came alone	How <u>often</u> may I play?
piece	<u>piece</u> of paper	What <u>piece</u> did you find?
some	<u>some</u> for mother	Bring <u>some</u> for mother.
road	<u>road</u> is long	The <u>road</u> is long.
until	<u>until</u> we can	Wait <u>until</u> Jane comes.
year	another <u>year</u>	She came last <u>year</u> .
almost	<u>almost</u> too long	I see him <u>almost</u> every day.
thought	<u>thought</u> he could	I <u>thought</u> I heard the bell.
voice	a new <u>voice</u>	I can hear Peter's <u>voice</u> .

The Lion's Trick

Every year Mrs. Brown Squirrel, who lived in the country, gave a party for her city friends the three gray squirrels.

It was almost time for the party when the little gray squirrels started. They hurried as they didn't want to be late. As they went along the road the first gray squirrel saw some flowers in the tall grass. "Please wait until I pick some flowers for Mrs. Squirrel," she said.

The second squirrel said, "Please hurry."

"Yes" said the third squirrel, "We have a long way to go, and we have to get across the water."

So the first squirrel said, "I'll hurry."

They had to go over a long tree to get across the water. But when they came to the tree they found an old lion sleeping on it. He often took his afternoon nap there. They could not get across.

They came close to the lion and cried together, "Please get off the tree, or we will be late."

"Late to what!" asked the lion in a loud voice.

"Nothing you know about", answered the third little squirrel.

The lion did not know about the party.

So he said to himself, "I will fool those silly little squirrels. They can't go until I move, and I won't move.

I'll go back to sleep."

Then the squirrels thought of a trick to play on the lion.

They brought a saw and began to saw a piece of the tree so that it would fall into the water. What a lot of noise they made!

"Isn't this fun?" they said.

They cut and cut and cut.

Just before the tree started to fall, the lion had to jump off.

And quick as quick could be, the squirrels jumped on the tree
and hurried across the water.

Away they went to the party, those three gray squirrels together!

Comprehension Test

1. Who was invited to the party?
 - 1) three little turtles
 - 2) two white rabbits
 - 3) three gray squirrels

2. Why were the squirrels in a hurry?
 - 1) they wanted to visit along the way
 - 2) they didn't want to be late
 - 3) they didn't know the way

3. Why couldn't the squirrels get across the water?
 - 1) it was too deep
 - 2) a lion was lying in the way
 - 3) they were afraid

4. The lion moved off the tree because
 - 1) he wanted to look for something to eat
 - 2) he was tired of lying there
 - 3) he didn't want to fall in the water

5. The best name for this story is
 - 1) The Lion's Trick
 - 2) Mrs. Squirrel's Party
 - 3) A Walk to the Country

RESULTS OF THIS STUDY

CHAPTER IV

The scores made on the Stanford Binet Individual Intelligence test as summarized in table I were used to equate the two groups. It was observed that there would be very little difference in the results of the equating of the children, if the equating had been done on the basis of mental age rather than on the basis of the intelligence quotients. There was no effort made to consider the reading ability in equating the two groups, but it was observed that on the basis of the results of the reading tests used in this study that there would have been very little difference in the equating. The mean intelligence quotient of the experimental group was 87.5, and the mean intelligence quotient of the control group was 91.2. There was a difference of 3.7 between the means. The critical ratio of the difference between the means is .69, which is too small to indicate a reliable difference.

The scores made by the experimental and control groups on the preliminary Durrell-Sullivan Capacity Word Meaning test, as summarized in table II, shows that the highest score made by the experimental group was 50, and the lowest score was 21; while the highest score made by the control group on this test was 44, and the lowest score was 15. On the end test the highest score made by the experimental group was 40, and the lowest score was 20; while the highest score made by the control group was 45, and the lowest score was 10. The mean score on the preliminary test for the experimental group, as summarized in table X, was 29.7, and the mean score of the control

