CHAPTER III

GOODENOUGH'S DRAW-A-MAN SCALE -
DESCRIPTION AND EXPERIMENTS

The early studies of children's drawings have shown conclusively that there is a significant relation between the development of intelligence and the development of the ability to draw. During the early thirties Goodenough wanted to determine the extent to which the nature of the drawings made by children in their early years is conditioned by their intellectual development. After a number of studies Goodenough evolved a scale of fiftyone points to measure the general intelligence. It is not possible that absolutely spontaneous drawing will render any scope for objective study and hence Goodenough had to select a common theme for all the children. At the same time it was necessary to select such a theme of drawing which would make it as much

spontaneous as possible under the controlled conditions for testing. Goodenough selected the theme of the 'human form'. The theme ensured two basic requirements essential for such a measurement, viz. (1) acquaintance of children with the object so as to induce them to try to represent it on paper and (2) equal opportunities for all to get acquainted with the object.

The Procedure of the Test:

Children were provided with a pencil and test blanks. All books and pictures were put away so that there was no opportunity for copying. Then the following instructions were given : "On these papers I want you to make a picture of a man. Make the very best picture that you can. Take your time and work very carefully. I want to see whether the boys and girls in _____ school can do as well as those in other schools. Try very hard and see what good picture you can make."[1] There was no time limit. If a child spoiled one blank he was supplied with another.

Scoring Scale:

Goodenough classified the drawings into two categories viz. Class A and Class B drawings. Class A drawings were drawings at the Preliminary Stage. They could not be recognised as human form. The following are the scoring

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1. Measurement of Intelligence by Drawings:
   Goodenough, p.85.

points for this class of drawings :

1. Aimless, uncontrolled scribbling.

2. Lines somewhat controlled, approaching crude geometrical forms.

Drawings which could be recognised as the human figure were termed as Class B drawings. The scoring scale for Class B drawings consisted of fiftyone points which were classified into eighteen main categories. They are as follows :

1. Head present.

2. Legs present.

3. Arms present.

4a. Trunk present.

4b. Length of trunk greater than breadth.

4c. Shoulders indicated.

5a. Both arms and legs attached to trunk.

5b. Legs attached to trunk. Arms attached to trunk at the correct point.

6a. Neck present.

6b. Outline of neck continuous with that of head, of trunk, or of both.

7a. Eyes present.

7b. Nose present.

7c. Mouth present.

7d. Both nose and mouth shown in two dimensions:
two lips shown.

7e. Nostrils indicated.

8a. Hair shown.

8b. Hair present on more than the circumference
of the head, and non-transparent. Method of
representation better than a scribble.

9a. Clothing present.

9b. Two articles of clothing non-transparent.

9c. Entire drawing free from transparencies when
both sleeves and trousers are shown.

9d. Four or more articles of clothing definitely
indicated.

9e. Costume complete, without incongruities.

10a. Fingers shown.

10b. Correct number of fingers.

10c. Fingers shown in two dimensions, length
greater than breadth, and the angle subtended
by them not greater than 180 degrees.

10d. Opposition of thumb shown.

10e. Head shown, as distinct from fingers or arms.

11a. Arm joint shown, - either elbow, shoulder
or both.

11b. Leg joint shown, - either knee, hip, or both.

12a. Head in proportion.

12b. Arms in proportion.

12c. Legs in proportion.

12d. Feet in proportion.

12e. Both hands and legs shown in two dimensions.

13. Heel shown.

14a. Motor coordination. Lines A.

14b. Motor coordination. Lines B.

14c. Motor coordination. Head outline.

14d. Motor coordination. Trunk outline.

14e. Motor coordination. Outline of arms and legs.

14f. Motor coordination. Features.

15a. Ears present.

15b. Ears present in correct position and proportion.

16a. Eye detail. Brow or lashes shown.

16b. Eye detail. Pupil shown.

16c. Eye detail. Proportion.

16d. Eye detail. Glance directed to front in
profile drawings.

