The Philippine National School For The Deaf

By
Carl A. Argila
De La Salle College
Manila

November 1973

ABSTRACT

A study was conducted of recent graduates of the Philippine National School for the Deaf. This study shows that the average PNSD graduate has an equivalent academic achievement in the last five months of grade II.

A brief history of the PNSD is given as well as some viable suggestions for improving the academic performance of its students.

* * *

THIS COPY FOR: _____

FOREWORD

This report was prepared at the suggestion of Dr. N. Albarracin, Under-secretary of Education. It is the first quantitative study of graduates of the Philippine National School for the Deaf and as such presents documentary evidence of what many have suspected for a long time; some drastic changes need to be made in educational methods and techniques at the Philippine National School for the Deaf.

It is the author's hope that the information and suggestions contained in this report will be used for the improvement of education available to the deaf of the Philippines. This report is confidential; none of the information contained herein should be construed as being critical of any members of the faculty or administration of the Philippine National School for the Deaf, past or present.

ACKNOWLEDGMENTS

First and foremost, we would like to thank the many students of the Philippine National School for the Deaf who cooperated with us and who were so patient in taking so many examinations.

We would like to thank Mr. J. Austria for serving as an exam proctor and Mr. E. Cabral for his assistance in scoring the examinations; Ms. F. Castro, Principal of the Philippine National School for the Deaf for statistical information on the schools graduates; Reverend A. Coryell for giving us a letter stating some of her experiences in the field of education of the deaf; the Philippine Association of the Deaf for allowing us to use their facilities for administration of examinations; Mr. R. Soriano, President of the Catholic Organization of the Deaf, for recruiting graduates of the Philippine National School for the Deaf for this study and for serving as an exam proctor; Mr. R. West, vice-President of the Philippine Association of the Deaf, for his letter stating some of his experiences in hiring graduates of the Philippine National School for the Deaf.

Last, but by no means least, we wish to express our deepest thanks to Ms. M. Yaguil, Assistant Executive Secretary of the Philippine Association of the Deaf, for her help in this study. Ms. Yaguil administered most of the short-form questionnaires, recruited students for the study, proctored and scored the examinations. Without the help of Ms. Yaguil this study would not be possible.

INTRODUCTION

Background

In 1907 Dr. Delia Delight Rice, an American woman from Ohio, came to the Philippines to establish the country's first special education program.* Dr. Rice, whose parents were deaf, established a school for the deaf, the forerunner of what is today the Philippine National School for the Deaf (PNSD) in Pasay City. The PNSD remains the country's only government school for the deaf and educates the vast majority of those deaf who are able to find their way to school. (Most deaf persons are still unable to attend any kind of school.)

The PNSD remained under American principals (the first of which was Dr. Rice) until the outbreak of World War II; until this time the school produced high quality graduates who could apparently compare quite favorably with graduates of American schools for the deaf. In fact, one graduate, Pedro M. Santos, attended Gallaudet College (the world's only liberal arts college for the deaf) in Washington, D.C., no other Filipino deaf person has attended Gallaudet College.

After the War the PNSD reopened under Filipino administration. The teaching techniques of Dr. Rice and others, which consisted of giving deaf children a "first language" of Sign Language and Finger Spelling and then using this to develop speech and lip reading skills, were scrapped in favor of the "pure oral" method which attempts to give the deaf child a "first language" of speech and lip reading. The PNSD remains under this method today, however in the High School teachers may use Sign Language while they speak.

The Author's Involvement

The author came to the Philippines during the summer of 1970 as a volunteer worker with the Philippine Association of the Deaf to establish various "social action" and "self help" programs with the Filipino deaf. In order for such programs to be relevant to the deaf as well as to enjoy their support, the programs must be primarily the undertaking of the deaf and herein lies the problem. The author soon learned that (1) the Filipino deaf had for so long relied so heavily on hearing persons that they were no longer able to initiate activity by, of and for themselves; (2) the Filipino deaf community was divided

---

* See Argila, C. A., Land Of The Morning, Child Of The Sun Returning, DEAF AMERICAN, December 1970

into two distinct groups; those who completed their education before the War, and those who attended the PNSD after the War.

The pre-War group, though small in number, seemed to be quite well educated and literate. The post-War group, though having attended school for more years per student than the pre-War group, seemed to lack basic literacy skills and though certainly not illiterate in the strict sense of the word, most members of this group would be considered at best as "functionally illiterate." One of the author's more startling (and enlightening) experiences will illustrate what is meant by "functionally illiterate" in this context.

Soon after coming to the Philippines the author made the acquaintance of a very talented young artist, Mr. Joseph Baganan, salutatorian of the PNSD class of 1968 and since a fine arts graduate of the University of Santo Tomas. Mr. Baganan is considered by many both within the PNSD and within the deaf community as one of the outstanding PNSD graduates. In an attempt to ascertain how literate Mr. Baganan actually is, the author gave him a hand written question and asked him to write his answer. The question was:

> If one robin can eat two worms,
> five robins can eat how many worms?

Much to the author's surprise, Mr. Baganan could not understand the question as stated. After explaining the question throughly (in Sign Language) to Mr. Baganan (including exactly what was meant by the words "robin" and "worm") he pondered for nearly twenty minutes before writing his answer:

> The five robins can eat maybe about three
> worms and to pull one half of the worm.

Mr. Baganan, who took the whole matter quite seriously, further explained to the author that the robins would fight over the worms and probably pull one in half.

This is what we mean by "functionally illiterate."

The author returned to the Philippines in 1971 on a permanent basis in the hopes of helping to improve the educational situation of the deaf.

The Current Situation

In order to determine just how representative Mr. Baganan's performance was of the entire deaf community we reproduced a "short-

form questionnaire" which contained the question:

If one robin can eat two worms,
five robins can eat how many worms?

and a space for the subject to write his answer; at the bottom of the form space is provided for the subjects name, his last grade attended at PNSD and his last year at PNSD.

