COMPARATIVE STUDY OF THE HEARING ABILITY OF RURAL AND URBAN CHILDREN IN KAY COUNTY, OKLAHOMA.

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H.E.K.H.

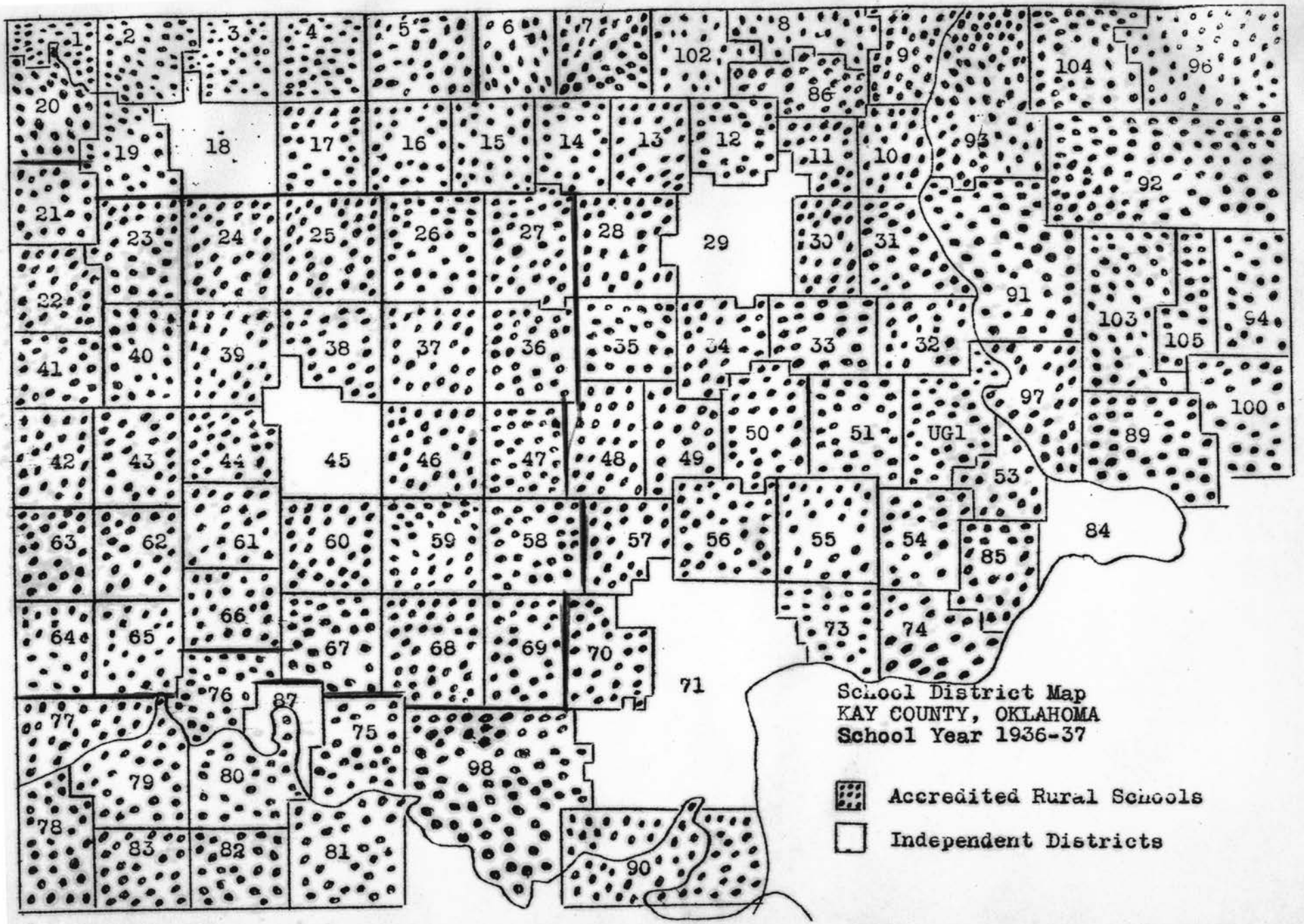
C O N T E N T S

Problem		Page
I	TESTING CHILDREN	1
II	DETERMINE HEARING DEFICIENCY	2
III	HISTORICAL BACKGROUND	3
IV	PURPOSE	5
V	METHOD	7
VI	VALUE	12
VII	SUMMARY - CONCLUSIONS	14

PREFACE

The writer became interested in children handicapped by deficiency in hearing through cases accidentally discovered in the school system in which he was employed.

