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The symposium to which the present paper is an introduction presents results from a 1970 survey in which over 12,000 high school juniors were tested using selected portions of the 1960 Project TALENT battery. This paper discusses the methodology of the 1970 survey. It also presents statistics which summarize the performance of the current eleventh grade sample on the TALENT reading comprehension scale. These statistics indicate that little if any gain has been recorded in reading comprehension ability over the past decade. Such a finding appears to deserve considerable weight in suggesting directions for educational improvement efforts. (Author)

Session II

PROGRESS IN EDUCATION 1960-1970: A SAMPLE SURVEY

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The symposium to which the present paper is an introduction presents results from a 1970 survey in which over 12,000 high school juniors were tested using selected portions of the 1960 Project TALENT battery. This paper discusses the methodology of the 1970 survey. It also presents statistics which summarize the performance of the current eleventh grade sample on the TALENT reading comprehension scale. These statistics indicate that little if any gain has been recorded in reading comprehension ability over the past decade. Such a finding appears to deserve considerable weight in suggesting directions for educational improvement efforts.

INTRODUCTION

The Project TALENT survey (Flanagan et al, 1962; Flanagan, 1969) has provided some of the best data available regarding the characteristics and deficiencies of secondary educational programs in the United States. TALENT is a large-scale psychometric investigation which began with the testing of over 440,000 secondary pupils in the spring of 1960. One year and five year follow-up studies have now been completed on samples of students from this group who took the battery as high school seniors and juniors. These follow-up data provide valuable insights into the relationships between various measures of ability and interest obtained in high school and later career development (Quirk, 1969; TALENT Staff, 1971).

Early in 1970 Dr. John Flanagan, Director of Project TALENT, proposed the testing of a small representative sample of current high school juniors in order to estimate changes which have occured during the decade since the original TALENT survey. With the aid of general support funds provided by the National Institutes for Health, this operation, called Progress in Education Survey (PIES), was conducted by the Palo Alto Office of the American Institutes for Research from April through June of 1970. A stratified random sample of schools was selected from the population of schools which participated in the 1960 TALENT survey. In all, 12,722 11th graders were tested in 134 schools around the country. The preliminary results are reported in this paper and in the following one by Dr. Flanagan.

METHOD

The PIES Battery

The survey instrument consisted of a 48 item multiple-choice reading comprehension scale, 40 student information items, and a single essay item. It was designed to be administered within the time confines of a 55 minute school period, with the reading scale requiring 30 minutes and the remainder untimed but requiring approximately 20 minutes.

The reading comprehension scale was identical to the scale contained in the 1960 TALENT battery. It consisted of eight passages which were to be read, with each passage followed by several 5 option multiple-choice questions testing comprehension of the passage rather than mere ability to recognize words. Passages dealt with social studies, natural science, and literary content. Poetry as well as prose passages were included. In answering the questions, students were permitted to refer back to the passages. Extremely difficult vocabulary was avoided; in general, the words were within the first 15,000 entries on the Thorndike-Lorge List (1944). It was felt that reading comprehension was a particularly good ability to tap, in view of the effectiveness of reading as a predictor of general school success and in view of the attention that has been paid to improving reading skills in educational programs of the past decade.

Thirty-six of the 40 student information items were adapted from the 1960 TALENT Student Information Blank; the essay question, which asked students to write a short paragraph on their views about an ideal occupation, had also been included in the 1960 battery. In addition, a questionnaire was completed by the principal of each participating school. This questionnaire attempted to gather information about changes which have taken place in neighborhoods and curricula of these schools since 1960.

PIE Administration

Sample. The primary goal of the PIES sampling procedure w: to secure a representative and accessable group of high school juniors within the budget and time constraints which prevailed. Thus, instead of selecting an entirely new sample, it was decided to utilize the 1960 Project TALENT sample. Although this meant some problems in terms of school age, to be mentioned later, it insured that a randomly selected pool of schools, already stratified on the basis of type of school (public vocational, public non-vocational, private, or parochial), geographical region, and size, could be readily identified. Furthermore, due to the previous Project TALENT contacts with these schools, there was a higher probability of securing participation on the relatively short notice that was available. Readers interested in examining in detail the characteristics of the TALENT sample are referred to previous publications devoted to that topic (e.g., Flanagan et al, 1962, pp. 43-56).

