

RELATIONSHIP BETWEEN CHILDREN'S MENTAL ABILITY,  
THEIR PLAY INTERESTS, AND THEIR  
SOCIAL BEHAVIOR

APPROVED:

Witt Blair  
Major Professor

Ross Compton  
Minor Professor

Witt Blair  
Dean of the School of Education

John Johnson  
Dean of the Graduate School

RELATIONSHIP BETWEEN CHILDREN'S MENTAL ABILITY,  
THEIR PLAY INTERESTS, AND THEIR  
SOCIAL BEHAVIOR

THESIS

Presented to the Graduate Council of the North  
Texas State College in Partial Fulfillment  
of the Requirements

For the Degree of

MASTER OF ARTS

By

Helen Walker Miller, B. A.

168540  
Corsicana, Texas

August, 1949

## TABLE OF CONTENTS

	Page
LIST OF TABLES . . . . .	iv
Chapter	
I. INTRODUCTION . . . . .	1
Statement of the Problem	
Sources of Data	
Treatment of Data	
Significance of the Study	
II. MENTAL ABILITY AND PLAY INTERESTS . . . . .	5
Purpose	
Results of the Otis Quick-scoring Mental Ability Test	
Play Interests	
Movie interests	
Reading interests	
Interests in hobbies	
Interests in games and toys	
Radio interests	
Summary	
III. MENTAL ABILITY AND BEHAVIOR . . . . .	53
Discussion of Scores Made on Schedule A of the Haggerty-Olson-Wickman Behavior Rating Schedule	
Discussion of Scores Made on Schedule B of the Haggerty-Olson-Wickman Behavior Rating Schedule	
IV. THE RELATIONSHIP BETWEEN PLAY INTERESTS AND SOCIAL BEHAVIOR . . . . .	77
V. CONCLUSIONS AND RECOMMENDATIONS . . . . .	82
BIBLIOGRAPHY . . . . .	85

LIST OF TABLES

Table	Page
1. Intelligence Quotients of the Fifth-grade Pupils of the Kerens Elementary School as Determined by the Otis Quick-scoring Test . . . . .	6
2. The Boys' Movie Interests in This Study as Revealed by the George Washington University Interest Inventory . . . . .	9
3. The Girls' Movie Interests in This Study as Revealed by the George Washington University Interest Inventory . . . . .	14
4. The Reading Interests of the Boys in This Study as Revealed by the George Washington University Interest Inventory . . . . .	19
5. The Reading Interests of the Girls in This Study as Revealed by the George Washington University Interest Inventory . . . . .	24
6. The Boys' Interests in Hobbies in This Study as Revealed by the George Washington University Interest Inventory . . . . .	28
7. The Girls' Interests in Hobbies in This Study as Revealed by the George Washington University Interest Inventory . . . . .	30
8. The Boys' Interests in Games and Toys in This Study as Revealed by the George Washington University Interest Inventory . . . . .	33
9. The Girls' Interests in Games and Toys in This Study as Revealed in the George Washington University Interest Inventory . . . . .	39
10. The Boys' Radio Interests in This Study as Revealed by the George Washington University Interest Inventory . . . . .	45

Table

Page

11.	The Girls' Radio Interests in This Study as Revealed by the George Washington University Interest Inventory . . . . .	49
12.	The Frequency of Behavior Problems of the Sixteen Boys in This Study as Revealed by the Use of the Haggerty-Olson-Wickman Behavior Rating Schedule A . . . . .	56
13.	The Frequency of Behavior Problems of Fourteen Girls as Revealed by the Use of the Haggerty-Olson-Wickman Behavior Rating Schedule . . .	58
14.	Scores on Divisions of Schedule B of the Haggerty-Olson-Wickman Behavior Rating Schedule Made by the Sixteen Boys in This Study . . .	62
15.	Scores on Divisions of Schedule B of the Haggerty-Olson-Wickman Behavior Rating Schedule Made by the Fourteen Girls in This Study . .	66
16.	Scores on Schedules A and B of the Haggerty-Olson-Wickman Behavior Rating Schedule Compared with the Number of Play Interests Derived from the George Washington University Interest Inventory for Sixteen Boys and Fourteen Girls in This Study . . . . .	79

## CHAPTER I

### INTRODUCTION

#### Statement of the Problem

The problem of this study is to determine what degree of relationship exists between a group of fifth-grade children's play interests, their mental ability, and their social behavior.

#### Sources of Data

This study was made in the fifth grade of the Kerens Elementary School. There were thirty children, sixteen boys and fourteen girls, in the group. The data were drawn from the following sources: (1) from observation of the children on the playground and in the classroom; (2) from personal interviews; (3) from the results of a mental ability test, an interest inventory, and two behavior rating schedules; and (4) from literature dealing with children's behavior and social development.

#### Treatment of Data

A report was made and studied of each child from the observations made as to how he participated in the outdoor and indoor games. Reports were also made of the personal interviews.

The first test given was the Otis Quick-scoring Mental Ability Test. The method of taking the test was carefully explained. These tests were scored and the results recorded beginning with the highest intelligence quotient and continuing in descending order.

The George Washington University Interest Inventory was given following the mental test. The inventory was explained to the class and a sample statement checked in order to be sure the children understood the procedure. There was no time limit, but it was explained that the work was to be done as rapidly as possible. The boys' and girls' interests in reading, radio programs, games and toys, and hobbies were tabulated. The scores made on the mental ability test and the number of interests found on the interest inventory were compared. Comparisons were made between the number of interests and the mental scores of the children in the higher intelligence groups with those of the lower group. This material is presented in Chapter II.

Sections A and B of the Haggerty-Olson-Wickman Behavior Rating Schedules were checked and scored. The findings were recorded separately for the boys and girls. Comparisons were made between the child's behavior rating and his own intelligence quotient and number of play interests. This material is presented in Chapter III.

Then comparisons were made between the intelligence

quotients, number of play interests, and behavior ratings of the children in the higher intelligence group with the intelligence quotients, play interests, and behavior ratings of the children in the lower intelligence group.

The purpose of giving the tests and of making the comparisons between the children of the higher intelligence group in this study and the children of the lower intelligence group found in the content of Chapters II, III, and IV is to try to determine the relationship between these children's mental ability, play activities, and social behavior.

#### Significance of the Study

The chief aim of modern education is to educate the whole child in order that he may be an efficient functioning member of society.<sup>1</sup> It is assumed that the more a teacher knows about a child, the greater will be her understanding of the child and she will be in a better position to help him accomplish this aim.

A child reveals much of his nature and needs in his freely chosen play.<sup>2</sup> Educators believe that by studying the child's play interests, a teacher may gain an insight into his nature that tells something of the way he thinks and feels.<sup>3</sup>

---

<sup>1</sup>John S. Brubacher, Modern Philosophies of Education, p. 111.

<sup>2</sup>Margaret Lowenfield, Play in Childhood, p. 36.

<sup>3</sup>John Eisele Davis, Play and Mental Health, p. 8.



Therefore, it seems that a study of the relationship between children's play interests, their mental ability, and their social behavior is significant if a teacher is to guide wisely all phases of child growth and development.

## CHAPTER II

### MENTAL ABILITY AND PLAY INTERESTS

#### Purpose

The purpose of this chapter is to present and discuss the results of the mental ability test and interest inventory given to the children to establish their intelligence quotients and the number of their play interests. Comparisons are made between the number of children's play interests and their intelligence quotients to determine whether there is any relationship between them.

#### Results of the Otis Quick-scoring Mental Ability Test

In December, 1947, the Beta Form A for grades four to nine of the Otis Quick-scoring Mental Ability Test was administered to the pupils in this study to determine the intelligence quotient of each child.

The Otis Test contains eighty questions, or statements, which increase in difficulty. This test is considered by educators to be a reliable one for testing children's mental ability.<sup>1</sup> The procedure for taking the test was

---

<sup>1</sup>Truman Kelly, Tests and Measurements.

carefully explained to the children before they were allowed to begin.

The mental scores resulting from this test are shown in Table 1.

TABLE 1

INTELLIGENCE QUOTIENTS OF THE FIFTH-GRADE PUPILS OF  
THE KERENS ELEMENTARY SCHOOL AS DETERMINED  
BY THE OTIS QUICK-SCORING TEST

Boys	Intelligence Quotient	Girls	Intelligence Quotient
1	107.6	1	101.8
2	106.6	2	100.0
3	102.4	3	100.0
4	96.7	4	91.6
5	96.0	5	90.6
6	92.3	6	88.6
7	86.2	7	87.7
8	85.0	8	85.6
9	79.0	9	84.7
10	76.0	10	83.4
11	75.4	11	81.0
12	74.2	12	80.2
13	73.8	13	80.0
14	69.4	14	75.9
15	64.6		
16	63.2		

According to the author of the test, the average achievement should be an intelligence quotient of 100 for fifty per cent of the group taking the test.<sup>2</sup> Table 1 shows that only six children, three boys and three girls, have intelligence quotients of 100 or slightly higher. The remaining eighty per cent of the children have intelligence quotients from 96.7 down to as low as 63.2.

The low mental scores of these children may show some relation to their environment. All of the children in this group with intelligence quotients above 100, as measured by this test, come from better homes, financially speaking, than the children in the lower intelligence group. They attend school regularly and will be shown to have many play interests and social activities.

Most of the children in the lower intelligence group live on farms. They have to work in the cotton fields until late in November. They come to school on buses, and since the roads are not all-weather roads, their attendance is very irregular during the winter months. They will be shown to have few play interests and social activities.