The seeming intentional covering-up, by parents, of their own children when they had reason to believe something was not altogether normal with their children, on the one hand, and the parent who was entirely unaware of any defect whatsoever, furnished the incentive for this study.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90
School District Map
KAY COUNTY, OKLAHOMA
School Year 1936-37
Accredited Rural Schools
Independent Districts

NAME _____ SCHOOL DISTRICT NO. _____

AGE _____ SEX _____ TEACHER _____

DATE _____ GRADE _____

DO NOT MAKE ANY NOISE AS IT WILL SPOIL THE TEST

Instructions.

You will hear numbers spoken by a person who is moving away from you. The voice will get weaker and weaker. Listen carefully and write as many numbers as you can hear.

Percentage Hearing Loss	1	2	3	4	5	6	7	8	Percentage Hearing Loss
30									30
27									27
24									24
21									21
18									18
15									15
12									12
9									9
6									6
3									3
0									0
-3									-3
	Hearing Loss ____				Hearing Loss ____				

1. Heredity ____ 2. Disease ____ 3. Accident ____

Is Father hard hearing? Yes No

Is Mother hard hearing? Yes No

Is Brother hard hearing? Yes No

Is Sister hard hearing? Yes No

Card No. ____

TOPIC

Comparative Study of the Hearing Ability of Rural and Urban Children in Kay County, Oklahoma.

Problem I. To discover the hearing ability of the school children in Kay County, Oklahoma. It is taken for granted that a certain percent of the school children in the county have hearing difficulties.

Problem II. It is essential to locate these children and determine the amount of hearing they retain to complete the study.

Problem III. Historical Background.

1. What has been done in general in Oklahoma.
2. What is known about the local condition, District 45, Kay County.
   a. As to number with hearing defects.
   b. What has been done to date.

Problem IV. Purpose: To assist pupils to a better social adjustment.

1. By informing teachers.
2. By informing parents.
3. By creating remedial mindedness among responsible people, city and county. Make it possible for the actual condition to be known. Assist pupils to contact the proper authorities for professional service.
4. To be used as additional information to assist in better adjusting the pupils who are transferred to the Blackwell, Oklahoma schools.

Problem V. 1. It will be necessary to visit schools and test the ability of the pupils to hear.

2. The instrument to be used will be an Audiometer. Capacity of 20, No. 4B machine, manufactured by Western Electric Company, and purchased from Western Electric Audiophone Company, Medical Arts Building, Room 1016, Oklahoma City, Oklahoma.

3. A score card will be used for each pupil.

4. The score card will be constructed, then mimeographed.

5. Acute cases and disadvantageous situations may necessitate retesting.

Problem VI. Value.

1. To learn something definite about the pupils quantity of hearing.

2. Expose the pupils who are covering up their hearing defect.

3. To know, will aid teacher in dealing with children so handicapped.

4. Twelve per cent become deaf between the ages of 6 and 14.

5. Deafness lends to treatment but the longer neglected the more difficult to remedy.

6. Parent education: To better understand the possibility of certain diseases leaving their children permanently handicapped.

Problem VII. Findings.

1. Hearing ability of rural children.
2. Hearing ability of urban children.
3. Hearing ability of rural children by grades.
4. Hearing ability of urban children by grades.
5. Hearing ability of rural boys.
6. Hearing ability of rural girls.
7. Hearing ability of urban boys.
8. Hearing ability of urban girls.
9. Digits missed in test.

Conclusion.

Problem I. To discover the hearing ability of the school children in that portion of Kay County, Oklahoma, which was selected for the test. The deficiency in hearing was determined by the use of one of the latest model Audiometers, the 4B instrument, made by the Western Electric Company, Oklahoma City, Oklahoma.
This study will measure the hearing ability by the amount of deficiency in hearing which is found by testing the children. It is a part of this study to ascertain the percent of children in the danger zone of deficiency in each ear, and in both ears.

Problem II. It is essential to locate the children and determine the amount of hearing deficiency to complete the study. This work must necessarily be done during the time school is in session - otherwise it would be an endless task to reach the children to test them.

There are certain routine matters which must be carried out at school. The time to do the testing must come after these have been done, between recess periods and lunch time. It is difficult to hold children after dismissal time, especially in the rural school because of distances they must go, and work that is to be done when children reach home.

It was decided after discussion with Dr. N. Conger, in the Education Department, A & M College, that the testing could be satisfactorily done anytime between 9:00 A.M. and 4:00 P.M. To make the time of testing comparable to all schools, practically all the testing was done during January, February, and March, 1938.

Problem III. There has been very little done in the testing work in Oklahoma when it is considered as a whole.

