

A STUDY OF CERTAIN ASPECTS OF PERSONALITY  
AMONG HARD OF HEARING SCHOOL CHILDREN  
IN THIRTEEN SCHOOLS OF PITTSBURG COUNTY

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AMONG HARD OF HEARING SCHOOL CHILDREN IN THIRTEEN SCHOOLS  
OF PITTSBURG COUNTY

BY

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1937

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MASTER OF SCIENCE

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## CHAPTER I

### Introduction

According to authorities the number of school children in this state with deficient hearing ranges from 8 per cent to 12 per cent.<sup>1</sup> This group then, constitutes a considerable part of the total school enrollment and it should be ascertained if possible to what extent these pupils are handicapped and the nature of such handicap.

The Sixteenth Legislature of the State of Oklahoma made a step forward in this work when by the passage of Senate Bill 303 state funds were appropriated to carry on research work among hard of hearing school children in this state. The various colleges have cooperated in this movement by purchasing audiometers which are graciously loaned to school administrators desiring to test the hearing acuity of pupils in their schools. It was working with one of the machines in this county that prompted the writer to make the present study.

This study was in the form of a survey conducted in thirteen schools of this county having enrollments ranging from 60 pupils to 800 pupils. The purpose was to study

1 Bonnell, "Results of Audiometric Testing in Okmulgee Public Schools"

the following problems:

1. Are there group differences between hard of hearing children and those of normal hearing in terms of such measures of personality as ascendance-submission, extraversion-introversion, and emotionality?
2. If there is a difference in the personality of the two groups, does the difference tend to become greater as the child grows older?

## CHAPTER II

### Method of Procedure

To study the foregoing problems it was necessary first of all, to secure a group of hard of hearing school children to be used as an experimental group, and a like number of normal children to serve as a control group. Both groups were then to be given the same personality tests and the results compared.

To determine which pupils were hard of hearing a Western Electric 4-B Audiometer was used with which the hearing of thirty pupils could be tested at one time. Papers were scored while the test was being conducted and pupils who showed a hearing deficiency of six or more decibels (sensation units) were given a retest. Twelve days were required to administer the test in all of the thirteen schools. All pupils in Grades 5-12 were given the test and in some of the schools, pupils in Grades 3 and 4 were included also. The pupils in these lower two grades were not included in the study, however, because of their inability to comprehend the personality tests which were given later.

The tables which follow show results of the hearing tests for each school by grades and a summary for the thirteen schools.

This summary indicates that 2756 pupils were tested, of which number 250 pupils or 9.1 per cent had a hearing deficiency in one or both ears of six or more decibels. Of the 250 pupils having a hearing deficiency, 90 pupils or 3.3 per cent were found to be deficient in both ears. Only those children were selected for study, who had a hearing deficiency of nine or more decibels in both ears, it being assumed that a child with one good ear would not be a suitable subject for study, and that a deficiency of six decibels was perhaps not of sufficient magnitude to produce valid results. The number of subjects selected, therefore, was of necessity somewhat limited, there being only 55 pupils who met the above requirements. This number is 2 per cent of the total number tested.

After the experimental group was selected, the securing of a control group was a comparatively simple matter. Each hard of hearing child was paired with a normal child of the same age, sex, grade, and as nearly as possible, the same socio-economic status. The actual selection of the control group was left entirely to the teacher, she being more intimately acquainted with the pupils than anyone else. She was requested, of course, to choose from a list of those pupils who were found to have no hearing deficiency whatsoever. The same personality tests were then given to each group.

"Aspects of Personality" by Dr. Rudolf Pintner of Columbia University was chosen as the measuring instrument for grades five to eight, inclusive, for the following reasons:

1. It was the only test available which had been worked out solely for children of these grades.
2. It measures three phases of personality.
3. The items of the inventory represent the ordinary experiences which children of this age constantly face.
4. The test is so constructed that it is easy to score and compile results.
5. The time required to fill out the inventory is short enough that the pupils will not become fatigued.

The "Nebraska Personality Inventory" was selected as the measuring instrument for grades nine to twelve for the following reasons:

1. This test is especially suitable for pupils of high school age; whereas, most of the personality tests were made for adults and were either too difficult or were inapplicable.
2. The items of this test are such that they represent the ordinary experiences of adolescents.
3. The time required to fill out the inventory is only about a half hour, which insures the pupil against fatigue.
4. Three measures of the personality can be secured.

5. The tests are easy to score and the results can be readily compiled.

"Aspects of Personality," as has been stated, measures Ascendance-Submission, Extraversion-Introversion, and Emotionality, while the "Nebraska Personality Inventory" measures Social Introversion-Extraversion, Emotionality, and Masculinity. According to the author, however, the trait designated as Masculinity in the Nebraska Test is the same as the Ascendance-Submission of the Pintner Test. This substitution then, will be made in grades nine to twelve where the Nebraska Test is used. There is one other marked difference in the two tests. The questions in the Pintner Test are stated positively and a high score on Extraversion-Introversion for example means that the pupil tends toward being extraverted while in the Nebraska Test the questions are so constructed that a high score on this part of the test would indicate that the child was introverted. This distinction should be borne in mind by the reader throughout. All testing was done by the writer and the scoring of papers was done under his supervision.