A total of 85 questionnaires were distributed for this study. All of the questionnaires were distributed during the first two weeks of November 1973. For each questionnaire the procedure was the same; the subject was asked if he would answer a question for us. He was then given the short-form questionnaire and a pencil and asked to read the question. In most cases the subject did not comprehend the question as written so it was explained to him in detail using Sign Language and Finger Spelling. The subject was then given as much time as he required to answer the question. After handing in his questionnaire the subject was told the correct answer if he asked. (We regretted having done this as some subjects would get the correct answer from those who had already taken the test, they would then write the correct answer down immediately even though they could not understand what was being asked! Hence, our correct responses may be somewhat inflated.)

The short-form questionnaire results are tabulated in FIGURE I. We have reproduced the first six responses from the original questionnaire forms and transcribed the remaining 79 responses in order to conserve space.

Of the 85 questionnaires distributed, 68 responses (or 80%) were incorrect (see FIGURE I-A) and 17 responses (or 20%) were correct (see FIGURE I-B). Of the 17 correct responses it should be noted that three subjects were severely hard-of-hearing (not deaf) or had lost their hearing after acquiring language; two subjects have deaf siblings (hence had communication in early childhood); one subject completed grade school at the pre-War PNSD; one subject graduated from a hearing high school and three subjects had completed Bible Institute studies. Of the remaining seven subjects the most recent graduate is from the class of 1966. It should also be noted that though a response such as "Yes, robin can't eat two worms, that five robins can eat 10 worms" though technically correct, indicates some serious language problems.

(FIGURE I follows — text continues on page 17)

FIGURE I-A -- Incorrect Responses to Short-Form Questionnaire

If one robin can eat two worms, five robins can eat how many worms?

Five robins can eat twelve worms.

NAME Odilia S. Aladon
GRADE year IV-1
OR GRADUATED present

(7)

If one robin can eat two worms, five robins can eat how many worms?

I cannot like eat worms

NAME Armando Tan
GRADE ~~X~~ High School first 1969
OR GRADUATED

If one robin can eat two worms, five robins can eat how many worms?

(One) - I like to use the meat-only
any to fish and dry fish to the fried
only - (the cabbage)

NAME Cruesto Gaviana
GRADE 3rd. years high school

FIGURE I-A Continued

If one robin can eat two worms, five robins can eat how many worms?

1 Can eat Two worm orange or Hot dog
2 can eat five how many worm regular
3 Coffee
4 Tea hot
5 Butterfly iced

NAME Danilo Ajumay
GRADE II-2
OR GRADUATED current

If one robin can eat two worms, five robins can eat how many worms?

If one robin can eat the fruits ₱5.00

NAME Alex Mamugare
GRADE III high school
OR GRADUATED current

(17)

If one robin can, one two worms, five robins can eat how many worms?

eat, pancit, Vegetable, coffee, break,

NAME Ceferino M Mirasol Jr.
GRADE IV-B (current)
OR GRADUATED

FIGURE I-A Continued

7. Yes, one robin can eat 2 worms.

Estrella Tumaneng
Graduate 1972

8. I cannot eat 2 worm.
I can robbins.

Sao Seng Wong
Graduate 1972

9. (no response)

Inocencio Gois
Grade 6 (current)

10. 1 I am eat pancit malabon (s)
2 I am eat mami
3 I am eat canton
4 I am eat spegette
5 I am eat Baja

Peter E. Geronca, Jr.
Graduate 1968

11. I can eat rice or food 3 times everyday
I can eat the banana, corn, breaks hot dog.

Benjamin B. Calub
IV High School
1957

12. One robin can eat two worms, five robins can eat 22 worms.

Constantino Rojillo Bies
IV High School
1957

13. six worms

Inocencia O. Nepomucento
Grade 6

14. two worms

Esperanza Arciaga
1959

15. Five robins can eat 3 worm.

Ramon Miranda
Graduate 1972

16. Hen eat one worms

Alicia Yumal
I High School
1952

17. I Rebrn

Edna P. Donocmat
Grade II
1950

18. 4 robins

Esmeralda S. Enrizuez
Grade 6
1965

19. Robins can eat five worms

Lualhati Uy
Graduate 1973

20. No five

Eraño Uy
Graduate 1973

21. I don't know

Elvira Ramos
T High School
.0

22. There are when worms can eat 5 robbids

Fernando de Vera
Grade 6
current

23. I don't know

Lorna Bautista
1972

24. I don't know

Feliza Ojek
IV High School
1967

25. There are 6 worms in all

Danilo Santiago
Graduate 1973

26. One robin can eat one worms.

Alexis G. Rosales
Graduate 1968

27. One robin can eat two worms.

Rednardo P. Vargas
1965

28. I cannot robin eat

Dennis Ferrer
II High School 1970

FIGURE I-A Continued

29. I am is meat

Rosalina de la Cruz
Grade 6
1963

30. Three if one robin can eat two worms

Angelito Ayran
IV High School
1971

31. May borrow your

Romulo Batihan
Grade III
1960

32. I don't know?

Julia O. Sto. Domingo
Grade V
1951

33. I have eat can

Rodolfo Pagtanac, Jr.
Grade III
current

34. If one robin can eat two worms.

Najaleon De Vera
Grade VI
current

35. four If one Robin can eat two worms.

Delfia Chua, Jr.
III High School
1959

36. I don't know

Mercedes C. Zurbano
Grade III
1958

37. I don't know

Benjimin Carréon
Grade IV
1954

38. Are I have can eat for worms.
No I have can eat five worms.

E. B. Carreon
High School
1952

39. I am not eat five worms.

Roberto de Dios
Grade VI
1970

FIGURE I-A Continued

40. Don't is worm

Anita C. Camacho
IV High School
current

41. I sorry

Norma C. Nicdao
Grade V
1952

42. I ate can two worm.

Leonardo Zablan
Graduate 1968

43. Five robins can eat.

Josileto Quinto
1966

44. 10 robins can eat how many worms

Aquino Patto
II High School
1962

45. Five robin can eat how many worms

Espifanio Salcedo, Jr.
Graduate 1969

46. Five robins can eat how many worn?

Jose Mangussad, Jr.
III High School
current

47. When I can five can eat

Dante Lesyan
I High School

48. but to the if one robin can eat two worms.

