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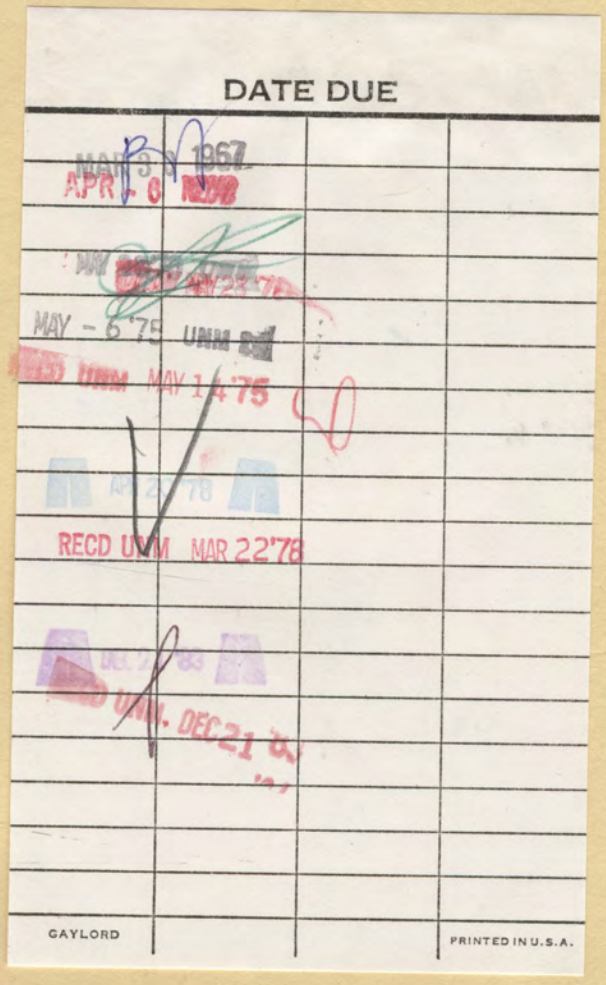
A Study Showing The Interrelation Between Social Acceptance, Personality Adjustment, Mental Ability, And Achievement For Elementary School Children

Freda M. Woodworth

WOODWORTH — ELEMENTARY SCHOOL CHILDREN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A STUDY SHOWING THE INTERRELATION BETWEEN SOCIAL ACCEPTANCE, PERSONALITY ADJUSTMENT, MENTAL ABILITY, AND ACHIEVEMENT FOR ELEMENTARY SCHOOL CHILDREN

A Thesis

Presented to

the Faculty of the College of Education

The University of New Mexico

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts in Education

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by

Freda M. Woodworth

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CHAPTER I

INTRODUCTION

It was the purpose of this investigation to measure the extent of the elementary school child's growth in certain fields, and to determine the relation of various factors to this growth. Every child has his own potentialities. It is the responsibility of the school to furnish him the best possible opportunity to develop these potentialities to the utmost, for the child, himself, as an individual, and for society.

I. THE PROBLEM

Statement of the problem. This study was made to determine: (1) to what extent the scholastic achievement of elementary school pupils is commensurate with their mental ability; (2) how measured mental ability compares with teachers' ratings; (3) how pupils' ratings on two different achievement tests compare; (4) how rankings on personality tests are related to achievement and mental ability; (5) whether social acceptance is related to personality adjustment, mental ability, and scholastic achievement.

Delimitations of the problem. This study was limited to pupils in the third, fourth, fifth, and sixth grades of

Mountain View School in Albuquerque, New Mexico. One sociogram was made for each grade. One mental test, one personality test, and two achievement tests were administered in each grade.

Importance of the problem. Many children who seem to have enough mental ability are not able to work at the level of the grade in which they are placed. It seems necessary to do remedial work with larger numbers of children every year. It is difficult to find sufficient suitable material at the child's level of accomplishment to enable him to work independently. Many children can not spell the most common words which they wish to use in their own manuscripts. Many reach intermediate grades with no mastery of fundamentals and even without meaningful concepts in arithmetic.

If teachers are to improve the effectiveness of their teaching, they must learn the causes of the child's failure to achieve. It is extremely doubtful if lack of success can be attributed in all cases to a single factor. A multiplicity of causes which combine to retard the child's scholastic growth will often be found. The child's attitudes and emotional problems may be related more closely to his accomplishment than his mental ability is. It is necessary to determine the contributing causes of disabilities before they can be eliminated, or at least diminished.

II. ORGANIZATION OF REMAINDER OF THE THESIS

In Chapter II a review of related literature is given. The method of conducting the study is reported in Chapter III. The analysis of data is presented in Chapter IV. Chapter V consists of the conclusions and the recommendations growing out of the study.

CHAPTER II

REVIEW OF RELATED LITERATURE

Kornegay[1] found that pupils in the Malaga School, Malaga, New Mexico, were low (1) in intelligence as measured by the Otis Test of Mental Ability (2) in personality adjustment as measured by the California Test of Personality (3) in achievement as measured by the Stanford Achievement Tests. He pointed out that the factors found to be low may have represented a language handicap rather than the true measure of what the test instruments purport to measure. He suggested that the low score on personality adjustment of pupils may have been due to the fact that the test was not adapted to the culture of the pupils.

Most of the pupils in the Malaga School were Spanish-speaking children. At Mountain View School, there is a slight majority of English-speaking children. The Spanish-speaking and English-speaking homes are intermingled so that there is no Spanish-speaking section as such. However, some childrem speak only Spanish at home.

In Kornegay's[2] school, irregularity of attendance was

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[1] Raymond C. Kornegay, "An Evaluation of the Malaga Rural Elementary School," (unpublished Master's thesis, The University of New Mexico, Albuquerque, 1949), pp. 1-67.

[2] Ibid.

a major factor in pupil retardation. At Mountain View School, this was a problem considered significant in too few cases to be of value in the present study.

In the Malaga community, the socio-economic level was generally low. This fact may have a bearing on school achievement. In the Mountain View district, the majority of homes may be considered middle class, or lower middle class. In general, fathers of pupils are engaged in skilled or semi-skilled labor.

In his study of reading grade levels, Pfleiger[3] considered whether the reading ability of pupils depended, at least in part, upon the particular test which was used for measuring reading ability. He suggested that, if this were true, it was possible to make the reading grade level go up or down by choosing the appropriate test. High correlation on the results of the two tests indicated that they apparently measured the same thing. However, the scales on one test were considerably lower than those on the other. While the two tests ranked pupils about the same, the difference in reading levels was significant.

In the present investigation, scores of two achievement tests have been compared and similar results found. In

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[3] Elmer F. Pfleiger, "A Study of Reading Grade Levels," Journall of Educational Research, 42:541-6, March, 1949.

Pfleiger's[4] study, the Stanford Test was found to be the easier of the two tests. In this study, the Stanford Test seemed to be the more difficult.

Hinkelman[5] made a study of intellectual level and personality adjustment in which he found that mentally handicapped children often remain undetected until they have progressed some distance in school. The present investigator found this to be true of a few children. This would seem to be a reason to try to determine, by objective and other methods, the pupil's mental ability.

Although there is evidence that the IQ is not so nearly constant as was previously supposed, it gives some basis other than personal opinion for formulating a judgment as to what a child can reasonably be expected to accomplish. In an article dealing with wise use of the IQ, Havighurst[6] stated that the ordinary IQ gives a general notion of what level of learning ability to expect of a child.

Often children who are mentally handicapped have acquired feelings of inadequacy which further decrease their

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[4] Ibid.

[5] Emmet Arthur Hinkelman, "Intellectual Level and Personal Adjustment," The Elementary School Journal, 52:31-5, September, 1951.

[6] Robert J. Havighurst, "Using the IQ Wisely," The Journal of the National Education Association, 40:540-1, November, 1951.

accomplishment. Hinkelman[7] stated:

> Feelings of inferiority well may have begun at home, especially if siblings and parents have greater ability. When these feelings are reinforced at school, it becomes virtually impossible for the individual to develop a satisfactory level of self-esteem.

In the same study, it was brought out that superior intelligence is an aid to adjustment, but that intelligence alone does not guarantee success. This success depends not only on mental ability but also on a favorable pattern of motives. Hinkelman[8] also found that intellectual differences did not seem to affect scores on social skills, anti-social tendencies, and community relations. Perhaps abstract intelligence is not highly related to these areas.

Saucier[9] wrote that failure tends to vanish, if through regard for individual differences, it is made possible for all children to succeed. He felt that it is unreasonable and unjust for the elementary school to set up uniform standards of attainment, since compulsory education laws force all kinds of children into elementary schools. Flexible standards therefore are essential.

It is, of course, desirable for all children to

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7 Hinkelman, op. cit., pp. 31-32.

8 Ibid., p. 35.

9 W. A. Saucier, Theory and Practice in the Elementary School, (New York: Macmillan Company, 1951), pp. 468-9.

succeed. However, it is problematical whether all children reach standards set by their own capabilities and limitations.

In his study to determine the effect of age entrance into school upon performance, Garner[10] stated that even within the age range of a first grade group, the native ability and quality of experiences seem to be a much more potent force than age differences. He suggested that mental age and social maturity have a significant relationship. He felt that social maturity was a factor of mental age and corresponding social adjustment.

An investigation of theses presented at The University of New Mexico shows no recent study on the relation of mental ability and scholastic achievement other than that of Kornegay.[11]

In 1925, Freeman[12] made a study of the relation between intelligence amd achievement in a small urban school. Her purpose was to show some definite facts in regard to

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10 Charles E. Garner, "A Study to Determine the Effect of Age Entrance into School upon Performance in School," (Publication of School District of Webster Groves, Missouri, 1947), pp. 1-23.