It was decided that a twenty percent random sample from the TALENT pool was sufficient for the purposes of the 1970 survey. Thus one fifth of the secondary schools which participated in the 1960 TALENT survey (199 out of 989) were randomly selected to compose the PIES sample. Table 1 presents the summary statistics for this sample for each of the TALENT strata. The 1970 weight, which appears in the right column of this Table, represents the factor by which the scores of each particpating school in that stratum were increased in order to reproduce the characteristics of the original stratum. These weights were later combined with the 1960 TALENT weights to estimate the characteristics of the population from which the 1960 sample was drawn. Appendix A contains an explanation of each

Insert Table 1 here

Securing participation. A personal letter was sent to the school superintendent of each district which contained a selected school requesting cooperation in administering the PIES battery. A copy was also sent to the principal of the school. Two weeks later members of the AIR project staff called each principal, again requesting his or her cooperation. This procedure revealed that a considerable number of schools which had tested in 1960 no longer existed. In cases where a consolidation had ocurred, the principal of the consolidated school was contacted and his cooperation solicited. In all, 25 of the 199 schools were no longer operating. Most of these were parochial schools or small public schools in the rural South. Of the remaining 174, 148 or 85% agreed to test. Later problems with mail service or within schools caused 14 additional schools to be unable to complete testing before summer vacation. This left an N of 134 schools, or 77%, in the final PIES sample. Table 2 presents a summary of these figures.

Insert Table 2 here

Administration procedures. Participating schools were urged to administer the survey booklet to all juniors. However, in thirty cases, notably in New York City and Chicago, it was necessary to select a ten or twenty percent random sample of students. Tests were sent to the principal, or his designated subordinate, for coordination; testing then occured in a group administration or in classes in which all juniors were enrolled, such as English or homeroom. Instructions for administration were designed to be read verbatim by a single administrator or classroom teacher.

A total of 12,722 students (6,015 boys and 6, 757 girls) took the 1970 survey. Answer sheets and principal's questionnaires were returned via prepaid first class mail; booklets, etc. were returned via REA express collect.

Processing of results. All student responses were recorded on IBM 1230 answer sheets. When the answer sheets were received in Palo Alto they were recorded and scored on an IBM 1230 optical test scoring machine.[1] Reading scores and individual item responses were punched into cards as a product of the scoring operation. These card images were then recorded on magnetic computer tape from which further analyses of the data were generated. Initial processing operations produced alphabetical listings of all students who took the battery, along with their raw reading comprehension score (number of items answered correctly), which were returned to the participating schools for their use.

RESULTS AND DISCUSSION

Reported here are the results of the PIES Reading Comprehension scale in comparison with the results of the 1960 administration of the same scale. Results of the student information items will be reported in the following paper. Analyses of the principal's questionnaires and the essays on ideal occupation have not yet been completed.

Table 3 presents the basic unweighted descriptive statistics of the raw scores on the 48 item reading scale.

Insert Table 3 here

[1]The assistance of the Arizona State University Testing Service, which performed the scoring operations, is gratefully acknowledged.

The range of scores was from 0 to 48, with $Q_1 = 24$, median = 33, and $Q_3 = 40$. By applying the 1970 PIES weights to these scores in conjunction with the 1960 TALENT weights for the PIES schools, Table 4 was generated.

Insert Table 4 here

This table enables a comparison to be drawn with the weighted results of the 1960 TALENT reading comprehension scale, presented in Table 5.

Insert Table 5 here

The 1970 weighted mean of 31.25 compares to the 30.81 weighted 1960 mean. Such stability of performance over the 10 year period seemed to be a consequential finding. Before further interpretation was attempted, however, consideration was given to the hypothesis that the 1970 data might be biased in some unknown way as a result of the age of schools which participated in the study.

Since only schools which existed in 1960 could have been selected for the PIES sample, it seemed possible that the significant number of new schools, contained a possibly different student population, would have influenced the results considerably had a new sample been selected. In order to estimate the effect of this bias in the 1970 sample, an analysis was run on the 1960 TALENT reading data to separate the results stemming from schools which were less than and greater than 10 years old. This analysis, described in Appendix B, produced a correction of .02 in the overall 1960 mean reading comprehension score. This correction is reflected in Table 6.

Insert Table 6 here

The comparison of 1960 data, corrected for the influence of schools less than 10 years old, with the 1970 data results in a net gain of less than one half of one item answered correctly, or less than one-twentieth of one standard deviation. To put this gain in another perspective, it may be noted that the difference between the performance of juniors and seniors on the 1960 administration of this reading comprehension scale was 2.47 (12th grade mean = 33.30, s.d. = 10.14).

On the basis of these data, it was felt that there was some justifiction for renaming the 1970 survey Lack-of-Progress in Education, 1960-1970.

Although these findings viewed as a whole are somewhat discouraging, it is apparent that some schools have made impressive gains in reading comprehension performance since 1960. Twenty schools gained at least four raw score units since 1960. Research is currently in progress to determine the nature of changes which have occurred in these schools.