TABLE I. INTELLIGENCE QUOTIENTS FOR EXPERIMENTAL AND CONTROL GROUPS

Name	Chronological Age		Group A	Name	Chronological Age		Group B
	Yrs.	Mos.			Yrs.	Mos.	
1	8	7	113	1	7	3	130
2	7	9	110	2	7	7	124
3	8	1	105	3	8	5	108
4	8	4	101	4	8	1	100
5	8	8	101	5	7	4	96
6	9	1	100	6	7	6	94
7	8		99	7	8	2	91
8	8	2	99	8	8	5	86
9	7	5	94	9	8	8	84
10	7	8	92	10	7	7	83
11	8	8	92	11	8	7	82
12	7	11	88	12	8	7	74
13	7	7	86	13	7	9	74
14	7	9	84	14	8	3	73
15	10	4	73	15	9	4	71
16	8	5	71	16	7	11	71
17	9	6	70	17	9	1	71
18	10	11	64	18	9	3	64

TABLE II. COMPARISON OF RAW SCORES MADE BY EXPERIMENTAL AND CONTROL GROUPS ON DURRELL-SULLIVAN READING CAPACITY WORD MEANING TEST

Group A	Reading Capacity Word Meaning		Group B	Reading Capacity Word Meaning	
	Test 1	Test 2		Test 1	Test 2
1	35	31	1	50	40
2	44	34	2	41	37
3	41	27	3	32	34
4	34	29	4	37	40
5	31	22	5	35	34
6	36	37	6	25	30
7	34	37	7	28	24
8	36	31	8	27	27
9	24	23	9	21	24
10	28	38	10	25	23
11	39	45	11	26	26
12	27	32	12	27	30
13	15	10	13	27	32
14	35	39	14	26	28
15	41	37	15	35	30
16	19	18	16	22	20
17	29	20	17	33	29
18	24	22	18	26	24

group was 32.1. There was a difference of 2.4 between the means. On the end test the experimental group had a mean score of 28.88, and the control group had a mean score of 28.9. There was a difference of .02 between the means. The critical ratio of the difference between the means was .007, which is too small to indicate a reliable difference.

The scores made by the experimental and control groups on the preliminary Durrell-Sullivan Capacity Paragraph Meaning test, as summarized in table III, shows that the highest score made by the experimental group was 22, and the lowest score made was 11. The highest score made by the control group was 26, and the lowest score was 11. On the end test the highest score made by the experimental group was 26, and the lowest score was 9. The highest score made by the control group was 28, and the lowest score was 6. The mean score on the preliminary test for the experimental group, as summarized in table XI, was 15.7, and the mean score for the control group was 19.1. There was a difference of 3.4 between the means. On the end test the mean score for the experimental group was 18, and the mean score for the control group was 17. There was a difference of 1.0 between the means. The critical ratio of the difference between the means was 1.8, which is too small to indicate a reliable difference.

The scores made by the experimental and control groups on the preliminary Durrell-Sullivan Achievement Word Meaning test, as summarized in table IV, shows that the highest score made by the experimental group was 19, and the lowest score made was 3. The highest score made by the control group was 15, and the lowest score was 1. On the end test the

TABLE III. COMPARISON OF RAW SCORES MADE BY EXPERIMENTAL AND CONTROL GROUPS ON DURRELL-SULLIVAN READING CAPACITY PARAGRAPH MEANING TEST

Group A	Reading Capacity Paragraph Meaning		Group B	Reading Capacity Paragraph Meaning	
	Test 1	Test 2		Test 1	Test 2
1	14	18	1	16	18
2	22	17	2	18	17
3	22	22	3	19	15
4	17	21	4	18	22
5	19	17	5	20	25
6	16	9	6	13	16
7	11	19	7	17	11
8	19	22	8	12	26
9	18	11	9	16	22
10	21	21	10	12	15
11	26	28	11	11	22
12	18	18	12	16	9
13	18	6	13	21	26
14	19	22	14	22	16
15	22	26	15	12	24
16	20	15	16	17	16
17	19	15	17	17	10
18	24	22	18	12	14

the highest score made by the experimental group was 28, and the lowest score was 5. The highest score made by the control group was 24, and the lowest score was 3. The mean score on the preliminary test for the experimental group, as summarized in table XII, was 8.1, and the mean score for the control group was 7.5. There was a difference of .60 between the means. On the end test the experimental group had a mean score of 11.5, and the control group had a mean score of 10.5. There was a difference of 1.0 between the means. The critical ratio of the difference between the means was .70, which is too small to indicate a reliable difference.