Muskogee has taken an active interest in a program of testing for the feficiency of hearing. Oklahoma City has carried on a good program and Tulsa has followed a similar program.

It has been true in Oklahoma as in other states that the first move to detect and aid children with hearing defects has been begun in the larger city systems. This is due very largely to the fact that finances can be made available in these systems, and because so many more cases are found under one administrative head.

When the reports have been sent by the teachers to the principal, and from the principal to the superintendent's office, and are aggregated, they present a picture which causes enough concern to produce a program in the interest of these handicapped children. Mr. Baker Bonnell, who began this work in the interest of children deficient in hearing in the Muskogee Oklahoma Schools, was very largely responsible for legislation being enacted in their behalf. The development of his program in the Muskogee Schools resulted in Senate Bill No. 303, which in substance is:

'An act Providing for the establishment in

Oklahoma Teachers Colleges a Course of Instruction with reference to the Development of Method for Teaching Children with Deficiency of Hearing."

In Kay County, Oklahoma, nothing has been done in regard to detecting children with deficiency of hearing. It follows, that if these children are not known, there can not be any remedial program.

The question arises, "Are there any children deficient in hearing in Kay County, Oklahoma?" Where the words 'Kay County' are used, that part of the County covered in the testing, is meant. Just how many deficient in hearing in the area covered, is a part of this study.

The White House Conference on Child Health and Protection shows the interest on the part of the government and educators concerning the health of children. There were more than three hundred different individuals working on the health program.

This work begins with the general health of the child. First would come the health examination and inspection by specialists, then the follow up program and corrections.

The school has an important health service to perform in bringing to the attention of the proper authorities the defect of the children. This committee recommends a thorough pre-school examination for every

child, followed by an examination once a year. Anything which retards a child should be eliminated if possible. The following shows the extent to which the health program is being carried on: 'Seventy-five percent of communities with 2,500 to 10,000 population are administering a definite health program.' The large cities have been doing this for some time.

Hearing deficiency is ont of the handicaps of health - especially from a mental standpoint. This justifies the statement concerning interest in health in general.

Thirty-seven states have laws regarding medical inspection of school children. The education of the deaf is an important responsibility of government departments. The number of residual school has remained about the same, but more schools are being provided by states for this group. Compulsory laws should be more strict and the age at which children with hearing defectscan leave school, should be raised. The type of training should be suited to the ability of the hard of hearing. Dr. Donald Patterson and Dr. Rudolph Putner, Ohio State University, have worked out both mental and educational tests to be used in studying the deaf.

The reason given for a smaller percent of those handicapped because of being hard of hearing, enrolling in state institutions is found in the importance placed on classes for the deaf by the city day school. It follows that more and more the education of the deaf will become a function of the public day schools. In Education, as in other endeavors, you get what you pay for - no more.

Problem IV. There is a vital need of an effort to bring about a good program for better social adjustment of these children, for deafness often produces a depressed mental attitude, a feeling of being shut out, isolated, which tends to cause them to withdraw from society. It lessens their ecomomic usefulness and decreases the joy of living.

1. Teachers were given a report of the test for each child, showing the Right ear and the Left ear deficiency.
2. Parents were sent a card through the teacher, if a child by test, showed '9' or more points deficiency in either or both ears. A regular postal card was used and addressed to Superintendent City Schools, Box 639, Blackwell, Oklahoma. The card was given a number, as follows:

Card No. ___ _____Oklahoma.

_____1938.

This is to certify that _____
Name of Child

Address _____

consulted me concerning hearing defects.

Signed _____
Physician.

3. The purpose of the card was, first, to inform the parents of the findings, and second, to get a check on whether any remedial work was being done as a result of the information sent to the parents. Many

parents can, and will, look after the needs of their own children. There are many who will need financial assistance. In such cases the school authorities know how to contact State and local organizations for necessary aid. There are from 160 to 170 students transferred to District 45, Kay County, each year. Ninety to ninety-seven percent of these come from the area included in this study. It is felt that having tested the children in these districts, and with the follow-up cards, something will be known concerning the hearing defects of this group and whether any remedial steps have been taken. If no remedial work has been done, no examination made, the administration of the school will still have a record of the testing to aid in assisting the student in selection of certain courses and apprising the teacher of the situation. This will be of real value to his instructor in making subject assignment, class recitation and assigning seats.

Problem V. A personal letter was given to each teacher, also a copy of a letter from the County Superintendent of Public Instruction, Kay County, Oklahoma, voicing approval of this testing program. A map showing the area to be covered and an explanation of the form used in making the test were discussed. Having the tests in advance, answering questions concerning the proceedure with the pupils, prepared them for the test. Each of the following school Districts listed by number was visited. The program presented and children tested. The number of pupils in the first and second grades was learned through the County Superintendent's office, to determine whether or not it would be necessary to have some older people present to assist with the testing.