11 Kornegay, op. cit., pp. 1-67.

12 Cora Nelle Freeman, "A Study of the Relation between Intelligence and Accomplishment as Shown by Use of Standardized Tests im a 'Main Street' School," (unpublished Master's thesis, The University of New Mexico, Albuquerque, 1925), pp. 1-30.

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relation between intelligence and accomplishment in school work. She used group intelligence scales and accomplishment tests. She found that pupils with an IQ of 90-120 were doing as well as could be expected. At the upper and lower extremes of the scale, less was being accomplished.

In 1927, Nathan[13] made a survey of a suburban school in which she showed intelligence and educational ratings. She found a high correlation between intelligence and educational achievement.

The intelligence test is considered by some educators to be in actuality an achievement test, rather than a test of native ability. Tilton[14] said that there is no fundamental difference between the "intelligence" test and the "achievement" test. He thought that there was a practical difference, in that the "achievement" test was made to correspond to school effort.

In the present investigation, the mental tests in the third and fourth grades were non-reading tests. But in Grades V and VI, the mental tests used required reading and other acquired knowledge, and so may have involved a certain amount of achievement along with native ability.

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13 Verna Ruth Nathan, "An Intelligence and Educational Survey of a Suburban School," (unpublished Master's thesis, The University of New Mexico, Albuquerque, 1927), pp. 1-35.

14 J. W. Tilton, An Educational Psychology of Learning, (New York: Macmillan Company, 1951), p. 192.

CHAPTER III

METHOD OF CONDUCTING THE INVESTIGATION

Sociograms were made for each grade. Each child was given a sheet of paper. Upon this paper he was asked to write his own name. Under his name he was asked to write names of three children with whom he liked best to play. The paper was then folded so that no child could see the names another child had written. The investigator collected the papers. The names were tabulated and the sociogram was plotted.

IQs and mental ages for each child were computed from scores on mental tests. The Otis Quick-Scoring Mental Test, Alpha, Form A, was given in Grades III and IV. The test was administered in both verbal and non-verbal forms. Scores were interpreted by means of the manual of directions. In the fifth grade, the Otis Quick-Scoring Mental Test, Beta, Form A, was used. The manual of directions was again utilized for interpreting scores. The sixth grade teacher administered this test to his group. The data obtained were made available to the investigator.

The California Test of Personality, Elementary Form A, was given by the investigator in each of the grades participating in the study. In the third and fourth grades, questions were read aloud to children so that lack of ability

METHOD OF CONDUCTING THE INVESTIGATION

CHAPTER III

to read might not interfere with true answering of them. Pupils in all grades were allowed to ask meanings of words or of questions which they did not understand. The actual meaning was stated as clearly as possible, with no information volunteered by the investigator that might influence the child's answer. It was hoped that an unbiased manner would encourage the child to express true feelings in his answers. All tests were checked and scored by the investigator.

Ratings were determined in percentages by use of the manual of directions. Percentiles were found for Self Adjustment, Social Adjustment, and for Total Adjustment. Under Self Adjustment subheadings were: Self-reliance, Sense of Personal Worth, Sense of Personal Freedom, Feeling of Belonging, Withdrawing Tendencies, and Nervous Symptoms. Social Adjustment consisted of: Social Standards, Social Skills, Anti-social Tendencies, Family Relations, School Relations, and Community Relations. Percentile ranks for Total Adjustment were used in correlations with other data.

Pupils were rated in school achievement by means of two different tests. With two exceptions these tests were administered and scored by the investigator. In the third grade, the reading section of the Progressive Test was given by the investigator but checked by the teacher. The sixth grade teacher administered and scored the Stanford Test

given in his room and made the data available to the investigator. The tests used in Grade III were the Progressive Achievement Test, Form A, Primary Battery, and the Stanford Achievement Test, Primary Battery, Form G.

In Grades IV and V, Form H of the Stanford Achievement Test, Intermediate Battery, Partial, was given. Grade VI used Form G, Intermediate Battery, Partial, of the Stanford Achievement Test. The Progressive Achievement Test, Elementary Battery, Form A, was utilized in Grades IV, V, and VI. Grade point scores and educational age scores were found for all pupils.

Teachers in each grade made estimates of their pupils' IQs. Four intervals were used: 69 and below, 70-89, 90-110, and 111 and above. These estimates were compared with the IQs derived from the mental tests.

In tabulating results of tests, children were designated individually by numbers. Each child kept his same number throughout the analysis of the data.

All norms used were national norms obtained from the manuals for each test.

CHAPTER IV

ANALYSIS OF DATA

When the sociograms were plotted, girls were represented by circles and boys by squares. Each child was given a number and his number put on the circle or square representing him. Straight lines connected the figures, with an arrow point indicating the one chosen. Mutual choices were shown by arrow points at each end of the connecting straight lines. From the resulting diagram the number of times each boy or girl was chosen and who chose him could be readily ascertained. Names of children in each grade were listed. Beside his name was placed the number of times each child was chosen. The resulting tabulation was used in subsequent correlations. (See pages 14, 15, 16, and 17.)

A study of these sociograms showed that in general boys chose boys and girls chose girls for preferred playmates. But in Grade IV six boys indicated the same girl for one of their choices. Two of the other girls were more popular among girls. In Grades III, IV and V, a few children were much more popular than the others. Choices were more evenly distributed in Grade VI. Here the highest number of choices for any child was five. The two children in this group who were not chosen were pupils who had attended this

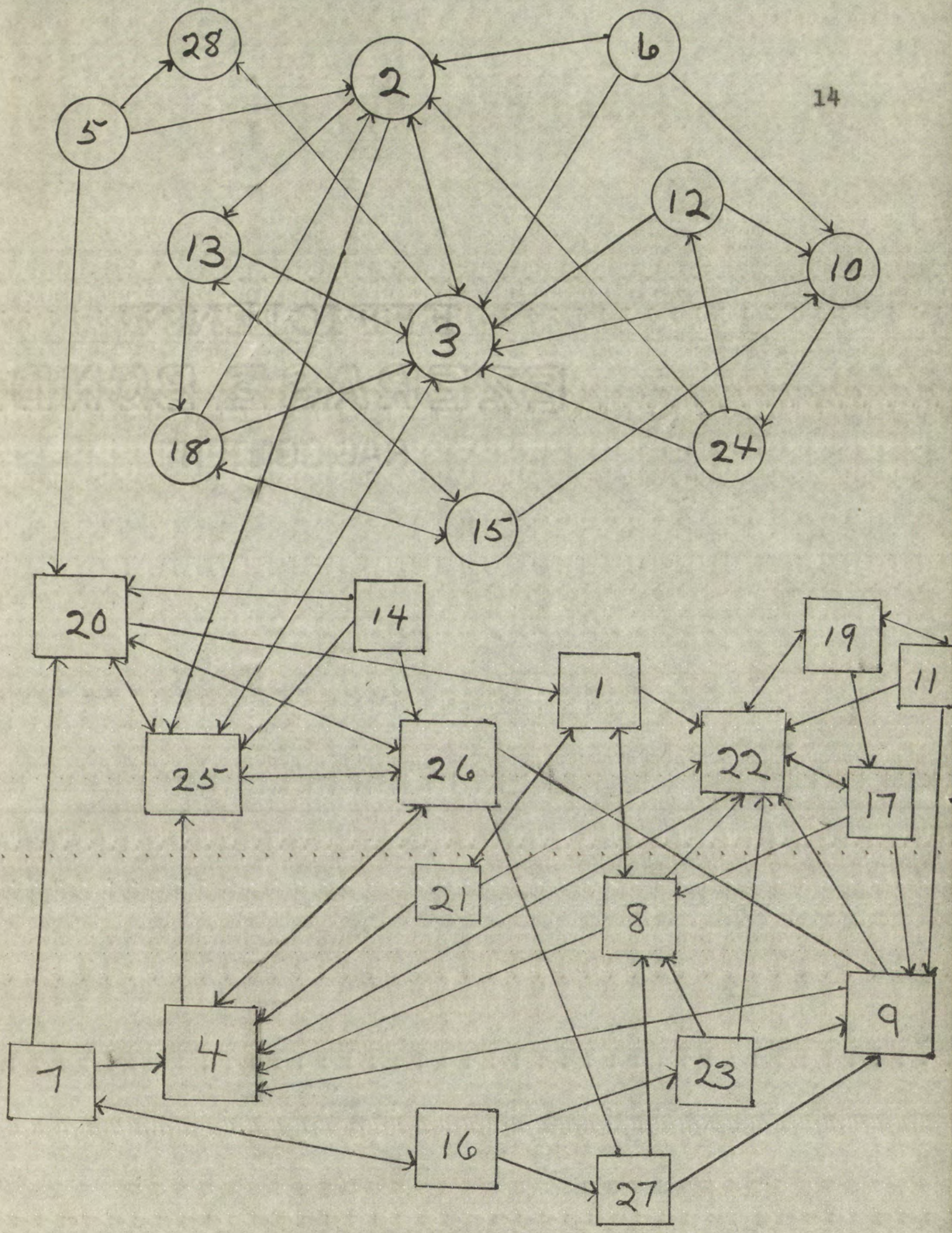
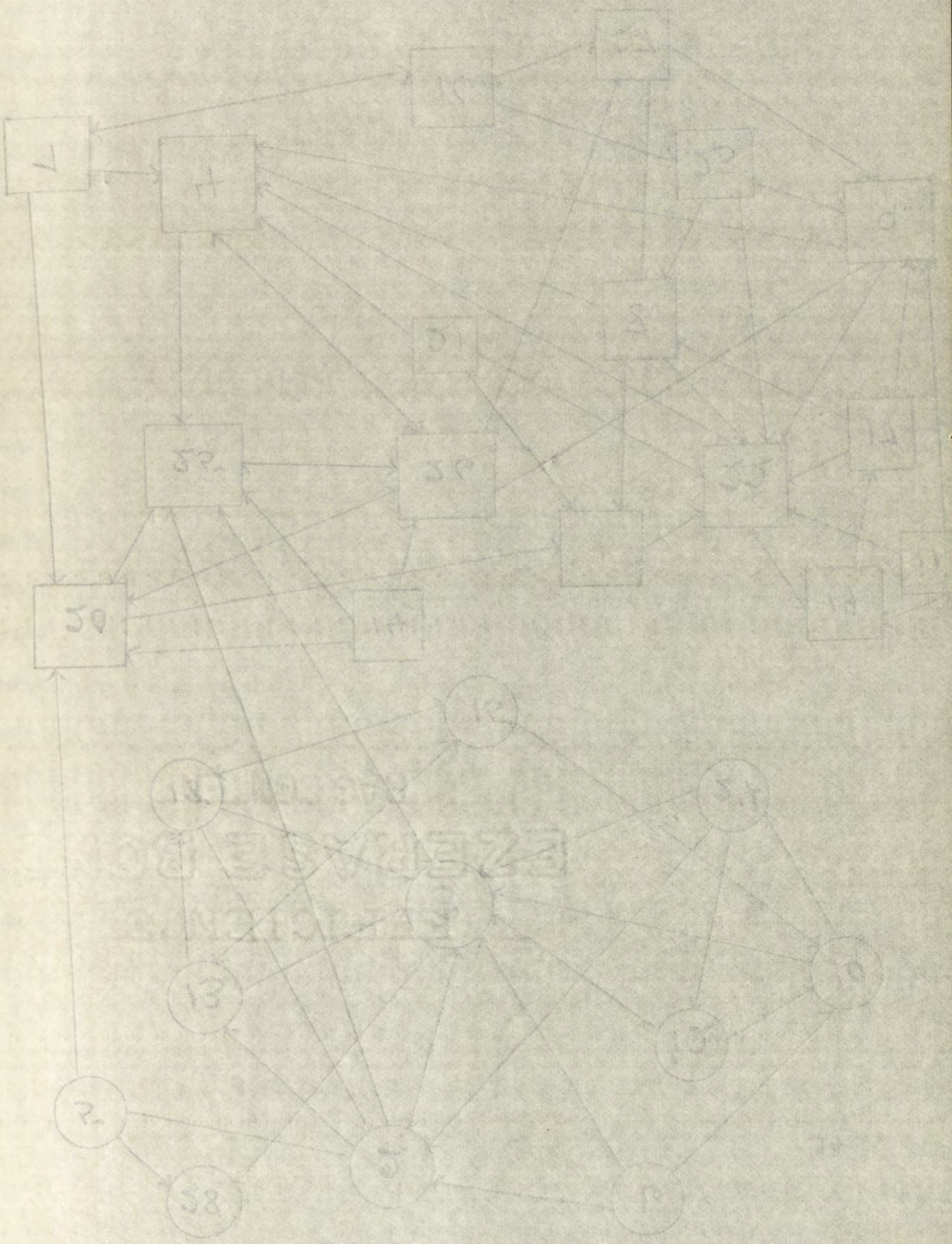


