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Preferences of a group of Nursery School Children at the Utah State Agricultural College for Colored or Uncolored Picture Books

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**PREFERENCES OF A GROUP OF NURSERY SCHOOL
CHILDREN AT THE UTAH STATE AGRICULTURAL
COLLEGE FOR COLORED OR UNCOLORED PICTURE BOOKS**

A Thesis

Presented to

**The Committee on Graduate Work
Utah State Agricultural College**

In Partial Fulfillment

**of the requirements for the Degree
Master of Science in the School of
Home Economics**

Department of Child Development

By

Verna Spencer Carlisle

May 1936

378.2
C194 p
c.3

This Thesis written by Verna Spencer Carlisle
has been approved and accepted by:

Date _____
Professor in charge of Major Subject

Date _____
Dean over Major Department

Date _____
Chairman, Committee on Graduate Work

ACKNOWLEDGEMENT

The author wishes to express her indebtedness and gratitude to her friend and teacher, Professor C. E. McClellan of the Education Department, whose interest and assistance has helped in the completion of this study.

Special acknowledgement is made to Christine B. Clayton, Dean of the School of Home Economics, and Professor Elsa B. Bate, head of the Child Development Department, for their unfailing cooperation and encouragement at all times.

INTRODUCTION

In the last decade there has been manifest widespread interest in the development of children. Clinics, social agencies, and schools have made substantial contributions to our knowledge concerning children, their care, training, and growth. This is especially true of the pre-school child. Many studies have been made concerning his learning behavior, factors affecting his eating habits, his emotions, motor skills, intellectual development, and social behavior.

A considerable number of these studies have been carried out in an effort to learn about awareness of color, preferences for color, and certain other color relationships significant to the lives of the children. This present investigation is not an attempt to further elaborate, or verify any of these studies; neither is it an attempt to analyze them. Yet it is rather closely related to certain ones of them because it involves the child's ability to recognize colors and his preferences where color is a factor. The results of this investigation have a practical bearing. Of the many excellent picture books and toys put on the market, many are colored and many are uncolored. Why are some colored? Do we know that very young children prefer the colored books or toys to the uncolored ones? Although we may know something about the preferences of children for one color over another, what do we know about their preferences for color over non-color? What

are the basic facts or principles governing the coloring, or the non-coloring of these articles?

At two, three and four years of age the child and his reactions are passing through a number of developmental stages. To him doors, knobs and buttons, drawers and peg-boards, blocks and picture books present new and interesting situations, no matter how old and unstimulating they are to the adult, or how habituated the latter may be to them.

The very young child babbles before he speaks, and in his first use of crayons he disregards color, receiving his satisfaction from the muscular activity involved. When he chooses his book does he do so for pictorial story telling qualities and the manipulative joy of turning pages, or for aesthetic enjoyment of the colors? Most educators agree that no definite attempt should be made to teach colors to the very young as it is not known to what extent a child's reaction to color is innate or how much is acquired. Is the pre-school child's physiological mechanism for seeing color developed, or may its' recognition come from the stress, experience, and social approval derived through experience with color?

The majority of books bought for pre-school children are bought by adults who assume that it is an established fact that children prefer books containing color, therefore they choose them according to an adults' standards of what a child should like, rather than upon the child's own level of appreciation and interests. Perhaps the younger the child the fewer are his

interests and the narrower is the range of external influences which may bias his color interests, so that a study of nursery children ought to reveal many pertinent factors concerning the natural preferences of children where color and non-color are concerned, especially with regard to picture books, rather than acquired preferences which are the result, largely, of accumulating experiences. This study will attempt by experiment to show the actual choices of nursery children as between colored, or black and white books, when all other factors, namely: size, shape and pictorial content, are identical.

It should not be concluded, however, that the findings concerning childrens' preferences for color as compared with non-color in books, would necessarily apply to any later stage in the development of the children.

TABLE OF CONTENTS

List of Tables	vii
Chapter I. Statement of Problem	2
Chapter II. Previous Investigations as Shown in Related Literature	14
Chapter III. Subjects, Procedures, and Materials	24
Test for Color-blindness	25
Test of Identical Books	27
Picture Matching Test	28
Test for Matching Pairs of Books	29
Test to Discover Preferences of Children for the Colored or Black and White Books	29
Plate 1	31
Chapter IV. Results of the Test for Color- Blindness	32
Chapter V. Results of the Test to Match Identical Books	36
Chapter VI. Results of the Test to Match Uniform Pictures	39
Chapter VII Results of the Test to Match Pairs of Books	41
Chapter VIII. Preferences of Children for Colored or Black and White Books	43
Figure 1.	46
Summary and Conclusions	47
Bibliography	49

LIST OF TABLES

Table	Page
I. Ages of Children Taking the Tests	24
II. Pre-school Children's Books That Were Used in this Study	28
III. Results of the Use of a Modified Form of Holmgren's Color Matching Test With a Group of Nursery School Children at the Utah State College	33
IV. Test to Show Children's Ability to Match Identical Books	38
V. Table Showing the Ability of Twenty-five Nursery School Children at Matching Seven Pairs of Picture Cards Identical Except for Subject Matter	40
VI. Test to Choose Seven Pairs of Books That are Alike in Subject Matter Regardless of Color	42
VII. Table of Results of Childrens' Preferences for the Colored and the Uncolored Books.	44

CHAPTER I

Statement of Problem

The problem of this investigation was to find out, in the cases studied, whether certain pre-school children prefer colored or uncolored (black and white) picture books. As preliminary steps the following experiments were carried out;

1. Children were tested for color-blindness.
2. Children were tested for their ability to match duplicate book covers identical in size, shape, color and subject material.
3. Children were tested for ability to match subject matter as shown in pairs of uncolored pictures where all were of the same size and shape.
4. Children were tested for ability to match subject material on two book covers that were alike in shape, size, and pictorial content, one being colored and the other uncolored, (black and white).

These preliminary steps were necessary to make sure the child was able to recognize that two books were the same in design and story content, though one was colored and one uncolored. Under these conditions the only factor left to influence his choice was the one of color, which became the variable factor in the controlled experiment which comprises the heart of this study. This consisted of a test to determine childrens' preferences for colored or uncolored picture books when they are identical in shape, size, subject material. The same types of illustrating and arrangement were present in the same amounts, but one book was finished in black and white, and the other a duplicate, in color.

Purpose of the Study

The purpose of this study was to discover, from the young child's standpoint, the significance color gives to books which are published for them. Upon inquiry, very little knowledge was available on this question. That a great deal is assumed, and little known on this phase of children's books is shown by the following answers to letters which were sent, by the writer, to leading book and toy manufacturers in the United States:

COPY

OXFORD BOOKS FOR BOYS AND GIRLS

Oxford University Press

114 Fifth Avenue New York

April 3, 1936

Mrs. Verna Carlisle
Child Development Department
Utah State Agricultural College
Logan, Utah

Dear Mrs. Carlisle:

Thank you for your letter of March 21st advising us that you are working on a thesis of an experimental study of Pre-School Children's Preferences for Colored or Uncolored Picture Books. We are very much interested in your work and regret that we cannot be of much assistance to you as we have made no tests on this subject.