17a. Both chin and forehead shown.

17b. Projection of chin shown.

18a. Profile with not more than one error.

18b. Correct profile.[2]

Validity of the Whole Scale:

Goodenough studied the validity of her scale by calculating the correlations between drawing test scores and the Stanford - Binet scores. With a total of 367

2. Measurement of Intelligence by Drawings: Goodenough,
pp. 21, 22, 23.

children between the ages of four years to twelve years, the coefficients of correlation were calculated per age group. The following table gives her results :

TABLE 5

Correlation between Stanford - Binet Mental Age and Drawing Mental Age.

Age	Number of Pupils	S.D.Binet	S.D.Drawing	'r' with PE
4	25	10.3 mo.	11.5 mo.	.863 $\pm$ .034
5	94	11.0 mo.	12.3 mo.	.699 $\pm$ .035
6	65	17.3 mo.	18.5 mo.	.832 $\pm$ .025
7	63	16.4 mo.	19.2 mo.	.716 $\pm$ .042
8	27	14.6 mo.	18.3 mo.	.557 $\pm$ .092
9	37	20.4 mo.	24.6 mo.	.728 $\pm$ .053
10	23	22.9 mo.	24.8 mo.	.849 $\pm$ .041
11	21	21.1 mo.	26.0 mo.	.827 $\pm$ .046
12	12	15.9 mo.	26.8 mo.	.795 $\pm$ .070

The correlation between the Drawing Test mental age and Stanford - Binet mental age was computed for the 334 cases aged four to ten years. It was found to be[3] .741 .016.

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3. Pedagogical Seminary and Journal of Genetic Psychology: June, 1926: A New Approach to the Measurement of Intelligence of Young Children: Goodenough F.L.

The correlation with teacher's judgements of the intelligence of their pupils was found to average about .44 for primary grades.

Many investigators have calculated the co-efficient of correlation between various tests of intelligence and Goodenough's Draw-a-man scale. What follows is a consolidated table prepared from the various studies. It gives a general idea of the correlation of the Draw-a-man Test with the other tests of intelligence.

TABLE 6

'r' between Goodenough's Draw-a-man Test
and other Intelligence Tests

Name of the Investigator	Name of the Test	Subjects	'r' with PEr.
Havighurst[4]	1. The Arthur Performance Test	Children of 6 to 11 years old	
		1. Zuni	.10 ± .10
		2. Hopi	.21 ± .07
		3. Navaho(Shiprock) 47 children	-.23 ± .09
		4. Sioux	.33 ± .08
		5. Papago (Topawa)	.64 ± .06
	2. Cornell-Coxe IQ	1. White children	.63 ± .05
McElwee[5]	1. Stanford-Binet	1. 48 children of 14 years of age Ungraded class	.717 ± .048

Name of the Investigator	Name of the Test	Subjects	'r' with PEr.
Quoted by[6] Goodenough	1. Herring-Binet ('r' bet. IQs)	1. 35 children Grade I	.545 ± .079
	2. Heggerty Delta	1. 413 children Grades I-III	.665 ± .020
	3. Trabue Lang. Comp. B	1. 468 children Grades II-V	.523 ± .023
	4. Otis Group Test	1. 240 children Grades IV-VI	.453 ± .034
Margaret[7] Otis	1. Pressey Pressey Primer	1. 20 children Grades I-II	.830 ± .046
Alice M[8] Cornin	1. Detroit Kindergarten	1. 250 children Kindergarten	.450 ± .034
TH. Papavassiliou[9]	1. Terman-Sakellariou (IQs)	1. 141 boys Grades I-II	.74
		2. 149 girls Grades I-II	.68
		3. Total of 1 & 2	.70

4. Journal of Abnormal and Social Psychology, 1946 : 41 : Havighurst, pp. 57-63.

5. Journal of Applied Psychology, 1932 : 16 : McElwee, pp. 217, 218.

6,)Pedagogical Seminary and Journal of Genetic Psychology,
7,)June 1926 : 33 : Goodenough, pp. 185-211.
& 8.)