The scores made by the experimental and control groups on the preliminary Durrell-Sullivan Paragraph Meaning test, as summarized in table V, shows that the highest score made by the experimental group was 11, and the lowest score was 1. The highest score made by the control group was 19, and the lowest score was 1. On the end test the highest score made by the experimental group was 12, and the lowest score was 4. The highest score made by the control group was 18, and the lowest score was 1. The mean score on the preliminary test for the experimental group, as summarized in table XIII, was 4.5, and the mean score for the control group was 6.1. There was a difference of 1.6 between the means. On the end test the mean score for the experimental group was 8.3, and the mean score for the control group was 8.5. There was a difference of .20 between the means. The critical ratio of the difference between the means was .01, which is too small to indicate a reliable difference.

The scores made by the experimental and control groups on the preliminary Detroit Reading test form A, as summarized in tables VI and VII, shows that the highest score made by the experimental group was 22,

TABLE IV. COMPARISON OF RAW SCORES MADE BY EXPERIMENTAL AND CONTROL GROUPS ON DURRELL-SULLIVAN READING ACHIEVEMENT WORD MEANING TEST

Group A	Reading Achievement Word Meaning		Group B	Reading Achievement Word Meaning	
	Test 1	Test 2		Test 1	Test 2
1	4	9	1	19	28
2	15	24	2	8	9
3	7	13	3	5	15
4	2	7	4	5	12
5	7	13	5	11	11
6	10	7	6	10	5
7	13	6	7	8	10
8	9	14	8	6	8
9	13	12	9	5	5
10	5	11	10	4	15
11	11	15	11	12	20
12	7	8	12	7	9
13	2	3	13	10	12
14	4	5	14	3	8
15	1	4	15	11	17
16	9	15	16	9	5
17	9	10	17	3	13
18	7	14	18	10	9

and the lowest score was 1. The highest score made by the control group was 23, and the lowest score was 2. On the end test the highest score made by the experimental group was 24, and the lowest score was 7. The highest score made by the control group was 24, and the lowest score was 7. The mean score on the preliminary test for the experimental group, as summarized in table XV, was 12, and the mean score for the control group was 11.8. There was a difference of .40 between the means. On the end test the mean score for the experimental group was 17, and the mean score for the control group was 14. There was a difference of 3.0 between the means. The critical ratio of the difference between the means was 3. When the critical ratio is more than 3, it is practically certain that the difference between the means is reliable, and greater than zero.

The scores made by the experimental and control groups on the preliminary Word Perception test, as summarized in table VIII, shows that the highest score made by the experimental group was 97, and the lowest score was 14. The highest score made by the control group was 95, and the lowest score was 8. On the end test the highest score made by the experimental group was 100, and the lowest score was 34. The highest score made by the control group was 98, and the lowest score was 15. The mean score on the preliminary test for the experimental group, as summarized in table XV, was 51.5, and the mean score for the control group was 49.3. There was a difference of 3.2 between the means. On the end test the mean score for the experimental group was 88.7, and the mean score for the control group was 57.4. There was a difference of 31.3 between the means. The critical ratio of the difference between the

TABLE 7. COMPARISON OF RAW SCORES MADE BY EXPERIMENTAL AND CONTROL GROUPS ON BURNELL-SULLIVAN PARAGRAPH MEANING TEST

Group A	Reading Achievement Paragraph Meaning		Group B	Reading Achievement Paragraph Meaning	
	Test 1	Test 2		Test 1	Test 2
1	1	13	1	11	11
2	19	13	2	5	4
3	10	11	3	5	8
4	5	6	4	8	9
5	6	10	5	6	8
6	4	1	6	2	11
7	6	8	7	10	7
8	6	9	8	1	4
9	3	4	9	2	7
10	5	11	10	3	6
11	7	8	11	5	12
12	5	5	12	7	10
13	3	10	13	1	12
14	4	10	14	4	5
15	8	5	15	4	6
16	1	4	16	3	10
17	6	11	17	3	11
18	12	11	18	4	8

TABLE VI. COMPARISON OF RAW SCORES MADE BY THE CONTROL GROUP
ON DETROIT READING TEST FORMS A AND B.