## CHAPTER III

### Compilation and Analysis of Data

The results of this study are presented in tabular form, each table being numbered and properly headed. Tables I-XIV are arranged according to the form used in conducting a survey among hard of hearing school children in this state during the past two years. In most instances not more than three units of information are presented in a single table. Following each table is a discussion and interpretation of the data tabulated.

Comparisons are based on central tendency and variability of the scores made by each group on the tests.

TABLE I  
 REPORT OF AUDIOMETRIC TESTING IN SAVANNA SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
3	23	10	8	2	8.7	1	1
4	20	5	4	1	5.0	0	1
5	22	13	11	2	9.1	1	1
6	25	9	7	2	8.0	1	1
7	24	9	6	3	12.5	0	3
8	24	7	5	2	8.3	0	2
9	23	9	6	3	13.0	0	3
10	21	6	4	2	9.5	0	2
11	23	10	7	3	13.0	1	2
12	15	5	4	1	6.7	0	1
TOTAL	220	83	62	21	9.5	4	17

TABLE II  
REPORT OF AUDIOMETRIC TESTING IN CANADIAN SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
5	15	9	7	2	13.3	1	1
6	13	4	3	1	7.7	0	1
7	18	3	0	3	16.7	1	2
8	18	3	2	1	5.5	0	1
9	15	3	2	1	6.7	0	1
10	13	2	1	1	7.7	0	1
11	8	0	-	0	-	0	0
12	15	2	1	1	6.7	1	0
TOTAL	115	26	16	10	8.7	3	7

TABLE III  
 REPORT OF AUDIOMETRIC TESTING IN KIOWA SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
5	21	6	3	3	14.3	1	2
6	25	7	5	2	8.0	1	1
7	20	6	3	3	15.0	1	2
8	28	7	6	1	3.5	0	1
9	28	4	4	0	-	0	0
10	19	0	-	0	-	0	0
11	12	2	2	0	-	0	0
12	13	2	2	0	-	0	0
TOTAL	166	34	25	9	5.4	3	6

TABLE IV  
 REPORT OF AUDIOMETRIC TESTING IN PITTSBURG SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
5	28	14	8	6	4.4	2	4
6	17	8	4	4	23.5	0	4
7	23	4	4	0	-	0	0
8	20	5	3	2	10.0	0	2
9	32	4	0	4	12.5	1	3
10	24	8	6	2	8.3	2	0
11	15	2	2	0	-	0	0
12	21	5	4	1	4.7	1	0
TOTAL	180	50	31	19	10.5	6	13

TABLE V  
 REPORT OF AUDIOMETRIC TESTING IN ASHLAND SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
4	16	2	1	1	6.2	1	0
5	21	2	2	0	-	0	0
6	19	5	4	1	5.3	0	1
7	14	7	6	1	7.1	0	1
8	12	2	2	0	-	0	0
9	22	5	4	1	4.5	0	1
10	11	6	4	2	18.2	0	2
11	13	2	2	0	-	0	0
12	12	2	1	1	8.3	0	1
TOTAL	140	33	26	7	5.0	1	6

TABLE VI  
REPORT OF AUDIOMETRIC TESTING IN ALDERSON SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
5	9	5	2	3	33.3	2	1
6	7	4	4	0	-	0	0
7	4	1	1	0	-	0	0
8	4	1	1	0	-	0	0
TOTAL	24	11	8	3	12.5	2	1

TABLE VII  
REPORT OF AUDIOMETRIC TESTING IN MCALESTER JR. HIGH SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
7	181	90	73	18	9.9	7	11
8	205	63	48	15	7.3	2	13
TOTAL	386	154	121	33	8.5	9	24

TABLE VIII  
 REPORT OF AUDIOMETRIC TESTING IN KREBS SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
2	38	13	10	3	52.6	2	2
3	27	4	3	1	11.1	0	1
4	32	5	2	3	6.2	1	2
5	26	12	9	3	34.6	0	3
6	29	10	9	1	34.4	0	1
7	29	7	3	4	13.8	1	3
8	21	2	0	2	9.5	0	2
TOTAL	202	53	36	17	8.4	4	13

TABLE IX  
REPORT OF AUDIOMETRIC TESTING IN CROWDER SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
5	15	8	5	3	20.0	1	2
6	17	7	5	2	11.8	0	2
7	9	4	3	1	11.1	1	0
8	14	4	2	2	14.3	2	0
9	28	8	6	2	7.1	2	0
10	26	11	7	4	15.4	3	1
11	24	9	8	1	4.2	0	1
12	13	6	4	2	15.4	1	1
<b>TOTAL</b>	<b>146</b>	<b>57</b>	<b>40</b>	<b>17</b>	<b>11.6</b>	<b>10</b>	<b>7</b>