It is our opinion, however, that the pre-school child will prefer a picture book with bright colors in place of one without. Unfortunately we have no way of proving that this is the child's own preference.

We suggest, however, that booksellers and librarians should be able to give you a great deal of information on this subject.

Yours very truly,

Grace W. Allen (Signed)
OXFORD UNIVERSITY PRESS
New York

GWA/hes

COFY

MILTON BRADLEY CO.
Educational Materials

Boston, New York, Chicago,
Philadelphia, Atlanta, San Francisco

Cable
Miltbradco

Springfield, Mass.

April 4, 1936

Mrs. Verna Carlisle
Child Development Dept.
Utah State Agricultural College
Logan, Utah

Dear Mrs. Carlisle:

In reply to your letter of March 21 regarding the question of color in children's toys, I would not attempt to make any definite statements. Our experience in the making of toys has been that the very young children are not so much interested in color as in the manipulative possibilities of the toy - later they begin to notice color and it becomes a very important factor in the making and selling of toys.

In other words, from our experience we believe the child will manipulate material before he has any sense of color. However, many of the uncolored toys are made that way because of the price factor. I don't believe the manufacturer as a rule has a very scientific basis for his use of color. In the first place, the price element is very important and in the second place the manufacturer realizes that the toys are usually bought by adults rather than by children and the eye appeal to the adult is the determining factor.

In experimenting with children myself I feel that in the very early years the question of color does not enter much in the use of the toy for children. I am very sorry we have no data from which we can give you definite statements - this is merely an opinion as a result of observation of children working with toys.

Very truly yours,

MILTON BRADLEY COMPANY
J. E. Delmeyer (Signed)

JED/LMG

COPY

New York
Chicago
Boston

THE MACMILLAN COMPANY
Publishers

San Francisco
Atlanta
Dallas

Cable Address: Macmilco

Pacific Coast Branch, J. H. Beers,
Manager

350 Mission Street
San Francisco

March 28, 1935

Mrs. Verna Carlisle
Utah State Agricultural College
Logan, Utah

Dear Mrs. Carlisle:

In your letter of March 18th you asked for certain rather technical information about the appeal to small children of colored pictures versus pictures in black and white. We feel that this is a question which can better be answered by some of our editors and we are, therefore, forwarding your letter to our head office in New York. We hope they may be able to give you some opinions, and are only sorry we cannot do it from this office.

Very truly yours

J. H. Beers (Signed)

Pacific Coast Manager

JHB/w

COPY

George F. Brett, Chairman of the
Board

THE MACMILLAN COMPANY

Publishers

SIXTY . FIFTH AVENUE . NEW YORK

April 7, 1936

Mrs. Verna Carlisle,
School of Home Economics,
Utah State Agricultural College
Logan, Utah.

Dear Mrs. Carlisle:

Our San Francisco office has sent on to the
Editorial Department here your letter of March 18.

I am sorry that I don't believe we can send you
any very definite information to help with your study.
It is true that we find younger children prefer flat
colors and we try to use as much color as possible in
the books for children particularly of pre school age.
There have been a few successful photographic books but
personally I have a feeling that they are purchased be-
cause of an interest on the part of parents rather than
on the part of little children themselves.

I wish we had some definite reports of tests or
studies to pass on to you, but nothing is now available.

Sincerely yours,

Doris S. Patee (Signed)
Children's Book Editor

DSP:F

COPY

HOLGATE TOYS

Made By Holgate Brothers Company, Kane, Pennsylvania

Established in 1789

April 2, 1936

Attention: Mrs. Verna Carlisle
Child Development Dept.

Utah State Agricultural College
School of Home Economics
Logan, Utah.

Dear Madam:

We are taking the liberty of forwarding your letter of March 21st to Mrs. Hortense Parsell Ellis, formerly associated with the New York State Normal School at Fredonia.

Unquestionably, Mrs. Ellis has information on this subject which she will be glad to let you have.

Yours very truly,

Holgate Brothers Company

W. F. Henretta (Signed)

WTH:A

COPT

Fredonia, N. Y.
April 14, 1936

Mrs. Verna Carlisle,
Child Development Dept.
Utah State Agricultural College,
Logan, Utah

Dear Madam:

At the request of Holgate Brothers Company, Kane, Pa., I am replying to your letter asking for material on colored and uncolored toys and pictures.

Perhaps a few general statements made by art educators in regard to color may help us in forming our opinions. These statements are not taken from any authority at hand, but are rather conclusions formed from the research and experience of the writer.

1. Color is an emotional experience. We enjoy it as we do the taste of food.
2. Color is a complex sensation and cannot be measured. Whatever we get physically records itself mentally, where it is modified by personal incapacities and inhibitions.
3. We represent form, but color is a cause of an emotion.
4. The effect of color sensation, like rhythm or musical sounds, is quite aside from thought and ideas.
5. Children are attracted to bright color, strong contrasts and brilliant lights. They are not able to see minor gradations, but get general reactions unhampered by lesser things.
6. Drawing is a language - it is symbolic.

We may conclude from the above statements that uncolored pictures appeal to children because of the story element. For example, the drawing of a pig with a curly tail without color satisfies - it represents thought and association of ideas and holds interest. To add color might confuse the young child as one interest is all that he needs.

Brightly colored toys, such as color cones, peg boards, etc. attract children, stimulating manipulation. Color acts as a flavor to encourage play with materials which have educational

COPY

Mrs. Verna Carlisle -2-

value. The bright true colors used by Helgate Brothers are therefore valuable for training the color sense.

Colored blocks for the young child are invaluable. He is not ready to build but finds satisfaction in handling and piling up, just enjoying the color combinations. He unconsciously receives some training in color relation. His experience in handling colored blocks leads to all kinds of valuable play with both colored and uncolored blocks. Well known artists say that children should possess a sound basis for color appreciation and be given thought of color relations from earliest years.

In conclusion I would say that color is a food for color sense and is a very important factor in children's toys. Color preferences are innate, depending upon personal abilities to respond to physical cause.

Trusting that the above information may be of service to you I remain

Very truly yours,

Hertense Ellis (Signed)

HPE/S

COPT

REYNAL AND HITCHCOCK, INC.
386 Fourth Avenue New York

April 7, 1936

Mrs. Verna Carlisle
Child Development Dept.
Utah State Agricultural College
Logan, Utah

Dear Mrs. Carlisle:

The number of children's books published by The John Day Company in past years is so small that we have no data on which answers to your recent questions can be supplied.

You should be able to obtain information concerning the principles on which current children's publications are manufactured from any of the larger juvenile department editors, especially those at the Macmillan Company, 60 Fifth Avenue; The Viking Press, 18 East 48th Street; Doubleday, Doran, Garden City, Long Island; Frederick A. Stokes & Company, 443 Fourth Avenue and Harcourt, Brace & Company, 383 Madison Avenue, New York City.

Sincerely yours,

REYNAL & HITCHCOCK, INC.