FIGURE 1

SOCIOGRAM FOR GRADE III



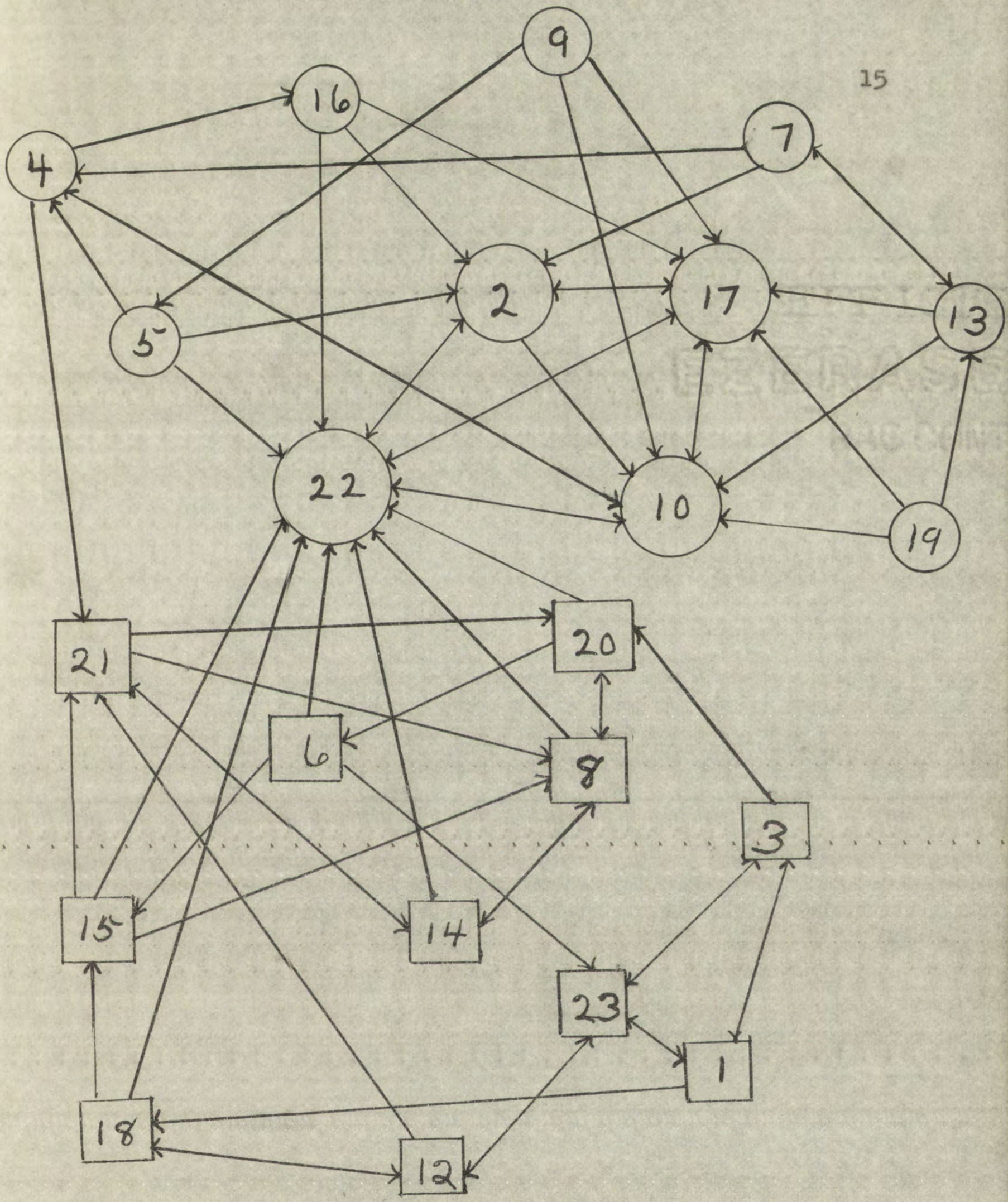
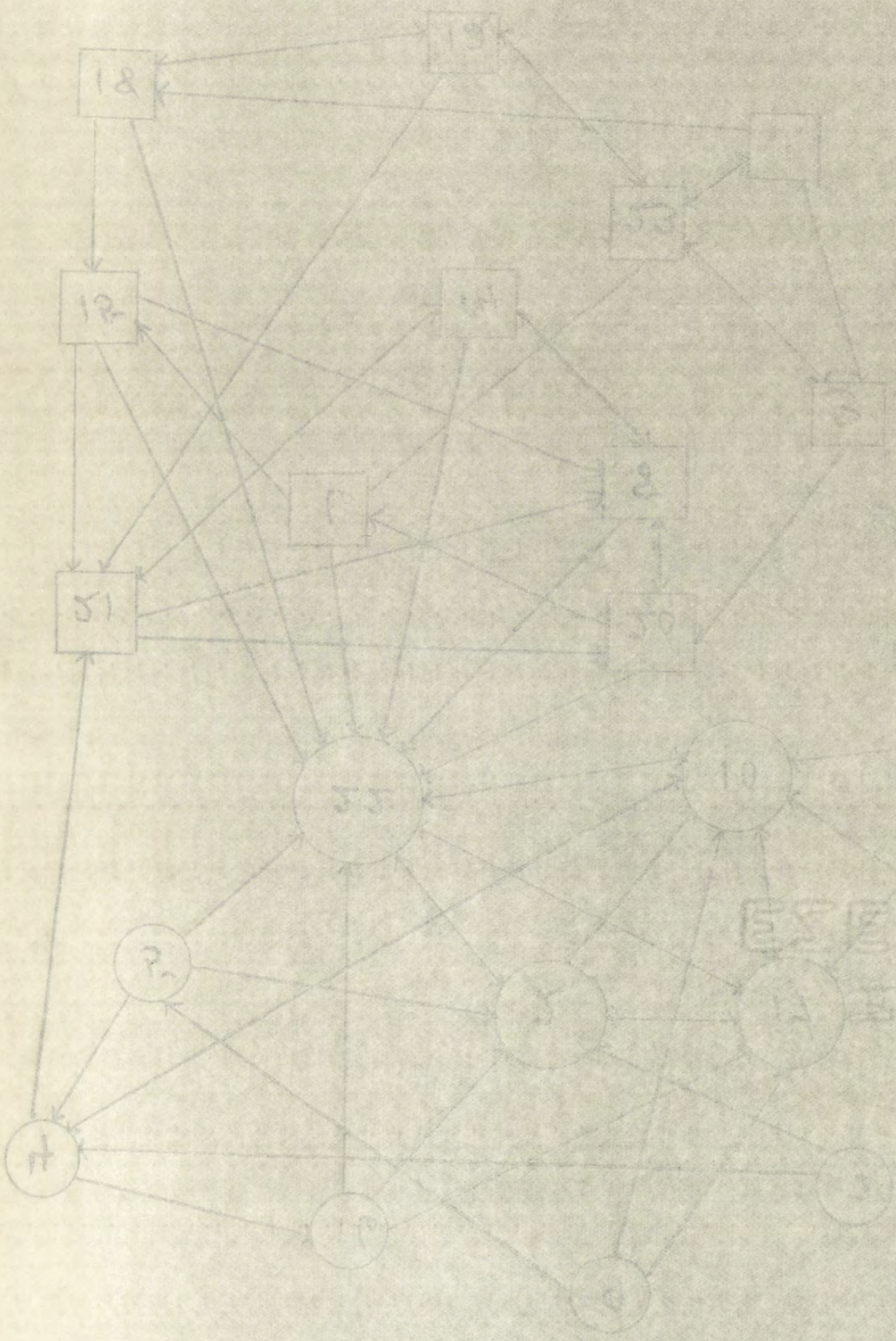