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Table 1

1970 PIE Summary Testing Statistics
By TALENT Stratum

TALENT Stratum Code #	No. of schools in 1960 sample	No. of schools sampled in 1970 PIE	No. of schools participating in 1970 PIE	1970 Weight
10	35	7	7	5.0
21	26	5	4	6.5
22	55	11	7	7.85
31	5	1	0	-
32	21	4	2	10.5
41	4	1	1	4.0
42	47	10	10	4.7
43	31	6	5	6.2
44	22	5	5	4.4
51	24	5	3	8.0
52	45	9	6	7.5
53	42	8	3	14.0
54	101	20	11	9.2
61	12	2	2	6.0
62	83	17	11	7.55
63	138	28	18	7.67
64	132	27	20	6.6
91	114	23	14	8.15
92	52	10	5	10.4
Total	989	199	134	

Table 2

1970 PIE Summary Statistics

	N	%
Schools which tested	134	77
Schools which refused to test	26	15
Schools which agreed to test but for some reason could not carry through	14	8
	174	100
Schools closed or no longer having a junior class	25	
Total schools selected from 1960 TALENT sample	199	

Table 3

Unweighted 1970 PIE Reading Comprehension

Sex	N	Mean	St. Dev.
Male	6015	30.84	10.84
Female	6757	32.33	10.11
Total	12772	31.63	10.49

Table 4

Weighted 1970 PIE Reading Comprehension

Sex	N	Mean	St. Dev.
Male	1633964	30.80	11.07
Female	1793682	31.66	10.53
Total	3427646	31.25	10.79

Table 5

Weighted 1960 Talent Reading Comprehension
For Juniors*

Sex	N	Mean	St. Dev.
Male	949666	30.52	10.97
Female	976390	31.09	10.23
Total	1926056	30.81	10.60

*Not corrected to remove influence of schools less than 10 years old

Table 6

Weighted 1960 Talent Reading Comprehension
For Juniors*

Sex	N	Mean	St. Dev.
Male	949666	30.32	11.07
Female	976390	31.32	10.28
Total	1926056	30.83	10.67

*Corrected to remove influence of schools less than 10 years old

APPENDIX A

Project TALENT School Taxonomy Code
For Public Secondary Schools

10. Vocational high schools

All vocational and trade high schools

21-64. Non-vocational high schools: (General comprehesive, academic or college preparatory, university, and superior student schools)

21-22. Cities "A": Largest cities (1,500,000 or more)

21. Low cost housing and low income areas
22. Moderate and high cost housing

31-32. Cities "B": Large cities (250,000-1,499,999)

31. Low cost housing and low income areas
32. Moderate and high cost housing

41-44. Northeast: U.S.O.E. Regions 1 and 2 (Me., N. H., Vt., Mass., R. I., Conn., N. Y., N. J., Pa., Del., Md., D. C.)

41. Urban (5,000-249,999) - low cost housing and low income areas
42. Urban (5,000-249,999) - moderate and high cost housing
43. Small town
44. Rural

51-54. Southeast: U.S.O.E. Region 5 (Va., W. Va., N. C., S. C., Ga., Fla., Ky., Tenn., Ala., Miss., Ark., La.)

51. Urban (5,000-249,999) - low cost housing and low income areas
52. Urban (5,000-249,999) - moderate and high cost housing
53. Small town
54. Rural

61-64. Midwest and West: U.S.O.E. Regions 3, 4, 6, 7, 8, 9 (All states other than those listed above)

61. Urban (5,000-249-999) - low cost housing and low income areas
62. Urban (5,000-249-999) - moderate and high cost housing
63. Small town
64. Rural

91. Parochial schools

92. Private schools

APPENDIX B

PROCEDURES USED TO CALCULATE
CORRECTION FOR INFLUENCE
OF SCHOOLS LESS THAN 10 YEARS OLD

The procedure was complicated by the fact that less than half of the 1960 TALENT schools reported school age on the School Characteristics Questionnaire. Therefore, the first step was to obtain the difference between the mean reading comprehension scores of 11th graders whose schools did report school age. Table B-1 reflects these data.

Table B-1
1960 TALENT Reading Comprehension by Sex and School Age

Sex	School Age	Weighted Mean	Composite Mean
Male	< 10 yrs	29.85	30.31
	≥ 10 yrs	30.51	
Female	< 10 yrs	31.61	31.09
	≥ 10 yrs	30.86	
Total	< 10 yrs	30.78	30.71
	≥ 10 yrs	30.69	
	Not reported	30.90	
	Total	30.81	

The male, female, and total means for schools greater than 10 years old were subtracted from the composite means, yielding corrections of -.20 for males, +.23 for females, and +.02 overall.

These corrections were then applied to means for all schools which are contained in Table 5, yielding the results contained in Table 6.