Pilar C. Chua
Grade V
1966

49. I an see the birds?

Romeo Montemayor
III High School
1970

50. I can eat one worny
But don't in Robin one ears

Eduardo Agno
II High School

FIGURE I-A Continued

51. The have no eat worms The hen is eat worms

Myrna Adonis
II High School

52. I'n problen the stonach

Kent Zubano
Grade VI
1969

53. I will to help can you for eat, it nost of the retire.

James S. Alesna
III High School
1970

54. I am housekeeper?

Beatriz Bustos
Grade VI
1954

55. 1 I want to eat 2
2 can eat for how many 3
3 He will help for always
in the cant for the Robin 2
4

Antonio Galany
High School
1970

56. the man are pig
the boys are animals
the woman is plants
the girls are bird

Bienvenido Guillermo
III High School
1966

57. I am sorry drop 13 years
I need the work cement ironcraft 5 year and Luneta 3 year

Santos Rafael
Grade II

58. When I can not eat two worms. No, I never to eat it.

Teoncio Aguilar
IV High School
current

59. I eat breakfast every morning

Arsenia Pinafiel
II High School
1973

FIGURE I-A Continued

60. I have three worms eat always.

Godofredo Q. Cortez, Jr.
III High School
current

61. Before I sorry but no study my aunt & help they school to Pasay, City

Aristoteles Borsodal
Grade VI
1955

62. The bird was ate the worm.

Rodolfo O. Baban
Graduate 1955

63. I can't eat never robin can eat 1 worm

Elvria B. Soriano
Graduate 1970

64. Fine if one robin can eat five.

Lourdes Managuit
IV High School
1969

65. No

Manuel Adonis
Graduate 1971

66. I will to one robin can eat.

Elson M. Cadelina
Grade II
current

67. One robin can be eat two worms a sometime
five " cannot eat how many worm

Angelita Delarmente
Graduate 1963

68. I ate any kinds foods. sometime I bowled no worms.

Natrndad Serrano
II High School
1950

* * *

FIGURE I-B -- Correct Responses to Short-Form Questionnaire

1. Yes, robin can't eat two worms, that five robins can eat 10 worms.

Concepcion Maxin
Graduate 1961

2. 10 -- five robin can eat 10 worms.

Carmelita Bic
Grade V
1955

3. 10 worms can eat by five robins.

(subject is severely hard-of-hearing, not deaf)

Roberto Gonzales
III High School

4. The five robins can eat 10 worms

(subject has two older deaf siblings)

Rosie Tang
Graduate 1973

5. Yes, I think that one robin can eat two worms, the five robins can eat ten worms.

Rogelio H. Espina, Jr.
Graduate 1962

6. 5 robins can eat 10 worms.

(subject became deaf gradually in childhood, attended hearing schools for grade school work, went to PNSD only for high school)

Jose Austria
Graduate 1965
(Salutatorian)

7. Five robins can eat 10 worms.

(subject completed grade school before the war)

Ambrosio L. Rüiera
Graduate 1950

8. Can 10 worms

Ma. Aleli Piñel
IV-High School
1966

9. Five robins can eat 10 worms.

Ermanez G. Malig
1965

10. Five robins can eat ten worms.

(subject has a deaf sibling)

Evangeline P. Quinto
Graduate 1963
(2nd Honor)

11. Five robins can 10 worms

Ernesto del Rosario
High School
1957

FIGURE I-B Continued

12. Robin can eat 2 worms five robins can eat 10 worms.

Luila G. Montusigen
-Graduate 1965
(Valedictorian)

(subject is severely hard-of-hearing, not deaf)

13. 5 robin
x 2 worms
10 worms, robin can eat.

Prudito P. Conortine
II High School
1965

(subject has completed a Bible Institute course)

14. One robbion can eat two worms, five eat ten worms

Wilhelmina S. Cunuanlyie
IV-High School
1965

(subject has completed a Bible Institute course)

15. One robin can eat two worm, that five robin eat 10 worm.

Corazon C. Guillermo
Graduate 1966

(subject completed Bible Institute)

16. Five robin's can eat 10 worms

Isaro Soriano

(subject completed grade school at PNSD but graduated from FEU high school)

17. Five robins can eat 10 worms.

Manuel Morato
Graduate 1950

* * *

The short-form questionnaire, though qualitative in nature, nevertheless provides a realistic picture of the language skills of the vast majority of deaf persons who have attended the PNSD. Recently, at least, the older deaf have become alarmed at this situation. Many of the older deaf people feel that there is no leadership material among the post-War educated deaf and as a result the deaf will become more and more dependent upon hearing people. Many older deaf persons are concerned that the younger deaf are a social burden or, when employed, can only engage in the most menial of jobs.

Richard S. West, vice-President of the Philippine Association of the Deaf, and himself a high school "drop out" of the PNSD (1938) writes:

> Many of the fresh High School graduates from our school in Pasay City come to us looking for job placements. To the great disappointment of the Philippine Association of the Deaf Coffee Shop Management, most of the job applicants prefer to work in our kitchen either as dish washers or cook helpers. Their test forms show poor ratings in arithmetic prompting the management to refer them to our Adult Classes as a condition prior to hiring them.*

It should be noted that only a fortunate few deaf individuals are able to find employment at the Philippine Association of the Deaf Coffee Shop; the vast majority of deaf through out the country remain burdens on their families or institutions, whereas they could and should be self-sufficient and contributing towards National Development.

Another observer, the Reverend A. Coryell, founder of the Deaf Evangelistic Alliance Foundation, Inc. and the country's second school for the deaf writes:

> After several years working with the very literate deaf of Japan we...came to the Philippines...(in) 1961. We had found to our dismay that even those graduated from the Government High School had very low reading ability and very poor understanding of what they read.**

To describe the current educational situation in a word we can only say: bleak.

---

*Letter from R. S. West to author, 11 November 1973.
**Letter from Rev. A. Coryell to author, 12 November 1973.

A QUANTITATIVE STUDY OF RECENT PNSD GRADUATES

Rationale

The short-form questionnaire discussed in the previous section is a very useful testing instrument; the subject must be able to read a simple English sentence, reason out the problem posed and phrase a written answer. The short-form questionnaire can be administered in a few minutes without any special materials and a subject's failure on this form would certainly constitute the condition we have been describing as "functional illiteracy."

