◆ ◆ ◆ ◆

EXTENT OF INDIVIDUAL DIFFERENCES AMONG SCHOOL CHILDREN WITHIN THE SAME SYSTEM

Oliver Hodge, Norman, Oklahoma

The data for this paper were taken from a study made by the author, of three elementary schools within the Tulsa school system. The study was limited to the first semester of 1932-33. The purpose of the study

---

* Warbasse, "What is Consumer's Cooperation?" p. 12.

was to set forth the extent to which the economic status of the home is reflected in the school.

The primary data were taken from the records that were available in the offices of the Principals and the office of the Testing Director. A total of 1,748 children were used in the study, a large enough sampling to make the study authentic and representative of similar types of schools in all parts of the city of Tulsa.

The three elementary schools selected were the Henry Barnard, Sequoyah, and Celia Clinton schools. These schools are approximately the same size and represent the two extremes and the average so far as economic status is concerned. Barnard school is located in one of the wealthiest sections of the city; Sequoyah is located in an average section where there is an overlapping of classes; and Celia Clinton is located in one of the poorest sections of the city. The problem of foreigners does not enter into the study to an appreciable degree.

Data were gathered to substantiate the belief that the three schools were representatives of their respective classes of economic status. Tables were prepared on the following items: Telephones in home; children on free lunch list; number of parents living; number of children in the family; father's occupation; attendance. These data were tabulated and tended to show that the children of Barnard school came from homes of the well-to-do class, and that the children of Celia Clinton school came from homes of very poor, while those of Sequoyah came from the average class American home.

A comparison was then made of the Intelligence Quotients and Achievement scores of the pupils in the various grades of the three schools. It is with these comparisons of individual abilities and differences that this paper is primarily concerned. Lack of time will not permit a detailed discussion of all of the thirty-eight tables prepared, but an attempt will be made to point out the general results. A study of the distribution of I. Q. scores in grade 1B of the three schools revealed some startling facts. The mean I. Q. of the Barnard 1B pupils was 115.6, the mean of the Sequoyah 1B pupils was 106.3, and the mean of the Celia Clinton 1B was 97.2. According to the classification of Gates, it can be readily seen that the mean 1B pupil of Barnard was in the superior group while the mean 1B pupil of Sequoyah and Celia Clinton were in the normal group. There was a difference of 18.4 points between the mean scores of Barnard and Celia Clinton. Of the children in the 1B of the Barnard school, 70.2 per cent had an I. Q. of 110 or above, 25.2 per cent had a normal I. Q., and only 4.6 per cent had an I. Q. below 90. In the Celia Clinton school only 15.9 per cent of the 1B pupils were above normal, while 50.6 per cent were normal, and 33.5 per cent were below normal.

A similar situation existed in grade 3B in the three schools. The mean 3B pupil of Barnard school had an I. Q. of 114.5, that of Sequoyah was 106 and that of Celia Clinton was 95. Again referring to Gates' classification, we find that 61.9 per cent of the 3B pupils of Barnard were above normal, 35.8 per cent were normal, and only 2.3 per cent were below normal. Of the Sequoyah 3B pupils, 40.5 per cent were above normal, 46 per cent were normal, and 13.5 per cent were below normal. Of the Celia Clinton 3B pupils, 10.6 per cent were above normal, 51.6 per cent were normal, and 37.8 per cent were below normal. A similar study was made of the pupils of the 6A grade of the respective schools with corresponding results.

A summary of the distribution of I. Q. scores in grades 1B, 3B, and 6A of the three schools was very revealing. According to Terman's classification, only 3.5 per cent of the children of Barnard were below normal, while 16 per cent of the children of Sequoyah were below normal. Also we find that 66.5 per cent of the children of Barnard were above normal, 37 per cent of the Celia Clinton pupils were blessed with more than normal

ability. This revealed a wide difference in ability of the pupils in the three schools. Chronological age-grade tables were prepared for the three schools and an inspection of these tables shows that there is a high positive correlation when the distribution of I. Q. scores is compared with the results of the age-grade tables. It was found that at Barnard the pupils advanced with such speed that in the 5A grade 50 per cent were above normal. In the entire school, 22.3 per cent were advanced half a grade or more beyond where their chronological ages would seem to indicate that they belonged, and only 7 per cent were below normal. At Celia Clinton we get an entirely different picture. Only 6.4 per cent of the pupils were above normal while 41.3 per cent were retarded or below normal. I think we will all agree that this is due particularly to difference in native ability, as well as to environment. The next step in the study was to compare the achievement scores of the pupils of the the three schools. The following grades and subjects were tested and G scores compiled:

2A Grade. Reading;
3A Grade. Average in all subjects in the Stanford Achievement Test, and Arithmetic;
4B Grade. Arithmetic;
4A Grade. Average of all subjects in Modern School Achievement Test;
5B Grade. Arithmetic;
6B Grade. Arithmetic; Average of all subjects in the Modern School Achievement Test, and all subjects in the Stanford Achievement Test;
6A Grade. All subjects in Stanford Achievement Test.