TABLE X  
 REPORT OF AUDIOMETRIC TESTING IN HAILEYVILLE SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
4	17	4	1	3	17.6	1	2
5	32	14	9	5	15.6	2	3
6	46	10	4	6	13.0	4	2
7	23	4	1	3	13.0	3	0
8	32	8	6	2	6.2	0	2
9	75	24	18	6	8.0	3	3
10	57	13	8	5	8.8	2	3
11	39	8	4	4	10.3	2	2
12	42	6	4	2	4.8	2	0
TOTAL	363	91	55	36	9.9	19	17

TABLE XI

## REPORT OF AUDIOMETRIC TESTING IN HARTSHORNE SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
5	52	23	18	5	9.6	2	3
6	42	18	14	4	9.5	0	4
7	38	12	8	4	10.5	1	3
8	47	8	6	2	4.2	1	1
9	92	42	30	12	13.0	4	8
10	76	36	28	8	10.5	3	5
11	63	20	13	7	11.1	3	4
12	65	22	18	4	6.3	2	2
TOTAL	475	181	135	46	9.7	16	30

TABLE XII  
REPORT OF AUDIOMETRIC TESTING IN QUINTON SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
4	45	16	11	5	11.1	2	3
5	26	8	3	5	19.2	2	2
6	35	9	7	2	5.7	1	1
7	23	5	3	2	8.7	1	1
8	26	5	2	3	11.5	1	2
9	51	7	5	2	3.9	0	2
10	28	6	3	3	10.7	1	2
11	18	3	1	2	11.1	1	1
12	11	1	1	0	-	0	0
TOTAL	263	60	36	24	9.1	9	15

TABLE XIII  
 REPORT OF AUDIOMETRIC TESTING LONE OAK SCHOOL

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
3	9	4	2	2	22.2	1	1
4	14	2	2	0	-	0	0
5	15	4	2	2	13.3	2	0
6	16	5	4	1	6.2	0	1
7	15	8	5	3	20.0	1	2
8	7	0	-	0	-	0	0
TOTAL	76	23	15	8	10.5	4	4

TABLE XIV

SUMMARY REPORT OF AUDIOMETRIC TESTING IN THIRTEEN SCHOOLS  
OF PITTSBURG COUNTY, OKLAHOMA

Grade	Number Tested (A)	Needed Retest (B)	O. K. by Retest	D.H.	% of (A)	Both Ears	One Ear Only
2	38	13	10	3	7.8	2	1
3	59	18	13	5	8.4	2	3
4	144	34	21	13	9.0	5	8
5	282	118	79	39	13.8	16	23
6	291	96	70	26	8.9	7	19
7	421	161	116	45	10.6	17	28
8	458	115	83	32	6.9	6	26
9	366	106	75	31	8.4	10	21
10	275	88	61	27	9.8	11	16
11	215	56	39	17	7.9	7	10
12	207	51	39	12	5.7	7	5
TOTAL	2756	856	606	250	9.1	90	160

Tables I-XIV show the results of audiometric testing in each school by grades and a summary report for the thirteen schools. Each table gives: Number of pupils taking the test (A), number needing a retest (B), that is, pupils who showed a deficiency of six or more decibels in one or both ears on the first test; number who made satisfactory scores on the retest; number found to have a deficiency of six or more decibels in either or both ears on the retest (Deficient Hearing shortened to D. H.); per cent that the number with deficient hearing is of the number tested; the number having a hearing deficiency in both ears; the number having a deficiency in one ear only.

It will be noted that in some of the schools there was an unusually large number needing retests. This is accounted for by the fact that in practically all these cases the room where the tests were begun proved to be noisy. When a condition of this kind was encountered, it became necessary to move the equipment to a quieter place before giving any retests.

These tables show that the per cent of pupils with deficient hearing ranges from 5 per cent (Ashland, Table V) to 12.5 per cent (Alderson, Table VI), with an average of 9.1 per cent for the thirteen schools. The total number of cases of deficient hearing is shown to be 250 of which 90 are

deficient in both ears and 160 in one ear only. During this series of tests one pupil was found to have a hearing deficiency in both ears of such magnitude that he was unable to hear the loudest sound made by the machine (30 decibels). The writer was informed that this pupil could not hear the teacher's voice unless she talked at least three times as loudly as she normally would, and that this procedure caused extreme nervousness among the other pupils. It is evident that a child of this type should be sent to a school for the deaf. There were five other pupils who had a deficiency in one ear which was greater than the machine could test, but in all these cases the other ear was good. The results of these tests together with each individual child's score were sent to the superintendent or principal in each school and a copy to Mr. Baker Bonnell, Muskogee, Oklahoma, who is in charge of the state program for testing the hearing of school children.