However, the test used may not measure the education these children derive from their environment.

Arthur S. Otis says in the Manual for the Otis Mental

---

<sup>2</sup>Arthur S. Otis, Manual for the Otis Quick-scoring Mental Ability Test, Beta Form, p. 2.

### Ability Test that:

It is not possible to measure mental ability directly. It is possible to measure the effect mental ability has had in enabling the pupil to acquire certain knowledge and mental skill. If a pupil has grown up with a limited educational opportunity, especially with reference to language, his mental ability is not fairly measured by a test involving language.<sup>3</sup>

### Play Interests

In order to ascertain the play interests of the children in this group, the George Washington Interest Inventory was administered to the group in December, 1947. The method of procedure was carefully explained. There was no time limit but the children understood that they were to finish as quickly as possible. Included in the play interests of this inventory are reading interests, movie interests, radio interests, interests in games and toys, and interests in hobbies.

Movie interests. -- The number of movie interests for the boys in this group is shown in Table 2.

There is only one motion-picture theater in the town, and the "western" picture is the type most frequently shown. The fact that the boys in this study see more western pictures than any other kind may explain, to some extent, their almost unanimous interest in this type of movie. Only one boy of the sixteen is not interested in western movies.

---

<sup>3</sup>Ibid., p. 3.

TABLE 2

THE BOYS' MOVIE INTERESTS IN THIS STUDY AS  
 REVEALED BY THE GEORGE WASHINGTON  
 UNIVERSITY INTEREST INVENTORY

Pupil Number	Comedies	Gangster Films	Historical Movies	Love Stories	Movies about Books Read
1	1	1			1
2	1	1			1
3	1	1	1	1	
4	1	1	1		1
5	1	1	1		
6	1	1	1	1	1
7				1	
8	1	1			
9			1	1	1
10	1	1	1		1
11				1	1
12					
13	1	1			1
14					
15	1	1			
16		1		1	
Total..	11	11	6	6	9

TABLE 2 -- Continued

Pupil Number	Movies about Rich People	News Shorts	Sad Movies	Serial Pictures	Travel Movies	War Movies	Western Movies
1					1	1	1
2		1		1		1	1
3						1	1
4	1	1				1	1
5		1		1		1	1
6		1		1	1	1	1
7	1	1	1	1	1	1	1
8		1		1		1	1
9					1	1	1
10		1		1		1	1
11	1				1		1
12		1	1	1			
13			1	1	1	1	1
14	1						1
15				1			1
16							1
<b>Total</b>	<b>4</b>	<b>8</b>	<b>3</b>	<b>9</b>	<b>6</b>	<b>11</b>	<b>15</b>

TABLE 2 -- Continued

Pupil Number	To Get Pictures of Movie Stars	To Go to Movies Once a Week	To Play Movies	To See Some Movies Twice	To Tell about Movies You See	Total
1	1					7
2	1	1	1			10
3		1				8
4		1	1		1	11
5		1		1	1	10
6	1				1	12
7	1	1		1	1	12
8					1	7
9	1		1	1	1	11
10		1		1	1	11
11		1				5
12	1	1			1	6
13		1	1		1	11
14					1	4
15		1			1	6
16				1	1	5
Total...	6	10	4	5	12	



He is in the lower intelligence group as measured by the test.

Comedies, gangster films, and war pictures are movies next to the western in popularity. There are eleven boys interested in each of these types of movies. Six boys of these eleven have intelligence quotients above ninety. The other five have intelligence quotients below eighty-five.

Movies about books they have read interested five boys in the higher intelligence level and four boys in the lower level. Serial pictures are of more interest to boys with lower mental scores in this group. Six boys in the lower mental group are interested in this type of picture as compared with three in the higher intelligence group.

The interest in news shorts is equally divided. There are four boys in each group who enjoy news shorts.

Historical movies, love stories, and travel movies are of interest to six boys. There are four boys with higher intelligence quotients who are interested in historical movies as compared with two in the lower group who are interested in this type of movie. There are two boys in the higher group interested in love stories, travel movies, and four boys in the lower group interested in love stories and travel movies. There is only one boy in the higher group interested in movies about rich people and three boys in the lower group interested in this kind of movie. There are

three boys in the lower group but none in the higher group interested in sad movies.

In other interests pertaining to movies, there are twelve boys who like to tell about the movies they see. Nine of these boys are in the lower intelligence group, and three boys are in the higher group. There are ten boys who like to go to the movies once a week. Four of these boys are in the higher intelligence group and six boys are in the lower group. The two groups are evenly distributed in their interest of getting pictures of movie stars and in playing movies. There were three in each group who liked these movie activities. Only one boy in the higher group likes to see the same movie twice as compared with four boys in the lower group who enjoy the same movie twice.

The six boys whose intelligence quotients are above ninety have a total of seventy movie interests as compared to the ten boys whose intelligence quotients are below ninety with a total of sixty-six movie interests.

The movie interests of the girls in this study are presented in Table 3. The arrangement is the same as that for the boys. The girls are listed numerically in descending order beginning with the girl who has the highest intelligence quotient.

Comedies held the greatest interest of all types of movies for the girls in this study with westerns running a

TABLE 3

THE GIRLS' MOVIE INTERESTS IN THIS STUDY AS  
REVEALED BY THE GEORGE WASHINGTON  
UNIVERSITY INTEREST INVENTORY

Pupil Number	Comedies	Gangster Films	Historical Movies	Love Stories	Movies about Books Read
1	1				1
2	1	1	1	1	1
3	1			1	1
4	1	1	1		1
5	1	1		1	1
6	1		1	1	1
7	1	1		1	1
8	1			1	
9	1			1	
10	1			1	
11	1	1			1
12	1				1
13	1	1			
14	1	1		1	
Total....	14	7	3	9	9

TABLE 3 -- Continued

Pupil Number	Movies about Rich People	News Shorts	Sad Movies	Serial Pictures	Travel Movies	War Movies	Western Movies
1	1			1			1
2			1	1			1
3	1		1				
4	1	1	1	1	1		
5	1			1	1		1
6							1
7	1			1	1	1	1
8			1	1		1	1
9	1						1
10	1		1				1
11			1				1
12				1			1
13							1
14							1
<b>Total.</b>	7	1	6	7	3	2	12

TABLE 3 -- Continued

Pupil Number	To Get Pictures of Movie Stars	To Go to Movies Once a Week	To Play Movies	To See Some Movies Twice	To Tell about Movies You See	Total
1	1	1	1		1	9
2	1		1		1	12
3	1	1			1	7
4						9
5	1	1	1	1		12
6	1		1		1	8
7	1	1	1		1	13
8	1			1	1	9
9	1	1			1	7
10	1	1	1		1	9
11	1	1			1	7
12	1	1		1	1	9
13	1	1				5
14	1	1				5
<b>Total..</b>	13	10	6	3	10	

close second. All fourteen girls show an interest in comedies and twelve are interested in western movies. The two who dislike western movies are in the higher intelligence group.

Love stories and movies about books they have read are the movies next highest in appeal with nine girls interested in each type. Three girls in the higher intelligence group are interested in love stories as compared with six in the lower group. All five girls whose intelligence quotients are above ninety are interested in movies about books they have read. Four girls of the ten in the lower intelligence group are interested in this type of movie.

Gangster films, movies about rich people, and serial pictures each has a score of seven interests. There are four girls in the lower intelligence group interested in gangster films as compared with three girls in the higher group interested in this type of picture. Four of the five girls in the higher group like movies about rich people, while three in the lower group are interested in this type of movie. Historical movies, news shorts, and travel movies are of no interest to any of the girls, in the lower intelligence group. Three girls in the higher group are interested in these types of movies.

In the activities pertaining to movies, getting pictures of movie stars appeals to thirteen of the girls; and six of

them, three in the higher group and three in the lower group, enjoy playing movies. Going to movies once a week and telling about movies they have seen have ten interest scores each, rather evenly distributed. Three girls in the lower intelligence group like to see the same movie twice. None of the girls in the higher group cares to see the same movie twice.

The total number of movie interests for the five girls whose intelligence quotients are above ninety is forty-nine as compared with a total of seventy-two interests for the nine girls in the lower group.

Reading interests. -- The reading interests of the boys in this study are tabulated in Table 4.

The results from Table 4 show that funny papers and comic books are the most interesting reading material in this category to these boys in this study. All of the boys in the class like funny papers and comic books. As the intelligence quotients decrease there are few other reading interests.