The instrument provided was a No. 4B Audiometer, Western Electric Company, Oklahoma City, Oklahoma. The score card used is a standard form, but some changes were made in the personal information questions.

List of Rural Schools Tested.

DISTRICT NO.	GRADES 1st	GRADES 2nd	TOTAL ENROLMENT
21	1	0	5
23	2	0	11
25	5	0	14
26	2	3	26
27	3	3	22
36	1	2	12
37	3	0	7
38	3	0	14
39	0	3	15
40	1	1	13
41	4	1	16
42	4	6	93
43	1	1	10
44	0	1	8
46	5	4	20
47	1	2	18
58	2	1	14
59	2	4	19
60	1	1	12
61	0	4	28
62	2	2	23
63	1	1	16
64	0	0	9

DISTRICT NO.	GRADES 1st	2nd	TOTAL ENROLMENT
65	2	2	12
66	3	4	22
67	2	0	11
68	0	5	15
69	2	2	19

Form letter sent to each teacher.

_____1938.

Teacher's Name
Teacher's Address

My Dear _____:

You will find enclosed blanks used in recording results of the 'ear testing machine' also a copy of the letter from Mr. Floyd Coates, approving the use of this machine in the County Schools.

Please fill out the top of a sheet for each pupil at your earliest convenience, it will save time on the day we work in your school.

Any patrons interested are welcome to take this test at the same time, which I believe will be _____.

Thanking you in advance, I am

Very truly,

Harry Huston
Superintendent

Copy of letter from County Superintendent

Mr. Harry Huston
Superintendent of Schools,
Blackwell, Oklahoma.

Dear Mr. Huston:

I am glad to assist you with your work among the rural boys and girls, in testing their ears. I am very happy that the Blackwell schools have decided to purchase an Audiometer. This will be of material benefit to our schools, and I appreciate your offer to assist in making these tests.

You have my fullest co-operation.

Very truly yours,

Floyd L. Coates,
County Superintendent.

Copy of the letter enclosed with each report in the districts participating in the Audiometer tests.

_____1938.

Inclosed is the record of hearing tests which were conducted in your school. If the marks are plus three, it means the hearing is very acute. A 'zero' means 'good'. When the deficiency reaches 'nine' it warrants the parents having the child examined by a specialist. Weather conditions, outside noise, the child's condition at time of testing, all have some effect on results.

It is not intended to try to scare parents into taking a child to the specialist, but can be used as a warning to have them examined as soon as possible. It is hoped parents will give exceptionally good care to children during all diseases, because lack of proper care often causes deafness or a degree of deafness.

In final analysis, the aim is to help our boys and girls and protect them from any defect and make the parents conscious of need of knowing, and to be anxious to do something immediately if a defect is noted.

We wish to thank you for your co-operation in conducting this test and want you to know the School Board and school officials are very much interested in the welfare of all youngsters.

Sincerely,

Harry Huston
Superintendent

Problem VI.

1. This study will give something definite concerning a pupils deficiency of hearing.
2. Some parents will not notify teachers if they even feel their child has some hearing defects. Some do not know such condition exists, and some pupils attempt to conceal their handicap.
3. Teachers learning the truth will be aided in teaching these pupils. Though not schooled in such technique, they can encourage parents to consult specialists and assist in a remedial program.
4. Of those who acquire hearing deficiency, it occurs to 9% between the ages of 5 and 10 years. These children are found in the grades in which the comparative study is made between the Rural and Urban schools.[1]
5. Deafness may lend to treatment, but it is found that the longer it is neglected the more slowly it responds. If neglected too long it fails to respond to treatment.

   Since this handicap fixes itself more firmly as a child grows older, it is imperative to begin remedial work as soon as possible, in children of school age.

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1 Scheideman 'Phychology of Exceptional Children' Page 345. Houghton Mifflin Company.

6. Parent education is extremely important. Parents should ever be grateful when they learn their children have defects, with the all important idea of helping the child. Parents should be informed that deafness can be treated reasonably successfully. They should know that many children's diseases contribute to, or cause deafness and warrant the best of care of children during and after a sick spell.

Problem VII. Findings.

1. The hearing ability in this study was determined by finding the amount of hearing less than normal as figured on the rating sheet, with each group, the Rural and Urban, the loss was determined by getting the average loss for the boys and girls in each grade and the average loss for each ear. The very acute were marked by a plus 3. This is more comparable with making good grades. It seemed inconsistant on the score card used by some to credit a 'minus' three for the keenest hearing.

