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THE RELATIONSHIP BETWEEN SELF-ATTITUDES AND PERFORMANCE ON A PAIRED-ASSOCIATES LEARNING TASK IN EDUCABLE RETARDATES

A DISSERTATION

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THE RELATIONSHIP BETWEEN SELF-ATTITUDES AND PERFORMANCE ON A PAIRED-ASSOCIATES LEARNING TASK IN EDUCABLE RETARDATES

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CHAPTER I

INTRODUCTION

It is a commonplace that personality variables play important roles in the determination of behavior. However, a survey of the research literature on retardation reveals a widespread avoidance of these variables. Furthermore, this neglect is of long standing.

A survey (Sarason 1959, page 280) of the publications of the American Association on Mental Deficiency to 1935, covering 59 years of the Association's publications, found:

> That of the six hundred and eighty-one papers studied according to content, nearly 19% could be classified under "Psychology and Psychiatry" but the percentage of papers dealing with analytical studies of the emotional life of the individual defective amounted to only 1.5% of the total papers of the Proceedings. (Italics mine.)

A reading of a random selection of five volumes of the American Journal of Mental Deficiency from 1935 to 1950 (Vols. 47, 48, 50, 51 and 55), revealed that of the 193 studies reported, less than 14% were concerned with personality factors in the retarded. These factors were broadly defined in this survey as any study which included in its design any variable that pertained to the personality or to the emotional

aspects of retardates.

Miller (1960) published a review in 1960, covering the previous decade, of psychological studies in mental deficiency and found that the research concentrated on psychometrics, for example, abbreviated forms of intelligence tests, validity of new tests, and patterns of subtest scores. Even when the studies utilized personality tests, such as the Rorschach, they did not do so to delve into the emotional aspects of retardation. The projective techniques were used as other means of assessing intellectual aspects of retardation.

Sarason's (1959) classic critical review of research in and theories of mental deficiency has one major theme, stated throughout: most studies, and theories, are inconclusive because they failed to consider the personal, emotional, and social variables that are of major importance for an understanding of deficiency. He felt that consideration of the latter variables was essential if research in retardation is to have meaningful etiological as well as academic implications.

In recent years, however, a number of studies have appeared that may serve as the beginning of a trend towards increasing recognition that mental defectives are no more of a homogeneous group than are normal or bright subjects. There is increasing awareness on the part of researchers that there are more aspects to retardation than intellectual subnormality which too often is categorized only by an IQ score. In this context the writer is most sympathetic with a statement by Snyder et. al. (1965, page 15) regarding the relationship between IQ and achievement. They state:

> The expected close relationship between IQ and academic and social achievement does not exist. The stereotyping of the various syndromes of mental deficiency has tended to exaggerate the similarity of retardates and to minimize the individuality. Psychological and educational research has tended to concentrate on the construction and validation of intelligence tests and on measures of organicity rather than on dynamics of personality.

One such dynamic and global concept of personality that has acquired interest and generated considerable research in contemporary psychology is that of the self-concept. Heber (1964, page 146), has broadly defined the self concept as:

> The sum total of all of the characteristics a person attributes to himself, and the positive and negative values he attaches to these characteristics.

In disucssing self-concept Rogers (1951, page 195) points out that one of the major concerns of all individuals is the protection and enhancement of the self. Gorlow et. al. (1963, page 549), pioneers in the study of self-concept in retardates, apply Rogers's views to retardates when they state:

> It is expected that the retardate with his unusual experience of constant failure to meet the demands of society may be unduly preoccupied with the defense of self. It is expected, too, that this preoccupation, in turn, will be associated with a decrement in performance in a wide variety of tasks.

The present study is an attempt to examine the relationship between self-acceptance by female adolescent retardates and their performance on a specific learning task. Although many studies have been done on the self-concept, and many techniques employed to attempt a measure of it, a very small number have been concerned with retardates. Wylie (1961) has critically reviewed over 500 studies of self-concept and their various measurement techniques, and it is worthy of note that

in not one of these studies were retardates included. The few studies that have been done are of recent origin, and the techniques of assessing the mentally retarded's view of self are only in the beginning stages of development. Nevertheless, it is an important beginning.