9. Journal of Educational Psychology, April 1953 : 44 : TH. Papavassiliou, pp. 244-248.

The study of the validity table makes it clear that Goodenough's Draw-a-man Scale correlates differently with different intelligence tests. Still, however, 'r' does not go below .45 in the case of the white children. Havighurst's investigations which indicate different results were made with the children from an altogether different environment. At the end of his study he concluded, "The validity of the Draw-a-man Scale as a test of general intelligence for use with Indian children is not established by this study. However, the hypothesis that the Draw-a-man Test is valid for one aspect of general intelligence, ability to form concepts based upon observation, is supported to some extent by cultural date on several Indian groups."[10]

It appears that though the the theme of human form is a universal one, the scoring points which are standardised on the performance of children belonging to one type of environment will not be applicable to an environment with a very different cultural pattern.

E.W. Menzel while discussing the validity of the test writes, "Validity for the test for use in the Central Provinces is claimed for the reasons that a fairly regular increase in average scores is obtained for groups both of increased age

10. Journal of Abnormal and Social Psychology, 1946:41:
     Havighurst, pp.57-63.

and higher standing in school, and that the expected effect
takes place on the scores when either retarded or accelerated
pupils are removed from the group."[11] Grade placement in the
primary schools in India is so unreliable in general that it
seems risky to consider the retardation or acceleration in
the pupil's school attainments as an index of his innate inte-
lligence. Menzel studied a group which consisted of children
between 3 and 20 years and he took all those above 15 to be
15 years old. The children belonged to grades from I to VIII.
Under the circumstances the calculation of normal age for a
particular grade and thus judging the accelerated or retarded
pupils is not likely to be reliable. It is felt therefore
that Menzel's argument for the validity of the Goodenough's
Draw-a-man Test may be accepted for only the tentative norms,
but a more critical study of the validity is required so as
to decide how far the scale is applicable to the Indian
situation.

Prognostic Value of the Test for School Success:

Goodenough found a significant correlation between
the test score and grade placement. A study of the promotions
made during a three semester period by 162 children who had
been tested in the first grade shows that the test has dis-
tinct value in predicting future school success. No child
in this group whose IQ was below 100 made an extra promotion

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11. Teaching, June 1935: Menzel, pp. 165-175.

and every child whose IQ was 70 or less than 70 failed to get promotion at least once during this period.

In order to determine the prognostic value of the test Goodenough selected a sample of 286 fourth and fifth grade children. The teachers' estimate of intelligence on a five point scale was obtained and the grade progress ratio was computed for each child by dividing the number of grades which have been skipped or repeated by the child's chronological age. The children were given (i) Army Alpha, (ii) Drawing Test, and (iii) Trabue Completion Test. The following table shows the zero-order correlation and third order partial correlations obtained by her :

TABLE 7

Correlation between Grade Progress Ratio and (i) Army Alpha, (ii) Drawing Test, (iii) Trabue Completion Test, and (iv) Teachers' Estimate of Intelligence of Pupils.

	Grade Progress Ratio	
	Zero-order Correlation	Third-order Partial Correlation
(i) Army Alpha	.691	.328
(ii) Drawing Test	.581	.377
(iii) Trabue Completion Test	.593	.372
(iv) Teachers' Estimate	.597	.250

The partial correlations indicate that the drawing test measures an aspect of mentality which is in some degree

distinct from that measured by Army Alpha or the Trabue Completion Test and which is likely to be ignored by teachers in their estimates of pupils' intelligence.