   In determining the average the plus 3 was a credit. It was thought this would be fair since it was followed in checking each group.

2. The total deficiency was determined for each group, Rural and Urban, and for the boys and girls in each group and for each ear. The average deficiency was figured from the above, the comparison made, the results of the testing are here tabulated.

   The number tested was not large, but the testing was very uniformly done. Directions, in administering the test, were explicitly followed. Records were destroyed when used as many times as they could be and keep a well regulated tone. The number of runs recommended is not over one hundred times. The re-

cords were destroyed at near one hundred runs, rather than risk using a worn record.

Needles were changed after each running and the Audiometer completely wound for each testing. Kinks and knots in the phone cords were carefully removed, the windows were closed, and all children cautioned not to make any noise so the test would be as nearly the same for each pupil as the situation permitted.

For all the First Grade and some of the Second Grade, older pupils were used to transcribe dictation to the score sheet. This was to test hearing, not the ability to transcribe.

The number of pupils included in the study in Grades One to Six, was as follows:

Rural Boys	162	Urban Boys	583
Rural Girls	166	Urban Girls	513

The Seventh and Eighth Grades were tested, but no comparison made:

Seventh Grade Boys	37
Seventh Grade Girls	27
Eighth Grade Boys	25
Eighth Grade Girls	39

Hearing deficiency, Rural Children, Grades One to Six:

First Grade Boys	First Grade Girls
Number 18	Number 29
Aggregate Loss:	Aggregate Loss:
Right ear 78	Right ear 90
Left ear 75	Left ear 144
Second Grade Boys	Second Grade Girls
Number 24	Number 23
Aggregate Loss	Aggregate Loss:
Right ear 90	Right ear 114
Left ear 125	Left ear 141
Third Grade Boys	Third Grade Girls
Number 37	Number 24
Aggregate Loss:	Aggregate Loss:
Right ear 108	Right ear 87
Left ear 150	Left ear 216
Fourth Grade Boys	Fourth Grade Girls
Number 33	Number 27
Aggregate Loss:	Aggregate Loss:
Right ear 90	Right ear 105
Left ear 144	Left ear 132
Fifth Grade Boys	Fifth Grade Girls
Number 25	Number 34
Aggregate Loss:	Aggregate Loss:
Right ear 142	Right ear 183
Left ear 153	Left ear 225
Sixth Grade Boys	Sixth Grade Girls
Number 25	Number 29
Aggregate Loss:	Aggregate Loss:
Right ear 129	Right ear 162
Left ear 177	Left ear 153

Hearing deficiency Urban Children, Grades One to Six.

First Grade Boys	First Grade Girls
Number 102	Number 67
Aggregate Loss:	Aggregate Loss:
Right ear 321	Right ear 297
Left ear 534	Left ear 450
Second Grade Boys	Second Grade Girls
Number 98	Number 86
Aggregate Loss:	Aggregate Loss:
Right ear 477	Right ear 522
Left ear 588	Left ear 480
Third Grade Boys	Third Grade Girls
Number 103	Number 93
Aggregate Loss:	Aggregate Loss:
Right ear 369	Right ear 437
Left ear 486	Left ear 541
Fourth Grade Boys	Fourth Grade Girls
Number 89	Number 93
Aggregate Loss:	Aggregate Loss:
Right ear 330	Right ear 300
Left ear 309	Left ear 402
Fifth Grade Boys	Fifth Grade Girls
Number 94	Number 96
Aggregate Loss:	Aggregate Loss:
Right ear 549	Right ear 429
Left ear 531	Left ear 534
Sixth Grade Boys	Sixth Grade Girls
Number 97	Number 78
Aggregate Loss:	Aggregate Loss:
Right ear 447	Right ear 327
Left ear 489	Left ear 357

The average Hearing Deficiency of the Rural Boys and Girls by Grades:

First Grade Boys	First Grade Girls
Right ear 4.33	Right ear 3.1
Left ear 4.16	Left ear 5.0
Second Grade Boys	Second Grade Girls
Right ear 3.75	Right ear 5.0
Left ear 5.38	Left ear 6.13
Third Grade Boys	Third Grade Girls
Right ear 2.92	Right ear 3.62
Left ear 4.0	Left ear 9.0
Fourth Grade Boys	Fourth Grade Girls
Right ear 2.72	Right ear 3.88
Left ear 4.33	Left ear 4.14
Fifth Grade Boys	Fifth Grade Girls
Right ear 5.88	Right ear 5.38
Left ear 6.12	Left ear 6.61
Sixth Grade Boys	Sixth Grade Girls
Right ear 5.16	Right ear 5.57
Left ear 7.08	Left ear 5.27