TABLE XV  
NUMBER OF PUPILS SELECTED FOR STUDY

GRADE	5	6	7	8	9	10	11	12	TOTAL
SCHOOL									
Savanna	-	-	-	-	-	-	2	-	2
Canadian	-	-	-	-	-	-	-	1	1
Kiowa	-	1	1	-	-	-	-	-	2
Pittsburg	-	-	-	-	1	1	-	1	3
Ashland	-	1	-	-	-	-	-	-	1
Alderson	1	-	-	-	-	-	-	-	1
Krebs	-	-	-	-	-	-	-	-	0
Crowder	1	-	1	2	2	2	-	-	8
McAlester	-	-	5	4	-	-	-	-	9
Haileyville	3	1	-	1	3	1	-	-	9
Hartshorne	2	-	-	5	-	2	3	2	14
Quinton	-	-	-	-	-	1	-	-	1
Lone Oak	3	-	1	-	-	-	-	-	4
TOTAL	10	3	8	12	6	7	5	4	55

Table XV shows the number of pupils from each school and the total number selected for this study. At least one pupil was chosen from each school except Krebs, where no pupil was found who had a hearing deficiency of nine or more decibels in both ears. Of the twelve schools included in the study, nine had senior high school departments, that is their course of study extended from Grade 1 through Grade 12. The others, with the exception of McAlester Junior High School, offered courses for Grades 1-8 inclusive. McAlester Junior High School included Grades 7-8 only.

It will be noted that, although the total number selected was comparatively small, the distribution in the various grades was fairly even, with the exception of Grade 6, where there were only three pupils and in Grades 5 and 8, where there were ten and twelve pupils respectively. Of the total number selected, twenty-six were boys ranging in grade from 5 to 12 and in age from nine to twenty years. There were twenty-nine girls ranging in grade from 5 to 12 and in age from nine to nineteen years.

TABLE XVI  
COMPARATIVE RESULTS OF SCORES ON ASCENDANCE-SUBMISSION

GRADE	EXPERIMENTAL GROUP			CONTROL GROUP		
	M	Q	N	M	Q	N
5	24.4	13.3	10	24.1	18.1	10
6	20.3	--	3	25.3	--	3
7	27.7	19.2	8	42.7	35.0	8
8	38.1	22.5	7	62.6	23.8	7
9	88.0	9.4	10	81.0	13.3	10
10	75.0	18.8	6	50.0	7.5	6
11	88.3	10.0	6	75.0	18.8	6
12	62.0	22.5	5	78.0	25.8	5
BOYS 5-8	33.7	13.5	11	37.9	21.7	11
GIRLS 5-8	29.6	23.9	17	40.0	18.1	17
B & G 5-8	31.2	18.7	28	39.1	20.0	28
BOYS 9-12	88.7	10.4	15	88.0	8.6	15
GIRLS 9-12	70.0	25.5	12	52.5	10.5	12
B & G 9-12	80.3	19.7	27	72.2	23.5	27

Table XVI shows comparative results of the experimental and control groups on the test for Ascendance-Submission. The mean scores (M), quartile deviation (Q), and the number of pupils (N), are given by grades for each group. M, Q, and N are also shown for boys of grades 5-8, girls 5-8, boys and girls 5-8, boys 9-12, girls 9-12, and boys and girls 9-12.

It will be observed that with the exception of grade 5, mean scores for each grade of the control group were considerably higher than those of the experimental group on the Pintner test (grade 5-8). The results for girls, grades 5-8, showed the control group to have a higher mean score also as did the results for boys, grades 5-8, and the total results for boys and girls, grades 5-8. Thus it can be seen that mean scores on the Pintner Test are considerably higher for the control group than for the experimental group.

On the Nebraska Test (grades 9-12), however, means for the experimental group are higher than those of the control group in each grade except the twelfth. The results for boys, grades 9-12, show the experimental group to have a slightly higher mean score than the control group, while results for girls in grades 9-12 show the experimental group to be considerably higher.

The total results for boys and girls, grades 9-12, also indicate a higher mean score for the experimental group.

The fact that on the Pintner Test the control group showed a higher mean score, while on the Nebraska Test the mean score of experimental group was higher, is accounted for by differences in the construction of the two tests as described on page 6 of this study. It will be recalled that questions of the Pintner Test are so stated as to produce positive results, while the Nebraska Test is so constructed that the results will be negative. There were twenty-seven pupils who took the Pintner Test and twenty-eight who took the Nebraska Test.

The quartile deviation ( $Q$ ) of the control group is greater in grades 5, 7, and 8. These are the grades, of course, where the Pintner Test was used. In grades 9, 11, and 12 the  $Q$  is greater in the control group, but in grade 10 it is greater in the experimental group. Boys 5-8 show a greater  $Q$  for the control group, while girls 5-8 show  $Q$  for the experimental group to be greater. The results for boys and girls 5-8, which is the entire group taking the Pintner Test, show a greater  $Q$  for the control group.  $Q$  is not given for grade 6 because of the fact that there are only three pupils in that grade.

Results for boys and girls 9-12, which includes all those taking the Nebraska Test, show a greater Q for the control group.