J. A. McLaughan (Signed)

JAM:hp

COPY

THE EVERWEAR
MANUFACTURING COMPANY

P. O. Box 958
Springfield, Ohio, U. S. A.

March 31, 1936

Mrs. Verma Carlisle,
Child Development Dept.,
Utah State Agricultural College,
Logan, Utah

Dear Mrs. Carlisle:

We have your letter of March 21st in which you ask our opinion covering the reaction to colors on the part of children of the pre-school age. The writer is indeed very sorry that we have no data which would in any sense cover this matter.

We wish it were possible to help you as we think the matter has very important features.

Some years ago we changed the color of our product so that all wooden parts were painted jade green. We did this so that they would harmonize with park surroundings but we think it has a pleasing effect on the child as well as the adult.

Personally, the writer feels that children do react to colors. At just what age this becomes an important fact in their lives, it is not possible for us to say.

I think it is doubtful that anything I have said will prove of value but we wish you success in developing your thought.

Yours very truly,

THE EVERWEAR MFG. CO.

By Walter B. Evans (Signed)

WBE:LGG

THE MERRILL PUBLISHING COMPANY
Jackson Blvd. and Racine Ave.

Chicago

April 24, 1936

Mrs. Verna Carlisle,
Child Development Department,
Utah State Agriculture College,
Logan, Utah

Dear Mrs. Carlisle:

I regret that I have not very much to contribute to your thesis on Children's Preferences for Colored or Uncolored Picture Books.

We are publishers for the chain store and only make Ten Cent Books. The majority of books in our field are bought by adults. It seems to be an established fact that adults think children prefer books containing color. In certain stores where we watch the sale of books, we frequently have interesting experiences, particularly where a mother takes several books off the counter and offers the child a choice. The child invariably chooses the most vividly colored book. I know of one chain store manager who brought his three year old daughter to his store before he arranged his Christmas display. He placed the books in front of her, and arranged them on the counter in the order in which she chose them, and the sales were exactly in the same ratio as her preference.

It is our belief that children enjoy photographic books as well as those containing black and white drawings, but color is very definitely an element in influencing the original sale. It is necessary, before a child can have any enjoyment out of a book, whether colored or uncolored, to make it so attractive in appearance that an initial choice is made before the book is placed in his hand.

I would be much interested in hearing of your findings in this experimental study, and if possible would appreciate having an opportunity to read a copy of your thesis.

Assuring you of our cooperation at all times, I am

Cordially yours,

THE MERRILL PUBLISHING COMPANY

Marion E. Merrill (Signed)
President

M.E.M./B

64597

CHAPTER II

Previous Investigations as Shown in Related Literature.

The writer was able to locate but few studies dealing specifically with children's preferences for colored or uncolored picture books. That few studies have been made, and that little is known concerning this problem, the following letters from universities and other research centers indicate.

UNIVERSITY OF MICHIGAN

Ann Arbor

School of Education

December 18, 1935

Bureau of Educational
Reference and Research
Clifford Woody, Director

Mrs. Verna S. Carlisle
Child Development Department
Utah State Agricultural College
Logan, Utah

My dear Mrs. Carlisle:

Mrs. Lula M. Hile of the University Elementary School has handed me a copy of the letter which she sent you concerning studies of children's preferences for colored or uncolored picture books.

Our Bureau has no studies bearing on this topic. I suggest that you write to the International Kindergarten Union, Evanston, Illinois, to ask if they might be able to help you.

Yours very truly,

Clifford Woody (Signed)
DIRECTOR

COPY

UNIVERSITY OF MICHIGAN

Ann Arbor

School of Education

University Elementary School

December 5, 1935

Mrs. Verna S. Carlisle
Child Development Department
Utah State Agricultural College
Logan, Utah

Dear Mrs. Carlisle:

I am unable to find that anyone in our school has made a study of children's preferences for colored or uncolored picture books. I have checked with our librarian and she reports that she knows of no references which would be of interest to you. I am forwarding your letter to Dr. Woody of the Bureau of Educational References and Research. It is possible that he may have some suggestions for your study.

Sincerely

Lula M. Hile (Signed)
Secretary

COPY

THE STATE UNIVERSITY OF IOWA

Iowa City

**Iowa Child Welfare Research
Station**

November 23, 1935

**Mrs. Verna S. Carlisle
Child Development Department
Utah State Agricultural College
Logan, Utah**

Dear Mrs. Carlisle:

Your letter concerning studies in children's preferences in picture books has been referred to me. There have been several studies which relate to this problem. Probably the most extensive was carried out in Evanston, Illinois by Freeman and Freeman. It is called "The Child and His Picture Book" and published by the Northwestern University Press.

At the present time Miss Ruth Wagner, one of the assistant teachers in our pre school laboratories, is working on a study of children's preferences in pictures. This study is to be completed this coming June. Undoubtedly as soon as her thesis is completed it can be obtained in boundform from the University of Iowa libraries.

Yours very sincerely

**Ruth Updegraff (Signed)
Administrative Supervisor
of the Pre school Laboratories**

RU W

COPY

MERRILL-PALMER SCHOOL
71 East Ferry Avenue
Detroit, Michigan

December 9, 1935

Mrs. Verma S. Carlisle
Utah State Agricultural College,
Logan, Utah.

Dear Mrs. Carlisle:

Your letter of November eighth in regard to children's preference for colored or uncolored picture books has been referred to me to answer.

We have done no studies at Merrill-Palmer on this subject, but you may find the following references helpful:

Martin, H. "Children's preferences in book illustrations," Western Reserve University Bulletin, Vol. 34, No. 10.

Mellinger, B. E. "Children's interest in pictures" Teachers College, Columbia University, Contrib. to Education, 1932, No. 516.

Freeman and Freeman: "The child and his picture book" Chapters IV, V.

Sincerely yours,

Katherine E. Roberts (Signed)

KER:G

The following material is related, however, and is presented here.

Perception and Preference of Color.--Much has been written concerning color awareness and color preferences of older children and adults, and as color is an important factor in the present study, we feel justified in examining some of these studies even though this present one makes no attempt to show individual preferences between colors.

Psychologists were the first ones to be interested in children's perception of color. Naturally these interests led to studies in preferences in colors, and though very little work has been done with pre-school children¹ studied his child's choice for single colors during infancy and early childhood. Red and yellow interested the child more than blue and green. Monroe² studied 1612 paintings obtained from one hundred and sixty eight children ranging in age from two years to four years eleven months. She found that the two-year-old children showed a marked preference for yellow, the three-year-old children preferred red, the four-year-old children preferred red but less markedly than the three-year-old.

In 1917 Dashiell³ studied the color preferences of two hundred and twelve kindergarten children and one hundred twenty-six sophomores in college. The result showed kindergartener's choice to

¹W. Preyer, "The Mind of the Child", New York, D. Appleton & Co. 1896 I 6-22.

²Marion Monroe, "The Drawings and Color Preferences of Young Children", University of Chicago, 1929.