Reliability of the Test:

A member of research workers besides Goodenough herself have studied the reliability of the Test. The following table gives the various studies and their results at a glance :

TABLE 8

Studies of Reliability of Draw-a-man Test

Name of the Author	Method used	Number of Subjects	Results 'r' with PEr
1. Goodenough[12]	1. Retest on the next day.	194 first grade children	.936 $\pm$ .006 (reliability correlation)
	2. Split-half method Spearman-Brown formula	5 to 10 age group	.77 Av.reliability
2. Yepsen[13]	1. Three times at four days interval	37 Feeble-minded, 9 to 18 yrs.(Chron) 4.8 to 11.2 yrs. Binet Mental Age	Correlations: .89 .91 .91
3. Henrich[14]	1. Retesting by different examiners at intervals varying from 6 mths. to 2½ yrs.	17 Cases widely scattered in age	Reliability coefficient .65
	2. Retest	16 Delinquents	.79(reliability)
	3. Split-half scale	60 cases	.85 to .87

Name of the Author	Method used	Number of Subjects	Results 'r' with PEr
4. Williams [15]	1. Objectivity of scoring (5 upper division students in education as examiners)	100 Drawings	(i) Close agreement on the median score for the entire group (ii) Intercorrelations obtained from various scores ranged from .80 to .96
5. Smith [16]	1. Twice on the same day	Large number	Reliability ranging from .84 to .96
6. Dorethea McCarthy [17]	1. Consistancy of the same scorer (3) in scoring identical drawings on two occasions.	386 Third and Fourth grade children	'r' .95 .92 .93 —— .94 (average)
	2. Scoring identical drawings by different scorers	,,	'r' .92 .90 .87 —— .90 (average)
	3. Retest of the same children after an interval of a week	,,	'r' .69 .63 .76 —— .68 (composite scorers)
	4. Odd-even reliability of the scale	,,	Reliability index (i) .89 (ii) .89

Name of the Author	Method used	Number of Subjects	Results 'r' with PEr
7. Menzel[18]	1. Retest	99 Pupils of grades II to VII	Reliability coefficient .926 $\pm$ .01
8. Moshe[19] Brill	Retest		
	(i) after 18 days	73	.77 $\pm$ .032
	(ii) after 25 days	67	.68 $\pm$ .044
	(iii) after 7 days	65	.80 $\pm$ .030
9. McCurdy[20] H.G.	1. Retest after two months and 18 days	59 Pairs in Kindergarten	.69
10. McHugh[21]	1. Retest		
	(i) on the same day	90 Children Kindergarten	.83
	(ii) on the same day	83 Children Kindergarten	.91
	(iii) after about 2 months	The same 83	.46

12. Measurement of Intelligence by Drawings: Goodenough, p.48.
13. Journal of Educational Psychology, 1929 : 20 , pp. 448-451 : Yepsen, L.N.
14. Arch. of Psychology, 1935, No.175 : Henrichs.
15. School and Society, 1935 : 31 : pp. 653-656 : J.H. Williams.
16. Psychological Bulletin, 1937, 34 : pp. 760-761 : F.O. Smith.
17. Journal of Psychology, 1944, 18 : pp. 201-216 : D. McCarthy.
18. Teaching, 1935 : pp. 165-175 : Menzel.
19. Journal of Educational Psychology, 1935, 26 : pp. 701-708: Moshe Brill.
20 Journal of Educational Psychology, 1947, 38 :
& 21. McCardy.

The results mentioned in the Table show very clearly that the majority of the studies on the reliability of the test have led to positive conclusions. Reliability scores in most of the cases are very high. The results also make clear the effect of time interval between the two testings upon the reliability scores. It appears that longer the interval between the two testings lower the reliability scores and it is just what should be expected.

Another type of study has been made by some investigators to verify the reliability of the test. They studied the range of mental age calculated on the scorings of successive drawings over a certain period. The statistical evaluation of these results obtained in these studies is not perfect, but still they throw light upon some important considerations which must be borne in mind while making individual predictions on the strength of a single score.