TABLE XVII

## COMPARATIVE RESULTS OF SCORES ON EXTRAVERSION-INTROVERSION

GRADE	EXPERIMENTAL GROUP			CONTROL GROUP		
	M	Q	N	M	Q	N
5	35.3	28.3	10	51.1	20.0	10
6	24.3	--	3	66.3	--	3
7	43.7	32.5	8	54.7	17.5	8
8	60.6	26.9	7	58.4	22.5	7
9	71.0	5.0	10	68.0	6.9	10
10	78.3	18.8	6	46.7	33.8	6
11	70.0	13.8	6	60.0	6.6	6
12	42.0	3.7	5	74.0	12.5	5
BOYS 5-8	44.6	24.4	11	65.2	16.9	11
GIRLS 5-8	41.8	31.3	17	49.4	18.9	17
B & G 5-8	42.9	29.7	28	55.6	18.3	28
BOYS 9-12	62.8	17.7	15	68.0	15.0	15
GIRLS 9-12	72.5	22.0	12	55.8	27.5	12
B & G 9-12	67.0	21.3	27	62.6	18.6	27

Table XVII shows comparative results of the experimental and control groups on the tests for Extra-version-Introversion. On this test mean scores of the control group are higher for grades 5, 6, and 7 but slightly lower in grade 8. In grades 9, 10, and 11 the experimental group has a higher mean score but in grade 12 the mean of the control group is higher. Boys 5-8, girls 5-8, and boys and girls 5-8 all show a higher M for the control group as do boys 9-12. Girls 9-12 and boys and girls 9-12, however, show a higher M for the experimental group.

The quartile deviation of the experimental group is greater in grades 5, 7, and 8. Q for the control group is greater in grades 9, 10, and 12 and less in grade 11. The experimental group has a greater Q in boys 5-8, girls 5-8, boys and girls 5-8, boys 9-12, and boys and girls 9-12, but for girls 9-12, Q of the control group is greater. Q is not given for grade 6 because of the fact that there are only three pupils in that grade.

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TABLE XVIII  
COMPARATIVE RESULTS OF SCORES ON EMOTIONALITY

GRADE	EXPERIMENTAL GROUP			CONTROL GROUP		
	M	Q	N	M	Q	N
5	45.8	19.6	10	60.4	16.7	10
6	51.7	--	3	44.7	--	3
7	56.9	30.0	8	46.7	15.0	8
8	56.0	17.5	7	45.7	13.8	7
9	45.0	28.8	10	58.0	30.0	10
10	65.0	30.0	6	61.7	11.3	6
11	51.7	16.3	6	45.0	11.3	6
12	80.0	13.1	5	72.0	12.5	5
BOYS 5-8	55.9	12.5	11	52.7	17.5	11
GIRLS 5-8	49.7	26.7	17	50.1	21.5	17
B & G 5-8	52.1	20.0	28	48.3	20.0	28
BOYS 9-12	47.3	17.5	15	46.0	20.5	15
GIRLS 9-12	70.0	28.0	12	73.3	20.5	12
B & G 9-12	57.4	29.6	27	58.5	25.0	27

Table XVIII shows comparative results of the experimental and control groups on the test for Emotionality. Mean scores of the experimental group are higher in grades 6, 7, and 8 but lower in grade 5. M for the experimental group is also higher in grades 10, 11 and 12 but lower in grade 9. The experimental group has a higher M for boys 5-8, boys and girls 5-8, boys 9-12, boys and girls 9-12, but M for girls 5-8 is slightly higher for the control group as it is for girls 9-12 and for boys and girls 9-12.

The quartile deviation is greater for the experimental group in grades 5, 7, and 8. In grades 9 and 12 Q was greater for the control group but in grades 10 and 11 was greater for the experimental group. In the other groups Q was greater for the experimental group in all cases except boys 5-8, and boys 9-12 where the control group had a greater Q, and boys and girls 5-8 where Q was the same for both the experimental and control groups. Q is not given for grade 6 because of the fact that there are only three pupils in that grade.

TABLE XIX  
 COMPARATIVE RESULTS OF SCORES ON ASCENDANCE-SUBMISSION  
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GRADE	EXPERIMENTAL GROUP			CONTROL GROUP		
	M	SD	AD	M	SD	AD
5	24.4	22.7	18.0	24.1	18.7	15.7
6	20.3	15.6	14.3	25.3	10.1	9.7
7	37.7	26.4	22.0	42.7	31.7	28.7
8	38.1	27.6	23.3	62.6	23.8	23.0
9	88.0	13.3	10.8	81.0	19.2	16.8
10	75.0	28.1	23.3	50.0	23.8	16.7
11	88.3	14.6	12.3	75.0	25.0	21.7
12	62.0	28.6	25.6	78.0	23.2	22.4
BOYS 5-8	33.7	18.0	14.8	37.9	30.9	26.3
GIRLS 5-8	29.6	29.3	25.2	40.0	26.7	21.8
B & G 5-8	31.2	25.5	21.3	39.2	28.4	23.5
BOYS 9-12	88.7	13.1	13.8	88.0	15.6	12.3
GIRLS 9-12	70.0	28.6	25.0	52.5	21.3	15.7
B & G 9-12	80.4	23.3	18.2	72.2	25.4	23.6

Table XIX shows comparative results of scores on Ascendance-Submission, giving the standard deviation (SD or sigma) and the average deviation (AD). Mean scores (M) have been repeated here also as a matter of convenience in making comparisons.