Riddles and jokes are the next most popular reading material to the boys in the higher intelligence group. A few of the boys in the lower group are interested in these types of children's literature. The adventure stories and fairy tales have a score of eight interests rather equally distributed between the higher and middle groups. Only boys

TABLE 4

THE READING INTERESTS OF THE BOYS IN THIS STUDY  
AS REVEALED BY THE GEORGE WASHINGTON  
UNIVERSITY INTEREST INVENTORY

Pupil Number	Types of Reading Material Enjoyed by the Fifth-grade Boys					
	Adventure Stories	Animal Stories	Books about Hobbies	Books with Historical Background	Fairy Tales	Fact Ma- terial
1		1			1	
2	1	1		1	1	
3					1	
4		1	1	1	1	1
5	1			1		
6	1	1		1	1	1
7	1	1			1	
8	1				1	
9		1			1	
10	1	1				
11	1	1				
12	1	1				
13		1				
14	1	1				
15						
16						
<b>Total...</b>	<b>9</b>	<b>11</b>	<b>1</b>	<b>4</b>	<b>8</b>	<b>2</b>



TABLE 4 -- Continued

Pupil Number	Types of Reading Material Enjoyed by the Fifth-grade Boys					
	Funny Pa- pers and Comic Books	Love Stories	Mystery Stories	News in the Paper	Poetry	Riddles and Jokes
1	1		1			
2	1		1	1	1	1
3	1	1	1			1
4	1		1	1		1
5	1		1	1		1
6	1	1	1	1	1	1
7	1	1	1		1	1
8	1		1			1
9	1					1
10	1		1			1
11	1					1
12	1			1		1
13	1					1
14	1					1
15	1					
16	1		1			
<b>Total...</b>	16	3	10	5	3	14

TABLE 4 -- Continued

Pupil Number	Types of Reading Material Enjoyed by the Fifth-grade Boys						Total
	Stories about Real People	Stories about Other Lands	Stories about Sports	To Get Books from Library	To Read Aloud	To Read to Yourself	
1	1	1				1	7
2	1	1	1		1	1	14
3	1	1	1			1	9
4	1		1	1		1	13
5	1	1	1	1	1	1	12
6	1	1	1			1	11
7	1					1	10
8	1	1	1			1	10
9					1		8
10	1		1		1		8
11			1		1		6
12					1		5
13	1		1				4
14							4
15							1
16					1		3
<b>Total.</b>	10	6	9	2	7	10	

in this group with higher intelligence quotients are interested in books with historical background and stories about other lands. Books about hobbies, love stories, and poetry rate few interests with this group. The interests shown in these types of literature are all by boys in the higher intelligence groups. Four of the boys in the higher intelligence group like to read newspapers compared to one in the lower intelligence group.

In reading activities ten boys like to read to themselves. None of these boys are in the lowest intelligence group. There are seven boys who like to read aloud. One of them is number 16 of the lowest group. But none of the other boys likes to read aloud or silently. Only two boys like to get books from the library.

From the total number of reading interests it can be seen that the boys in the higher intelligence group have a far greater number of reading interests than the boys in the lower group. The six boys with the higher intelligence quotients have a total of seventy reading interests as compared to the thirty interests of the six boys with the lowest intelligence scores.

The lack of reading interests in the lower intelligence group may be due to their lack of reading ability. Their reading interests are, perhaps, limited to what they can read.

The reading interests of the girls in this group are compiled in Table 5.

From Table 5 it is seen that all of the girls in this study are interested in funny papers, comic books, and fairy stories. Riddles, jokes, and mystery stories are interesting to twelve girls. There are ten girls interested in adventure stories, animal stories, and stories about real people. The girls in the lower intelligence group have fewer reading interests than the girls have in the higher group.

The remaining types of reading material listed in Table 5 have little interest for the girls in the lower intelligence group. Eight girls read newspapers, six read love stories and poetry. These girls who read these types of reading material are all in the higher group or the middle group in intelligence. Only girls in the highest group are interested in books about hobbies, fact material, and books with historical background. These girls in the lowest intelligence group may not be able to read literature of this type. This may explain their lack of interest in it.

The six girls in the higher intelligence group have a total of sixty-seven reading interests compared to the fifty reading interests of the eight girls whose intelligence quotients are below ninety.

TABLE 5

THE READING INTERESTS OF THE GIRLS IN THIS STUDY  
AS REVEALED BY THE GEORGE WASHINGTON  
UNIVERSITY INTEREST INVENTORY

Pupil Number	Types of Reading Material Enjoyed by the Fifth-grade Girls					
	Adventure Stories	Animal Stories	Books about Hobbies	Books with Historical Background	Fairy Tales	Fact Ma- terial
1		1		1	1	1
2	1	1			1	
3	1	1	1		1	
4		1			1	
5	1	1	1		1	1
6	1				1	
7	1	1			1	
8	1	1			1	
9	1				1	
10	1	1			1	
11					1	
12	1	1			1	
13		1			1	
14	1				1	
Total...	10	10	2	1	14	2

TABLE 5 -- Continued

Pupil Number	Types of Reading Material Enjoyed by the Fifth-grade Girls					
	Funny Pa- pers and Comic Books	Love Stories	Mystery Stories	News in the Paper	Poetry	Riddles and Jokes
1	1		1			1
2	1	1	1	1		1
3	1	1	1	1		
4	1		1		1	1
5	1	1	1	1		1
6	1	1	1	1	1	
7	1	1	1		1	1
8	1	1	1	1	1	
9	1			1	1	
10	1		1	1	1	1
11	1		1	1		1
12	1		1			1
13	1					1
14	1		1			1
Total...	14	6	12	8	6	12

TABLE 5 -- Continued

Pupil Number	Types of Reading Material Enjoyed by the Fifth-grade Girls						Total
	Stories about Real People	Stories about Other Lands	Stories about Sports	To Get Books from Library	To Read Aloud	To Read to Your- self	
1		1			1	1	10
2	1	1	1	1	1	1	14
3	1	1			1	1	13
4	1					1	8
5	1				1	1	13
6	1					1	9
7	1	1	1			1	12
8	1	1				1	11
9	1				1		6
10	1				1	1	8
11	1				1		6
12							6
13			1		1	1	5
14			1			1	5
<b>Total..</b>	10	5	4	1	8	11	

Interests in hobbies. -- The boys' interests in hobbies are shown in Table 6.

The results from Table 6 show that all of the boys in this study are interested in sports as a hobby. Pets and gardening are listed by most of the boys as hobbies. The eight interests in drawing and making collections are evenly distributed among the boys of both the higher and lower intelligence groups. The hobbies that require a great deal of skill and study, such as constructing things, nature study, writing stories or poems, and marionettes, are listed by only a few boys as interests. All of these boys are in the higher intelligence group.

The six boys with the highest intelligence quotients have a total of thirty-nine interests in hobbies as compared to twenty interests of the boys with lower intelligence quotients.

The girls' hobby interests are listed in Table 7. Cooking, drawing, and music are hobby interests of thirteen girls in this study, as shown by Table 7. Twelve girls are interested in gardening, making collections, and clay modeling. Few of the girls in this study are interested in the hobbies that require a great deal of skill and thought. These girls are in the higher intelligence groups. Two girls, both in the higher level mentally, are interested in writing stories or poems. Four of this higher group are interested in nature study.



TABLE 6

THE BOYS' INTERESTS IN HOBBIES IN THIS STUDY AS  
REVEALED BY THE GEORGE WASHINGTON  
UNIVERSITY INTEREST INVENTORY

Pupil Number	Hobbies in Which Fifth-grade Boys Were Interested					
	Clay Model- ing	Cooking	Construct- ing Things	Drawing	Gardening	Making Collec- tions
1	1		1	1		1
2	1			1	1	
3						
4	1		1	1	1	1
5	1					
6	1	1		1	1	1
7	1		1		1	1
8		1		1	1	
9		1		1	1	1
10						
11			1	1	1	1
12	1			1	1	
13						1
14					1	1
15						
15						
Total..	7	3	4	8	9	8

TABLE 6 -- Continued

Pupil No.	Hobbies in Which Fifth-grade Boys Were Interested							Total
	Marion- ettes	Music	Nature Study	Pets	Sewing	Sports	Writing Stories or Poems	
1				1		1		6
2		1	1	1		1	1	8
3	1					1		2
4				1		1		7
5		1	1	1		1		5
6	1	1	1			1	1	10
7		1		1		1		7
8				1		1		5
9			1	1		1	1	8
10				1		1		2
11						1		5
12		1				1		5
13						1		2
14				1		1		4
15		1		1		1		3
16						1		1
<b>Total</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>10</b>	<b>0</b>	<b>16</b>	<b>3</b>	

TABLE 7

THE GIRLS' INTERESTS IN HOBBIES IN THIS STUDY AS  
REVEALED BY THE GEORGE WASHINGTON  
UNIVERSITY INTEREST INVENTORY

Pupil Number	Hobbies in Which Fifth-grade Girls Were Interested					
	Clay Model- ing	Cooking	Construct- ing Things	Drawing	Gardening	Making Collec- tions
1	1			1		
2	1	1	1	1	1	1
3		1	1	1		1
4	1	1	1	1	1	1
5	1	1	1		1	1
6	1	1	1	1	1	1
7	1	1		1		
8	1	1		1		1
9		1		1		
10	1	1		1	1	1
11		1		1	1	
12	1	1		1	1	1
13	1	1		1	1	1
14	1	1		1	1	1
Total..	11	13	5	13	9	10

TABLE 7 -- Continued

Pupil Number	Hobbies in Which Fifth-grade Girls Were Interested							Total
	Merion- ettes	Music	Nature Study	Pets	Sewing	Sports	Writing Stories or Poems	
1	1	1		1	1			6
2		1	1	1	1	1		11
3		1		1	1	1	1	9
4	1	1	1	1	1	1	1	13
5	1	1	1	1	1	1		11
6		1		1		1		9
7	1	1		1	1	1		7
8		1			1	1		5
9		1		1	1			5
10	1	1	1	1		1		6
11		1			1	1		6
12		1		1	1	1		9
13				1	1	1		8
14		1		1	1	1		9
<b>Total.</b>	<b>5</b>	<b>13</b>	<b>4</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>2</b>	

The total number of interests in hobbies for these girls shows fifty interests for the six girls with the higher intelligence quotients compared with sixty-two interests for the remaining eight girls whose intelligence quotients are below ninety.