Dorothea McCarthy referred to in Table 8 analysed her data further. Besides calculating the reliability correlations mentioned in the Table, she studied the cases in which the range of mental age of the same subject was one to two years either when the drawing was scored by different scorers or when two drawings of the same child with an interval were scored by the same scorer. Her conclusions in respect

of her three studies were as follows : (i) A composite
scorer self consistency correlation is .94; but in 12.4
per cent of the cases the discrepancies in the scoring of
identical drawings by the same scorer amount to as much as
year or more of mental age. (ii) The average inter-scorer
correlation obtained when two examiners scored identical
drawings is .90. The discrepancies amounting to a year or
more of mental age occur in 25.3 per cent of cases. (iii)
The correlation between scores on two drawings done a week
apart by the same children when both drawings by each child
were scored by the same person was .68. Under these condi-
tions mental age changed one year or more in 41.7 per cent
cases.

On the strength of these results McCarthy concluded,
"Although the many advantages of this scale are recognised
the present study indicates the need for caution in the use
of the scale for individual diagnosis, because of the subjec-
tivity of the scoring, and because of the frequency of marked
variability in individual performance over short intervals
and possibility of individual variations from time to time
being affected by immediately preceeding activities, affec-
tive states, and mental content.[22]

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22. Journal of Psychology, 1944 : 18: McCarthy, pp.201-216.

McCurdy's study referred to in the Table 8 included also that of variability of the mental age with reference to the group of 59 pairs of Kindergarten school children studied. The relevant figures are reproduced in the following table :

TABLE 9

Comparison of the IQs on Two Drawings with an Interval of Approximately Three Months.

	First Drawing	Second Drawing
Date	13-2-1947	6-5-1947
Mean IQ	115.2	117.9
S.D.	20.8	19.4

The difference between these correlated means and S.Ds. in terms of S.E. are .17 and 1.51 respectively, and are significant.[23]

McCurdy's study of the differences in the two sets of scores for the same individual led him to the conclusion that disregarding the signs the mean amount of change was

23. Journal of Educational Psychology, 1947 : 38: McCurdy.

12 points with [24] S.D. 10.2. Yepsen in his study with the feeble minded however found that 50 per cent of the cases remained the same. The variability rarely exceed 1.0 years. [25]

Moshe Brill studied the frequencies of groups of scores and test-age with reference to three sets of drawings that he collected. The interval between the first and second set of drawings was 18 days while it was 25 days between the first and the third set. Consequently, the difference between the second and the third set of drawings was 7 days. He drew two conclusions throwing some light upon the problem of variability in Goodenough Draw-a-man scores. They were :

"(1) There is a definite tendency for a lowering of scores on test-ages on each successive administration.

(2) The median increase and median decrease in the test-age from one administration to the other do not exceed one year."[26]

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24. Journal of Educational Psychology, 1947 :38 : McCurdy.
25. Journal of Educational Psychology, 1929 :20 : Yepsen L.N., pp. 448-451.
26. Journal of Educational Psychology, 1935: Vol. 20.

The following tables give the details of his results.

TABLE 10

Scores and Test-Age Frequencies

Scores	Test-age in Months	Drawing I	Drawing II int.18 days	Drawing III int.25 days
-3	36-45	2	1	1
4-7	48-57	5	3	3
8-11	60-69	8	5	8
12-15	72-81	6	21	18
16-19	84-93	15	20	12
20-23	96-105	18	12	10
24-27	108-117	11	6	7
28-31	120-129	7	2	7
32-35	132-141	5	9	7
36-39	144-153	7	4	2
40-43	156-156	1	-	2
N.		85	83	77
Median Score		20	18	18
Median Test-Age		96	90	90

TABLE 11

Amount of Changes in Years and Months
from I to II, I to III, & II to III

Yrs. Mths.	I to II	I to III	II to III	
+ 4 6	-	1	-	
+ 4 6	-	-	1	
+ 4 0	2	-	-	
+ 3 6	-	-	2	
+ 3 0	2	1	2	Median Increase
+ 2 6	1	1	2	I to II 0 : 9
+ 2 0	1	4	1	I to III 1 : 0
+ 1 6	2	5	2	II to III 0 : 9
+ 1 0	4	4	2	
+ 0 6	7	8	10	
0 0	20	16	21	
- 0 6	11	7	11	Median decrease
- 1 0	10	10	3	I to II 1 : 0
- 1 6	5	3	6	I to III 1 : 0
- 2 0	2	2	-	II to III 0 : 9
- 2 6	3	1	-	
- 3 0	2	2	1	
- 3 6	-	1	-	
- 4 0	1	-	1	
- 4 6	-	1	-	
N.	73	67	65	
Range	-4 : 0 to +4 : 3	-4 : 6 to +4 : 6	-4 : 0 to +4 : 6	