It will be noted that SD for the experimental group is greater in grades 5, 6, 8, 10, and 12, and less in grades 7, 9, and 11. SD for the control group is greater for boys 5-8, boys and girls 5-8, boys 9-12, and boys and girls 9-12, but less for girls 5-8 and girls 9-12.

The average deviation for the various grades tends to show differences between the experimental and control groups that are in practically the same proportion as those shown by the standard deviation.

It will be observed that the SD and AD are quite large, indicating considerable variability for each group.

TABLE XX  
COMPARATIVE RESULTS ON SCORES ON EXTRAVERSION-INTROVERSION

GRADE	EXPERIMENTAL GROUP			CONTROL GROUP		
	M	SD	AD	M	SD	AD
5	35.3	30.5	27.7	51.1	25.4	22.5
6	24.3	10.0	9.0	66.3	11.8	11.0
7	43.7	30.7	28.3	54.7	26.3	19.5
8	60.6	31.2	25.3	58.4	29.7	25.9
9	71.0	18.7	15.2	68.0	16.6	14.4
10	78.3	18.6	15.7	46.7	35.4	33.3
11	70.0	17.3	13.3	60.0	15.3	10.0
12	42.0	29.3	23.2	74.0	24.2	19.2
BOYS 5-8	44.6	30.0	27.5	65.2	24.1	38.5
GIRLS 5-8	41.8	32.4	29.3	49.4	25.6	21.5
B & G 5-8	42.9	31.5	28.5	55.6	26.2	21.4
BOYS 9-12	62.7	19.8	21.4	68.0	19.4	15.7
GIRLS 9-12	72.5	27.7	24.2	55.8	29.6	25.5
B & G 9-12	67.0	24.2	20.3	62.6	25.2	20.3

Table XX shows comparative results of scores on Extraversion-Introversion, giving standard deviation (SD), and average deviation (AD). Mean scores (M) have been repeated here also as a matter of convenience in making comparisons.

From this table it will be observed that on this particular test SD for the experimental group was greater in grades 5, 7, 8, 9, 11, and 12, and less in grades 6 and 10. SD of the experimental group was also greater for all other groups of this table, except girls 9-12 and boys and girls 9-12.

Average deviation for the various grades tends to show differences between the experimental and control groups comparable to those shown by the standard deviation.

SD and AD of both groups are sufficiently large to show a rather wide variability, but the experimental group is shown to have a greater variability than the control group on this particular test.

TABLE XXI  
COMPARATIVE RESULTS OF SCORES ON EMOTIONALITY

GRADE	EXPERIMENTAL GROUP			CONTROL GROUP		
	M	SD	AD	M	SD	AD
5	45.8	25.0	21.2	60.4	29.3	24.4
6	51.7	25.3	21.0	44.7	40.0	36.3
7	56.9	31.1	25.9	46.7	19.7	17.0
8	56.0	26.9	20.3	45.7	13.6	11.7
9	45.0	28.0	24.0	58.0	29.3	26.0
10	65.0	10.3	31.7	61.7	18.6	15.0
11	51.7	17.7	15.7	45.0	20.6	18.3
12	80.0	17.9	16.0	72.0	27.9	21.6
BOYS 5-8	55.9	17.6	18.6	52.7	27.3	22.5
GIRLS 5-8	49.7	30.3	25.4	50.1	24.4	20.0
B & G 5-8	52.1	27.8	22.5	48.4	27.3	22.8
BOYS 9-12	47.3	24.9	24.8	46.7	23.9	21.8
GIRLS 9-12	70.0	28.3	25.0	73.3	22.1	18.8
B & G 9-12	57.4	28.8	26.0	58.5	26.6	23.2

Table XXI shows comparative results of scores on Emotionality, giving the standard deviation (SD) and the average deviation (AD). Mean scores have been repeated here also as a matter of convenience in making comparisons.

On this test SD for the control group was greater for grades 5, 6, 9, 10, 11, and 12, and less for grades 7 and 8. SD for the experimental group was greater for girls 5-8, boys and girls 5-8, boys 9-12, girls 9-12, and boys and girls 9-12, but was less for boys 5-8.

As in the two preceding tests, AD for the various grades and combinations of grades bears out the range of variability as shown by SD.

It will also be noted that the size of SD and AD indicate considerable variability. This was true in the two preceding tests as well.

## CHAPTER IV

### Comparison of Data

The purpose of this chapter is to make a comparison of the data presented in Chapter III.

The three tables, together with the explanation and interpretation following each, will indicate what differences, if any, are to be found between the hard of hearing and the normal child.

Differences between mean scores of the experimental and control groups are listed, as are the sigma of the difference and critical ratio. Our primary concern, however, is the last column in each table (CR), because this gives us the results of direct comparison between the two groups.