Interests in games and toys. -- The boys' interests in games and toys are presented in Table 8.

From a study of Table 8 it can be seen that all of the different phases of play are represented in the games and toys in this category. There are active games and sports that provide physical play. There are games, checkers, and puzzles for the mental phase of play. Dancing, skating, and ping-pong contribute to the rhythmic development in play. Many of the games are a combination of the different elements of play.

The active games appeal to the greatest number of boys in this study, as may be seen in Table 8 by the number interested in baseball, boxing, football, bicycle riding, hiking, swimming, and wrestling. These games are of equal interest to the boys in the higher and lower intelligence groups.

Checkers has the greatest appeal in the list of mental games. Twelve boys are interested in checkers. Six boys, four in the higher group and two in the lowest, like puzzles. With the exception of skating, the rhythmic games

TABLE 8

THE BOYS' INTERESTS IN GAMES AND TOYS IN THIS  
STUDY AS REVEALED BY THE GEORGE WASHINGTON  
UNIVERSITY INTEREST INVENTORY

Pupil Number	Games and Toys						
	Base- ball	Blocks	Boxing	Cards	Check- ers	Dancing	Dressing Up
1	1		1	1	1		
2	1		1	1	1		1
3	1		1	1	1		
4	1		1	1	1		
5	1		1		1		
6	1		1		1	1	1
7	1		1	1	1	1	
8	1		1	1			
9	1		1				
10	1				1		1
11	1		1	1	1		
12	1		1	1	1		
13							
14	1			1	1		1
15	1		1		1		
16	1		1				
Total...	15	0	13	9	12	2	4

TABLE 8 -- Continued

Pupil Number	Games and Toys						
	Experiment- ing with a Chemistry Set	Flying Kites	Foot- ball	Going to Parties	Having a Gang	Hide and Seek	Hiking
1	1	1	1	1	1	1	1
2			1	1			1
3			1	1			1
4		1	1	1	1	1	1
5	1	1	1		1		1
6		1	1	1	1	1	1
7	1	1		1	1		1
8		1	1	1	1	1	1
9			1				
10		1	1	1	1	1	1
11	1	1	1	1	1	1	1
12		1	1	1	1	1	
13						1	1
14	1		1		1	1	1
15		1	1				1
16		1	1				1
<b>Total..</b>	<b>5</b>	<b>11</b>	<b>14</b>	<b>10</b>	<b>10</b>	<b>9</b>	<b>14</b>

TABLE 8 -- Continued

Pupil Number	Games and Toys				
	Horseback Riding	Jacks	Jumping Rope	Making Things with Con- struction Set	Marbles
1	1			1	1
2	1			1	1
3				1	1
4	1				
5	1			1	1
6	1				1
7	1	1		1	1
8	1			1	1
9					
10	1				1
11	1	1			1
12	1				1
13	1	1	1		1
14					1
15	1				
16					1
<b>Total..</b>	12	3	1	6	13



TABLE 8 -- Continued

Pupil No.	Games and Toys						
	Playing Catch	Playing Cowboy	Playing Doctor or Nurse	Playing House	Playing Ping- pong	Playing School	Playing Tag
1	1	1					1
2	1	1			1		1
3							
4	1	1		1			1
5	1	1			1		1
6	1	1			1		1
7	1	1					1
8	1						1
9	1	1					
10	1	1					1
11	1	1					1
12	1						1
13	1						
14	1	1					
15	1						
16	1						
<b>Total</b>	<b>15</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>10</b>

TABLE 8 -- Continued

Pupil Number	Games and Toys							Total
	Playing Dolls or Pa- per Dolls	Play- ing War	Puz- zles	Rid- ing Bicy- cle	Skat- ing	Swim- ming	Wres- tling	
1			1	1	1	1	1	23
2		1	1	1	1	1	1	18
3				1		1	1	11
4				1	1	1	1	21
5		1	1	1			1	18
6		1	1	1	1	1	1	21
7				1	1	1	1	17
8		1		1	1	1	1	18
9		1		1		1	1	8
10		1		1		1	1	9
11		1		1	1	1	1	12
12				1	1	1	1	17
13				1		1		11
14		1						13
15			1	1				9
16			1	1		1	1	11
<b>Total...</b>	0	8	6	15	8	13	13	

hold little interest for any of these boys. Two boys of the higher intelligence group like dancing, and three of this group like ping-pong. Few of these boys are interested in what they call "sissy" games, such as jacks, jumping rope, dressing up, and playing house. Experimenting with a chemistry set interested three boys in the higher group and two in the lower group. Making things with a construction set appeals to four boys in the highest group. Ten boys, distributed throughout the entire group, like to go to parties.

The total number of play interests of the six boys with higher intelligence is 112. The total number of play interests for the ten boys in this group who have intelligence quotients below ninety is 125.

The girls' interests in games and toys are presented in Table 9. From studying Table 9 it is seen that most of the girls in this group are interested in the active games; baseball, playing catch, tag, horseback riding, jumping rope, bicycle riding, and swimming. The rhythmic games are of much more interest to these girls than they are to boys in this class, as shown by Tables 8 and 9. Thirteen of these girls like dancing, and twelve like skating. Four of the girls in the higher group like ping-pong.

Thirteen of these girls like to go to parties and eight like to have gangs. Most all of them like to play

TABLE 9

THE GIRLS' INTERESTS IN GAMES AND TOYS IN THIS  
STUDY AS REVEALED IN THE GEORGE WASHINGTON  
UNIVERSITY INTEREST INVENTORY

Pupil Number	Games and Toys						
	Base- ball	Blocks	Boxing	Cards	Check- ers	Dancing	Dressing Up
1				1	1	1	1
2	1			1	1	1	1
3				1	1	1	1
4	1		1	1	1	1	1
5	1			1	1	1	1
6	1			1	1	1	1
7	1					1	1
8	1			1		1	
9	1						
10	1			1	1	1	1
11	1			1	1	1	1
12	1			1	1	1	1
13	1					1	1
14	1			1	1		
Total...	12	0	1	12	11	13	12

TABLE 9 -- Continued

Pupil Number	Games and Toys						
	Experiment- ing with a Chemistry Set	Flying Kites	Foot- ball	Going to Parties	Having a Gang	Hide and Seek	Hiking
1				1		1	1
2	1	1		1	1	1	
3				1			1
4		1	1	1		1	
5		1		1	1	1	
6	1	1		1	1	1	
7				1	1	1	1
8				1	1	1	
9		1		1	1	1	1
10				1		1	1
11				1		1	1
12					1		
13		1		1			1
14				1	1		
<b>Total...</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>13</b>	<b>8</b>	<b>10</b>	<b>8</b>

TABLE 9 -- Continued

Pupil Number	Games and Toys				
	Horseback Riding	Jacks	Jumping Rope	Making Things with Con- struction Set	Marbles
1			1		
2	1	1	1		1
3				1	
4	1	1	1		1
5	1	1	1	1	1
6	1	1	1		
7	1		1		
8					
9	1	1	1		
10	1	1	1		1
11	1	1	1		1
12	1	1	1		1
13	1	1	1		
14	1				
<b>Total....</b>	<b>11</b>	<b>9</b>	<b>11</b>	<b>2</b>	<b>7</b>

TABLE 9 -- Continued

Pupil No.	Games and Toys						
	Playing Catch	Playing Cowboy	Playing Doctor or Nurse	Playing House	Playing Ping- pong	Playing School	Playing Tag
1	1	1	1	1	1		1
2	1	1	1	1	1		1
3		1	1	1		1	1
4	1	1	1	1	1	1	1
5	1		1	1		1	1
6	1		1	1	1	1	1
7	1	1	1	1			
8	1	1	1	1		1	1
9	1	1	1	1		1	1
10	1	1	1	1			1
11	1		1				
12	1		1	1		1	1
13	1	1	1	1		1	1
14							1
<b>Total</b>	<b>12</b>	<b>9</b>	<b>13</b>	<b>12</b>	<b>4</b>	<b>8</b>	<b>13</b>

TABLE 9 -- Continued

Pupil Number	Games and Toys							Total
	Playing Dolls or Paper Dolls	Playing War	Puzzles	Riding Bicycle	Skating	Swimming	Wrestling	
1	1			1	1			16
2	1		1	1	1	1		25
3	1	1	1	1	1	1		18
4	1			1	1	1	1	26
5	1		1	1				22
6	1		1	1		1		29
7	1			1	1	1		17
8			1	1	1	1		12
9	1	1	1	1	1	1		26
10	1		1	1	1	1		17
11			1	1	1	1		13
12	1			1	1	1		16
13	1			1	1	1		16
14			1		1	1		9
Total..	11	2	9	13	12	12	1	



games in which there is a great deal of pretending or acting, including such games as playing dolls or paper dolls and dressing up. A number of girls in the different intelligence levels are interested in playing marbles, flying kites, and playing cowboy. Only two girls, both in the highest intelligence group, like experimenting with a chemistry set and making things with a construction set.

The total score for the six girls whose intelligence quotients placed them in the higher group indicated 136 play interests in Table 9 in comparison with 100 play interests for the eight girls in the lower intelligence group.

Radio interests. -- The radio interests of the boys in the fifth grade are shown in Table 10.