As dramatic as the results on the short-form questionnaire may be they are, never-the-less, qualitative in nature. Furthermore, though given to a large sample of former and current PNSD students, the questionnaire results are not readily generalizable to the entire population of all post-War PNSD students. We wish, therefore, to determine a quantitative measure which would enable us to say with prescribed statistical certainty exactly what is the academic achievement of PNSD students. For this purpose we have selected a standardized testing instrument, the well known STANFORD ACHIEVEMENT TEST (published by Harcourt, Brace & World, Inc., New York, 1964).

Testing Population and Assumptions

Testing all of the students who have attended the PNSD since the War would be a mammoth undertaking; statistically, of course, this is not necessary. We make two assumptions which enable us to reduce our testing population considerably.

First, students who have left PNSD over five years ago are probably not representative samples; they may have learned a considerable amount since leaving school or for that matter they may have forgotten a considerable amount. We shall therefore assume that recent (within the last five years) PNSD students are representative of the type of students produced by the PNSD since the War.

Second, the drop out rate at the PNSD is very high; only a few of the students who enter complete the entire ten year program and receive a high school diploma.* These students might be considered the "cream of the crop" as far as academic achievement is concerned. We shall therefore assume that students who have received a high school diploma from the PNSD are representative of the academic achievement of all PNSD students (in actuality, of course, we would expect the diploma holders

---

* exact figures are unavailable but it appears that for every 10 students who enter grade I, less than one graduates high school.

to be better than the drop outs; this assumption makes our results somewhat more optomistic than they actually are.)

Therefore our testing population is the set of all high school graduates of the PNSD in the last five years. In particular, we shall consider the classes of 1969, 1970, 1971, 1972, 1973 and the class scheduled to graduate in 1974. TABLE I, below, shows the number of individuals in each of these classes.

TABLE I -- Number of PNSD Graduates By Class

Year	Number of Graduates
1969	18
1970	11
1971	15
1972	18
1973	29
1974 (projected)	22
1969 - 1974 (combined)	113

Selecting A Test

Selecting an appropriate testing instrument is important if accurate results are to be obtained. Since most of the so called "standardized" tests are of the multiple choice variety, a test which is too far above a subjects level will not give an accurate measure of the subjects ability since the subjects score will lie within the "guessing level" of the test, i.e. the score which could be obtained on the test simply by random guessing of the multiple choice answers. Similarly a test which is too far below a subjects level will lack "resolution" in pin-pointing the subjects true level; the subjects score would simply lie at the top end of the scale, undeterminable by the testing instrument used. Most accurate measures are obtained when the level of the subject lies within the range for which the testing instrument was designed.

In view of the performance by PNSD students on the short-form questionnaire we decided that a testing instrument designed for approximately the grade II to grade III level would be appropriate.

If the subjects consistently scored in the "guessing level" for the test, then a testing instrument designed for a lower grade level would have to be selected. If the subjects consistently scored at the high end of the scale, then a testing instrument designed for a higher grade level would have to be administered.

Our choice of testing instrument was the STANFORD ACHIEVEMENT TEST, Primary II Battery,* which is designed for the middle of grade II to the end of grade III. Another reason for the selection of this particular test was that the only other school for the deaf in the country, a small missionary school operated by the Reverend A. Coryell of D.E.A.F., Inc. also uses this test for evaluation of their grade II students. Therefore a direct comparison between PNSD students and D.E.A.F., Inc. students would be possible.

Test Description

Quoting from the publishers description:

> STANFORD ACHIEVEMENT TEST is the designation of a series of comprehensive achievement tests developed to measure the important knowledges, skills, and understandings commonly accepted as desirable outcomes of the major branches of the elementary curriculum. The tests are intended to provide dependable measures of these outcomes, comparable from subject to subject and grade to grade, for use in connection with improvement of instruction, pupil guidance, and evaluation of progress.

The Primary II Battery of the STANFORD ACHIEVEMENT TEST contains eight tests in a 16 page booklet. The eight tests are:

1. Word Meaning
2. Paragraph Meaning
3. Science and Social Studies Concepts
4. Spelling
5. Word Study Skills
6. Language
7. Arithmetic Computation
8. Arithmetic Concepts

Test 4, Spelling, is a 30 item dictation type test and as such we felt that it would not be appropriate for a group of deaf subjects since words would either have to be "finger spelled" (defeating the purpose of the test) or signed (in which case one sign could represent many different words). Reciting the words orally would lead to confusion in lip reading without the proper contextual situation. Therefore test 4 was not used.

---

* Form W was used exclusively

Test 5, Word Study Skills, contains an "auditory perception" part and a "visual phonics" part both of which require that the subject be able to compare sounds within words. Again, this test is inappropriate for deaf subjects who, of course, have very little concept of sound. Therefore test 5 was not administered.

The remaining six tests of the Primary II Battery were administered and we shall describe them now. For convenience in evaluating our results we grouped the six tests to be administered into three categories. Tests 1, 2 and 3 were considered "verbal tests" since full language comprehension was required to perform well on these tests. Tests 6 and 8 were considered "semi-verbal tests" since it would be possible to score well on these tests even with partial language comprehension. Test 7 was considered a "non-verbal test" since no language comprehension was required for it.

Verbal Tests:

1. Word Meaning -- The subject is expected to be able to read a sentence and select an appropriate word to complete the sentence. This is a 36 item multiple choice test to be completed in 12 minutes. Some sample items are:

(2) A man who flies an airplane is a
(postman cowboy fireman pilot)

(29) To injure is to
(encourage help hinder hurt)

2. Paragraph Meaning -- The subject is expected to be able to read a paragraph and select an appropriate word to complete omissions in the paragraph. Thirty minutes are allowed for this 60 item test. Some sample items are:

Sarah went to the library. There she saw many
(books dolls animals classrooms)

George and Jim are similar in every way. George is quite heavy for his age; Jim is _____ (not light tall too). George excels in most sports; Jim is a good (boy sport athlete worker).

3. Science and Social Studies Concepts -- Thirty-six questions are dictated and the subject selects one answer out of three printed on his answer sheet. Sample items are:

(15) "A snake is a kind of"
(reptile worm rodent)

(21) "A century is"
(1 year 100 years 10 years)

Semi-Verbal Tests:

6. Language — The test is divided into two parts. Part A (which has two ten minute sub-parts of twenty items each) tests capitalization and punctuation and Part B (35 items to be completed in 12 minutes) which tests word usage. Some sample items are:

on february 8 1960 the boy scouts of america were...