FIGURE 2

SOCIOGRAM FOR GRADE IV



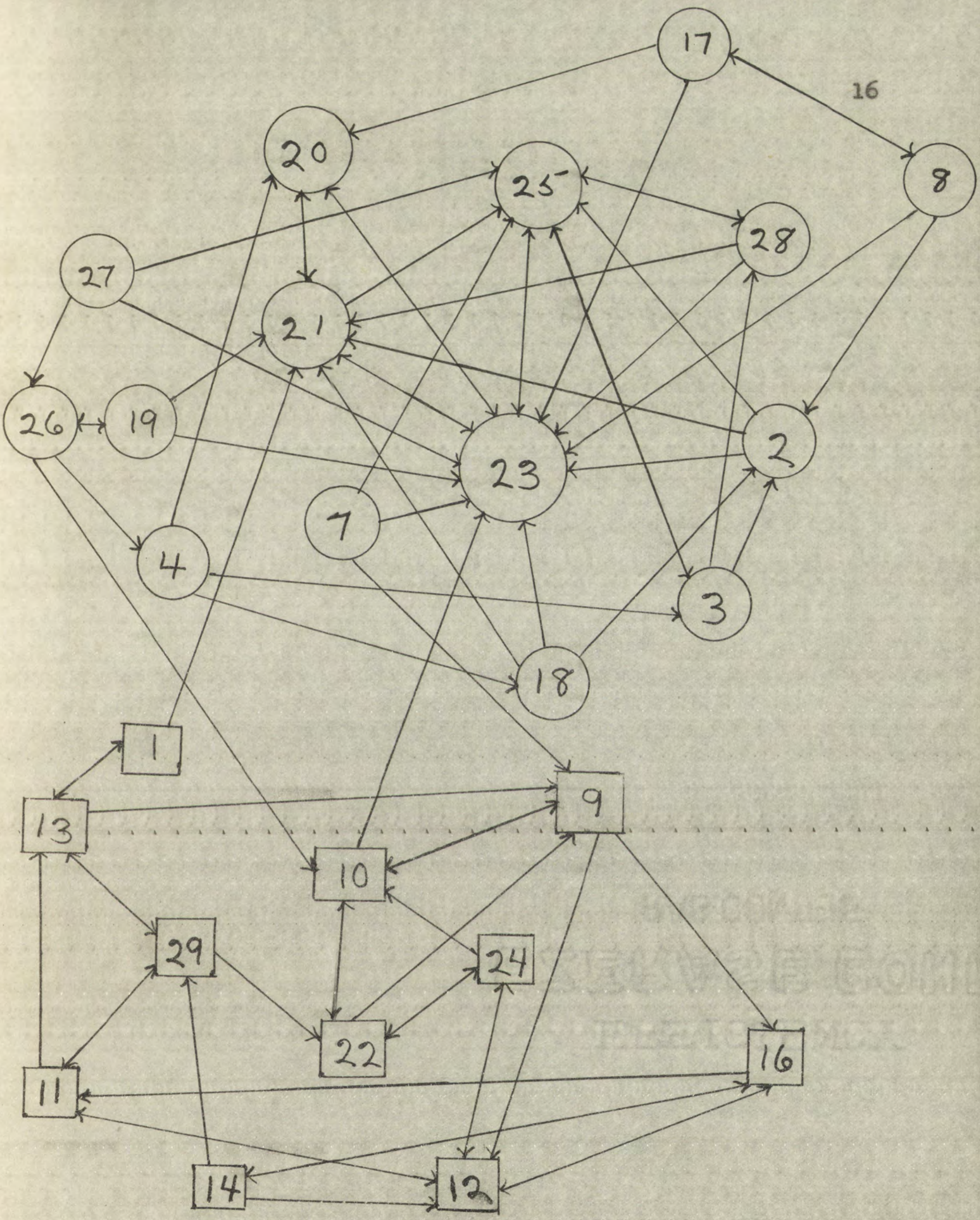
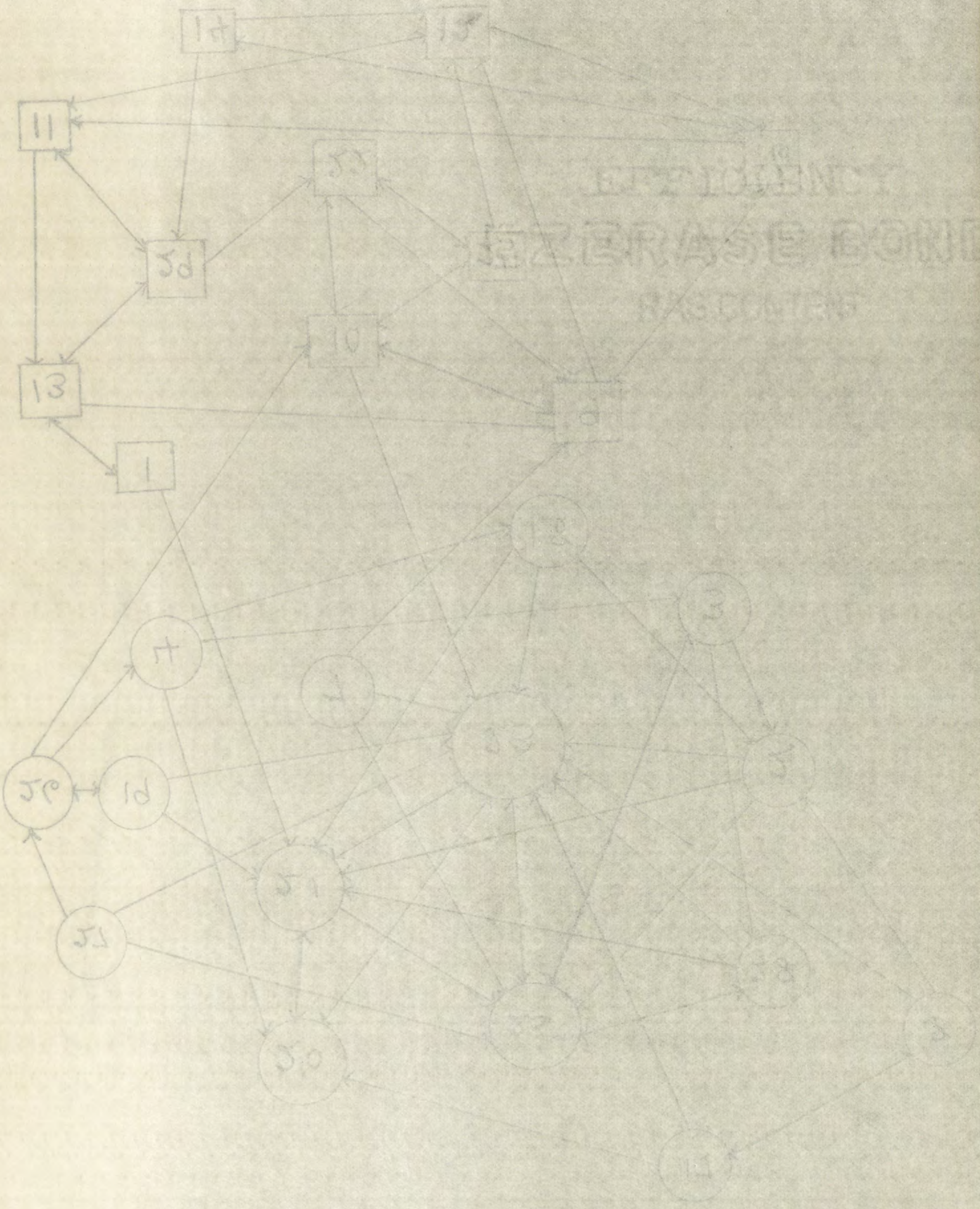