From the results in Table 10 it is obvious that the funny programs are popular with most of the boys. Fourteen boys of this group of sixteen like funny programs. Mystery programs and quiz programs are next in popularity. There are thirteen boys who like mystery programs and twelve who like quiz programs. Continued programs appeal to five boys in the higher intelligence group and to four in the lower group. Programs with much action interested all the boys with the higher intelligence quotients. The interest in action programs in the lower intelligence group was noticeably less than for the higher intelligence levels. Popular music has five scores, two of which are in the highest group and three are in the mediocre group. Pupil 2 with an

TABLE 10

THE BOYS' RADIO INTERESTS IN THIS STUDY AS REVEALED  
BY THE GEORGE WASHINGTON UNIVERSITY  
INTEREST INVENTORY

Pupil Number	Types of Radio Programs				
	Classical Music	Continued Programs	Funny Programs	Mystery Programs	News Broadcasts
1		1	1	1	
2	1	1	1		1
3		1	1	1	
4		1	1	1	
5		1	1	1	1
6			1	1	1
7				1	1
8			1	1	
9			1		1
10			1	1	
11		1	1	1	1
12			1		
13		1	1	1	
14		1	1	1	
15		1	1	1	
16				1	
<b>Total.</b>	<b>1</b>	<b>9</b>	<b>14</b>	<b>13</b>	<b>6</b>

TABLE 10 -- Continued

Pupil Number	Types of Radio Programs				
	Popular Music	Programs about Children	Programs with Much Action	Quiz Programs	Science Programs
1		1	1	1	
2			1	1	
3	1		1	1	
4		1	1		
5			1	1	
6	1	1	1	1	
7	1	1			
8		1	1	1	
9	1	1		1	
10			1	1	
11	1	1			
12			1		
13				1	
14				1	
15				1	
16				1	
<b>Total</b>	<b>5</b>	<b>7</b>	<b>9</b>	<b>12</b>	<b>0</b>

TABLE 10 -- Continued

Pupil Number	Types of Radio Programs				Total
	Story Hour	To Enter Contests	To Have Radio on While Studying	To Send for Free Material	
1		1	1	1	9
2		1		1	8
3				1	7
4				1	6
5		1	1	1	9
6	1			1	9
7				1	4
8		1			6
9	1		1	1	8
10	1	1		1	6
11		1			6
12		1			3
13	1				5
14	1				5
15	1			1	6
16				1	3
<b>Total..</b>	6	7	3	12	

intelligence quotient of 106.6, as shown in Table 1, is the only boy in this group who shows an interest in classical music programs. Programs about children are well liked by seven of the boys in the higher group. Twelve of the boys like to send for free materials and seven like to enter radio contests.

From a study of the total number of radio interests, it can be seen that the interests of this group of boys are equally distributed among boys of different intelligence quotients until the five lowest are reached. Two of these boys have three radio interests each; two have five interests each; and one has six interests in radio programs.

The girls' interests in radio programs are presented in Table 11.

All of the girls in this study like funny programs, as shown in Table 11. Mystery programs and continued programs run a close second in popularity with twelve interests each. Popular music, also, rated twelve scores. Pupils 2 and 4, who have high intelligence quotients, and who are piano students, are the only girls in this group who enjoy classical music on the radio. Twelve girls like children's programs and ten like programs with much action. Nine of these girls like to enter contests and seven like to send for free materials.

TABLE 11

THE GIRLS' RADIO INTERESTS IN THIS STUDY AS REVEALED  
BY THE GEORGE WASHINGTON UNIVERSITY  
INTEREST INVENTORY

Pupil Number	Types of Radio Programs				
	Classical Music	Continued Programs	Funny Programs	Mystery Programs	News Broadcasts
1		1	1	1	
2	1	1	1	1	1
3		1	1	1	
4	1	1	1	1	1
5		1	1	1	1
6		1	1	1	1
7		1	1	1	
8		1	1	1	
9			1	1	
10		1	1	1	
11		1	1		
12			1		1
13		1	1	1	
14		1	1	1	
<b>Total.</b>	2	12	14	12	5

TABLE 11 -- Continued

Pupil Number	Types of Radio Programs				
	Popular Music	Programs about Children	Programs with Much Action	Quiz Programs	Science Programs
1		1		1	
2	1	1	1	1	
3	1	1		1	
4	1	1			
5	1	1	1		
6	1	1	1	1	
7	1	1	1	1	
8	1	1	1	1	
9	1		1		
10	1	1	1	1	
11		1	1	1	
12	1	1	1	1	
13	1	1		1	
14	1		1	1	
<b>Total.</b>	<b>12</b>	<b>12</b>	<b>10</b>	<b>11</b>	<b>0</b>

TABLE 11 -- Continued

Pupil Number	Types of Radio Programs				Total
	Story Hour	To Enter Contests	To Have Ra- dio on While Studying	To Send for Free Material	
1	1	1			7
2	1	1	1	1	13
3	1				7
4	1	1		1	10
5					9
6		1			9
7	1	1	1	1	10
8	1	1		1	9
9				1	5
10	1	1			9
11		1		1	7
12			1		7
13			1	1	8
14	1	1			7
<b>Total..</b>	<b>8</b>	<b>9</b>	<b>4</b>	<b>7</b>	



From the total results shown in Table 11, there is not a great deal of difference in the number of radio interests of the girls in the higher intelligence group and the number of radio interests of the girls in the lower group. The total number of interests for the six girls in the higher group is fifty-five as compared to sixty-two interests for the ten girls in the lower group.

#### Summary

From the results of this study of these five play interests -- movie interests, reading interests, interests in games and toys, and radio interests -- and their relationship to mental ability, it seems that for the children in this group the number of play interests decreases as the mental ability decreases. However, other factors, such as environment and experience, may also have been an influence in determination of the reactions of the children in this study.

## CHAPTER III

### MENTAL ABILITY AND BEHAVIOR

The concept of needs which come from the innate physical organism of the child, his experiences, and the demands of society give a functional basis for the understanding of all behavior of children.<sup>1</sup> This concept is dynamic rather than static. It implies the necessity for making continual adjustment. Olson suggested this point of view when he declared that to varying degrees all children are problem children; that is, children with problems in adjustment.<sup>2</sup>

James Edward Rogers in his study of children, their behavior, and play activities, says:

We cannot separate a child's body, his mind and his emotional nature into a series of air-tight cells. They must be interwoven and balanced. Play is the most important integrator. In a game under good leadership, the child's emotions, mind and body are working together.

Play is the great integrator of the child's emotions, mind and body. The right sort of play prepares him to take his place in society as an individual with well-rounded development and without handicaps. Many of the complexes that cause unhappiness and wasted powers in adult life may be traced to a lack of play expression in childhood, especially to a lack of social contacts with

---

<sup>1</sup>Daniel A. Prescott, Emotion and the Educative Process, pp. 111-112.

<sup>2</sup>Willard C. Olson, Problem Tendencies in Children, p. 3.

other children in play. And beyond all its values for health, character, mental and social poise, play is worthwhile in its own right for the current and present happiness it brings to children.<sup>3</sup>

Rating schedules were used in making this study of the children's behavior. The schedules are divided into two sections, A and B. Schedule A deals with the overt behavior problems while Schedule B deals with personal characteristics.

Schedule A is a list of behavior problems which have been listed on the schedule in order of their frequency, as reported for a group of elementary school children. To use the schedule, the teacher records on it the problem manifested during her experience with each child. The frequency of occurrence of each problem determines the rating assigned. Each problem and each level of occurrence have been assigned a statistical weighting based on seriousness and frequency. The score for a child is the sum of weightings for the problem recorded. High scores indicate the presence of few and less-serious problems.<sup>4</sup>

Discussion of Scores Made on Schedule A of  
the Heggerty-Olson-Wickman Behavior  
Rating Schedule

The frequency of occurrence of behavior problems listed in Schedule A is shown in Table 12 for the boys and in Table 13

---

<sup>3</sup>James Edward Rogers, The Child and Play, pp. 173-174.

<sup>4</sup>Olsen, op. cit., p. 3.

for the girls in this group. This schedule consists of problems listed in the order in which they most frequently occur among elementary school children.

It will be seen from Tables 12 and 13 that the most persistent problem in this group is that of disinterest in school work. This was also the problem noted most often by Haggerty in his study of eight hundred Minneapolis school children.<sup>5</sup>

The three boys in this study who made scores of zero in the disinterest trait on the Haggerty-Olson-Wickman Schedule A are in the highest intelligence group. The disinterest trait occurs once or twice in the behavior ratings of the five boys in this study whose intelligence quotients are between eighty and ninety. All of the boys in the lowest group have frequent occurrences of this trait. In these cases, disinterest in school work may be explained by the fact that curricular material is not interesting to them, since it contains mainly subject matter found in textbooks and is dependent on the usual scholastic skills for success.

Defiance to discipline rates as the next most frequent behavior problem among the boys in this group. This trait is well distributed among this group of boys regardless of

---

<sup>5</sup>M. E. Haggerty, "The Incidence of Undesirable Behavior in Public School Children," Journal of Educational Research, XII (September, 1925), 103-104, 106.



TABLE 12 -- Continued

Behavior Problems	Pupil Number															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stealing....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0
Truancy.....	0	0	0	0	0	0	0	0	18	0	0	0	0	0	12	21
Obscene notes, talk, or pictures..	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

their intelligence quotients. In most cases this trait occurs only once or twice. Unnecessary tardiness, temper outbursts, and marked overactivity are moderately prevalent behavior problems. Lying, cheating, and bullying occur in two cases. The problem of truancy occurs in the behavior ratings of three boys in the lowest intelligence group. Pupil number 15, whose intelligence quotient is 64.6, is the only boy who has stealing checked on his behavior rating. These more serious behavior problems -- truancy, lying, and stealing -- do not occur in the ratings of any of the boys in the higher intelligence group.