³J. F. Dashiell, "Children's Sense of Harmonies in Colors and Tones", Journal of Experimental Psychology, II (December 1917) 466-75.

be; blue, red, then yellow, in the order named, while college students preferred blue, red and green. Gale's⁴ study in 1933 was made with children in four of the Chicago elementary schools. The children ranged from seven to sixteen years of age. Twelve colors were used in this test, and orange, red-violet, and blue were preferred in the order named. The colors receiving the smallest number of choices were; blue-green, violet, and yellow. Rand, Sweeny and Vincent⁵ tell us in the studies of color preferences of infants and school-age children the findings agree fairly well: In general infants prefer red or yellow, and older children prefer blue.

SUMMARY of investigations of perception and preference of color. - -

The studies summarized above indicate that red and yellow are the colors preferred by children under four years of age. Blue is preferred by those older. Preyer showed red and yellow were preferred. Munroe showed two-year-olds preferred yellow, three and four-year-olds preferred red. Dashiell found kindergartener's choices to be blue, red, then yellow, in the order named. Gale found, with older children, that orange, red-violet and blue were preferred.

Thus it may be noted that while considerable has been discovered concerning children's color preferences, the choice has been between colors and not between color and non-color.

⁴Ann V. H. Gale "Children's Preferences for Colors, Color Combinations and Color Arrangements". University of Chicago Press, Chicago Illinois.

⁵Rand, Sweeny and Vincent, "Growth and Development of the Young Child".

Preferences in Pictorial Material: In 1930 Knauber⁶ studied five grades of children, two to eight years old from Nursery School to third grade. In their drawings the subject matter becomes much more conventional in the second and third grades as compared with that of the Nursery School Children. The work of the former has none of the highly imaginative subjects the younger child paints.

Morrison's⁷ experiment with five hundred children in the elementary schools in Evanston and Chicago Illinois, show the general types of pictures having the greatest appeal for children were: (1) religious (2) animal (3) nature and color (4) historical, allegorical and related subjects (5) childhood pictures. The story interest is the strongest single factor most frequently mentioned by the children as reason for their picture choice. Comment on color is given in only a small number of cases.

Mellinger's⁸ monograph is the result of choices of over eight hundred children in the first, third and fifth grades, for black and white pictures contrasted with colored pictures and realistic contrasted with conventionalized style of drawing. The children favored colored plates and realistic pictures. It should be noted that while Mellinger's study is somewhat similar to the present one, she is dealing with color plates instead of books, and with elementary school children instead of Nursery School Children.

⁶Alma Jordon Knauber, "Art Ability in Very Young Children." Child Development Magazine, March 1931.

⁷Jeanette Gertrude Morrison, "Children's Preferences for Pictures", University of Chicago Press, Chicago Illinois 1935.

⁸Bonnie E. Mellinger, "Children's Interest in Pictures". New York Bureau of Publications, Teachers College, Columbia University 1932.

Only and Cushing⁹ studied twenty-five Nursery School Children for their responses to pictorial material. Sixteen sets of pictures from children's picture books were used. Nine of these sets were colored, seven were uncolored. Trends for picture interest in this study were: (1) mechanical subjects involving people came high on the scale; (2) animals, whether individually or in groups, came low on the scale; (3) the human element, whether of adults or children, enhanced the value of all types of pictures; (4) Although sex differences were small, there was a tendency for boys to show a marked preference for pictures involving mechanical objects such as trains, boats, automobiles; (5) the first choice of girls centered around scenes with strong dramatic element. When the colored sets of pictures were compared with their uncolored counterparts, it was found that color enhanced the interest value of the pictures to a considerable degree.

Freeman and Freeman¹⁰ included as part of their study of the child and his picture book, a test on pictorial material children enjoy. Sixty Nursery School children were given choices for each picture subject. The subjects most enjoyed follow in the order named; (1) objects, (2) children together, (3) children and animals, (4) animals, (5) fanciful people, (6) animals personified, (7) children and adults.

⁹Elisabeth Only and Hazel Cushing, "Responses of Pre-School Children to Commercially Available Pictorial Materials". Child Development Magazine. Page 52. March 1935.

¹⁰G. LaVerne Freeman, Phd, Ruth Sunderlin Freeman, "The Child and His Picture Book". Northwestern University Press, Chicago Illinois 1933.

Along with ~~the wise choice of~~ pictorial material comes the need for good story-telling quality in the picture.

Summary of Preferences in Pictorial Material. - - -

The studies summarized above indicate that the story interest of the picture is the strongest single factor. Mellinger found elementary school children favored colored plates over black and white ones. Only and Cushing showed color enhanced the interest value of pictures for Nursery School Children. Morrison found that in the elementary grades comment on color was given in only a small number of cases. Morrison showed religious and animal pictures have the greatest appeal, childhood pictures, the least appeal to elementary school children. Cushing and Only; Freeman & Freeman agreed, Nursery School Children's trends in picture interest were for objects with the human element. While Cushing and Only found animals came low on the scale, Freeman and Freeman's study showed adults and children were least enjoyed.

This data has given us much information. We find strong preferences for certain colors prevail and are somewhat related to the ages of the children tested; children have definite trends of picture interest; the story interest is a strong factor in picture choice; colored plates are preferred over black and white ones in the elementary grades. But while the preceding material has answered these questions, still it has not solved the problem involved in this study.

CHAPTER III

Subjects, Procedures and Materials

Twenty-five children, from two and one-half to four and one-half years old, in the Nursery School at the Utah State Agricultural College, were the subjects used in this experiment. (See Table 1.)

TABLE 1.

Ages of Children Taking the Tests

AGE - - - - -		2 years	3 years	4 years	5 years
Number of Children in the Nursery School.	BOYS-	2	3	6	none
	GIRLS-	2	6	6	none
		4	9	12	
	TOTAL - - - - -	25			

Twelve of these children were in the Home Economics training school unit. The other twelve were from the recently installed W. P. A. Nursery School¹.

In order to be able to determine these children's preferences for colored or black and white picture books² five simple

¹ United States Works Progress Administration. An Emergency Relief Project carried out in the State of Utah.

² Black and white or "uncolored" are used interchangeably in this study.

tests were devised.

Two types of test were used: (1) The first type, consisting of three tests, had for its purpose the discovering of the ability of the child to recognize identical pictorial matter regardless of color, shape, and size. (2) The second type, comprising but one test, was to discover the preferences of these groups of children for the colored or black and white books. Prior to giving these two types of tests, a preliminary test for color-blindness was given each child as results could be more reliably interpreted if the color vision of the subjects was known to be normal. All tests were given to the children individually and throughout these two hundred and seventy-five individual tests, a standardized procedure was carried out. No mention of color was made by the examiner and conditions were kept as uniform and favorable as possible.

Test for Color Blindness.---Ishihara's³ Color Perception Test of sixteen color plates mounted on stiff covers in book form was a little too advanced to use with Nursery School children as they are unfamiliar with the names or the letters or numerals. Therefore, Holmgren's Worsted Test⁴ for testing color perception was used. Since less than 1% of girls and 6% of boys from two to five years of age have been found to be color-blind⁵ there was only a slight chance of getting enough color-blind subjects

³ Ishihara's Color Perception No. 12326, Price \$6.00 C. H. Stoelting Company, Catalogue. 424 N. Homan Ave., Chicago, Illinois.