FIGURE 3

SOCIOGRAM FOR GRADE V



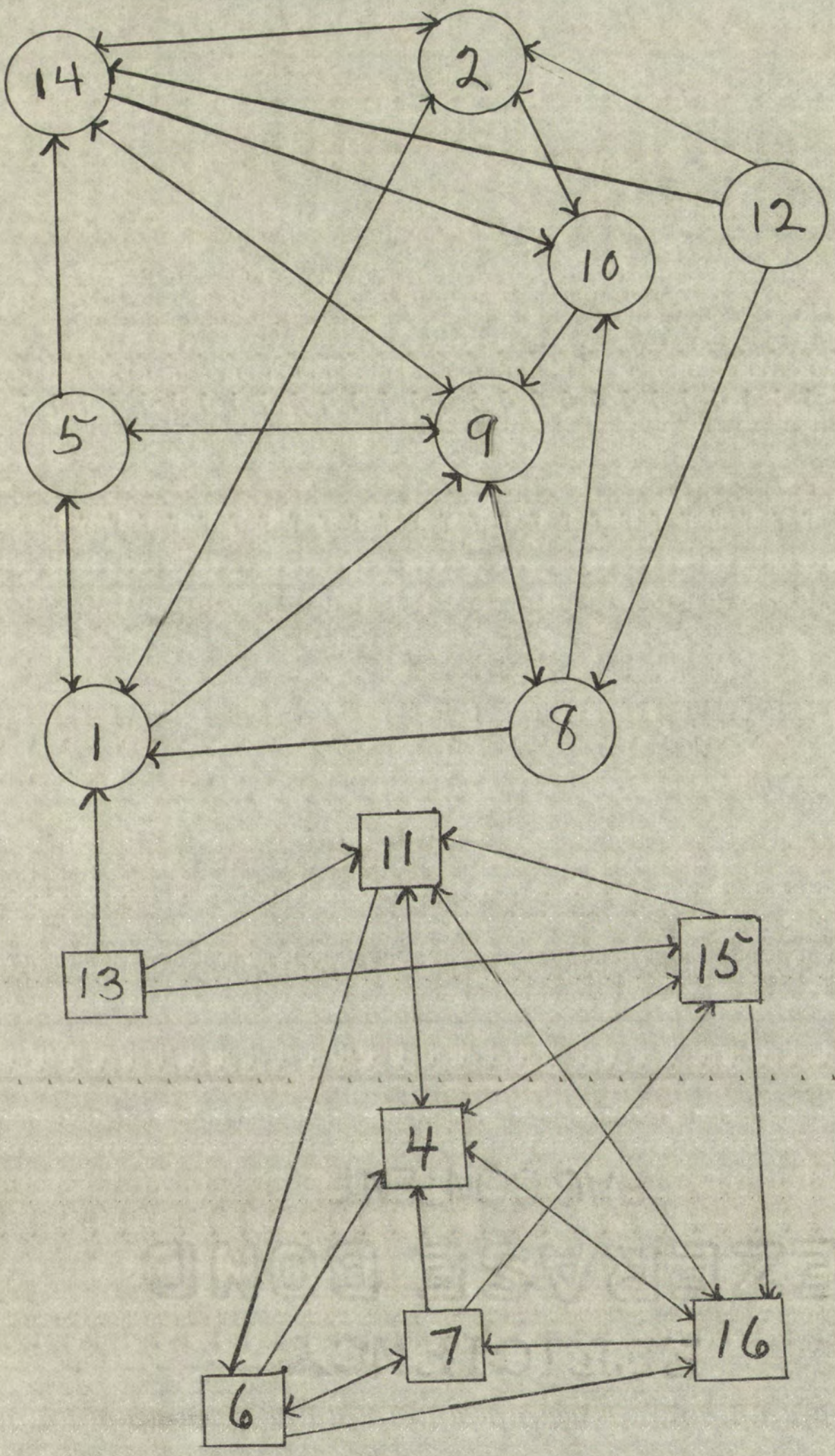
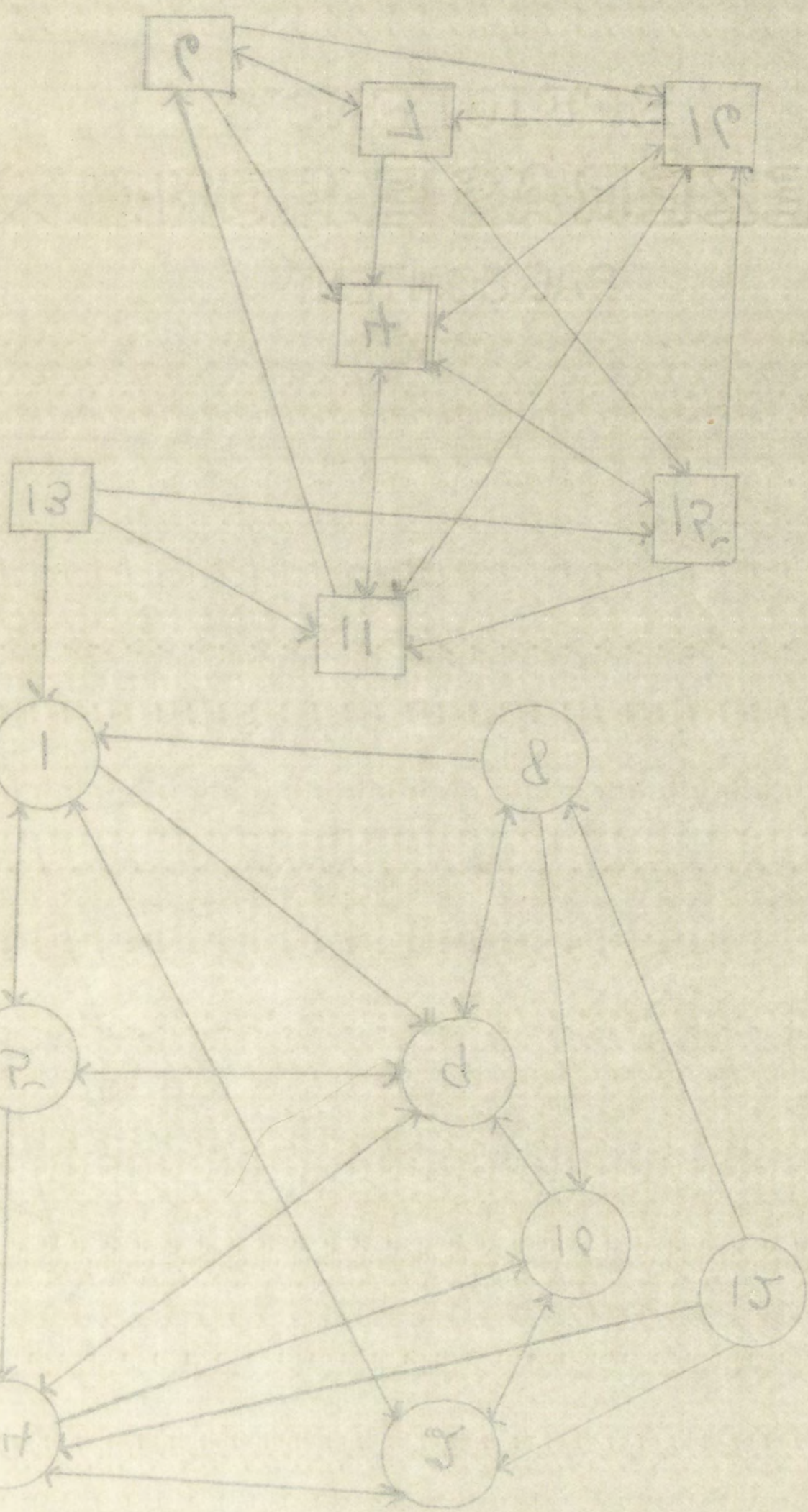


FIGURE 4

SOCIOGRAM FOR GRADE VI


11
13
1
8
2
5
10
15
14
7

school for only a short time.

The degree of social acceptance of each child seems to have very little relation to his ratings in IQ, personality adjustment, or school achievement. Correlation between social acceptance and measured IQ was found to be .31±.07. When personality adjustment was correlated with the number of times a child was chosen the result was r = .16±.07.

Correlations between amount of social acceptance and ratings on the Progressive Achievement Tests were made separately for each grade. In Grade III, r = .12±.13. The correlation in Grade IV was .32±.13. The figure was lower for Grade V, r being .15±.15. Surprisingly enough, in Grade VI the correlation was .82±.04.

Nine children were not chosen at all. The largest number of times one child was selected was nine in Grade III, eleven in Grade IV, twelve in Grade V, and five in Grade VI.

Table I shows the high, low, and median mental ages,

TABLE I

HIGH, LOW, AND MEDIAN MENTAL AGES AND HIGH, LOW, AND MEDIAN IQS FOR ALL GRADES

	III		IV		V		VI	
	M.A.	IQ	M.A.	IQ	M.A.	IQ	M.A.	IQ
High	12-2	116	13-3	116	13-4	119	16-0	123
Low	6-8	64	6-11	75	7-4	73	8-7	68
Median	9-3	95	9-11	97	10-8	98	12-0	104
Norm	9-3	100	10-4	100	11-6	100	12-4	100

and also high, low, and median IQs for all grades. Table II gives the mental ages and IQs for all pupils. These were obtained by means of the mental test.

In Grade III, the range of mental ages was from six years eight months to twelve years two months, or a difference of five years six months. The median mental age at time of testing was nine years three months, which is the age norm given by the Progressive Achievement Test for that time. The median IQ for the group was 95, with a range from 64 to 116.

The children in Grade IV were found to have mental ages from six years eleven months to thirteen years three months, a range of six years four months. Their median mental age was nine years eleven months, as compared to a norm of ten years four months. The range of IQs in this group was from 75 to 116, with a median of 97.