The average Hearing Deficiency of Urban Children, Grades One to Six:

First Grade Boys	First Grade Girls
Right ear 3.14	Right ear 4.43
Left ear 5.23	Left ear 6.71
Second Grade Boys	Second Grade Girls
Right ear 4.25	Right ear 6.04
Left ear 5.18	Left ear 5.58
Third Grade Boys	Third Grade Girls
Right ear 3.58	Right ear 4.37
Left ear 4.71	Left ear 5.41
Fourth Grade Boys	Fourth Grade Girls
Right ear 3.7	Right ear 3.22
Left ear 3.47	Left ear 4.32
Fifth Grade Boys	Fifth Grade Girls
Right ear 5.84	Right ear 4.47
Left ear 5.65	Left ear 5.56
Sixth Grade Boys	Sixth Grade Girls
Right ear 4.60	Right ear 4.19
Left ear 5.04	Left ear 4.57

The table below gives the average Deficiency by Grades for Boys and Girls, and for each ear, (Grades One to Six.)

GRADE	BOYS		GIRLS	
	Rural	Urban	Rural	Urban
First	Right ear 4.33	Right ear 3.14	Right ear 3.1	Right ear 4.43
	Left ear 4.16	Left ear 5.23	Left ear 5.0	Left ear 6.71
Second	Right ear 3.75	Right ear 4.25	Right ear 5.0	Right ear 6.04
	Left ear 5.38	Left ear 5.18	Left ear 6.13	Left ear 5.58
Third	Right ear 2.92	Right ear 3.58	Right ear 3.62	Right ear 4.37
	Left ear 4.0	Left ear 4.71	Left ear 9.0	Left ear 5.41
Fourth	Right ear 2.72	Right ear 3.7	Right ear 3.88	Right ear 3.22
	Left ear 4.33	Left ear 3.47	Left ear 4.14	Left ear 4.32
Fifth	Right ear 5.88	Right ear 5.84	Right ear 5.38	Right ear 4.47
	Left ear 6.12	Left ear 5.65	Left ear 6.61	Left ear 5.56
Sixth	Right ear 5.16	Right ear 4.60	Right ear 5.57	Right ear 4.19
	Left ear 7.08	Left ear 5.04	Left ear 5.27	Left ear 4.57

The table below gives the average Deficiency of Hearing for Rural and Urban children for both ears. Grades One to Six.

GRADE	BOYS		GIRLS	
	Rural	Urban	Rural	Urban
First	8.49	8.37	8.1	11.14
Second	8.13	9.43	11.13	11.62
Third	6.92	8.29	12.62	9.78
Fourth	7.05	7.17	8.02	7.54
Fifth	12.00	11.49	11.99	10.03
Sixth	12.24	9.64	11.84	8.76

The sum of the average Deficiencies per pupil, both ears, is:

BOYS		GIRLS	
Rural	Urban	Rural	Urban
55.83	54.39	62.70	58.87

The average Deficiency for each group of boys and girls per grade:

BOYS		GIRLS	
Rural	Urban	Rural	Urban
9.305	9.065	10.45	9.81

Average Deficiency, Rural Boys 9.305
Average Deficiency, Urban Boys 9.065
.240

Average Deficiency, Rural Girls 10.45
Average Deficiency, Urban Girls 9.81
.64

Deficiency difference in percent.
One point on the Rating Scale equals three percent.
Urban Boys Deficiency of Hearing is: 3 x .24 or .72 of one percent less than Rural Boys.

Urban Girls Deficiency of Hearing is 3 x .64 or 1.92 percent less than Rural Girls.

To obtain average Deficiency in percent for each ear - Average Deficiency for both ears, -

BOYS		GIRLS	
Rural	Urban	Rural	Urban
9.305	9.065	10.45	9.81

Average Deficiency each ear equals each of the above divided by two. Multiply the result by three to obtain the Deficiency in percent. This has more meaning to most people than to say, "Deficiency of so many points."

9.305 Deficiency, Rural Boys, both ears.
9.305 ÷ 2 Deficiency, Rural Boys, each ear.
4.6525 x 3 Deficiency equals Rural Boy per ear 13.9575%
9.065 Deficiency, Urban Boys both ears.
9.065 ÷ 2, times 3, equals 13.5975%
.3600%

36 percent advantage, each ear.

2 x.36 equals .72%, or both ears, same as above.

There is a fractional difference in taking the average deficiency per pupil, per grade, than in just taking the total deficiency and dividing by the number of pupils. The former method was used because it gives

a better picture as far as this study is concerned, for each ear of each pupil and by grades.