⁴ Holmgren's Worsted Test, No. 12325. Price \$15.00. C. H. Stoelting Co. Catalogue. 424 N. Homan Ave., Chicago, Illinois.

⁵ Ethlyn V. Hurd, "Test for Color-blindness of Pre-school Children", University of Minnesota. Institute of Child Welfare, Minneapolis, Minnesota.

to materially affect results in this study. The Holmgren's Worsteds Test consists of one hundred twenty-five small, and three large skeins of yarn. The test colors are varying shades of reds and greens. The remaining skeins are some other colors and are called "confusion colors".

A modification of the Holmgren's Worsteds Test was needed as the original was too difficult for our youngest children on account of the large number of colors to be sorted and piled. This necessitated their continuous attention for too long a time, therefore, a large number of skeins of confusion colors were eliminated. This left twelve skeins of color blind test colors which are reds and greens, and twelve skeins of confusion colors. These confusion colors were yarns which consisted of three colors which any person with normal vision would have called respectively, yellow, brown, and orange.

The pile of worsteds was placed on a small low table and the child seated himself at the table. The examiner picked out a small skein of yarn (a confusion color) from the pile and laid it before the child saying, "We are going to play a game. Let's pick out the yarns that look like this one and pile them here." (indicating the single skein.) This first yarn is chosen and piled to make sure the child is acquainted with the methods of procedure. Then, though verbal encouragement, "Can you pile the others in piles?" was given in a few cases, once the discrimination was established further instruction became unnecessary. The child went ahead choosing and sorting the yarn in his own way, according to color and sometimes shades.

Tests to Recognize Pictorial Material

Turning now to the two types of tests previously referred to; there were three tests of the first type. Test materials consisted of duplicate sets of books and pictures with which the child was not familiar. It was of primary importance that the child be able to discriminate and designate the books and pictures containing identical subject matter. If he were not able to do this his choice of the colored or uncolored book would be merely a matter of chance and not of choice, as color was the only variable factor. This ability was checked by means of the following tests.

I. Test of Identical Books.—Seven pairs of identical uncolored books for children were used. These fourteen books were of various sizes, pictures, arrangements, and illustrating, and were books published for pre-school children. (See Table 2) The individual child was seated on a chair before a low table. Seven picture books were laid on the table. Seven duplicate books (identical in every detail to the ones on the table) were piled inconspicuously by the side of the experimenter. She said, "Today we are going to play a book game. Here are some new books for us." (indicating the books laid flat on the table in front of the child.) The experimenter picks up a book from the pile by her side. Holding it so the child can see it clearly she said, "Look at this book I have. Can you find me the other book on your table that looks just like this one?" The child is given time to look closely and carefully at his books on the table before picking up or pointing to his choice. An accurate record is kept of the choice made and the examiner proceeds, match-

Table 2

Pre-school Childrens' Books That Were Used in This Study

Name	Author	Publisher	Price
1. Little Bear Cub	Louis Moe	Coward-McCann, Inc.	1.00
2. The A.B.C. Bunny	Wanda Gag	Coward-McCann, Inc.	2.00
3. Blue Barns	Helen Sewell	Macmillan Co.	1.75
4. Everyday Children	Hildegard Woodward	Oxford University Press	.75
5. Johnny Cake	Joseph Jacobs	G. P. Putnam's Sons	1.00
6. Millions of Cats	Wanda Gag	Coward-McCann, Inc.	1.25
7. Little Elephant	Hamilton Williamson	Doubleday Doran & Co., Inc.	1.00

ing one book at a time until the child has made his seven choices.

Test II. Picture Matching Test.--Seven pairs of pictures from childrens picture books were used for this test. These pictures were uncolored and were uniformly mounted on stiff gray cards ten by ten and one-half inches. They were chosen for their story telling quality through the subjects and activities depicted. This seemed to be the hardest test as the mounted pictures were all of the same size and neutral color. Therefore, there was but one factor to guide the child in his decision; that was his ability to choose the card with the same pictorial material as the one held by the examiner. The same procedure was carried out in this test as in Test I. One set of pictures were arranged on a low table in front of the child in as pleasing an arrangement as possible

without regard to subject matter. The other set was placed inconspicuously at the side of the examiner. She held up one picture card at a time, so that the child could see it clearly, saying: "Can you show me your picture card on the table that looks like this one I have?" No time limit was set and the child would indicate his choice as all the pictures were presented to him one by one.

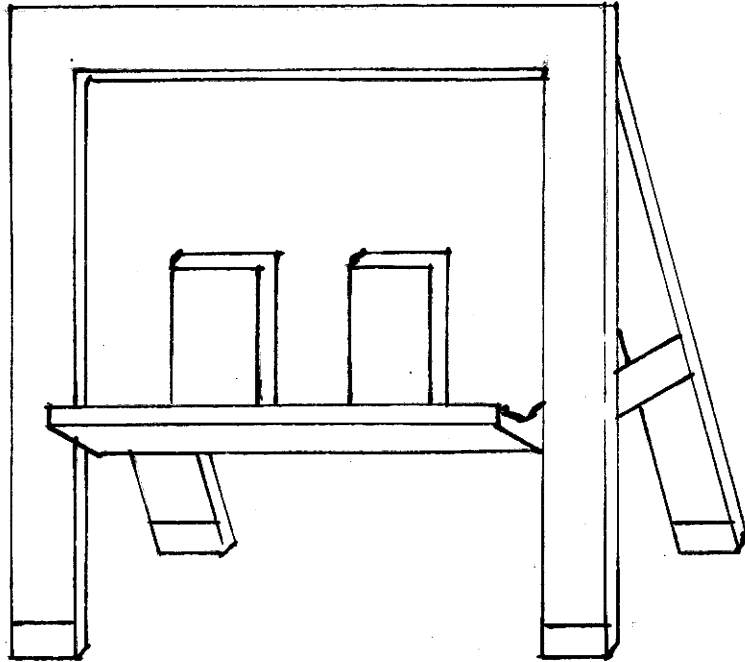
Test III. Test for Matching Pairs of Books, One Colored and One Uncolored.--The procedure similar to that of Tests I and II was carried out in this Test. One book of each pair had been colored, one left black and white. No attempt was made to limit colors or to equalize their brightness or saturation. The only purpose was to eliminate a definite color style so as to present colors which would likely be seen or frequently encountered by the child. The examiner piled the identical uncolored books near her. Choosing and holding up an uncolored book with the picture of a little elephant on it, she asked, "Can you find one of your books that looks something like this one?" If the child seemed hesitant or confused the examiner pointed to the pictorial material on her book-cover saying, "Can you find your book with the little elephant on it?" "Can you show me your book with Peter Rabbit hopping along?" thus directing attention to pictorial material but making no reference to color.