Pupils of Grade V had a range of mental ages from seven years four months to thirteen years four months, a difference of seven years. The median mental age was ten years eight months, which was ten months below the norm of eleven years six months. The median IQ for this group was 98.

In Grade VI an even wider range was found. The low mental age was seven years five months with a high of sixteen years making the range eight years seven months. The

TABLE II

MENTAL AGES AND IQS FOR ALL PUPILS

Pupil No.	III		IV		V		VI	
	M.A.	IQ	M.A.	IQ	M.A.	IQ	M.A.	IQ
1	10-3	114	8-2	84	7-4	73	12-5	104
2	8-9	90	9-5	97	11-4	105	11-8	101
3	10-3	105	7-7	82	11-8	108	8-2	68
4	8-2	85	12-6	116	9-2	90	14-9	107
5	8-9	96	12-1	113	8-5	71	15-10	123
6	11-3	112	9-5	95	8-3	78	14-4	108
7	6-8	64	9-1	88	10-7	90	14-9	112
8	8-2	90	10-5	95	12-5	111	11-8	103
9	10-9	116	7-11	75	13-3	115	14-9	109
10	8-10	99	10-0	95	14-6	119	14-4	109
11	8-9	106	9-4	81	11-10	99	11-2	96
12	8-1	94	9-11	100	10-0	91	11-0	93
13	9-5	96	11-9	105	8-2	76	7-5	68
14	7-9	87	8-7	86	11-2	98	10-8	92
15	7-2	74	9-8	94	10-0	92	10-7	92
16	7-8	81	10-3	106	11-8	103	16-0	123
17	9-4	111	12-0	111	9-5	89		
18	7-2	79	11-7	112	10-7	97		
19	8-10	92	8-4	85	11-4	106		
20	12-2	115	11-7	106	11-4	103		
21	8-1	88	13-3	114	10-10	99		
22	9-3	107			10-5	97		
23	8-7	78			10-8	99		
24	8-3	95						
25	8-7	96						
26	9-10	113						
27	8-5	84						

median mental age was twelve years one month, three months below the norm. The median IQ, 104, was the only median IQ in any grade that was above 100.

Table III shows the pupils of all grades listed by number both in the interval in which they were placed by the teachers' estimates, and in the interval in which they fell according to the results of the mental test.

In Grade III, the teacher listed seven names in the top interval, 111 and above, and twenty names in the interval comprising 90-110. According to the test results, there were six pupils in the 111 and above interval, twelve children in the 90-110 interval, eight in the 70-89 group, and one in the 69 and below classification. Comparing the two lists, the investigator found that the teacher correctly classified ten children, missed fifteen by one group rating, and missed two by two group ratings.

The teacher in Grade IV correctly classified thirteen children, missed nine by one rating. There were five children in the 111 and above group, ten in the 90-110 interval and six in the 70-89 group.

Eleven of the pupils in Grade V were classified correctly by their teacher, nine were missed by one rating, and three were not classified. The test results showed that three pupils had IQs above 111, that fifteen were in the group ranging from 90-110, and five children had IQs between

TABLE III

TEACHERS' ESTIMATES OF IQS
AND THE ACTUAL TEST RESULTS

		69 and Below	70-89	90-110	111 and Above
III	Teacher's Estimates			2,4,5,6,7,8 9,10,14,15 16,17,18,19 22,23,24,25 26,27	1,3,11,12 13,20,21
	Test Results	7	4,14,15 16,18,21 23,27	2,3,5,8,10 11,12,13, 19,22,24, 25	1,6,9,17 20,26
IV	Teacher's Estimates		1,3,7,9 11,15	2,5,6,8,10 12,14,17 18,19	4,13,16 20,21
	Test Results		1,3,7,9 11,14,19	2,6,8,10,12 13,15,16,20 22	4,5,17,18 21
V	Teacher's Estimates	1,5,6	7,13,17	3,4,9,12,14 18,20	2,8,10,11 15,23
	Test Results		1,5,6,13 17	2,3,4,7,11 12,14,15,16 18,19,20,21 22,23	8,9,10
VI	Teacher's Estimates		13	1,2,6,10,11 12,14,15	4,5,7,8,9 16
	Test Results	3,13		1,2,4,6,8,9 10,11,12,14 15	5,7,16

70 and 89.

In Grade VI, three pupils were in the 111 and above group, eleven were in the 90-110 classification, and two were in the group that ranged downward from 69. The teacher in this grade estimated eleven IQs correctly, missed four by one rating, and did not classify one pupil who enrolled after the estimates had been made.

In Table IV will be found individual percentile rankings on Total Adjustment obtained from scores on the California Test of Personality. In Table V, the results are summarized, showing the number of pupils in each grade at the different percentile rankings, and the total number of pupils in each ranking.

In Grade III, the highest adjustment score was 75 per cent. The lowest ranking in the same group was 15 per cent. The median here was 40 per cent, which was 10 per cent below the norm established for the test.

In Grade IV 75 per cent was the highest score. In this group the lowest rating was 20 per cent. The median score was 42.5 per cent.

Grade V had a high score of 80 per cent, with a low of 10 per cent. The median percentile ranking was 40 per cent. The highest score in Grade VI was 85 per cent. The lowest rating was 10 per cent. The median was 45 per cent for this group.

TABLE IV

PERCENTILE RANKINGS OF ALL PUPILS
ON TOTAL ADJUSTMENT

Pupil No.	III	IV	V	VI
1	35	30	10	30
2	75	35	40	45
3	45	60	40	30
4	60	75	20	75
5	45	20	20	45
6	65	50	20	55
7	20	20	45	10
8	30	45	80	85
9	25	25	40	40
10	45	40	70	45
11	70	50	45	60
12	45	55	40	45
13	45	40	35	15
14	30	35	35	45
15	25	35	65	55
16	50	45	35	60
17	25	40	20	
18	25	45	60	
19	25	45	55	
20	70	50	60	
21	30	70	50	
22	55	25	50	
23	40		65	
24	75			
25	15			
26	30			
27	35			

TABLE V

NUMBER OF PUPILS IN EACH
PERCENTILE RANKING ON TOTAL ADJUSTMENT

Percentile	III	IV	V	VI	Total
85				1	1
80			1		1
75	2	1		1	4
70	2	1	1		4
65	1		2		3
60	1	1	2	2	6
55	1	1	1	2	5
50	1	3	2		6
45	5	4	2	5	16
40	1	3	4	1	9
35	2	3	3		8
30	4	1		2	7
25	5	2			7
20	1	2	4		7
15	1			1	2
10			1	1	2

As has been stated previously, the correlation between personality adjustment scores and degree of social acceptance was found to be .16∠.07. When personality test rankings and IQs were correlated scores of all groups were included. This correlation was computed to be .53∠.05. While this correlation is not highly significant, it does seem to indicate that personal and social adjustment has a closer relation to intelligence than to social acceptance by the group.

Table VI shows high, low, and median educational and

TABLE VI

HIGH, LOW, AND MEDIAN EDUCATIONAL AND CHRONOLOGICAL AGES FOR ALL GRADES

	III		IV		V		VI	
	E.A.	C.A.	E.A.	C.A.	E.A.	C.A.	E.A.	C.A.
High	9-10	11-7	12-8	12-3	13-1	13-1	13-4	13-4
Low	8-1	8-5	8-1	9-3	8-3	10-5	9-11	11-2
Median	9-0	9-2	10-6	10-5	11-6	11-0	12-7	11-10
Norm	9-3	9-3	10-4	10-4	11-6	11-6	12-4	12-4

chronological ages for each grade, with norms for each. In Table VII, individual educational and chronological ages are given for all pupils.

The educational ages given in Tables VI and VII were derived from scores on the Progressive Achievement Test, with the exception of ages for two children in Grade V, who were

TABLE VII

EDUCATIONAL AND CHRONOLOGICAL AGES FOR ALL PUPILS

Pupil No.	III		IV		V		VI	
	E.A.	C.A.	E.A.	C.A.	E.A.	C.A.	E.A.	C.A.
1	9-7	8-8	8-1	10-11	9-2	11-2	12-10	11-8
2	8-10	10-1	9-9	10-0	12-1	10-7	12-3	11-7
3	9-9	9-5	9-11	9-6	11-6	10-5	9-11	13-4
4	8-9	10-3	12-0	9-10	11-0	10-7	13-2	12-4
5	9-1	9-2	10-0	9-11	8-3	13-1	13-4	11-8
6	9-1	9-1	9-5	10-5	8-7	11-5	12-9	11-7
7	8-3	9-5	10-5	11-6	11-3	12-3	12-4	11-5
8	8-9	9-2	11-0	10-11	12-9	10-6	12-9	11-2
9	9-8	8-9	8-2	9-10	11-11	10-6	13-2	11-11
10	8-1	8-11	11-10	11-0	13-1	10-10	12-8	11-6
11	9-8	8-5	9-9	12-3	12-1	12-0	12-0	11-10
12	9-10	9-7	11-3	9-11	11-3	11-4	10-11	12-3
13	9-9	10-0	11-6	10-5	10-10	11-8	8-11	12-3
14	8-6	10-5	10-6	11-0	11-7	11-5	10-6	12-0
15	8-5	10-7	10-1	12-0	10-8	11-2	12-5	11-11
16	8-11	10-1	12-8	9-4	12-5	11-1	13-3	11-9
17	9-1	8-5	10-10	9-6	10-9	11-0		
18	9-1	9-3	10-2	9-3	11-6	11-0		
19	8-6	8-5	10-10	10-11	11-4	10-5		
20	9-9	9-3	11-7	10-1	11-11	10-9		
21	9-5	9-2	11-10	10-8	11-6	11-0		
22	9-0	8-6			11-1	10-10		
23	9-0	10-4			11-6	10-9		
24	9-1	8-7						
25	8-10	9-0						
26	8-11	8-5						
27	8-4	11-7						

absent at the time this was given. These were taken from the results of the Stanford Achievement Test.