Ruth Griffiths[27] who had studied the drawings of human form incidentally in connection with her work on 'Imagination in Early Childhood' points out the unreliability of a point scale for measuring intelligence upon one drawing only. She scored by Goodenough scale twenty drawings of her subject, Katie, drawn during twenty consecutive interviews. She observed considerable fluctuations of her score and consequently of her supposed mental age. The details of her observations are given in the following table:

TABLE 12

Katie's Score and Mental Age on
Twenty Consecutive Drawings

Day	Points Scored	Mental Age
1	3	3.9
2	6	4.6
3	4	4.0
4	3	3.9
5	6	4.6
6	4	4.0
7	6	4.6
8	8	5.0
9	5	4.3
10	3	3.9
11	4	4.0
12	9	5.3
13	5	4.3
14	5	4.3
15	7	4.9
16	6	4.6
17	8	5.0
18	10	5.6
19	5	4.3
20	6	4.6

27. A Study of Imagination in Early Childhood:R.Griffiths, p.215 ff.

It may be recalled here that a similar study done by Mira Sen giving contrary results was mentioned in the previous chapter on pages 70 and 71.

The data obtained by Griffiths and its analysis reveal interesting points about Katie's development in drawing as graphic representation. However, it cannot be taken as final on the point of unreliability of a point scale for measuring intelligence using only a single drawing. It is significant that Katie's drawings were not done under the specific instructions described in the procedure of the test and hence failed to create the atmosphere and attitude necessary for the test. The human form appears incidently in Katie's drawings of themes, e.g. her drawing on the eighth day is described as "A Mother and Two Girls". This view is supported by C.A. Oakley who has attempted a scoring scale on drawings of a man by adolescents. He says, "It is a mistake, however, to apply the scale to the drawing of a man included in the illustration of a theme. A separate drawing must be obtained in which the child has focussed his attention on drawing one particular man".[28] What Oakley says of his own scale may be applicable in Goodenough's scale as well. This is not all. Katie's IQ was 75 which indicates that Katie belonged to the 'below normal group'. It might be the case of scattered performance.

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28. The British Journal of Psychology (General Section), July 1940: p.38.

The study made by Griffiths brings out another factor

The study made by Griffiths brings out another factor which needs be taken into consideration in the study of the Draw-a-man Scale. It clearly shows the effect of practice upon the performance of a child who is even below normal in a short period of twenty days.

A.K. Minakshi had referred to this point in her thesis, while describing the drawbacks of Goodenough's scale. She says: "Goodenough's rating scale is critised on the grounds that the test results can be influenced by special coaching in drawing the human figure. Specially the modern Indian Schools take extra interest in forcing the children to imitate the teachers' ideas. Perhaps this does not take place between 5 to 10 years in all the cases.[29]

Goodenough also observed the influence of special coaching in drawing the human figure upon the results of her test: but she found that the art instructions ordinarily given in the school were relatively ineffective in the scoring on the test.[30]

The improvement in scoring after direct coaching is understandable in any test and therefore it cannot be considered as an exceptional drawback of the Draw-a-man Scale.

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29. Unpublished Thesis approved: A.K. Minakshi: 1946: Studies in Children's Drawings, O.16.(M.Litt.Madras Univ.).
30. Measurement of Intelligence by Drawing: Goodenough F.L., p. 38.