Type Two. Test to Discover Preferences of Children for the Colored or Black and White Books.--There was but one test of this second type, as the preceding tests were preliminaries to this one.

this test was designed to determine the preferences of certain groups of children for one of two books when all factors were identical except color.

Test IV. Preference Test.--These seven pairs of books were presented to the groups of Nursery School children at favorable times. During the morning the children came together in a group for some activity. Often, in the Nursery School, new books were looked at and talked about and so these pairs of test books could be easily introduced with the remarks: "Today we have two new books for our Nursery School. See! they are both about the story of ----- (whatever story was about). When we come in from playing today they will be on our book stand and we can choose one of them to look at." The books were not looked at or handled at this time. Later, at selected periods and under controlled conditions, the child came to the book stand to choose his book. His choice was systematically observed and the data carefully recorded. (See Plate 1).

Placed on this stand, directly below the level of the child's eyes was one pair of books side by side. The child looked towards the two books. He knew the pictorial material was the same for he had matched it himself. One book was colored, one black and white. They were both before him. He put out his hand and chose the book that he wanted to look into, then carried it over to the book table to enjoy. As soon as the child had made his choice, the remaining book was removed from the stand and another pair was supplied.



**Plate 1.--Bookstand From Which the Child
Chose His Preferred Book**

Chapter IV

RESULTS OF THE TEST FOR COLOR BLINDNESS

The results of the test for color blindness will be given and interpreted in this chapter.

Twenty-five Nursery School children were given the Holmgren's Worsted's Test in the manner previously described.

The results of this test are shown in Table 3. In all cases the children were found to have no color blindness as there were no incorrect matchings in the red and green test colors. It is well to remember here that green and red are the colors in which people are subject to color blindness. The confusion colors, browns, yellows, and orange were matched correctly in twenty cases out of twenty-five. Four out of the five children piled yellow and orange together, one child piled yellow on the brown yarns.

There was little or no correlation between ages and ability of children taking this test. The young children were able to match as correctly as were the older children.

In comparing the ages of the children with the time spent in making the test there was a decided variation. One of the oldest children took the longest time, which was four and one-fourth minutes. One of the youngest children took only one and three-fourths of a minute to complete the test.

Sex of the child seemed to play no specific part in the frequency of mistakes in piling yellow yarns on the orange ones as three of these mistakes were made by boys and two by girls.

These Nursery School children were not only aware of color but

TABLE 3.

Results of the Use of a Modified Form of
Holmgren's Color Matching Test with a Group of Nursery
School Children at the Utah State Agricultural College

Name of child	Sex	Age of child		Check indic- ates color blind- ness	Test Colors Check		Showing colors matched incorr- ectly	Time spent in match- ing colors minutes
		yr.	mo.		indicates no errors in sort- ing six shades of			
					I red	II green		
Patsy W.	F	2	6		✓	✓	•	2.50
Henry P.	M	2	9		✓	✓	yel-or.	4.00
Beverly E.	F	2	11		✓	✓		2.75
Jimmy M.	M	2	11		✓	✓	yel-or.	1.75
Lois B.	F	3	7		✓	✓		3.00
Lois I.	F	3	9		✓	✓		2.66
Shirley M.	F	3	10		✓	✓	yel-br.	1.50
Janice J.	F	3	10		✓	✓		2.50
Juddy P.	M	3	10		✓	✓		2.75
Bert G.	M	3	10		✓	✓		1.75
Barbara E.	F	3	10		✓	✓		2.75
Laura Lee B.	F	3	10		✓	✓		1.50
Cleve W.	M	3	11		✓	✓		2.50
Caroline M.	F	4	1		✓	✓		2.00
Carol B.	F	4	2		✓	✓	or-yel.	2.75
June P.	F	4	3		✓	✓		2.25
Anne W.	F	4	3		✓	✓		1.75
Jimmy P.	M	4	3		✓	✓		2.25
Del Ray B.	M	4	4		✓	✓		1.75
Douglas L.	M	4	4		✓	✓	or-yel.	4.25
Carl H.	M	4	5		✓	✓		3.75
Trevis D.	M	4	5		✓	✓		2
Manon C.	F	4	9		✓	✓		1.99
Luna Van B.	F	4	9		✓	✓		1.66
Larry B.	M	4	9		✓	✓	yel-or.	1.50

*yel--yellow
or--orange
br--brown

five of them chose and sorted their yarns according to the shades of a color. Although special care was taken by the examiner to make no mention of color, seven of the children named some of the colors as they chose and matched them.

Some interesting comments and behavior of the children were shown in this test. Though they have no direct bearing on this present study they do show acquaintance with color and ability to recognize it. The following are examples: Manon; "Here's two yellow ones, and two reds. That's my favorite color." Picking up the skein of brown yarn she laid it down again saying, "I'm not going to choose that one, I'm going to choose the pretty ones first". She matched not only every color correctly, but every shade. At the conclusion of the test she said, "We have no blues, have we?"

Karl, putting two shades of green together immediately picked one up and said, "That's not really like it". He arranged the matching skeins of yarn side by side until he had completed a big circle. The last four, which were alike, he placed in the center of the circle.

Juddie--He whispered calmly to himself during the test, "This goes here; this goes there." He hesitated at the three shades of green, seeing a difference, and said; "This is green, but this is green." He settled it to his satisfaction by laying the greens close together according to shades. Apparently he did not notice shades in the other colors.

Barbara--She talked to herself saying, "Now which one, now

which one?" as she chose her yarns. When she picked up a brown skein she looked at it, then at the examiner, and said, "This is chocolate."

Carol B.--As she chose her Worsted's she would hold them tightly in her hand for a moment, making no remarks. She put orange and yellow together, and showed no recognition of shades.

Trevis.--He talked to himself saying, "This is a funny game." When a green skein stuck to a red one, he picked it off and put it back on the pile saying, "No you don't, not there."

The conclusions from the results of the Holgren's Color Test are:

1. The color vision of the children in this group was known to be normal.
2. Browns, yellows, and oranges are more difficult to match than greens or reds. Yellows and oranges are the most difficult to distinguish.
3. The age of the child has very little to do with his ability to match colors correctly.
4. An older Nursery School child may take as long in matching yarns as one of the younger ones.
5. Sex plays no part in the frequency of mistakes in matching yarns.
6. These Pre-School children not only show acquaintance with color, but seven out of twenty-five name some colors correctly.

Chapter V

RESULTS OF THE TEST TO MATCH IDENTICAL BOOKS

This chapter deals with the child's ability to match pairs of identical books. There were three factors to guide him in his choice; They were, (1) color (2) size, and (3) picture-subjects.

Twenty-three out of twenty-five children were able to match all seven pairs of books correctly. Two children were able to match only six pairs of books correctly. (See Table 4) Though there were thirteen girls and eleven boys taking this test, the two incorrect matchings were made by two boys.

The children doing this test in the least time were not the ones who made the mistakes.

There is very little correlation between the age factor and the time factor in the amount of time taken to finish this test. (See figure 1) The young children were able to make their choices as rapidly as the older ones.