The behavior scores of the girls in this study are recorded in Table 13.

Disinterest in school work is the behavior problem that occurs most frequently in the behavior rating of the girls in



TABLE 13 -- Continued

Behavior Problems	Pupil Number													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Truancy.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Obscene notes, talk, or pic- tures.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0

this study. Neither of the four girls whose intelligence quotients are above ninety is scored in this behavior trait. This trait occurs occasionally in the ratings of the six girls whose intelligence scores are between eighty and ninety. The three girls whose intelligence quotients are the lowest in the group show frequent occurrences of the disinterest-in-school-work behavior trait.

The problem of unpopularity with the children occurs three times, and temper outbursts occurs twice on the behavior rating schedule. Imaginative lying appears once.

The first four girls have a behavior rating of zero on the behavior rating schedule. Their intelligence quotients are above ninety. There seems to be no appreciable difference in the frequency of behavior problems in the ratings of the remaining ten girls who are in the lower intelligence group.



It might be well to examine the problems found in this group in the light of Wickman's study to determine the relative seriousness as rated by mental hygienists. In the report published in 1928, lack of interest in work was said to be of considerable importance, ranking twenty-sixth in the list of problems. Restlessness was rated of little more than slight importance and was fortieth on the list. Disobedience was rated the same as restlessness. Tardiness was rated slightly less important than disobedience. The mental hygienists rated bullying along with cruelty in sixth place and of considerable importance.<sup>6</sup>

There have been a number of changes in the attitude of mental hygienists toward these problems since Wickman's study was first published. Restlessness was considered more serious by 1940 mental hygienists than by their colleagues of 1928. They agreed that tardiness was still only slightly undesirable.<sup>7</sup>

Discussion of Scores Made on Schedule B of  
the Haggerty-Olson-Wickman Behavior  
Rating Schedule

There are four sections in Schedule B of the Haggerty-Olson-Wickman Behavior Rating Schedule: Division I, mental traits; Division II, physical traits; Division III, social

---

<sup>6</sup>E. K. Wickman, Children's Behavior and Teachers' Attitudes, pp. 126-128.

<sup>7</sup>"A Study of Teachers' and of Mental-hygenists' Ratings of Certain Behavior Problems of Children," Journal of Educational Research, XXXVI (December, 1942), 297-300.

traits; and Division IV, emotional traits. All of the traits are qualified by five descriptive phrases which have different weightings according to their relation to overt behavior problems. The score is one of problem tendencies.<sup>8</sup>

The diagnostic use of the schedule is outlined by Olson as follows:

Schedule A is designed to locate problem children through record of behavior problems. Schedule B attempts to get at personal characteristics on a variety of traits regardless of whether or not the behavior described would be called a behavior problem. It appeared that the latter device would yield scores that would be indicative of problem tendencies and have diagnostic significance, providing the relationship of each amount of each trait to overt behavior problems could be determined. Such information would aid in identifying problem children in the absence of any observed behavior or in pointing out such children as are potential problems.<sup>9</sup>

Summary of the scores for the boys on Schedule B. --

Table 14 summarizes the scores for the boys on the divisions of Schedule B. The items with weightings of 4 or 5 which were checked for each child are made into a narrative form according to the "word picture" method described by Olson.<sup>10</sup>

The social adjustment of pupil 3 is hindered by his defiance of authority. He complies slowly with the wishes of

<sup>8</sup>Willard C. Olson, Problem Tendencies in Children, p. 8.

<sup>9</sup>Ibid., p. 45.

<sup>10</sup>Willard C. Olson, "Utilization of the Haggerty-Olson-Wickman Behavior Rating Schedule," Childhood Education, IX (April, 1933), 356.

TABLE 14

SCORES ON DIVISIONS OF SCHEDULE B OF THE HAGGERTY-  
OLSON-WICKMAN BEHAVIOR RATING SCHEDULE MADE BY  
THE SIXTEEN BOYS IN THIS STUDY

Pupils	Divisions of Schedule B				Total
	Division I Mental Traits	Division II Physical Traits	Division III Social Traits	Division IV Emotion- al Traits	
1	10	12	19	15	56
2	8	10	14	13	45
3	9	10	23	19	61
4	11	12	11	14	48
5	28	11	19	12	70
6	7	9	11	11	38
7	29	17	18	18	82
8	17	11	22	20	70
9	26	22	26	27	101
10	28	12	19	18	79
11	22	11	27	20	80
12	32	19	41	44	136
13	24	16	19	12	71
14	30	15	26	22	93
15	32	17	27	29	105
16	32	24	34	38	128

the group. Sometimes he is unmannerly to the point of rudeness.

Pupil 4 is described as dull intellectually. Naturally his thinking is slow. He frequently becomes abstracted. He is inexact in his thinking, lethargic, and rarely interested.

Pupil 7 is dull. He frequently becomes abstracted, and is difficult to keep at a task until it is completed. He is sluggish, plodding, lazy, inert, and uninquisitive. His physical traits are characterized by extreme sluggishness.

Outstanding traits in the case of pupil 8 are frequent abstraction and incessant talking. He has a speech defect and jabbbers constantly.

In Division I pupil 9 is rated as dull. It is difficult for him to give attention for any length of time. He is the sluggish, plodding type of thinker. He is slovenly and unkempt and makes an unfavorable impression in his personal appearance. There are occasional violations of the generally acceptable social standards. Emotionally, he is rather stolid.

Pupil 10 is rated high on all points of Division I. He is extremely slow in thinking, idles along, and is rarely interested. Emotionally, he melts before the slightest obstacles or objections and gives up without an effort.

Pupil 11 is a boy who is continually absorbed in himself.

He is easily distracted and jumps from one thing to another. He talks more than his share. He is negativistic, emotionally.

Pupil 12 is dull and very slovenly and illogical in his thinking. He has difficulty in completing any task assigned to him. He is indifferent and unconcerned. He is extremely sluggish physically, and lacks courage. Socially, he lives almost entirely to himself. He is stubborn and rude. He made high scores on Division IV. He is moody and constantly worrying. He does not co-operate with the group. He has a suspicious, contrary disposition.

Pupil 13 is a paralytic. His illness may have retarded him mentally. He is a slow thinker, frequently becomes abstracted, and idles along. He has repeated several grades. His emotional rating, however, is low.

In Division I, pupil 14 is described as dull. He frequently becomes abstracted. He is difficult to keep at a task until it is completed, and he is extremely slow in his thinking. In personal appearance he is rather negligent. His social adjustment is hindered by his negativistic attitude.

Pupil 15 is bordering on feeble-mindedness, according to the rating on Division I. Consequently, his attention span is short, and he is extremely slow and inexact in his thinking. He is negligent of his personal appearance and

makes an unfavorable impression. His frequent violations of the ordinary social standards make him unacceptable. Emotionally, he is easily discouraged and gives up at the slightest obstacle.

Pupil 16 made high scores on each point of Division I. His intelligence quotient is very low, as shown in Table 1. Naturally he is an extremely slow, illogical thinker. He is so unkempt and slovenly in his personal appearance that he is repulsive. He is painfully self-conscious, and has few social activities. He is easily irritated and constantly in an argument or a fight. He is generally depressed.

Summary of scores for girls on Schedule B. -- The scores for the girls in this study on the divisions of Schedule B are summarized in Table 15.

There are no high scores made by either of the three girls whose intelligence quotient is 100 or above.

Pupil 4 is dull. She is sluggish and inexact in her thinking. She is the typical "tomboy" in appearance. She can be described as unusually vigorous and robust.

The adjectives sluggish, lethargic, and uninquisitive can be applied to the type of thinking done by pupil 5. Her physical appearance is colorless and inconspicuous. She is yielding and unassertive.

Emotional maladjustment seems to be the trouble of pupil 8. She is obstinate and always wants her way. She is

TABLE 15

SCORES ON DIVISIONS OF SCHEDULE B OF THE HAGGERTY-  
OLSON-WICKMAN BEHAVIOR RATING SCHEDULE MADE BY  
THE FOURTEEN GIRLS IN THIS STUDY

Pupils	Divisions of Schedule B				Total
	Division I Mental Traits	Division II Physical Traits	Division III Social Traits	Division IV Emotion- al Traits	
1	8	8	13	12	41
2	14	8	11	12	45
3	13	11	14	16	54
4	20	21	17	15	73
5	15	9	17	15	56
6	27	14	27	22	90
7	11	10	13	13	47
8	16	14	29	33	92
9	19	16	23	15	73
10	19	17	21	24	81
11	26	19	25	29	99
12	19	10	20	16	65
13	29	21	26	16	92
14	23	10	14	16	63

easily irritated and excitable at the slightest provocation.

The outstanding mental traits of pupil 9 are dullness, idleness, and lack of interest. She is rather negligent of her personal appearance. Her personality is colorless.

Pupil 10 makes a poor personal appearance. She would be unnoticed in a group. She is easily fatigued and slow in action. She has few social activities, and is timid and frequently embarrassed. Mentally, she is dull and plodding.