It will not be out of place here to refer to Dr. Watts' article published in the Teachers' World. Dr. Watts of the National Foundation of Educational Research has discussed this point in the series of articles on the Measurement of Child Ability. At the end he accepts it "as a likely thing that coaching can bring about an increase in a child's score in an intelligence test. He stressed the importance of examining very carefully before accepting as valid some of the claims made on behalf of the effectiveness of coaching and also to account for some of the differences between estimates of the size of the gains which might be expected after coaching has been given to a group of children."[31] The size of the increase in scores brought about by coaching depends upon the kind of person who does the coaching and the children coached. According to Dr. Watts we cannot quote one figure that would apply to all situations and hence can speak of the increase only in terms of average or upper and lower limits.

Validity of Scoring Points and Norms:

The validity of the separate scoring points of the scale was determined by a threefold criterion: (i) a regular and (ii) fairly rapid increase in the percentage of children succeeding with the points at each successive age, and

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31. Teachers' World, October 22, 1952; Watts, p. 4.

(iii) a clear differentiation between the performance of children who were of the same age but in different school grades. This threefold test could be applied only to the normal group of children and hence Goodenough has established her norms on the normal group.

There are some studies in which the Goodenough Scale is applied in a modified form, but one does not find any objective study of the validity of each point in the Scale.

N o r m s:

Goodenough standardised the norms with reference to the distribution in the normal group only. The group consisted of 2500 children of the age groups 4 to 10 years. the norms based upon the total number of children without regard to grade location was too low. The means for the successive ages in the normal group were considered as the basic scores. Smoothing the curve and extrapolating at both extremes, Goodenough was able to give the following tentative norms:[32]

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32. Measurement of Intelligence by Drawing:
    Goodenough, p. 39.

TABLE 13

Age Norms (Goodenough)

Age	Norms
3	2
4	6
5	10
6	14
7	18
8	22
9	26
10	30
11	34
12	38
13	42

Many studies have been made in different countries to find out the suitability of applying Goodenough's norms for American children to the children there. In China, Huang noted similarity in the stages of development of Chinese and American; but in a later study Hsiao found it necessary to restandardise the test for use in China.[33]

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33. Journal of Educational Psychology, April 1953:
   TH. Papavassiliou, p. 244.

C.A. Oakley who began his investigations of children's
drawings with the purpose of preparing an objective method
of examining children's drawings from the psychological and
not from scholastic standpoint had started experimenting
with a specific subject - a man - when Goodenough's 'Measure-
ment of Intelligence by Drawing' was published. He tried
Goodenough's scale with children in Aberdeen, Glassgow and
Greenock. In this investigations he observed that (i)
Goodenough's norms for American children were satisfactory
for use in Scotland, and (ii) the Goodenough scale was
applicable to children upto ten years of age.[34]   It is
extrapolated upto 13 years. Oakley formed the opinion that
the scale was not satisfactory for young adolescents. He
has attempted a different scoring scale for adolescents.

In Greece, TH. Papavassiliou studied the drawings
of 290 children between the ages of six and eleven, 90 per
cent of them being between six and eight years of age. She
concluded, "The Goodenough Draw-a-man Test, scored with the
American norms, appears to be generally suitable for use
with Greek children; however, even though this fact
emphasizes the similarities between the two cultures, some
modifications of the scoring system seems necessary because

34. The British Journal of Psychology, July, 1940.

of differences in the drawings themselves, and because of a lack of art education in Greek schools.[35]

In India, Menzel and Shrimali found that the norms for Indian children show that they are consistently lower than those for American children. The age norms and the grade norms in both the studies were quoted in the previous chapter. Taking into consideration the universality of the theme and the simplicity of the procedure there is no reason why the norms should be lower for children here except that they belong to a different cultural environment.

Modifications of Goodenough Scale:

Some slight modifications in the scoring procedure is suggested by almost every worker using the Draw-a-man scale. But few have tried to study the validity and reliability of the modified scale. Some have not even mentioned the modifications in details.