This test was important because it was necessary to find whether this group of children could recognize that there were two books just alike. If they could, it would be a simple matter to match the books according to the similarity of color, size and picture material. If they could not match two identical books they would not be able to make an intelligent choice of one of them, when one was colored and the other one left uncolored.

The results of this test indicated it was apparent to the children there were two books of each story, as only two were matched incorrectly, and one hundred seventy-three were matched correctly.

TABLE 4.

Test to Show Children's Ability to Match
Identical Books

Name of child	Sex	Age of child		Number of correct selections of pairs of books	Number of incorrect choices in selections	Time taken in making selections minutes
		yr.	mo.			
Patsy W.	F	2	6	all	none	2.75
Henry P.	M	2	9	six	one	4.25
Beverly E.	F	2	11	all	none	1 .00
Jimmy M.	M	2	11	"	"	3 .00
Lois B.	F	3	7	"	"	1 .00
Lois I.	F	3	9	"	"	1 .00
Shirley M.	F	3	10	"	"	3.25
Janice J.	F	3	10	"	"	2.25
Juddy P.	M	3	10	"	"	2.50
Bert G.	M	3	10	"	"	1.50
Barbara E.	F	3	10	"	"	1.25
Laura Lee B.	F	3	10	"	"	1 .00
Cleve W.	M	3	11	"	"	1.50
Caroline M.	F	4	1	"	"	1.75
Carol B.	F	4	2	"	"	1 .00
June P.	F	4	3	"	"	1.50
Anne W.	F	4	3	"	"	1.50
Jimmy P.	M	4	3	"	"	1.75
Del Ray B.	M	4	4	six	one	2.50
Douglas L.	M	4	4	all	none	4.33
Carl H.	M	4	5	"	"	1 .00
Trevis D.	M	4	5	"	"	1.25
Manon C.	F	4	9	"	"	1 .00
Luna Van B.	F	4	9	"	"	1 .00
Larry B.	M	4	9	"	"	1 .00

CHAPTER VI

Results of the Test to Match Uniform Pictures

This test eliminated most factors used in helping one to match identical material. The picture cards were of uniform size and uniform color. The one variable was in picture content. If the children could match these seven pairs of picture cards it would be not from size nor color, but simply from the ability to match picture material which was of interest to them. If they could do this correctly, they could probably match similar picture material which was alike in content and size, but different in color.

The group of children matched one hundred and seventy-three pictures correctly. Two pictures were matched incorrectly. Eleven boys matched all pictures correctly. Twelve girls matched all pictures correctly. Two girls matched all correctly except one. (See table V).

This test was significant because it showed the group of children were discriminating enough to be able to match pairs, from numbers of picture cards, whose forms were identical in every respect except picture content. The next step was to see if the children could match books that were alike in form, and picture content but unlike in color.

TABLE 5.

Test of the Ability of Twenty-five Nursery
School Children to Match Seven Pairs of Picture
Cards Identical except for Subject Matter

Name of child	Age of child		Sex	Correct choices made in matching pictures	Number of incorrect choices made in matching pictures	Time spent completing picture matching test Minutes
	yr.	mo.				
Patsy W.	2	6	F	all	none	2.00
Henry P.	2	9	M	all	none	2.00
Beverly E.	2	11	F	all	none	3.00
Jimmy M.	2	11	M	"	"	2.50
Lois B.	3	7	F	"	"	1.33
Lois I.	3	9	F	"	"	1.25
Laura Lee	3	10	F	"	"	1.25
Shirley M.	3	10	F	"	"	2.50
Janice J.	3	10	F	"	"	1.25
Barbara E.	3	10	F	six	one	3.75
Bert G.	3	10	M	all	none	2.50
Juddy P.	3	10	M	"	"	2.25
Cleve W.	3	11	M	"	"	1.50
Caroline M.	4	1	F	"	"	1.25
Carol B.	4	2	F	six	one	1.25
Jimmie P.	4	3	M	all	none	2.25
June P.	4	3	F	"	"	3.00
Anne W.	4	3	F	"	"	2.00
Del Ray B.	4	4	M	"	"	1.00
Douglas L.	4	4	M	"	"	3.25
Trevis D.	4	5	M	"	"	2.00
Carl H.	4	5	M	"	"	2.25
Larry B.	4	9	M	"	"	1.25
Manon C.	4	9	F	"	"	2.00
Luna Van B.	4	9	F	"	"	2.00

CHAPTER VII

Results of the Test to Match Pairs of Books

In this section we see the influence color plays in the ability of the child to recognize the same books, one being colored, one uncolored. The other factors, size and picture content, are identical.

Twenty-five children each matched seven pairs of books. Out of the hundred and seventy-five books matched, one hundred and seventy-five were matched correctly. (See Table VI)

This indicates that color was not the determining factor in recognizing the books.

The younger children spent a little more time than the older children when choosing their books, but the time element seemed to depend, not so much on age, as on the individual child.

The tabulations of this test showed the children's ability to make correct choices in matching the books. The significance of this test lies in showing that the study is workable from the child's point of view. He understood there were two books of the same story. He had matched them. They were alike in size; they were alike in picture content, but they were different in coloring. Which one did he prefer? And what was the basis of his preference?

TABLE 6

Test to Choose the Seven Pairs of Books
that are alike in Subject Matter Regardless of Color

Name of child	Age of child		Sex	Number of choices made in choosing books		Minutes spent matching seven pairs of books
	yr.	mo.		correct	incorr.	
Patsy W.	2	6	F	7	none	1.25
Henry P.	2	9	M	7	none	1.00
Beverly E.	2	11	F	7	"	1.25
Jimmie M.	2	11	M	7	"	1.25
Lois B.	3	7	F	7	"	.75
Lois I.	3	9	F	7	"	1.00
Laura Lee B.	3	10	F	7	"	.75
Shirley M.	3	10	F	7	"	1.25
Janice J.	3	10	F	7	"	.75
Barbara E.	3	10	F	7	"	1.50
Bert G.	3	10	M	7	"	.75
Juddie P.	3	10	M	7	"	.75
Cleve W.	3	10	M	7	"	1.25
Caroline M.	4	1	F	7	"	.75
Carol B.	4	2	F	7	"	1.00
Jimmy P.	4	3	M	7	"	1.00
June P.	4	3	F	7	"	1.25
Anne W.	4	3	F	7	"	1.00
Del Ray B.	4	4	M	7	"	1.00
Douglas L.	4	4	M	7	"	2.25
Trevis D.	4	5	M	7	"	1.25
Carl H.	4	5	M	7	"	1.00
Larry B.	4	9	M	7	"	.75
Manon C.	4	9	F	7	"	.75
Luna Van B.	4	9	F	7	"	.75

CHAPTER VIII

Preferences of Children for the Colored or Black and White Books

In analyzing the preferences of these children we have taken into consideration as factors:

- (1) Age
- (2) Sex
- (3) The time they spent looking at books
- (4) Choices for colored books, and
- (5) Choices of uncolored books. (See Table VII)

The results of this test indicate a preference of children for colored books. Sixty-two per cent of the books they chose were colored, thirty-seven per cent of them were uncolored. While this shows a definite leaning towards color, still it is not as decided as one might have supposed.