Emotionally, pupil 11 is apathetic and stuporous. She is very submissive and gives up before making an adequate trial. Her negligence of her personal appearance causes her to make an unfavorable impression upon others. She is dull and slow, mentally.

Pupil 12 is inexact in her thinking. She is quick-tempered and emotional.

In appearance pupil 13 is rather boyish. She looks unkempt. She does not make a good impression. She talks more than her share.

Pupil 14 is extremely slow mentally. She frequently becomes abstracted and is inexact in her thinking. Emotionally she is excitable and easily aroused.

#### Summary of Individual Behavior Cases

The following summary of the behavior of each individual in this group is made from information received from



observation of the children in this study on the playground and in the schoolroom, from personal interviews, and from anecdotal records. The purpose of this summary is to add to the information about these children found in the results of the Haggerty-Olson-Wickman Behavior Rating Schedules A and B, thereby giving a clearer picture of their social behavior.

The report of the boys' individual behavior cases is given first. The cases are numbered as they appear in Tables 14 and 15.

Behavior report of individual cases of the boys. --

Case number 1 has the highest intelligence quotient in the class. He is also the youngest boy in the class. His chronological age is nine years and eleven months and his mental age is ten years and eight months. He is courteous in the schoolroom, observing the general conventions of civility and respect. On the playground, he enters wholeheartedly into whatever game is being played. Upon rare occasions he displays temper outbursts, but this happens only when he feels that he is not getting a square deal in the game.

Number 2 is the most popular boy in the class. He has a colorful personality. He is absorbed in anything he is doing, whether it is working on some project or playing a game outside. His behavior is always acceptable.

Number 3 is an unusual case. He comes from an exceptionally good home. His intelligence quotient is 102.4. Yet, this child's behavior rating on Schedule A is 53. His total score in Schedule B is 61. He has only thirty-six play interests. He has a resentful attitude toward anyone in authority. He is most unpopular with the other children. Invariably, when directions are given, he asks, "Why do we have to do that?" A teacher asked him to clear the reading table. His reply was, "I am not the janitor." He shows traits of cruelty when playing with smaller children.

Case number 4 never presents any behavior problems. Due to illness in early childhood, he does not have the physical endurance to participate in the more strenuous sports. But he is not a "sissy." He is popular with both boys and girls. He is usually very quiet, but talks well when the necessity arises. He is courteous and gracious wherever he is.

Case number 5 is a most likeable child. He is slow in his thinking and in his physical output of energy. He speaks with a slow drawl, and is witty without making any effort to be. When anyone laughs at something he says, he wonders why. His behavior is ordinarily acceptable.

Number 6 is the only Latin-American child in the group. He is well accepted by all of the other children. He has a pleasing personality. He is deeply interested in his school work. He is always polite and courteous and has a happy

smile for everyone. In sports, he can hold his own with the best. He is a favorite in the classroom and on the playground.

Number 7 is, seemingly, lazy and inert. He is too large for his age and may be suffering from a glandular trouble. He is rarely interested in anything. He is very even tempered and gets along well with the other children.

Number 8 is one of those persons who seem to be naturally noisy. When he enters the room, the noise always increases. He has a pronounced speech defect and jabbars incessantly. His manners are deplorable. After all the class discussion about good manners, he sat through an entire program in the auditorium wearing his cap and chewing bubble gum. However, he has a good disposition and gets along well with people.

Number 9 comes from a very poor family far out in the country. His attendance is most irregular. He and his older brother, number 16 in this study, play "hockey" frequently. His unkempt, slovenly appearance keeps the children from accepting him.

Number 10 is a sympathetic, warm-hearted child. Beyond an occasional outburst of temper with some other child, he presents no behavior problems. He is easily discouraged and gives up readily. He becomes very interested in a problem in the beginning but seldom finishes it. He is always

quite willing to co-operate in anything that is asked of him.

Number 11 is a show-off. He makes a bright remark or does something that he thinks is clever and looks around expecting everyone to be amused. He jumps rapidly from one thing to another. He has to be reminded invariably to say, "Good morning," "Thank you," and other expressions used in polite society. On the playground he is overbearing and dictatorial.

Number 12 is one of the greatest behavior problems in the group. His total score in Schedule B is 136. He lives almost entirely to himself, participating in none of the activities in the schoolroom nor on the playground. He was encouraged to join the Future Farmers of America Club in the school, but his reply was, "I wouldn't go in a mile of that." He goes around most of the time "with a chip on his shoulder" and is constantly involved in an argument with some child which often results in a fight. He is rude to older people to the point of insolence.

Number 13 is a deformed child. He walks on his hands and feet like an animal. In spite of this handicap he has such a cheerful disposition that he is well liked by children and grown-ups. He is keenly interested in everything, especially sports. He is quite willing to participate in all phases of school activities.

Number 14 is a quiet, anti-social child. He sits and stares most of the time. He never wants to be in a play nor give a report nor participate in any activity in the school-room. He does not join in the outdoor games. His one joy is his bicycle, a used one that he bought for himself after he had earned the money by picking cotton. He spends much of the play periods just sitting on it, since children are not allowed to ride bicycles on the school ground. He never presents any behavior problems.

Number 15 has the highest score of any child in this group in Schedule A and a total score of 105 in Schedule B. His intelligence quotient is 64.6. He will steal anything and then lie about it so convincingly that one can hardly keep from believing him. He took a knife that was rather unusual. He described it so well and made his story so realistic as to where he got it that it took the principal, a member of the family, and the teacher to arrive at the truth. He does nothing in school work except draw and paint. He is quite good in art. With all of his faults, he has a pleasant disposition and is quite likable.

Number 16 is the brother of case number 9. He is even more ill-kept than his brother. He likes to appear "tough," so he wears a broad-brimmed hat pulled down low on his forehead and scowls. He is a truancy problem, often going for days without showing up at school. His father, a share-

cropper, beats him when he learns of his son's truancy; yet the boy repeats the offense over and over again. His influence on his brother is unwholesome because he usually persuades him to go along with him. Due to his home environment he knows nothing of good manners and is most unpopular with the other children.

Behavior report of individual cases of the girls. --

Case number 1 has the highest intelligence quotient of any girl in the group and the lowest score in Schedule B. Her intelligence quotient is 101.8. Her total score on Schedule B is 41 and zero on Schedule A. She is the youngest girl in the class. Her chronological age is nine years and seven months. She has a magnetic personality. She is vivacious and energetic, interested in everything, and very popular with the other children.

Number 2 excites admiration by her personal appearance and friendliness. She is courteous and gracious. She seems always to do the right thing at the right time. She has self-confidence and makes a splendid leader.

Number 3 is the quiet, reserved type. She is meticulous in her work and in her personal appearance. Everything must be "just so" before she is pleased with it. She is persistent until convinced. She has a pleasant speaking voice, good manners, and is popular with both children and adults.

Number 4 is the typical "tomboy" in appearance and behavior. She never wears a dress, and wears her hair straight in a boyish bob. She plays all outdoor games, including football and baseball, and excels in them, too. She is even-tempered and well liked. Her behavior is never objectionable.

Number 5 is a fat, overgrown child. Her only behavior fault is lack of interest. This is probably due to her physical condition. She is slow and easy-going and gets along well with others. Her attitude toward school work and those in authority is good.

Number 6 is the sluggish, plodding type who never gets anywhere. She rarely speaks and is timid and easily embarrassed. She never wants to participate in any class-activities in the room; however, she will play outside games. Her personality is quite colorless.

Number 7 makes a favorable impression. She is much concerned about her appearance, and is quite feminine. She always conforms willingly to the wishes of the group as the necessity arises. She is well accepted.

Number 8 is assertive and aggressive. She is bound to make it clear in every situation that she is going to "boss" or else she will not work or play, whatever the case may be. On the playground she always wants to be first, and argues and fusses if her wishes are challenged. She has violent

outbursts of temper which make her unpopular with the other children.

Number 9 lives almost entirely to herself. She entered school late and has not been able to adjust herself to the group. She is self-conscious on all occasions. She is rather negligent about her appearance and school work.

Number 10 has a dull, colorless personality. She has few social activities due to living far out in the rural section. She merely follows along without contributing anything to the group.

Number 11 is inconspicuous and generally unnoticed. She has few social activities. She is absent much of the time, and does poor work. When she is in school, she cooperates willingly enough.

Number 12 has a quick temper. These frequent temper outbursts are her worst behavior fault. When they are over, she is always sorry and apologetic. She has colorful personality and makes an attractive appearance. Other than her fits of temper, her behavior is ordinarily acceptable.

Number 13 is negligent of her appearance. This same quality is characteristic of her work. She talks in such a silly manner and giggles so much that at times she seems foolish. Her manners are bad; never a "Please" nor a "Thank you" without being reminded.



Number 14 is chronologically the oldest girl in the class. Her age is twelve years and five months. Her intelligence quotient is 75.9, the lowest for the girls. She is quite mature. This gives her the appearance of being somewhat older than she is. She is given to imaginative lying. These stories at times seem to go on indefinitely, about the places she has been and the fine things she has. She is from a destitute family, so her stories may originate from wishful thinking. She can design and draw beautifully. When the class has a play, she is almost always appointed to plan the costumes and decorations. She is usually in a good humor and gets along well with everyone.

By comparing the above descriptions and the ratings on the Haggerty-Olson-Wickman Schedules A and B with the intelligence quotients derived from the Otis Quick-scoring Mental Ability Test, one notices that there appears to be some relationship between these children's mental ability and their social behavior. Those children with intelligence quotients above and in the normal range exhibited less maladjusted behavior than those children whose intelligence, as measured by this test, was below the normal range.