An examination of the data given for Grade III shows a range in educational ages of one year nine months, extending from eight years one month to nine years ten months. The median educational age was nine years, which was three months below the norm. Since the median mental age was also nine years three months, this shows an apparent underachievement of three months.

In Grade IV educational ages range from eight years one month to twelve years eight months, a difference of four years seven months. The median for the group was ten years six months. This educational age was two months higher than the norm for the grade, and seven months higher than the median mental age.

The highest educational age in Grade V was thirteen years one month. The lowest was eight years three months. The range was four years ten months. The median age of eleven years six months is the same as the norm given for the time of testing. It is ten months above the median mental age for that group, showing an apparent overachievement, in the light of mental ability as measured by the mental tests.

Pupils in Grade VI ranged in educational age from eight years eleven months to thirteen years four months, a

difference of four years five months. Their median educational age was twelve years seven months. This is three months above the norm at time of testing, and eleven months above the median mental age of the group, showing a seeming over-achievement.

In general, chronological ages showed a smaller range than did educational ages. However, in Grade III the range of chronological ages is three years two months, extending from eight years five months to eleven years seven months. The median was nine years two months and was only slightly below the norm for the group.

In Grade IV chronological ages were from nine years three months to twelve years three months with a range of three years. The median here was ten years five months, one month above the norm.

Grade V had a median chronological age of eleven years. This was six months below the norm. Their range was from ten years five months to thirteen years one month. In Grade VI the range was from eleven years two months to thirteen years four months. The median of eleven years ten months was six months below the norm.

Educational ages were correlated both with chronological and with mental ages. The correlation between educational ages and chronological ages was found to be .55$\pm$.05. The correlation between educational ages and mental

ages was .82±.04. The implication here seems to be that if pupils were grouped according to mental age rather than chronological age, a narrower range of scholastic achievement within each group would follow.

Table VIII shows high, low, and median grade point

TABLE VIII

HIGH, LOW, AND MEDIAN GRADE POINT SCORES FROM THE PROGRESSIVE ACHIEVEMENT TEST

	III	IV	V	VI
High	4.4	7.0	7.5	7.9
Low	2.7	2.7	3.8	3.5
Median	3.6	5.0	5.9	6.9
Norm	3.8	4.8	5.9	6.7

scores derived from the Progressive Achievement Test and the norm for each grade.

Table IX shows grade point scores on the Progressive Achievement Test. These are for all pupils included in the study.

Grade III had a range of grade point scores from 2.7 to 4.4, or a difference of 1.7. The median score was 3.6 which was .2 below the norm for this grade. In Grade IV scores ranged from 2.7 to 7.0, with a difference of 4.3. The median grade point score was 5.0, .2 above the norm.

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TABLE IX

PROGRESSIVE ACHIEVEMENT TEST
GRADE POINT SCORES IN ALL GRADES

Pupil No.	III	IV	V	VI
1	4.2	2.7	3.8	7.2
2	3.4	4.3	6.5	6.6
3	4.3	4.5	5.9	4.5
4	3.3	6.4	5.5	7.6
5	3.7	4.6		7.9
6	3.7	4.0		7.0
7	2.8	4.9	5.7	6.7
8	3.3	5.5	7.1	7.1
9	4.2	2.8	6.3	7.6
10	2.7	5.7	7.5	7.0
11	4.2	4.3	6.5	6.4
12	4.4	5.7	5.7	5.4
13	4.3	5.9	5.3	3.5
14	3.1	5.0	6.0	5.0
15	3.0	4.6	5.2	6.8
16	3.5	7.0	6.8	7.7
17	3.7	5.3	5.2	
18	3.7	4.7	5.9	
19	3.1	5.3	5.8	
20	4.3	6.0	6.3	
21	4.0	6.2	5.9	
22	3.6		5.6	
23	3.6		5.9	
24	3.7			
25	3.4			
26	3.5			
27	2.9			

Scores in Grade V were from 3.8 to 7.5 with a range of 3.7. The median, 5.9, was also the norm for the group. The median in Grade VI was 6.9, which was .2 above the norm. The range was 4.4, extending from 3.5 to 7.9.

The Progressive Achievement Test grade point scores for each group were correlated with percentile rankings on the California Test of Personality. In Grade III this correlation was .20∠.12. In Grade IV r was .47∠.11. Grade V showed the highest correlation with r equalling .60∠.09. In Grade VI r was .47∠.13.

A study of grade point scores on the Stanford Achievement Test reveals that in general they were lower than scores derived from the Progressive Test. Table X gives the high, low, and median grade point scores and

TABLE X

HIGH, LOW, AND MEDIAN GRADE POINT SCORES FROM THE STANFORD ACHIEVEMENT TEST

	III	IV	V	VI
High	4.3	6.2	7.8	9.3
Low	2.2	3.0	3.1	3.4
Median	2.9	4.4	4.8	6.0
Norm	3.8	4.8	5.9	6.7

norms from the Stanford Achievement Test. Table XI presents

TABLE XI

STANFORD ACHIEVEMENT TEST
GRADE POINT SCORES IN ALL GRADES

Pupil No.	III	IV	V	VI
1	3.9	3.0	3.1	7.4
2	2.8	3.4	4.9	6.2
3	4.1	3.9	5.1	3.7
4	2.6	5.9	4.6	
5	2.9	4.2	3.2	9.3
6	2.9	3.4	3.6	6.4
7	2.2	3.6	4.6	5.9
8	2.3	5.0	6.4	6.0
9	3.3	3.0	5.0	8.8
10	2.2	4.7	7.8	6.0
11	3.8	3.7	6.4	5.4
12	3.6	4.9	5.0	4.7
13	3.4	5.5	4.1	3.4
14	2.4	4.4	5.0	3.9
15	3.0	3.9	6.0	5.9
16	2.7	6.2	4.2	9.3
17	2.9	4.4	4.2	
18	3.0	4.2	4.8	
19	2.5	5.1	4.4	
20	4.3	5.2	5.2	
21	3.5	5.5	4.7	
22	2.7			
23	2.9			
24	3.2			
25	2.8			
26	2.6			
27	2.4			

Run No.					
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the scores from the Stanford Achievement for all pupils individually.

The range of scores in the third grade was found to be 2.2-4.3 as compared to 2.7-4.4 on the Progressive Test. The median on the Stanford Test was 2.9. This is .7 below that of the other test, and .9 below the norm for the group. In the fourth grade the Stanford Test range was 3.0-6.2. The low of 3.0 is .3 higher than the low of 2.7 on the Progressive Test, but the high of 6.2 is .8 lower than the high of 7.0 on the Progressive Test. The median 4.4 is .6 below the median for the Progressive Test and .4 below the norm.

Stanford Test scores for Grade V yielded a range from 3.1-7.8 as compared to 3.8-7.5 from the Progressive Test. The low on the former test was .7 below that on the latter. The median 4.8 was 1.1 below that of the Progressive Test and also 1.1 below the norm. The high score was .3 higher on the Stanford than on the Progressive Test.

Pupils in Grade VI who made below norm scores on the Progressive Test tended to make lower scores on the Stanford Test. On the other hand, pupils who ranked above the norm on the first test made higher scores on the second one. The range on the Stanford Test was 3.4-9.3 compared to 3.5-7.9 on the Progressive Test. The Stanford median was 6.0, which was .9 below the median for the other test,

and .7 below the norm for the group.

In Table XII the number of pupils in each grade making a score in a certain interval is listed for each test. The total number of pupils in each interval is also shown for each test. Intervals used are three grade points.

The Stanford Achievement Test scores for all grades were correlated with the test scores for the Progressive Achievement Test. The correlation was found to be .84±.02. The high correlation indicated that the two tests measured the same things. When Stanford Achievement Test scores were correlated with measured IQs, separately for each grade, the correlation in Grade III was .52±.10. For the fourth grade group r was .63±.09. Fifth grade scores showed a correlation of .78±.09 for the two tests. The correlation was even higher for the group in Grade VI. Here r equalled .87±.06. When correlations for the four groups are placed in proximity, the increase from grade to grade can be easily noted.

For Grade III, r = .52±.10
For Grade IV, r = .63±.09
For Grade V, r = .78±.09
For Grade VI, r = .87±.06

The implication is that with each succeeding grade children are working more nearly at the level of their capacity.

A summary of correlations between Progressive

TABLE XII

NUMBER OF PUPILS
AT EACH GRADE POINT INTERVAL
ON PROGRESSIVE AND STANFORD ACHIEVEMENT TESTS

Interval	Progressive Achievement Test				Total	Stanford Achievement Test				Total
	III	IV	V	VI		III	IV	V	VI	
9.1-9.3									2	2
8.8-9.0									1	1
8.5-8.7										
8.2-8.4										
7.9-8.1				1	1					
7.6-7.8				3	3			1		1
7.3-7.5			1		1				1	1
7.0-7.2		1	1	4	6					
6.7-6.9			1	2	3					
6.4-6.6		1	2	2	5			2	1	3
6.1-6.3		1	2		3		1		1	2
5.8-6.0		2	6		8		1	1	4	6
5.5-5.7		3	4		7		2			2
5.2-5.4		2	3	1	6		1	1	1	3
4.9-5.1		2		1	3		3	6		9
4.6-4.8		3			3		1	4	1	6
4.3-4.5	4	3		1	8	1	2	2		5
4.0-4.2	4	1			5	1	2	3		6
3.7-3.9	5		1		6	2	3		2	7
3.4-3.6	6			1	7	3	3	1	1	8
3.1-3.4	4				4	2		2		4
2.8-3.0	3	1			4	8	2			10
2.5-2.7	1	1			2	5				5
2.2-2.4						5				5

Achievement scores and Personality Adjustment showed:

For Grade III, r = .12/.13
For Grade IV, r = .47/.11
For Grade V, r = .60/.09
For Grade VI, r = .46/.13

While there is no consistent pattern here, correlations in intermediate grades are higher than in Grade III. This seemed to indicate a closer relationship between adjustment and achievement in these three grades than in Grade III.