It is interesting to note that this study indicates the same results on Ascendance-Submission and Extraversion-Introversion as the results of a similar study involving adults<sup>1</sup>, but that the results on Emotionality are somewhat different from those of the adult study. These results also bear out the statement of Dr. Rudolf Pintner that "the hearing loss group is decidedly more neurotic, more introverted, more submissive."<sup>2</sup>

1 Wells, H. H., Measurement of Personality Among Hard of Hearing Adults, p. 66

2 Pintner, R., "Mental Survey of the Deaf" Journal of Educational Psychology 1928, Vol. 19

TABLE XXII  
COMPARISON OF RESULTS ON ASCENDANCE-SUBMISSION

GROUP	N	M	SD	$\sigma$ M	Diff	$\sigma$ Diff	CR
BOYS 5-8							
Exper.	11	33.7	18.0	5.4	4.2	10.7	.4
Control	11	37.9	30.9	9.3			
GIRLS 5-8							
Exper.	17	29.6	29.3	7.1	10.4	9.6	1.1
Control	17	40.0	26.7	6.5			
B & G 5-8							
Exper.	28	31.2	25.5	4.8	8.0	7.2	1.1
Control	28	39.2	28.4	5.4			
BOYS 9-12							
Exper.	15	88.7	13.1	3.4	.7	5.2	.1
Control	15	88.0	15.6	4.0			
GIRLS 9-12							
Exper.	12	70.0	28.6	8.2	17.5	10.2	1.8
Control	12	52.5	21.3	6.1			
B & G 9-12							
Exper.	27	80.4	23.3	4.5	8.2	6.7	1.2
Control	27	72.2	25.4	4.9			

Table XXII gives a comparison of results for the experimental and control groups on the test for Ascendance-Submission, showing the number tested (N), mean scores (M), standard deviation (SD), sigma of the means ( $\sigma M$ ), difference in the means (Diff), sigma of the difference ( $\sigma$  Diff), and critical ratio (CR).

As aforementioned, we are concerned primarily with the critical ratio which is to be found in the last column of each table. This gives us the results of a direct comparison between the two groups.

It will be observed that the two groups differ very little in the lower grades (5-8), but show a marked difference in the upper grades (9-12).

It will be noted also that results for boys, grades 5-8, show very little difference between the two groups, while girls 5-8 show a pronounced difference, with boys and girls 5-8 combined showing a considerable difference also.

Results for high school boys, grades 9-12, show no appreciable difference, while girls of the same grades (9-12) show a decided difference.

It can be concluded from this test then, that the hard of hearing child, while almost normal when very young, tends more toward submission as he grows

older. It is also very evident that hard of hearing girls become submissive to a much greater extent in comparison with normal girls than do hard of hearing boys in comparison with normal boys.

TABLE XXIII  
COMPARISON OF RESULTS ON EXTRAVERSION-INTROVERSION

GROUP	N	M	SD	$\sigma$ M	Diff	$\sigma$ Diff	CR
BOYS 5-8							
Exper.	11	44.6	30.0	9.1	20.6	11.7	1.8
Control	11	65.2	24.1	7.3			
GIRLS 5-8							
Exper.	17	41.8	32.4	7.9	7.6	10.0	.8
Control	17	49.4	25.6	6.2			
B & G 5-8							
Exper.	28	42.9	31.5	5.9	12.7	7.7	1.6
Control	28	55.6	26.2	4.9			
BOYS 9-12							
Exper.	15	62.7	19.8	5.1	5.3	7.1	.7
Control	15	68.0	19.4	5.0			
GIRLS 9-12							
Exper.	12	72.5	27.7	7.9	16.7	11.6	1.4
Control	12	55.8	29.6	8.5			
B & G 9-12							
Exper.	27	67.0	24.2	4.7	4.4	6.7	.7
Control	27	62.6	25.2	4.8			

Table XXIII gives a comparison of results for the experimental and control groups on the test for Extra-version-Introversion, showing the number tested (N), mean scores (M), standard deviation (SD), sigma of the means ( $\sigma M$ ), difference in the means (Diff), sigma of the difference ( $\sigma$  Diff), and critical ratio (CR).

The results of this table indicate on appreciable difference between the two groups even in the lower grades. This difference tends to become somewhat greater among the older pupils but not so much so as on the test for Ascendance-Submission. Results also indicate that hard of hearing boys are more introverted when compared with normal boys than are hard of hearing girls when compared with normal girls.

TABLE XXIV  
COMPARISON OF RESULTS ON EMOTIONALITY

GROUP	N	M	SD	$\sigma$ M	Diff	$\sigma$ Diff	CR
BOYS 5-8							
Exper.	11	55.9	17.6	5.3			
Control	11	52.7	27.3	8.3	3.2	9.8	.3
GIRLS 5-8							
Exper.	17	49.7	30.3	7.4			
Control	17	50.1	24.4	6.0	.4	9.5	.04
B & G 5-8							
Exper.	28	52.1	27.8	5.2			
Control	28	48.4	27.3	5.1	3.7	7.3	.5
BOYS 9-12							
Exper.	15	47.3	24.9	6.4			
Control	15	46.7	23.9	6.1	.6	8.8	.07
GIRLS 9-12							
Exper.	12	70.0	28.3	6.1			
Control	12	73.3	22.1	6.3	3.3	10.3	.3
B & G 9-12							
Exper.	27	57.4	28.8	5.5			
Control	27	58.5	26.6	5.1	1.1	7.5	.15

Table XXIV gives a comparison of results for the experimental and control group on the test for Emotionality, showing the number tested (N), mean scores (M), standard deviation (SD), sigma of the means ( $\sigma M$ ), difference in means (Diff), sigma of the difference ( $\sigma$  Diff), and critical ratio (CR).