Subject must indicate whether or not each of the underlined words is properly capitalized.

Do you $\frac{\text{know}}{\text{no}}$ when Dad is coming home?

subject must indicate which of the words is correct.

8. Arithmetic Concepts — This test is divided into two parts also; Numbers and Measures (24 items in 10 minutes, dictated) and Problem Solving (22 items in 20 minutes). Sample items are:

(15) "see the numbers in the boxes. Find how they go. What number comes next in this set? Write it in the empty box.

530 430 330 ☐

(34) Larry has 4 boxes of pencils. There are 12 pencils in each box. How many pencils does Larry have in all?

3 16 46 48

Non-Verbal Test:

7. Arithmetic Computation — The subject is expected to perform basic arithmetic operations; 30 minutes is given for sixty items. Some sample items are:

$\begin{array}{r} 12 \\ -\ 3 \\ \hline \end{array}$ $193 \div 8 = \_\_\_\_$ $7\overline{)371}$

(subject must write in the correct response)

Scores are reported for each test in the form X.Y where X represents the equivalent grade and Y represents the month of that grade, the control group being a large population of American grade school students. For example, a score of 2.6 on the Word Meaning test would indicate that the subject scored the same number of correct responses on the Word Meaning test as the "average" student in the control group who had completed the sixth month of grade II. We would then say that the subject has an "equivalent" word meaning achievement of 2.6, or the sixth month of grade II.

As mentioned earlier, since some of the tests contain multiple choice items, it is possible for a subject to score at a certain minimum grade level merely by random guessing. In TABLE II we indicate this "guessing level" for each of the applicable tests.

TABLE II — "Guessing Levels" For Tests

Test	Equivalent Level
1	1.8
2	1.9
3	1.8
6	2.2
8	1.9

Testing Procedure

A random sample of 33 subjects (of the 113 possible) were selected for testing. Subjects were asked to report at 9AM Saturday morning, 17 November 1973 at the Philippine Association of the Deaf building, San Antonio Village, Makati, Rizal. Subjects assembled from 9AM to 10AM and testing was begun at 10AM in Teodoro F. Valencia Hall; four proctors were in attendance.

The six tests were administered exactly as prescribed in the publisher's manual. Subjects were permitted to use the rest rooms between tests but not to leave the examining area. One long break was given during the middle of the testing period with refreshments; subjects were not permitted to leave the examining area.

Some of the proctor's observations might be of interest at this point. Before beginning the first test subjects were asked to fill in information on the front cover of their test booklet. We found that subjects had a great deal of difficulty in understanding that they were to write their name "last name first." Boxes were provided to check either "BOY" or "GIRL"; one subject entered a numeral "3" in the box for "BOY" and a numeral "2" in the box for "GIRL." Though we explained to the subjects to simply put their home address on the lines marked "CITY OR TOWN" and "STATE" some subjects filled in such responses as "Filipino," "single," etc. The proctors finally decided to go from subject to subject explaining each set of directions and

answering any questions personally.

Test Results

Scores for each test for each subject are tabulated in TABLE III (next page). Scores are reported in grade equivalent form. Averages have been computed both column-wise and row-wise for each year as well as for the combined group. Averages have also been broken down into verbal, semi-verbal and non-verbal. Sample deviations have been computed as indicated. All calculations are reported to the second decimal place.

Statistical Analysis

We used the Student's t-distribution to compute 95% confidence intervals for the mean for each test category and overall mean for each year and for the combined group. Ninety-nine percent confidence intervals were also computed for the combined group; they did not differ greatly from the 95% confidence intervals. In all calculations correction was made for finite population size using the data of TABLE I. Intervals were computed from:*

$$\left(\bar{X} - \frac{\bar{S}}{\sqrt{N_s}}\sqrt{\frac{N_p - N_s}{N_p - 1}}\, t_{df,\alpha}\ ;\ \bar{X} + \frac{\bar{S}}{\sqrt{N_s}}\sqrt{\frac{N_p - N_s}{N_p - 1}}\, t_{df,\alpha}\right)$$

TABLE IV-A lists the 95% confidence intervals and TABLE IV-B gives the additional 99% confidence intervals which were computed for the combined results. For the sake of illustration FIGURE II shows the 95% confidence intervals for the overall test averages for each year.

Interpretation of Results

As mentioned earlier our testing population is the set of 113 recent PNSD graduates (and current terminal students). We need not, however, administer tests to each of these individuals. Statistically we may administer tests to a random sample drawn from this population and then compute, with a prescribed statistical certainty, a range over which we are sure the actual population would have scored had we given the test to the entire population; these are the confidence intervals of TABLE IV. For example, note that the class of 1973 had an average score of 2.28 (almost the third month of grade II) on the

* see for example Games, P. A. & Klare, G. R., Elementary Statistics Data Analysis for the Behavioral Sciences, McGraw Hill, 1967, and McNemar, Q., Psychological Statistics, John Wiley & Sons, Inc. 1969.