Name	Age		Form A	Form B	Gain	Loss
	Yrs.	Mos.				
1	8	7	8	8		
2	7	9	22	20		2
3	8	1	23	22		1
4	8	4	4	13		9
5	8	8	5	8	3	
6	9	1	8	14	6	
7	8		10	21	11	
8	8	2	5	8	3	
9	7	5	21	21	0	
10	7	8	12	12	0	
11	8	8	15	24	9	
12	7	11	15	24	9	
13	7	7	6	10	4	
14	7	9	13	12	1	
15	10	4	9	9	0	
16	8	5	11	7	4	
17	9	6	17	23	6	
18	10	11	2	7	5	

TABLE VII. COMPARISON OF RAW SCORES MADE BY EXPERIMENTAL GROUP
OF DETROIT READING TEST FORM A AND B

Name	Age		Form A	Form B	Gain	Loss
	Yrs.	Mos.				
1	7	3	22	24	2	
2	7	7	21	23	2	
3	8	5	13	22	9	
4	8	1	10	22	12	
5	7	4	1	18	18	
6	7	6	10	14	4	
7	8	2	13	17	4	
8	8	5	9	18	9	
9	8	8	7	12	5	
10	7	7	11	9		2
11	8	7	20	22	2	
12	8	7	4	7	3	
13	7	9	16	21	5	
14	8	3	8	11	3	
15	9	4	13	15	2	
16	7	11	15	21	6	
17	9	1	13	17	4	
18	9	3	12	14	2	

means was 10.8. When the critical ratio is more than 3, it is practically certain that the difference between the means is reliable, and greater than zero.

The scores made by the experimental and control groups on the preliminary Word Recognition test, as summarized in table IX, shows that the highest score made by the experimental group was 96, and the lowest score was 48. The highest score made by the control group was 98, and the lowest was 56. On the end test the highest score made by the experimental group was 98, and the lowest score was 55. The highest score made by the control group was 99, and the lowest score was 45. The mean score on the preliminary test for the experimental group, as summarized in table XVI, was 78.6, and the mean score for the control group was 75.6. There was a difference of 3.0 between the means. On the end test the mean score for the experimental group was 90.2, and the mean score for the control group was 81.5. There was a difference of 8.7 between the means. The critical ratio of the difference between the means was 8.5. When the critical ratio is more than 3, it is practically certain that the difference between the means is reliable, and greater than zero.

The results of the Durrell-Sullivan Reading Achievement Paragraph Meaning test for the experimental group, as summarized in table XVII, shows that there was a total gain of 12 years and 10 months on grade equivalent, and a total loss of 7 months on grade equivalent as a result of the experimental group activities. The results with the control group, as summarized in table XVIII, shows that there was a total gain of 5 years and 6 months on grade equivalent, and a loss of

1 year and 3 months on grade equivalent as the result of the control group activities. The experimental group showed a net gain in grade equivalent of 12 years and 3 months; while the control group showed a net gain in grade equivalent of 4 years and 3 months.

It may be observed by table XIX that the Durrell-Sullivan Capacity Test 1 and 2, and the Achievement Test 1 and 2, shows that the critical ratio of the difference between the means to be too small to indicate a reliable difference. The Detroit Test, the Word Perception Test, and the Word Recognition Test, shows that the critical ratio of the difference between the means to be more than 3. When the critical ratio is more than 3, it is practically certain that the difference between the means is reliable, and greater than zero.