In all of the above mentioned grades and subjects, the Mean, the Error of the Mean, and the Standard Deviation, were computed in order that an accurate comparison could be made. Lack of time will not permit a discussion of all of the data and therefore only a few of the tables will be discussed.

The Ingraham-Clark Reading Test was given to the 2A children near the close of the semester. The norm should have been about 2.9. It was found that the mean score of Barnard was 3.54, that of Sequoyah was 2.88, and that of Celia Clinton was 3.18. We see from this that the pupils of Barnard easily ranked first and well above the norm. Celia Clinton ranked second and Sequoyah ranked third. The mean Barnard pupil ranked about six months ahead of the mean Sequoyah pupil. The Modern School Achievement Test was given to the 4A pupils near the close of the 4A work and therefore the norm should be about 4.9. An average of all the subjects was found for each pupil and again the mean pupil of Barnard ranked first with a G score of 4.8, while the mean pupil of Sequoyah had a score of 4.4, and the mean pupil of Celia Clinton was third with a score of 4.1. Thus we see that the mean 4A pupil of Barnard ranked about seven months above the mean 4A pupil of Celia Clinton. Also it will be noted that the mean pupils of all three schools were below the norm on this test.

The Compass Survey Test, an arithmetic test, was given to the 5B pupils. Barnard ranked first with a mean of 6.3, Celia Clinton ranked second with a mean of 5.7 and Sequoyah ranked last with a mean of 5.3. Again we see that the mean pupil of Barnard ranked exactly one year above the mean pupil of Sequoyah on this test. The mean pupil of Celia Clinton was about five months below the mean pupil of Barnard.

The Compass Survey Test was also given to the pupils in the 6B and again we find that Barnard ranked first with a mean score of 6.7, Celia Clinton ranked second with a mean score of 6.0, and Sequoyah ranked last with a mean score of 5.9. Assuming a norm of 6.4, we find that

67.7 per cent of the children of Barnard were above the norm. Of the children of Sequoyah, 30 per cent were above the norm. Of the children of Celia Clinton, 33.3 per cent were above the norm. The mean pupil of Barnard ranked seven months above the mean pupil of Celia Clinton, and eight months above the mean pupil of Sequoyah.

The Modern School Achievement Test was given to the 6B children near the close of the 6B work and the norm should be about 6.4. A comparison of G scores in averages of all subjects shows that Barnard, with a mean G score of 6.8 ranked first, Celia Clinton with a mean of 5.2 ranked second, and Sequoyah with a mean G score of 5.0 ranked last. Of the children of Barnard, 57.1 per cent were above the norm. Of the children of Sequoyah, 8.1 per cent were above the norm. Of the children of Celia Clinton, 2.9 per cent were above the norm. Eight Barnard children ranked more than a full year above the norm, with one ranking as high as 8.7. It will be noted that the mean 6B pupil of Barnard ranged one year and eight months ahead of the mean 6B pupil of Sequoyah, and one year and six months ahead of the mean pupil of Celia Clinton.

A comparison of the averages of all the subjects in the Stanford Achievement Test in grade 6B in the three schools shows that Barnard ranked first with a mean score of 7.3. Sequoyah ranked second with a mean score of 6.0, and Celia Clinton ranked third with a mean score of 5.8. The test was given during the third month of the 6B work and the norm would be about 6.3. There was a range of one year and four months between the mean pupil of Barnard and the mean pupil of Celia Clinton.

A comparison of G scores in the average of all the tests in the Stanford Achievement Test in grade 6A in the three schools again points to the superiority of the Barnard pupils. The test was given during the third month of the 6A work and therefore the norm should be about 6.8. Barnard with a mean score of 7.8 is just one year above the norm and far above the mean score of the other two schools. Sequoyah is second with a mean G score of 6.3, which is about five months below the norm. Celia Clinton ranks last with a mean score of 6.0, about eight months below the norm.

In conclusion it should be pointed out that the children of Barnard, on the basis of I. Q. scores, had the greatest ability to do school work and in practically every case they were doing superior work. This range of achievement was greatest in the upper grades. Since there is no apparent difference in the physical equipment, teaching staff, and general educational processes of the three schools it is natural to arrive at the conclusion that the influence of the home and the native ability of the children are strongly reflected in the work of the children at school.

✦ ✦ ✦ ✦