M.P. Vaidya of Bombay used Draw-a-man Test with a modified scale as one of the criteria for judging the mental development of children in his study. As the modification of this scale was not his main study he did not concentrate upon the principles on which the modifications are based. He accepted only those points in Goodenough's scale which

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35. Journal of Educational Psychology, April, 1953:
    TH. Papavassiliou.

were applicable to Indian environment and thus reduced the whole scale to twenty points.[36]

C.A. Oakley also attempted a twenty point scale for adolescents; he attempted to measure not only the intelligence but also tried to interpret the scores from three aspects viz. (i) intelligence, (ii) subjective and objective attitudes in drawing, and (iii) indirect social interest. With reference to drawing of a human form as a measure of intelligence he says: "The correlation of drawing scores with intelligence is very high. Intelligence is certainly an important factor in determining the ability to draw a man."[37]

Moshe Brill in his study of reliability of the Goodenough Draw-a-man scale evolved an abbreviated scale or scoring method of the same scoring scale. The abbreviation is based upon the reliably differentiating items between the adjusted and maladjusted boys he has studied. The coefficient of correlation between the original and the abbreviated scale was found to be[38] $.92 \pm .010$.

Concensus of Indian Opinion about the Goodenough Scale:

The majority of studies done on children's drawings in India refer to Goodenough's Draw-a-man Scale. All these

36. Thesis submitted for Ph.D.,Bombay University:M.P.Vaidya.
37. The British Journal of Psychology, July 1940.
38. Journal of Educational Psychology, 1935: 26.

studies which have been referred to in the preceding pages
make the claim that the scoring points require some modifi-
cations and changes so as to suit the Indian situation.
T.W. Menzel who has standardised tentative norms has slightly
changed the standardised scoring procedure. While describing
his procedure he says: "The only changes made in the standar-
dised testing and scoring procedures as given by Goodenough
was to score slightly leniently the amount of clothing
indicated in the drawing. This was thought advisable, since
in India far scantier amount of clothing is worn than in
America."[39]

A.K. Minakshi has a similar suggestion to offer. She
claims that "the rating of Florence Goodenough is not quite
suitable to Indian children as items of clothing, shoes, etc.,
bring in confusion to the experimentor." She further adds:
"When the children are asked to draw a man, the girls who
wish to draw only a woman may fail to respond to the request.
If they do try to draw they seem to think that the drawing of
hair on the human head would make the picture a female figure
and also they omit it, while it is counted as one of the
points in rating the child."[40]

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39. Teaching, June 1935: Menzel, p. 167.
40. Studies in Children's Drawings: Unpublished thesis
    approved for M.Litt. Degree: Madras University,1946:
    A.K. Minakshi, p. 16.

S u m m a r y :

A survey of the work done on Goodenough's Draw-a-man Test may be summarised as follows :

1. The Goodenough Draw-a-man Test has different correlation with different tests of intelligence - verbal and performance - 'r' ranging from .45 to .83.

2. The Goodenough Draw-a-man Scale is valid in cultural environment similar to the one Goodenough worked in. It does not maintain the same validity in an altogether different cultural environment.

3. The reliability of the test is very high; most of the studies show the reliability scores above .7 .

4. The objectivity of scoring is also established by a few studies.

5. The variability of the scores or test age in the repeated performances of the same children is about one year and hence the test should be used with caution for individual diagnosis.

6. The work done in India and the opinions expressed thereon suggest that instead of using Goodenough's scoring scale in its original form, it should be altered and adjusted so as to suit the Indian environment.

Tentative Plan of Work:

The above discussion clearly suggests the appropriateness of the critical study of the Goodenough Draw-a-man Scale from the point of view of its proper standardisation for Indian children. Hence the following plan of work was tentatively laid down :

1) To study the validity of the Goodenough Scale against an objective criterion;

2) to adapt or evolve a new scoring scale if required;

3) to test the validity, reliability and objectivity of the new scoring scale;

4) to calculate age norms on reasonable large groups;and

5) to calculate grade norms, if possible.