TABLE VIII. COMPARISON OF RAW SCORES MADE BY EXPERIMENTAL AND CONTROL GROUPS ON WORD PERCEPTION TEST

Group A	Word Perception		Group B	Word Perception	
	Test 1	Test 2		Test 1	Test 2
1	51	52	1	97	100
2	95	98	2	68	100
3	77	80	3	38	95
4	47	51	4	48	99
5	30	34	5	14	76
6	33	46	6	29	88
7	49	71	7	58	95
8	17	22	8	55	100
9	67	80	9	16	74
10	52	60	10	45	89
11	74	77	11	84	100
12	72	96	12	57	89
13	43	63	13	69	98
14	33	45	14	27	58
15	8	15	15	62	98
16	29	36	16	55	96
17	73	81	17	55	98
18	20	27	18	51	84

TABLE IX. COMPARISON OF RAW SCORES MADE BY EXPERIMENTAL AND CONTROL GROUPS ON WORD RECOGNITION TEST

Group A	Word Recognition		Group B	Word Recognition	
	Test 1	Test 2		Test 1	Test 2
1	80	75	1	96	97
2	98	99	2	87	92
3	88	88	3	81	97
4	76	90	4	81	97
5	56	72	5	74	95
6	65	73	6	65	93
7	80	80	7	88	95
8	70	74	8	84	90
9	65	92	9	52	55
10	79	92	10	77	93
11	92	93	11	91	97
12	88	92	12	87	85
13	69	78	13	88	98
14	75	81	14	52	79
15	77	72	15	92	95
16	86	69	16	48	86
17	85	92	17	80	97
18	58	45	18	92	84

TABLE X. RESULTS OF DURRELL-SULLIVAN READING CAPACITY WORD MEANING TEST

	Group A Test 1	Group B Test 1	Group A Test 2	Group B Test 2
Range	15-44	21-50	10-45	20-40
Mean	32.1	29.7	28.9	28.88
Standard Deviation	7.6	7.01	8.9	5.02
Number	18	18	18	18

TABLE XI. RESULTS OF DURRELL-SULLIVAN READING CAPACITY PARAGRAPH MEANING TEST

	Group A Test 1	Group B Test 1	Group A Test 2	Group B Test 2
Range	11-26	11-22	6-28	9-26
Mean	19.1	15.7	17	18
Standard Deviation	3.4	3.4	5.6	5.28
Number	18	18	18	18

TABLE XII. RESULTS OF DURRELL-SULLIVAN READING ACHIEVEMENT WORD
MEANING TEST

	Group A Test 1	Group B Test 1	Group A Test 2	Group B Test 2
Range	1-15	3-19	3-24	5-28
Mean	7.5	8.1	10.5	11.1
Standard Deviation	3.9	3.8	5	5.7
Number	18	18	18	18

TABLE XIII. RESULTS OF DURRELL-SULLIVAN READING ACHIEVEMENT PARAGRAPH
MEANING TEST

	Group A Test 1	Group B Test 1	Group A Test 2	Group B Test 2
Range	1-19	1-11	1-18	4-12
Mean	6.1	4.5	8.5	8.3
Standard Deviation	4.1	2.7	3.4	2.6
Number	18	18	18	18

TABLE XIV. RESULTS OF DETROIT READING TEST FORM A AND B

	Group A Test 1	Group B Test 1	Group A Test 2	Group B Test 2
Range	2-23	1-22	7-24	7-24
Mean	11.8	12	14	17
Standard Deviation	6.7	4.6	5.9	4.7
Number	18	18	18	18

TABLE XV. RESULTS OF WORD PERCEPTION TEST

	Group A Test 1	Group B Test 1	Group A Test 2	Group B Test 2
Range	8-95	14-97	15-98	34-100
Mean	48.3	51.5	57.4	88.7
Standard Deviation	23.3	21.02	21.5	16.8
Number	18	18	18	18

TABLE XVI. RESULTS OF WORD RECOGNITION

	Group A Test 1	Group B Test 1	Group A Test 2	Group B Test 2
Range	56-98	48-96	45-99	55-98
Mean	75.6	78.6	81.5	90.2
Standard Deviation	11.6	14.3	12.6	10.1
Number	18	18	18	18

TABLE XVII. SUMMARY OF COMPARISON OF GAINS BETWEEN EXPERIMENTAL AND CONTROL GROUPS AS INDICATED BY DURRELL-SULLIVAN READING ACHIEVEMENT PARAGRAPH MEANING TEST