All combinations of grades or groups show that there is no appreciable difference in the two groups on this test. Indications then, are that in emotionality there is little or no difference between the hard of hearing child and the normal child. This holds true as regards both boys and girls, and for pupils of lower grades as well as those of high school age.

## CHAPTER V

### Summary and Conclusions

The conclusions reached in this study are not universal in their application nor can they be considered final in the particular situation to which they apply. There are many factors which influence a study of this kind. First of all, the measurement of any aspect of personality with a high degree of accuracy is rather difficult. Then, too, even the best personality tests available are not as well standardized as other types of tests, and the authors themselves are ready to admit various weaknesses. The principal factor, however influencing a study of this kind is the comparatively small number of cases available for study. For a study of this kind to be of most value it should be carried on among a much larger group. This would make it possible to assemble sufficient data to make the results more reliable.

The principal facts drawn from this study, to which a few references have already been made, are as follows:

1. The number of cases of deficient hearing was 9.1% of the total number tested.
2. The number of children who were found to have a hearing deficiency in one ear only was 5.8% of the total number tested.

3. Those pupils who were hard of hearing in both ears represented 3.3% of the entire group.
4. On the Pintner Test, "Aspects of Personality," which was used in grades 5-8, mean scores of the normal group were higher than for the hard of hearing in Ascendance-Submission and Extraversion-Introversion, but there was no significant difference in means of the two groups as regards Emotionality.
5. Results of the "Nebraska Personality Inventory," which was used in grades 9-12, show decidedly higher mean scores for the hard of hearing on Ascendance-Submission and Extraversion-Introversion, and slightly but not significantly higher on Emotionality.
6. Hard of hearing children, while almost normal when very young, tend more toward submission as they grow older.
7. Girls who are deficient in hearing become submissive to a much greater extent in comparison with normal girls than do hard of hearing boys in comparison with normal boys.

8. Hard of hearing children are introverted even when very young. This personality defect, however, tends to become somewhat more pronounced as the child grows older.
9. Boys who have a hearing deficiency are more introverted when compared with normal boys than hard of hearing girls when compared with normal girls.
10. There is little or no difference in the emotionality of hard of hearing children when compared with normal children.
11. Hard of hearing children invariably lack normal development in some phase of the personality.

## BIBLIOGRAPHY

- Allport, G. W. and F. H. Ascendance-Submission Reaction Study. Dallas, Houghton Mifflin Company.
- Bell, Hugh M. The Adjustment Inventory. Stanford University Press, Stanford, California.
- Bonnell, Baker. "Testing the Hearing of Very Small Children." Hygeia, October, 1937, p. 910-911.
- Bonnell, Baker. "Results of the 4-B Audiometer Testing Program Conducted in the Lawton Public Schools." A report to the Oklahoma State Board of Education.
- Bonnell, Baker. "Results of the 4-B Audiometer Testing Program Conducted in the Okmulgee Public Schools." A report to the Oklahoma State Board of Education.
- Department of Superintendence. Tenth Yearbook Character Education. National Education Association of the United States, Washington, D. C.
- Garrett, Henry E. Statistics in Psychology and Education. New York, Longmans, Green, 1926.
- Guilford, J. P. The Nebraska Personality Inventory. University of Nebraska, Lincoln, 1934.
- Guilford, J. P. and Ruth B. "Personality Factors S, E, and M and Their Measurement." Journal of Psychology, 2, 109-127.
- McCall, Wm. A. How to Measure in Education. New York, Macmillan Company, 1922.
- Newhart, Horace, M. D. "Modern Methods for Caring for the Deaf and Hard of Hearing." Minneapolis, Minn. A pamphlet.
- Pintner, Rudolf. Aspects of Personality. New York, World Book Company.
- Pintner, Rudolf. "Mental Survey of the Deaf." Journal of Psychology, 1928, Vol. 19.
- Steinberg, John C. and Gardner, Mark B. "The Dependence of Hearing Impairment on Sound Intensity." Journal, Acoustics Society of America, July, 1937, p. 11-23.

Tiegs, E. W. and Crawford, C. C. Statistics For Teachers. Houghton Mifflin Company, 1930.

Webb, L. W. and Shotwell, Anna M. Standard Tests in the Elementary School. New York, Long and Smith Inc., 1932.

Welles, H. H. Measurement of Personality Among Hard of Hearing Adults. New York, Teachers College, Columbia University.

Willoughby, Raymond H. Thurstone Personality Schedule (Clark Revision) University of Chicago Press, 1932.

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