It is interesting to note that though the boys choices were 62.3% for colored books, and 37.7% for uncolored books, the girls choices were 62.2% for colored books and 37.8% for the uncolored ones. This very close agreement shows that the sex of the child plays no part in his color preferences in books.

Story interest, rather than color in the book, seems to be the important factor in the amount of time spent looking at books, after a choice was made. Sixty-seven per cent of the total time spent looking at books, after a choice was made, was spent in looking at colored ones, while 32% of it was spent in looking at the uncolored ones.

In analyzing the figures further we find that the boys spent an average of 27-7/11 minutes each, while the girls spent 27-1/7 minutes. This further emphasizes the fact that the sex of the child is an

Table VII--Results of Children's Preferences for the Colored and the Uncolored Books,

Name of child	Age of child		Sex	All children's choices of books		Boy's choices of books		Girls' choices of books		Minutes spent looking at books		Total minutes spent looking at books	
	yr.	mo.		colored	uncol.	col.	unc.	col.	unc.	col.	unc.	boys	girls
Patsy W.	2	6	F	5	2			5	2	31	7		38
Henry P.	2	9	M	3	4	3	4			13	18	31	
Beverly E.	2	11	F	6	1			6	1	18½	4		22½
Jimmy M.	2	11	M	4	3	4	3			22	15	37	
Lois B.	3	7	F	3	4			3	4	15½	16		31½
Lois I.	3	9	F	4	3			4	3	18½	16		34½
Laura Lee B.	3	10	F	6	1			6	1	30	4		34
Shirley M.	3	10	F	7	0			7	0	29	0		29
Janice J.	3	10	F	5	2			5	2	19½	4		23½
Barbara E.	3	10	F	4	3			4	3	20	12		32
Bert G.	3	10	M	3	4	3	4			18	7	25	
Juddy P.	3	10	M	5	2	5	2			28	7	35	
Cleve W.	3	11	M	5	2	5	2			20	7	27	
Caroline M.	4	1	F	4	3			4	3	13	14		27
Carol B.	4	2	F	3	4			3	4	12	14		27
Jimmie P.	4	3	M	4	3	4	3			22	15	37	
June P.	4	3	F	3	4			3	4	11	10		21
Anne W.	4	3	F	4	3			4	3	12	17		29
Del Ray B.	4	4	M	7	0	7	0			30	0	30	
Douglas L.	4	4	M	4	3	4	3			13	7	20	
Trevis D.	4	5	M	6	1	6	1			18	2	20	
Carl H.	4	5	M	3	4	3	4			13	8	21	
Larry B.	4	9	M	4	3	4	3			13	8	21	
Manon C.	4	9	F	2	5			2	5	10	12		22
Luna Van B.	4	9	F	5	2			5	2	18	5		23
TOTALS				109	66	48	29	61	37	469	229	304	394.5

unimportant factor in the amount of time spent.

One may think that, owing to the differences in the length of the span of interests of the two and four-year old children, there would be a noticeable variation in the time they spent looking at books. This is not so. While the four-year olds spent sixty-two percent of the total time looking at colored books and thirty-eight percent of the time looking at uncolored ones, the two-year old children spent sixty-five percent of their time looking at colored books and thirty-three percent of the time looking at uncolored ones. (see Figure one) The largest variation of the age group was with the three-year old children. They showed much more interest in colored books than either the two-year or the four-year olds. The three year old group spent seventy-three percent of their time looking at colored books and only twenty-seven percent looking at black and white ones.

The results of this test indicate that children prefer two of their three picture books colored. There is very little relation between; (1) the age of a child and the time spent looking at books, (2) the sex of a child and his preference for books.

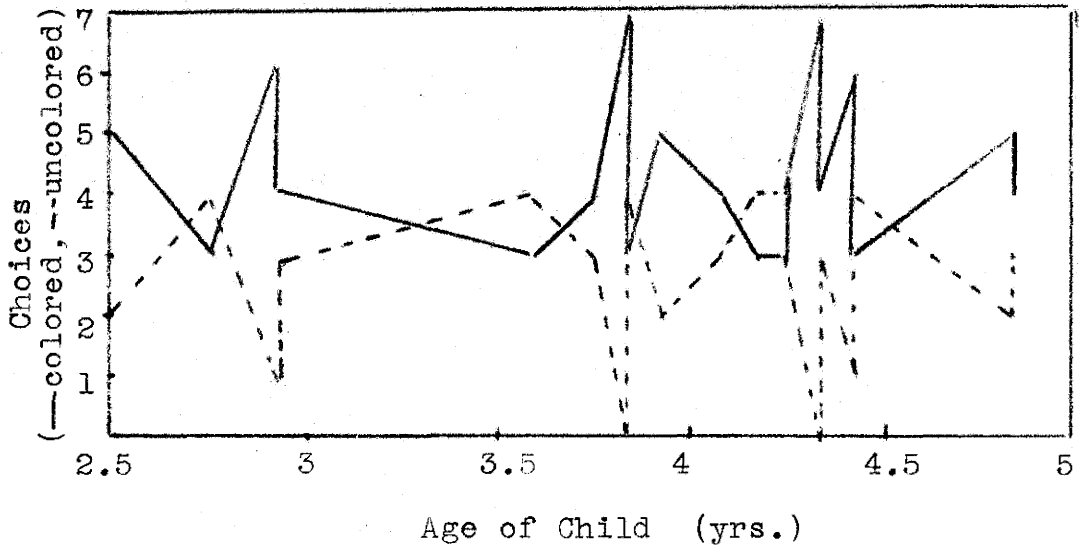


Figure 1.--Correlation of Ages of Children and Choices of Colored and Uncolored Books.

Summary and Conclusions.

Summary(1) The results of the test of color vision showed this group of children's vision was normal.

Two-year old children are able to match colors as correctly as four-year old ones.

The sex of the child plays no part in the frequency of mistakes in sorting yarns.

Seven out of twenty-five Nursery School Children can name and match five colors correctly.

(2) Nursery School Children can match identical books one hundred and seventy-three times out of one hundred and seventy-five.

(3) Pre-School Children are discriminating enough to match pairs of picture-cards from numbers of them, when they are identical in every respect except picture content.

(4) Color is not a determining factor with this group of children in recognizing pairs of books, alike but for their color.

(5) Children prefer colored books. ^{these} The sex of the child affects his choice for a colored or uncolored book very little. Children spend as much time looking at uncolored books as at colored ones; The story interest seems to be the important factor. Age and sex are not important in choosing and looking at books.

Conclusions. The most striking conclusion to be drawn from this experiment is that color does not play as important part in the child's selection of his picture book as some adults may believe. This would indicate that (1) black and white are colors to a child, or (2) the story telling possibilities of the pictorial content are the essential factor of a child's book.

A word or two should be said about this study. The author realizes its limitations and owing to the smallness of the group used, the results found here must not be taken as final. It would be interesting for parents and publishers if this experiment could be carried out on a larger scale.