PNSD Graduates Results On The STANFORD ACHIEVEMENT TEST

STUDENT	Test Scores In Equivalent Grade Level VERBAL 1	2	3	avg	SEMI-VERBAL 6	8	avg	NON-VERBAL 7	OVERALL AVERAGE
CLASS OF 1969 — 18 graduates, 6 subjects examined (33.3% of class)									
BAUTISTA, Margarita V.	3.0	2.6	1.6*	2.40	2.9	2.6	2.75	1.4	2.35
BAES, Fe A.	2.7	2.1	2.4	2.40	2.6	2.5	2.55	3.6	2.65
PASILABBAN, LOURDES M.	2.3	2.1	1.5	1.97	2.3	2.8	2.55	6.2	2.87
SALCEDO, Epifanio S.	2.1	2.0	2.0	2.03	2.3	2.6	2.45	5.3	2.72
SALCEDO, Felisa Y.	3.1	2.9	2.7	2.90	3.1	2.9	3.00	5.8	3.42
ZURBANO, Kent I.	1.3*	1.8*	1.5*	1.53	2.4	1.9*	2.15	4.4	2.22
1969 Averages	2.42	2.25	1.95	2.21	2.60	2.55	2.58	4.45	2.70
Sample Deviations				0.44			0.22	1.77	0.46
CLASS OF 1970 — 11 graduates, 2 subjects examined (18.2% of class)									
ELISEO, Lualhati C.	1.8*	1.7*	1.6*	1.70	2.8	2.7	2.75	5.1	2.62
PAGUIO, Josefina R.	1.7*	1.8*	1.5*	1.67	2.2*	2.1	2.15	5.4	2.45
1970 Averages	1.75	1.75	1.55	1.68	2.50	2.40	2.45	5.25	2.53
Sample Deviations				0.19			0.42	0.21	0.24
CLASS OF 1971 — 15 graduates, 3 subjects examined (20.0% of class)									
ADONIS, Manuel V.	1.9	1.9*	1.5*	1.77	2.1*	2.5	2.30	4.9	2.47
PASILABBAN, Victoria M.	2.8	1.9*	2.0	2.23	2.9	2.6	2.75	3.4	2.60
SORIANO, Elvira P.	2.3	2.4	2.4	2.37	2.3	1.5*	1.90	3.2	2.35
1971 Averages	2.33	2.07	1.97	2.12	2.43	2.20	2.32	3.83	2.47
Sample Deviations				0.34			0.40	0.95	0.20
CLASS OF 1972 — 18 graduates, 3 subjects examined (16.7% of class)									
BAUTISTA, Lorna V.	2.7	1.8*	1.6*	2.03	3.1	1.7*	2.40	2.6	2.25
BARBERO, Louella T.	2.7	2.5	1.8*	2.33	3.1	2.3	2.70	4.4	2.80
MIRANDA, Ramon S.	2.3	2.3	1.4*	2.00	2.2*	1.9*	2.05	4.3	2.40
1972 Averages	2.57	2.20	1.60	2.12	2.80	1.97	2.38	3.77	2.48
Sample Deviations				0.18			0.36	0.99	0.32
CLASS OF 1973 — 29 graduates, 15 subjects examined (51.7% of class)									
BERNARDO, Josefina G.	1.9	2.4	1.6*	1.97	2.6	3.1	2.85	5.4	2.83
DORANDAR, Cynthia P.	1.8*	2.1	2.4	2.10	2.1*	1.7*	1.90	3.5	2.27
ORTIZ, Anita L.	2.3	2.5	2.6	2.47	3.1	2.6	2.85	4.9	3.00
RAMIREZ, Divina H.	2.0	2.2	2.4	2.20	2.9	2.5	2.70	2.4	2.40
RIVERA, Socorro J.	2.6	2.5	2.2	2.43	3.0	2.6	2.80	5.3	3.03
ROMERO, Rolando S.	2.3	2.7	2.7	2.57	4.4	4.3	4.35	7.0	3.90
ROMERO, Rosalinda S.	2.1	2.3	2.0	2.13	3.6	2.1	2.85	5.3	2.90
SALONGA, Danilo S.	1.9	2.4	2.6	2.30	2.8	2.6	2.70	3.6	2.65
SANTIAGO, Danilo T.	2.7	3.0	2.4	2.70	4.2	3.2	3.70	5.3	3.47
SANTOS, Antonio M. de los	2.6	2.0	1.5	2.03	3.4	2.4	2.90	4.7	2.77
TANG, Rosie M.	2.7	2.4	3.1	2.73	4.5	4.5	4.50	6.2	3.90
TUMANENG, Estrella A.	2.7	2.4	2.2	2.43	3.3	2.6	2.95	5.2	3.07
UY, Erafio P.	3.0	2.5	1.6	2.37	3.0	2.8	2.90	5.4	3.05
UY, Lualhati P.	2.3	2.6	1.2	2.03	3.1	2.6	2.85	5.2	2.83
VILLAMIN, Pamela N.	2.0	1.9*	1.4*	1.77	2.3	2.1	2.20	4.0	2.28
1973 Averages	2.33	2.39	2.13	2.28	3.22	2.78	3.00	4.89	2.96
Sample Deviations				0.29			3.00	1.15	0.59
CLASS OF 1974 — 22 graduates (projected), 4 subjects examined (18.2% of class)									
AGUILAR, Leoncio G.	2.9	2.3	2.2	2.47	3.3	3.1	3.20	7.0	3.47
CAMACHO, Anita C.	1.8*	1.6*	3.1	2.17	2.1*	2.3	2.20	3.8	2.45
CARLOS, Francisco L.	1.8*	2.4	2.4	2.20	2.8	2.8	2.80	5.6	2.97
LORENZO, Menandro E.	1.9	1.8*	2.9	2.20	2.5	1.9*	2.20	3.3	2.38
1974 Averages	2.10	2.02	2.65	2.26	2.68	2.52	2.60	4.92	2.82
Sample Deviations				0.14			0.49	1.72	0.49
1969-1974 Averages	2.30	2.23	2.06	2.20	2.89	2.56	2.72	4.64	2.78
Sample Deviations				0.32			0.60	1.28	0.51

Scores marked with asterisk (*) are at or below the "[illegible]

TABLE IV-A

Ninety-Five Percent Confidence Intervals For Test Averages

YEAR	VERBAL	SEMI-VERBAL	NON-VERBAL	OVERALL
1969	(1.82;2.60)	(2.39;2.77)	(2.89;6.01)	(2.29;3.10)
1970	(0.06;3.30)	(-1.13;6.03)	(3.46;7.04)	(0.48;4.58)
1971	(1.34;2.90)	(1.40;3.24)	(1.64;6.02)	(2.01;2.93)
1972	(1.70;2.54)	(1.54;3.22)	(1.46;6.08)	(1.73;3.23)
1973	(2.17;2.39)	(2.73;3.27)	(4.44;5.34)	(2.73;3.19)
1974	(2.05;2.47)	(1.88;3.32)	(2.39;7.45)	(2.10;3.54)
1969 — 1974 (combined)	(2.10;2.30)	(2.54;2.90)	(4.26;5.02)	(2.63;2.93)