The correlations between social acceptance and scores on the Progressive Achievement Test seemed to follow no pattern.

For Grade III, r = .20/.13
For Grade IV, r = .32/.13
For Grade V, r = .15/.15
For Grade VI, r = .82/.06

Correlations in Grades III, IV, and V were too low to be considered significant. In Grade VI, however, the correlation of .82/.06 seemed highly significant. It is not known whether social acceptance is more closely related to achievement in Grade VI, or whether this high correlation is accidental. The latter may be true because the group is made up of only sixteen children with a median IQ of 104.

When other correlations were listed in order with lowest correlation first, the highest correlation found was between the two Achievement Tests.

Social Acceptance and Personality Adjustment..r = .16±.07
Social Acceptance and IQ.....r = .31±.07
Personality Adjustment and IQ.....r = .53±.05
Educational Age and Chronological Age.....r = .55±.05
Educational Age and Mental Age.....r = .82±.04
Progressive Achievement Test and Stanford
Achievement Test.....r = .84±.02

Correlation between educational age and mental age was .82±.04, which showed a greater consistency between educational age and mental age than between achievement scores and IQs.

The low correlation between social acceptance and other factors might be due to the method of determining social acceptance. A method involving more choices, and indication of first, second, third, and fourth choices might have produced different results.

The correlation for personality adjustment and IQ was .55±.05. This showed at least a tendency toward better adjustment for pupils with higher IQs.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

I. CONCLUSIONS

1. From a study of teachers' estimates of intelligence and from measured IQs of pupils, it would seem that teachers were correct on from approximately three-eighths to three-fourths of their estimates. In the third grade the pupils who made a better than norm score on the Progressive Achievement Test were those whom the teacher had placed in the 111 and above group. In the fourth grade all pupils placed in the top group made above norm scores. Fifth and sixth grade teachers' estimates compared similarly. This might indicate that teachers often confuse achievement and capabilities.

2. Apparently scholastic achievement is not always in direct relation to abstract intelligence as measured by mental tests. However, it may be noted that the correlation between Stanford Achievement Test scores and measured IQs, while only .52∠.10 in the third grade, rises in each successive grade until it reaches .87∠.06 in the sixth grade. This seems to indicate that the longer a pupil attends school, the more nearly his achievement will approximate his native ability.

3. Correlation between mental ages derived from the mental tests and educational ages derived from the Progressive Achievement Test showed an r of .82±.04 for all grades when taken together. A child who is overage for his grade level with a low IQ may have the same mental age as a younger child with an average or high IQ. Perhaps mental age is a better focal point for the study of children's ability to learn than is an intelligence quotient.

4. Mental tests indicate that more pupils were working above their capacities than below them, as shown by educational and mental ages in Table II on page 20, and in Table VII on page 27. According to the norms given in the Progressive Achievement Test manual, fifteen children in the third grade have attained higher educational ages than their measured mental ages. The number was twelve in the fourth grade, two in the fifth, and seven in the sixth grade. It should be noted that several pupils in each grade whose educational ages have not reached their mental ages are higher than the norm for their grade.

It should be remembered that a pupil in any one grade has had no opportunity to attain knowledge of processes and material presented in higher grades, and can not be expected to achieve in areas to which he has not been exposed. It is obviously incorrect to say that a child whose chronological age is eleven years eight months

and whose mental age is fifteen years ten months is under-achieving because he has attained an educational age of only thirteen years five months. A child of twelve years should not be provided with a curriculum planned for high school sophomores. However, he does need a rich curriculum which will meet his individual needs.

When pupils who had achievement scores under the norm were considered, the number in the third grade achieving below measured capacity was six; in the fourth grade, four; and in the sixth grade, one. There were none in the fifth grade. This means that 13 per cent of all pupils included in the study presumably were capable of reaching goals which they were not achieving.

5. Comparisons of data obtained from sociograms showed very little relationship to data derived from the various tests. The correlation between social acceptance as indicated by the sociograms and percentile rankings on personality tests was .16$\pm$.07, which is too low to be significant. Correlations between social acceptance and ratings on the Progressive Achievement Test were also too low to be significant except in Grade VI. There the correlation of .82$\pm$.04 seems unexpectedly high. This was an unusually small grade of sixteen pupils, with a higher than average median IQ. Perhaps a different method of determining social acceptance should be tried.

6. The fifth percentile rank on the California Test of Personality was considered the norm. When scores on this tests were studied, it was seen that in general the children in this investigation were somewhat below the norm. The correlation of .53$\pm$.05 showed at least a positive relationship between adjustment scores and IQ ratings. Correlations between percentile rankings and Progressive Achievement Test scores apparently follow no particular pattern. A correlation of .20$\pm$.12 for the third grade seemed of little significance. In the fourth grade, r equalled .47$\pm$.11 and might indicate a more positive relationship. When r equalled .60$\pm$.09, as in the fifth grade, it might be assumed to be of some importance.

7. The high correlation of .84$\pm$.02 between the grade point scores made on the Progressive Achievement Test and those made on the Stanford Achievement Test indicated that the two tests measured the same things. However, the difference between median grade point scores, and the difference between individual grade point scores apparently meant that a higher level of performance was required on the Stanford Test in order to acquire a grade point score equal to that on the Progressive Test.

Analysis of the performance of pupils on the respective tests indicated that the quantity of information taught at the several grade levels was more curricularly

valid for the Progressive Tests. For example, at some grade levels pupils would need to make near perfect scores on what has been taught in order to approach the norms on the Stanford Tests. While the two tests produced a similar ranking of pupils, and thus produced a high correlation, the curricular validity was such that the Progressive Tests more nearly measured the information taught in the school from which these pupils were chosen. Whatever the reason, pupils included in this investigation were not keeping pace academically with children upon whom the Stanford Test was standardized. On the other hand their grade medians were equal to norms of the Progressive Achievement Test. These pupils apparently were achieving on a par with children upon whom this test was standardized.

8. Wide individual differences of children were noted in every phase of this study. On scores from the California Test of Personality, percentile rankings ranged from 10 per cent to 85 per cent. In social acceptance, the number of times chosen as indicated by the sociograms was from zero to twelve. The range of IQs was from 64 to 123. Grade point scores in the four grades differed from 1.7 to as much as 4.4 on the Progressive Achievement Tests, and from 2.1 to 5.9 on the Stanford Achievement Tests. In general, the range in each succeeding grade was wider than that in the preceding one. Some children with high measured

IQs were progressing more slowly than other children with lower IQs. If mental ability as measured by mental tests is indicative of ability to learn, there must be some other factor, or factors, influencing school achievement and blocking effectual use of intelligence. On the other hand, it might be asked what it is that enables some children to achieve beyond their measured capabilities.

II. RECOMMENDATIONS

1. Further study is needed to confirm or reject the findings of this investigation:

(1) Teachers often confuse achievement and capabilities.
(2) Scholastic achievement is not always in direct relation to abstract intelligence.
(3) Mental age is a better focal point than IQ for study of children's ability to learn.
(4) More children are working above capacities than below them.
(5) Social acceptance is not correlated highly with personality adjustment, IQ, or scholastic achievement.
(6) Personality adjustment has a positive relationship to IQ, but it is not high enough to be greatly significant.
(7) Although scores on the Progressive Achievement Test and scores on the Stanford Achievement Test correlate highly, and apparently measure the same things, the Progressive Test rates pupils at higher educational age and grade point levels.
(8) Wide individual differences of children were noted in every phase of the study.

2. Some way should be found to measure the effect of the pupil's attitude toward his school achievement.

3. Teachers should study each child carefully. Observation over long periods of time and in many different

situations, informal tests, conferences with parents and former teachers, and physical examinations should be combined with objective measurements to aid the teacher in planning how best to help the child.

4. Each teacher should adjust the curriculum to fit school work to the individual needs and capacities of each pupil. Using ungraded rooms, particularly at the primary level, or keeping a teacher with a group of children more than one year might help.

5. Each teacher should realize that he must teach at many different levels. In every grade pupils have widely varying mental and educational ages. Rates of progress also vary. Not all children learn in the same way. Teachers should use many different approaches and furnish opportunities for experiences of many different types in order to reach all children.

6. More effective help needs to be given the child who learns more slowly. Diagnosis of difficulties must be made, and individual help given when and where it is most needed. Interests should be utilized for motivation.

7. A richer and more challenging program must be provided for the child who learns more easily. Permanent seatwork of the type usually provided is a waste of time for the brighter-than-average pupil. He does not need exercises in the things he already knows, but something to

round out his curriculum and to satisfy personal interests and intellectual curiosity. Assignments should include new and broader aspects rather than additional work of the same type.

8. Time must be given to help the child with his personal and social adjustments, his emotional problems, and his development of character. A feeling of confidence in his own ability to achieve success must be cultivated in the child. Rapport between teacher and pupil is needed to insure effective learning.

FICIENCY

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G CONTENT

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