## CHAPTER IV

### THE RELATIONSHIP BETWEEN PLAY INTERESTS AND SOCIAL BEHAVIOR

Educators and social psychologists, in recent years, have made and are making a great deal of study concerning children's play interests and social behavior. They believe that through games with social spirit a child gains consciousness of his relationship to other people.<sup>1</sup> It is also believed that the foundation for the development of sympathy, kindness, love for his fellowman -- those social forces that make an individual a well-rounded member of society -- is laid in play with other children under wise supervision.

From his study of social psychology, Seashore says:

Play is a socializing force which helps children to participate intelligently in group life. Growth through play is evident in the development of the social nature of the child and is especially marked in the development of his consciousness of his kinship with a group. Play is essentially social; it is, therefore, natural that one of its aims and rewards be a sense of fellowship. The playing group fuses into a common consciousness on a plane of equality.<sup>2</sup>

Table 16 includes the scores made by the boys and girls

---

<sup>1</sup>Suella A. Palmer, Play Life in the First Eight Years, p. 53.

<sup>2</sup>Carl Seashore, Psychology in the Daily Life, p. 8.

in this study on Schedules A and B of the Haggerty-Olson-Wickman Behavior Rating Schedule and their total number of play interests which are derived from the George Washington University Interest Inventory.

By comparing the behavior ratings with the total number of play interests of the boys in this study as shown in Table 16, it can be seen that, in most cases, the boys who have low scores in behavior problems have a greater number of play interests than the boys who have high scores on behavior rating. It should be remembered that low scores on the behavior schedules are an indication of desirable social adjustment.

All of the boys in the higher intelligence group, with the exception of pupil 3, have lower behavior scores and more play interests than the boys in the lower intelligence group.

Pupil 2 has an overt behavior rating of zero on Schedule A and a rating of 45 on Schedule B, and a total of fifty-six play interests. In comparison, pupil 15 has a behavior rating of 83 on Schedule A and a rating of 105 on Schedule B. His total number of play interests is twenty-five. This comparison between these two boys, pupil 2, a member of the highest intelligence group, and pupil 15, a member of the lowest intelligence group, is characteristic of the comparisons which may be made between any members of the two groups included in this study. From these comparisons

TABLE 16

SCORES ON SCHEDULES A AND B OF THE HAGGERTY-OLSON-WICKMAN BEHAVIOR RATING SCHEDULE COMPARED WITH THE NUMBER OF PLAY INTERESTS DERIVED FROM THE GEORGE WASHINGTON UNIVERSITY INTEREST INVENTORY FOR SIXTEEN BOYS AND FOURTEEN GIRLS IN THIS STUDY

Boys	Behavior Rating Schedule A	Behavior Rating Schedule B	Number of Play Interests	Girls	Behavior Rating Schedule A	Behavior Rating Schedule B	Number of Play Interests
1	16	56	52	1	0	41	48
2	0	45	56	2	0	45	75
3	53	61	37	3	0	54	54
4	7	70	58	4	0	73	66
5	0	48	54	5	7	90	68
6	0	38	63	6	12	56	64
7	18	82	50	7	8	47	60
8	44	70	46	8	32	92	48
9	48	101	43	9	16	73	49
10	14	70	36	10	0	81	53
11	51	80	34	11	19	99	39
12	41	136	34	12	29	65	47
13	19	71	27	13	4	92	42
14	55	93	30	14	7	63	35
15	83	105	25				
16	54	128	23				

there seems to be a relationship between the play interests and the social behavior of these boys.

By comparing the behavior ratings on Schedules A and B and the total number of play interests of the girls as shown in Table 16, it can be seen that the first four girls, who are in the higher intelligence group, have each scored zero on Schedule A. Their behavior ratings are low on Schedule B, which indicates acceptable social adjustment. They each have a great many play interests.

Pupil 2, who is an outstanding member of the higher intelligence group, has a score of zero on Schedule A and of 45 on Schedule B. She has seventy-five play interests. By comparison, a member of the lower intelligence group has a score of 32 on Schedule A and of 92 on Schedule B. She has forty-eight play interests. The comparison between these two girls is representative of the comparisons between the girls in the different intelligence groups of this study. From the results of these comparisons between these girls, there appears to be a relationship between their play interests and their social behavior.

From a study of the results of these comparisons between the behavior ratings and the number of play interests of the children in the two intelligence groups of this study, there seems to be a relationship between their play interests and their social behavior. Briefly stated, this

relation seems to be that the children in the higher intelligence group in this study exhibit fewer behavior problems than do the children in the lower intelligence group.

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

In this study an attempt was made to determine whether there is a relationship between the mental ability, play interests, and social behavior of the children in the fifth grade of the Kerens Elementary School, Kerens, Texas. From comparing the intelligence quotients of these children as derived from the Otis Quick-scoring Mental Ability Test with their total number of play interests found from the George Washington University Interest Inventory and their behavior ratings determined by the Heggerty-Olson-Wickmen Behavior Rating Schedules A and B, there seems to be some relationship between the mental ability and social behavior of these children in this group. According to the results found in this study from testing and comparison, the children in the higher intelligence group have more play interests and exhibit fewer behavior problems than do the children in the lower intelligence group.

From information obtained by observation, personal interviews, and anecdotal records, the results of the mental test, the interest inventory, and behavior schedules may have been influenced somewhat by the environment and the

experiences of these children. It should also be remembered that, according to the test used, the intelligence level of this group was below average.

#### Implications for School Practice

There should be more activity in the school program than the use of textbooks. All of these children need to have a greater opportunity for doing things to increase their experiences and interests.

A well-planned reading program should be set up -- one that will meet the different reading levels and interests of all the children in this group.

Health, the importance of good grooming, good manners, and citizenship should be presented to this group in a way that will appeal to them.

Music, art, and children's classical literature should be included in the school program in order that all of these children may become acquainted with the fine arts to some extent.

The situation in the schoolroom should be one in which each child in this group may succeed according to his ability.

Provision should be made for some special help in their school work for the children in this group who, through no fault of their own, have to be absent to work in the cotton fields the first month or two of school.



The playground program should be well-planned and supervised in order that all the children in this group may participate in the play activities.

Since this is a small community with no places of amusement except the motion-picture theater, the school might sponsor a recreational program outside of the regular curriculum which would give all of these children an opportunity to enjoy more social activities.

## BIBLIOGRAPHY

### Books

- Atkinson, Robert K., Play for Children in Institutes, New York, Russell Sage Foundation, 1923.
- Boettiger, Elizabeth F., Children's Play Indoors and Out, New York, E. P. Dutton and Company, 1938.
- Brubacher, John S., Modern Philosophies of Education, New York, McGraw-Hill Book Company, 1939.
- Davis, John Eisele, Play and Mental Health, New York, A. S. Barnes and Company, 1938.
- Dewey, John, Democracy and Education, New York, Macmillan Company, 1921.
- Foster, Josephine Curtis, Busy Childhood through Play and Activity, New York, D. Appleton and Company, 1933.
- Good, Carter V.; Barr, S. S.; and Scates, J. K., The Methodology of Educational Research, New York, D. Appleton and Company, 1938.
- Heaton, Kenneth Lewis, Character Building through Recreation, Chicago, University of Chicago Press, 1929.
- Kelley, Truman, Tests and Measurements on the Social Sciences, Columbus, Ohio University Press, 1933.
- Lambert, Clara, School's Out, Child Care through Play, New York, Harper and Brothers, 1944.
- Lehman, Harvey C., The Psychology of Play Activities, New York, A. S. Barnes and Company, 1927.
- Lowenfield, Margaret, Play in Childhood, London, Victor Gollanz, 1935.
- Olson, Willard C., Problem Tendencies in Children, Minneapolis, University of Minnesota Press, 1930.
- Palmer, Luella, Play Life in the First Eight Years, New York, Harper and Brothers, 1924.

Rogers, James Edward, The Child and Play, New York, Century Company, 1932.

Seashore, Carl, Psychology in the Daily Life, New York, D. Appleton and Company, 1916.

Van Alstyne, C. H., Play Behavior and Choice of Play Materials, Chicago, University of Chicago Press, 1931.

Wickman, E. K., Children's Behavior and Teachers' Attitudes, New York, Commonwealth Fund, 1938.

Wood, Walter De Burley, Children's Play and Its Place in Education, New York, Trench, Traubner and Company, 1932.

#### Articles

Haggerty, M. E., "The Incidence of Undesirable Behavior in Public School Children," Journal of Educational Research, XII (September, 1925), 103-104, 106.

Scheinfield, Amram, "Play Reveals the Child," Parents' Magazine, XIX (April, 1944), 30-31.

Yolbeding, E., "Out of School Behavior for Eleven Year Olds," Elementary School Journal, XXXVII (April, 1948), 432-441.

#### Tests

Dreese, Mitchell, and Mooney, Elizabeth, Interest Inventory for Elementary Grades, St. Louis, George Washington University Press, 1941.

Haggerty, M. E.; Olson, W. C.; and Wickman, E. K., Haggerty-Olson-Wickman Behavior Rating Schedules, Yonkers-on-Hudson, New York, World Book Company, 1930.

Otis, Arthur S., Otis Quick-scoring Mental Ability Tests, Yonkers-on-Hudson, New York, World Book Company, 1937.