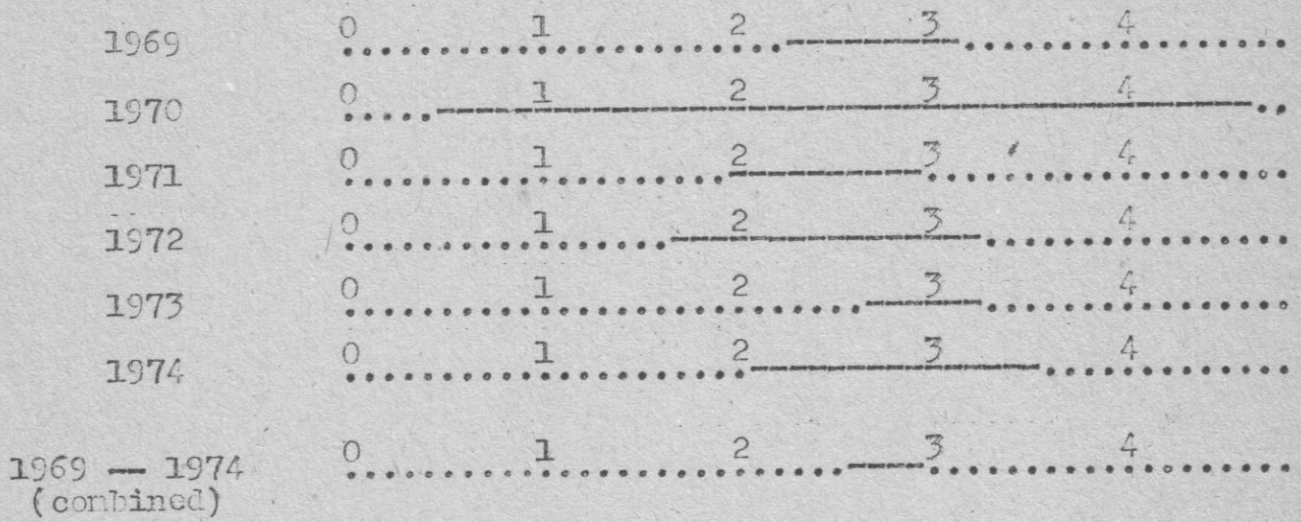
TABLE IV-B

Ninety-Nine Percent Confidence Intervals For Combined Test Averages

	VERBAL	SEMI-VERBAL	NON-VERBAL	OVERALL
1969 — 1974 (combined)	(2.07;2.33)	(2.48;2.96)	(4.12;5.16)	(2.57;2.99)

FIGURE II

Ninety-Five Percent Confidence Intervals For Test Averages



verbal tests. There is no uncertainty about this result for the 15 subjects from the class of 1973 who took the test, the uncertainty arises when we ask how would the entire class have performed on the test had we administered it to all 29 members of the class of 1973. The calculated 95% confidence interval in TABLE IV tells us that we can be 95% certain the entire class of 1973 would have had an average somewhere between 2.17 and 2.39, based on the performance of our sample of 15 subjects. Obviously the more subjects you have the smaller your confidence interval will be. For the class of 1970, where only two subjects (of 11) were examined, the 95% confidence interval for the verbal tests average extends from 0.06 to 3.30.

Glancing at TABLES III and IV we see that in general verbal averages are the lowest, non-verbal averages the highest and semi-verbal averages are in between. In fact, non-verbal averages are so high as to be beyond the reliable range of the test. This would indicate that there is

certainly nothing wrong with the "intelligence" of the subjects but, as their low verbal scores indicate, their problem is an inability to use language, i.e. "functional illiteracy."

The right-most columns of TABLES III & IV show the overall averages for each group. These are perhaps the most interesting numbers since they are a measure of the subject's academic achievement spanning a rather broad area of basic skills. FIGURE II illustrates the 95% confidence intervals for these averages. Note that the confidence intervals span most of grade II, touching only the first few months of grade III (with the exception of the 1970 case which is not reliable because of the small sample size). Even without performing a rigorous analysis of variance we can see that there is no "trend" over the study period for a higher or lower mean, i.e. the academic achievement of the PNSD graduates is about the same from year to year.

The most important confidence interval is that for the overall average of the combined group for it shows at the 99% level (i.e. there is only one chance out of a hundred that we are wrong) that the average academic achievement of PNSD graduates over the period 1969 -- 1974 is within the last five months of grade II. With our two assumptions made at the beginning of this section we may conclude that the average post-War PNSD student leaves school with less than a grade II education (a student who completes grade II would, of course, have an achievement of 3.0).

These very quantitative results explain the performance on the short-form questionnaire as well as the observations of Mr. R. West and Rev. A. Coryell we quoted earlier; an individual with less than a grade II reading and writing level (verbal test result) would most certainly be classified as "functionally illiterate."

Test Reliability

Kuder-Richardson reliability coefficients and standard errors of measurement are given in the publisher's manual. It should be noted that, with the exception of the one non-verbal test, the subjects scored within the range of validity of the Primary II Battery and as such the numerical values of the scores are quite accurate. In the case of the non-verbal test we can only say that most subjects scored above the range of reliability of the Primary II Battery for that test and another

testing instrument would have to be used to obtain an accurate quantitative value for this parameter. For our purposes it is adequate simply to say that the results on the non-verbal testwere "high." Note, however, that had the results been "high" on the other tests as well we would have to have administered a different test to gain reliable results. As it was the selection of the Primary II Battery was a good choice.

We could well be criticized for reporting scores based on a control group of American grade school students. We took this into consideration when selecting the STANFORD ACHIEVEMENT TEST. It was felt that the questions in the Primary II Battery were not in general "culturally oriented" and that even though an "average" Filipino grade school student might be expected to score slightly lower than an "average" American student of the same grade level, this test was to be administered to subjects who had completed 10 years of schooling in which English had been the medium of instruction since grade I; regardless of the control group we would simply expect high school graduates to score significantly higher than grade school students. This, of course, was not the case.

How Could This Have Happened?

We have seen in the previous section that the post-War PNSD students have less than a grade II education. Saying this in black and white does not have the effect that seeing and communicating with a pre-War and post-War educated deaf person does; the contrast is very stark. Many of the older Filipino deaf are asking themselves this question: How could this have happened? We shall try in this section to give some explainations and recommendations.