Reducing all deficiecny to percent, for Rural and Urban boys and girls, gives the following:

Rural boy's average deficiency, each ear 13.95%
Urban boy's average deficiency, each ear 13.59%

Rural girl's average deficiency, each ear 15.67%
Urban girl's average deficiency, each ear 14.72%

The testing and scoring of the Seventh and Eighth Grades in Rural Schools gave the following:

R U R A L

Seventh Grade		Eighth Grade	
Boys 37	Girls 27	Boys 25	Girls 39
Aggregate Loss:			
Right ear 84	Right ear 72	Right ear 114	Right ear 162
Left ear 126	Left ear 96	Left ear 159	Left ear 207
Average Loss:			
Right ear 2.27	Right ear 3.0	Right ear 4.56	Right ear 4.15
Left ear 3.40	Left ear 3.96	Left ear 6.36	Left ear 5.3
Total average Loss, both ears:			
Boys - 5.67	Girls - 6.96	Boys - 10.92	Girls - 9.45

Except in the case of the Eighth Grade Boys, the results show that in these two grades the students rate a smaller deficiency in hearing than the average per pupil per grade for grades One to Six.

From the Urban district much concern is evidenced concerning these grades because a good many of them will be attending District 45, Kay County, the Urban District conducting the test. It is felt some def-

inite knowledge of any hearing defect would be caluable in adjusting any of these students who attend the sponsoring district, or could be used by any district which the pupil may attend.

Additional Findings brought out by the test were:

One boy and one girl were found who could not register a point in either ear. One of these has been struggling along for five years without a definite remedial program. The education of the other is being cared for by his parents.

It will be interesting to note the tabulation of the extremes in the hearing. The first table is the tabulation of all children who rated a plus three (3) in either or both ears. The second table, those who rated a deficiency of twelve (12) or more in either ear, and the third table those who rated a deficiency of twelve (12) in both ears.

Table One, Number rating plus 3 in either or both ears.

GRADE	RURAL		URBAN	
	Boys	Girls	Boys	Girls
First :	Right ear 3	Right ear 10	Right ear 29	Right ear 13
	Left ear 0	Left ear 0	Left ear 2	Left ear 0
Second :	Right ear 7	Right ear 2	Right ear 16	Right ear 9
	Left ear 2	Left ear 2	Left ear 2	Left ear 2
Third :	Right ear 7	Right ear 2	Right ear 26	Right ear 19
	Left ear 1	Left ear 17	Left ear 7	Left ear 3
Fourth :	Right ear 8	Right ear 5	Right ear 29	Right ear 18
	Left ear 4	Left ear 4	Left ear 7	Left ear 8
Fifth :	Right ear 0	Right ear 1	Right ear 3	Right ear 11
	Left ear 3	Left ear 4	Left ear 5	Left ear 9
Sixth :	Right ear 1	Right ear 1	Right ear 9	Right ear 7
	Left ear 5	Left ear 3	Left ear 13	Left ear 10
	Boys 26%	Girls 21%	Boys 24%	Girls 21%

It is realized that with the small number tested a few extremes will throw the results off normal. The following table gives the percent of pupils with a deficiency of twelve (12)or more in either ear.

GRADE	RURAL		URBAN	
	Boys	Girls	Boys	Girls
First	11%	16%	8%	25%
Second	12%	25%	11%	20%
Third	8%	16%	7%	7%
Fourth	6%	25%	8%	9%
Fifth	25%	14%	5%	5%
Sixth	25%	33%	6%	10%

Average for Rural Boys 13%)
) Average 16.5
Average for Rural Girls 18%)

Average for Urban Boys 15%)
) Average 16.5
Average for Urban Girls 16%)

Number rating a deficiency of twelve (12) points or more, both ears.

GRADE	RURAL		URBAN	
	Boys	Girls	Boys	Girls
First	18 - 0	29 - 0	102 - 1	67 - 3
Second	24 - 1	23 - 0	98 - 5	86 - 3
Third	37 - 2	24 - 0	103 - 1	93 - 6
Fourth	33 - 3	27 - 1	89 - 1	93 - 2
Fifth	25 - 3	34 - 4	94 - 6	96 - 4
Sixth	25 - 3	29 - 1	97 - 4	78 - 2
	16 - 12 -7%	166 - 6 - 3.6%	383 - 18 -3%	513 - 20 -4%

The digits missed by grades became an interesting part of this study. The reasons for this checking were to better understand the test and test materials - audiometer - records, and technique to follow in testing pupils.