Group B

Name	Age		Score	Grade Equivalent		Gain		Loss Mos.
	Yrs.	Mos.		1	2	Yrs.	Mos.	
1	7	3	11	3.4	3.4			
2	7	7	5	2.5	2.4			1
3	8	5	5	2.5	2.9		4	
4	8	1	8	2.9	3.1		4	
5	7	4	6	2.6	3.2		8	
6	7	6	2	2.1	3.4	1	3	
7	8	2	10	3.2	2.8			6
8	8	5	1	1.9	2.4		7	
9	8	8	2	2.1	2.8		7	
10	7	7	3	2.2	2.6		3	
11	8	7	5	2.5	3.5	1		
12	8	7	7	2.8	3.2		6	
13	7	9	1	1.9	3.5	2	4	
14	8	3	4	2.4	3.1		9	
15	9	4	4	2.4	2.6		2	
16	7	11	1	1.9	3.2	2	6	
17	9	1	3	2.2	3.4	1	2	
18	9	3	4	2.4	2.9		5	

TABLE XVIII SUMMARY OF COMPARISON OF GAINS BETWEEN EXPERIMENTAL AND CONTROL GROUPS AS INDICATED BY DURRELL-SULLIVAN READING ACHIEVEMENT PARAGRAPH MEANING TEST

Group A

Name	Age		Score	Grade Equivalent		Gain		Loss Mos.
	Yrs.	Mos.		1	2	Yrs.	Mos.	
1	8	7	11	3.4	3.4		0	
2	7	9	19	4.6	4.4			2
3	8	1	10	3.2	3.4		2	
4	8	4	5	2.5	2.6		1	
5	8	8	6	2.6	3.2		6	1
6	9	1	4	2.4	1.9			7
7	8		6	2.6	2.9		3	
8	8	2	6	2.6	3.1		7	
9	7	5	3	2.2	2.4		2	
10	7	8	5	2.5	3.4		11	
11	8	8	7	2.8	2.9		1	
12	7	11	5	2.5	2.5		0	
13	7	7	2	3.2		1	2	
14	7	9	4	2.4	3.2		8	
15	10	4	8	2.9	2.5			4
16	8	5	1	1.9	2.4		5	
17	9	6	6	2.6	3.4		8	
18	10	11	12	3.5	3.4			1

TABLE XIX. SUMMARY OF COMPARISON OF GAINS BETWEEN EXPERIMENTAL AND CONTROL GROUPS

	Initial Score Mean	Final Score Mean	Gain	Loss	Critical Ratio
Capacity Test 1 Experimental	29.7	28.88		.92	.007
Control	32.1	28.9		3.2	
Capacity Test 2 Experimental	15.7	18	2.3		1.8
Control	19.1	17		1	
Achievement Test 1 Experimental	8.1	11.1	3		.7
Control	7.5	10.5	3		
Achievement Test 2 Experimental	4.5	8.3	3.8		.01
Control	6.1	8.5	2.4		
Detroit Test Experimental	12	17	5		8.
Control	11.8	14	2.2		
Word Perception Test Experimental	51.5	88.7	37.2		10.8
Control	48.3	57.4	9.1		
Word Recognition Test Experimental	78.6	90.2	11.6		8.5
Control	75.6	81.5	5.9		

CHAPTER V

CONCLUSIONS

The purposes of this study are:

1. To investigate the value of quick exposure devices in word recognition and perception.
2. To determine what relationship, if any, exists between rapid perception and reading comprehension.

The results of this study show that the quick exposure devices increase the rate of word recognition, the quickness of perception, and the span of recognition.

The results of the Durrell-Sullivan Achievement Word Meaning and Paragraph Meaning tests indicate that there was no important differences in the rate of speed and comprehension between the experimental group having the opportunity for special drill periods with the flashmeter, and the control group spending an equal amount of time in the regularly scheduled reading program.

The results of the Detroit Reading test indicates that there was reliable differences in the rate of speed and comprehension between the experimental group having the opportunity for special drill periods with the flashmeter, and the control group spending an equal amount of time in the regularly scheduled reading program.

Based on such evidence as the eagerness to participate in the drill exercises, the enthusiasm expressed for the stories read, and the splendid attention given during the drill period, it is the opinion of the writer that the devices used in this study increased the interest and concentration of the children selected.

The findings in this study, then, indicate that the use of quick exposure devices increase the rate of word perception, span of recognition, speed of reading, and comprehension.

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