The essential difference between the pre- and post-War PNSD is that in the pre-War school deaf children were given a first language of Sign Language and Finger Spelling; having acquired this language they were then trained to speak and read lips. In the post-War school manual communication was forbidden and students were expected to learn speech and lip reading as a "first language." It is reasonable to ask if this difference in educational methodology was responsible for the degeneration in achievement of PNSD students. Recent research in this field indicates that it most certainly was.

It must be remembered that deaf children who have lost their hearing before acquiring any type of language (most PNSD students fall into this category) cannot acquire language in the usual (oral-aural) manner; in fact, the very thought process itself must be carried out with visual symbols rather than aural symbols. And herein lies the problem, for with English, as with most languages, most of the sounds appearing on the lips are identical to other sounds! (Vernon, M., "Sociological and Psychological Factors Associated With Hearing Loss," Journal of Speech and Hearing Research, Vol. 12, Pp. 541-563, 1969; Lowell, E. L., "Research In Speechreading: Some Relationships To Language Development And Implications For The Classroom Teacher," Proceedings of the 39th Meeting of the Convention of American Instructors of the Deaf, 1969) Also, there is a distinction between language and being able to speak; a parrot can speak more clearly than most deaf children are ever trained to speak, yet has no language. However, once language has been implanted, speaking (and lip reading) become easy to develop (Lenneberg, E. H., "Understanding Language Without Ability To Speak: A Case Report," Journal of Abnormal and Social Psychology, Vol. 65, Pp. 419-425, 1962).

Many parents of deaf children (and educators too) feel that if a deaf child begins to use Sign Language he will naturally lose his ability to speak. Nothing could be further from the truth; the fact is that deaf children of deaf parents (these children grow up using Sign Language) in general develop speech and lip reading skills superior to those developed by deaf children of hearing parents (who are forced to use speech and lip reading from birth). (Vernon, M., "Fifty Years Of Research On The Intelligence Of The Deaf And Hard Of Hearing: A Survey Of The Literature And Discussion Of Implications," Journal of Rehabilitation Of The Deaf, Vol. 1, Pp. 1 - 11, 1968.) The reason of course is language; deaf children of deaf parents develop a language early in life whereas deaf children of hearing parents never develop an adequate language base.

Just how important developing a "first language" for educating deaf children is amply illustrated by the academic achievement of our post-War PNSD students.

Why Did This Happen?

As we mentioned above, parents of deaf children sometimes feel that if their child does not begin to develop good speech soon, he will lose his ability to speak. This puts pressure on school administrators and teachers to produce a speaking child as soon as possible, this in the long run damages the child permanently. Educators of the deaf cannot be blamed for ignoring the mountain of research showing the fallacy of the "pure oral" approach to education of the deaf because this research has come to light only in the last few years.

Another reason why the "pure oral" method has thrived at the post-War PNSD is that there is only one institution of higher learning in the country which prepares teachers for educating the deaf (Philippine Normal College) and the teachers learn only the "pure oral" method. Until we recently established an "Education of the Deaf" class at De La Salle College a teacher wanting to learn something different than the "pure oral" method had no where to turn.

Perhaps the most important reason why this has happened is that parents and educators of the deaf have not listened to the deaf, for the deaf themselves are first and foremost the authorities in the field of education of the deaf; they have gone to the schools for the deaf,

experienced different methods and lived through what it means to be deaf. They are the experts.

It is not surprising, then, to learn that deaf people have come out strongly opposed to the "pure oral" method in education of the deaf. The National Association of the Deaf in the United States has officially endorsed Total Communication (Sign Language together with speech and lip reading) for education of the deaf. Mr. Albert Barnabei, Chairman of the Total Communication Committee of the New Jersey Association of the Deaf (and deaf himself) says in the May 1973 issue of the SILENT NEWS:

> I am deeply concerned that "Pure Oralism" is the Number One Crime in the education of deaf children. We, the deaf, have no objection to speech or oralism, but we want to include formal sign language and fingerspelling which are methods of real value to education.

The October 1973 issue of PERFORMANCE has this news item:

> Students at the Saskatchewan (Canada) School for the Deaf walked out of classes this year in protest of the school's strict oral method of teaching, whereby deaf students are required to learn lipreading and speech. Protesters demanded that they instead be taught total communication...

The cover story of the October 1973 DEAF AMERICAN tells of a march by 300 deaf persons on the Louisiana capitol building to protest, directly to the governor of Louisiana, the educational situation at the Louisiana State School for the Deaf. The protestors carried signs reading "Respect Deaf Opinion -- We Want Total Communication."

What we are experiencing and have experienced in the Philippines is by no means unique we are part of the world-wide deaf community. We must recognize the authority of deaf persons in matters related to education of the deaf.

What Now?

We must recognize that the post-War PNSD has failed to equip deaf students for their role in society; their role in National Development; their role as members of the world-wide deaf community. We must recognize that unless some drastic changes take place immediately this situation will continue. Recognizing these facts we make the following recommendations:

1. That the PNSD adopt Total Communication as school policy.

2. That all teachers be required to pass a proficiency examination for a formal Sign Language such as S.E.E. (Signing Exact English).

3. That S.E.E. be utilized (together with speech and lip reading) as the medium of instruction in all classes at all levels.

4. That students be free to utilize outside of the classroom what ever means of communication they feel most comfortable with (such as the conventional Sign Language — as opposed to S.E.E.- Finger Spelling, speech and lip reading, etc.)

5. That parents be encouraged to learn S.E.E. in order to provide an environment of communication within the home.

6. That standardized examinations, such as the STANFORD ACHIEVEMENT TEST, be administered to all students annually and remedial classes provided as indicated by the test results.

7. That members of the deaf community be consulted on matters regarding the PNSD.

* * *

CONCLUSION

For the casual report reader who reads only the last page let us summarize.

The Philippine National School for the Deaf (PNSD) is the country's only government school for the deaf and one of the two government recognized schools for the deaf. The PNSD provides ten years of education leading to a high school diploma. The medium of instruction at the PNSD is English at all levels.

A comprehensive testing study and statistical analysis shows (with 99% confidence) that the average PNSD graduate from 1969 to 1974 has an academic achievement of less than grade II. With some reasonable assumptions this means that all post-War educated PNSD students average less than a grade II education.

Current research in the field of education of the deaf indicates that the methodology at the post-War PNSD ("pure oralism") is to blame. Some recommendations are given for improvement.

* * *