In checking the digits used and their frequency of occurrence in the test, it was found for grades One to Four the digits appeared very nearly as follows in the test:

1	2	3	4	5	6	7	8	9	0
26	26	26	26	26	26	0	27	0	0

And for Grades Five and up:

1	2	3	4	5	6	7	8	9	0
39	35	42	48	28	47	7	49	0	0

The digits missed by all pupils, grades One to Four on the score sheet down to the place they were unable to register correct numbers were:

1	2	3	4	5	6	7	8	9	0
478	2486	2868	478	120	1912	0	3063	0	0

Digits missed by Grades Five and up:

1	2	3	4	5	6	7	8	9	0
193	1156	1734	578	213	1445	0	3063	0	0

The reason there are not any checks for digits 7 - 9 and 0, is that they do not appear in the test. Digit 8 was missed in ratio to appearance:

Appeared 76 times, was missed 7365 - 97 to 1,

1 Appeared 65 times, was missed 671 - 13 to 1.

5 Appeared 54 times, was missed 333 - 5 to 1.

Most of the teachers in the districts included in this study were tested with the pupils.

RURAL TEACHERS		URBAN TEACHERS	
Aggregate Loss:		Aggregate Loss:	
Right ear	54	Right ear	125
Left ear	69	Left ear	159
Average Loss:		Average Loss:	
Right ear	1.6	Right ear	2.9
Left ear	1.7	Left ear	3.4

The number test was small. One of the Urban teachers registered a 30 point loss in her right ear which increased the deficiency of Urban teachers.

It was also found that teachers missed the even digits at the ratio of 'one' odd digit to '3.8' even digits.

CONCLUSION

Pertaining directly to this study, some interesting results were obtained. The children were tested, some found deficient in hearing, and the degree of the deficiency determined. The hearing ability of Rural Children is practically the same as those in the City. There was less than one percent advantage in favor of the Urban boy over the Rural boy. The Urban girl has less than two percent advantage over the Rural girl. The boys in each group rate a better hearing than the girls.

It was found that the digit '8' was missed more than any other digit and that digits '3' and '8' were transcribed for one another, many times. The digits '7', '9' and '0' were not used in the test. The even digits were missed a greater number of times than the odd digits.

It is the opinion of the writer that children handicapped by deficiency in hearing are better prepared for life if they can be educated in the public schools. The children need to associate with the normal child. They will be less self-centered and will be growing up in an environment in which they are going to live. Some children cannot attend a private or special school, because of the expense. At present, only in a few large cities, are provisions made and teachers available to instruct these children.

The child deficient in hearing deserves proper remedial treatment to cure or help him as much as possible and to be given the proper kind of an education. It is more clearly evident, an obligation of the State to provide training for teachers to adequately qualify them to instruct this group.

When deafness has been established, it is more than a problem of training and education. The deaf will be retarded if the defect has been present for any length of time. The retardation will increase if the education of the ones afflicted is not given proper attention. People handicapped by deficiency in hearing need, and want, to be able to make a living. They will appreciate an opportunity to become proficient in at least one of the several trades in which they can do creditable work.

The Audiometer may not reproduce the digits, eight (8), six (6), three (3) and two (2) as clearly as the other digits. Except in the case of digit three (3) the even number digits were incorrectly used more than the odd number digits. The failing to use digits 7 - 9 or 0 on the test records would require an explanation from the makers of the test. It is thought these digits should be included.

The benefit to be derived from these results will be in the pronunciation and during dictation. This brings up the question of rate of hearing which has been given very little consideration in the average class room.

It will be a real virtue in teaching for the teacher to recognize individual differences in the hearing ability of the pupils.

The important aim of teaching is to help the child. One of his many handicaps may be a deficiency in hearing. Parents may not know the true conditions. The 'Follow up' cards sent through the principal or teachers, and by the pupils to the parents have brought our a very wholesome and interested attitude. Specialists are being consulted by parents and children are examined. These cards are mailed to the writer

by the Specialist making the diagnosis. The number returned has been very pleasing, since the cards have been in the hands of the parents only a few days. The reaction of teachers and parents to date, would make this study worth while because some are going to be benefited. Parents whose children have had attention are more remedial minded and the children will lend impetus to the program by insisting on treatment. The appeal, of those who have been able to hear and now can not, is going to have a profound influence on anyone with even a little human feeling. These folks are interested expecially in the welfare of children. They can best express their loss, and earnestly insist something be done to help children so handicapped.

The children were tested. Parents, pupils, teachers and districts have become interested. The children will be benefited since many parents have taken remedial steps.

With thanks to all who have been associated in any way with this study, the writer wishes to state, "It has been a pleasure."

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