Review of the Experimental Literature

The present review is limited to a discussion of the research literature specifically related to considerations of self-attitudes in retardates. This is not to suggest that other works have no bearing on the area of self-concept. In his review of personality research on retardation, Heber (1964) discusses studies on motivation, suggestibility, frustration, aggression, prevalence of behavioral disorders, and other personal and social factors. Behavior is multi-determined and all these factors, which do not exhaust the list of personality variables, are undoubtedly idiomatic expressions of the self. Empirical approaches, however, demand consideration of a limited number of variables. This is the approach of the present study and forms the rationale for this review.

In the following review of research the terms "self-concept" and "self-attitude" are used synonymously because the authors that are discussed have used them interchangeably. The writer's preference is for the more limited term "self-attitude," because the principal measuring instrument of the present work is a self-report questionnaire which undoubtedly taps only a limited number of factors that go into the making of what is broadly referred to as the self-concept.

Seven studies have centered on the examination of the self-concept

in retardates. They are the works of Curtis (1964), Guthrie et. al. (1961, 1964), Gorlow et. al. (1963), Kniss et. al. (1962), Snyder (1964), and Snyder et. al. (1965).

The work of Snyder et. al. (1965) demonstrated the relationship between personality variables in general, and self-concept factors in particular, and academic achievement, defined as reading ability. The subjects were 52 educable retardates from Special Education Classes. Two groups of 26 subjects were matched such that each pair of matched subjects was equal in IQ but dichotomous in reading ability. The California Test of Personality, administered individually and orally to each subject, was the personality instrument used. Four personality measures were obtained from this test: a Total Personality Adjustment score; a Personal Adjustment score; a Social Adjustment score; and a Self-concept score based on three subtests of the CTP that appeared to the authors to be "obviously self-concept oriented." The scores of both groups on the above indices were compared and found to be significantly different in support of the two hypotheses of the study: high readers showed a more adequate personality adjustment on the three personality scales; high readers had better self-concepts. Snyder et. al. (1965, page 18) concluded:

> These findings suggest that undue emphasis should not be placed on the IQ score in determining the program for the "Special Ed." students since subjects of this study showed equal IQ but widely divergent reading competency. The data also suggest that it might be unwise to consider reading handicaps within the retarded category to be entirely organically or hereditarily determined.

Snyder's dissertation (1964) was essentially the same study as that just described. In this work, however, he added the Human Figure

Drawing Test, scored for anxiety, and the Laurelton Self-Attitude Scale to the California Test of Personality to measure the self-concepts of his retarded subjects. His subjects were also equated for sex, age, intelligence, and race but dichotomous in overall academic achievement. He found that better achievers had superior personality adaptation and better self-concepts as measured by the above tests.

Curtis (1964) compared the self-concepts of retarded subjects with that of normal and bright subjects and a group of subjects who had the same chronological age as the mental age of the mentally retarded group. His self-concept measuring instruments included an author-made test covering four areas of the self-concept: the physical-health area, the intellectual-academic area, the interpersonal area, and the intrapersonal area. He also used a Draw-A-Person-Test and a teacher rating scale. The author's questionnaire was administered orally to the retarded subjects only, a procedure that is subject to differential responding. Curtis tested five hypotheses: that retarded adolescents would show significantly more negative self-concepts than any other group; that mentally retarded subjects would show significantly more negative self-concepts than the bright, normal and CA-MA matched subjects; that mentally retarded subjects would have smaller discrepancies between their self-concepts and their ideal self-concepts than the other groups; that retarded subjects would be more like the subjects of the same mental age than either of the two groups on the self-concept scale; and that the greatest differences in scores on the self-concept test would exist between the retarded and the intellectually superior

group of children. The first three hypotheses were supported, while the last two were rejected. Curtis concluded that "self-concept is related to the intellectual continuum" with brighter children having comparatively better self-concepts. His conclusion is somewhat curious in view of the rejection of the last hypothesis, mentioned above, which suggests that self-concept and intellectual functioning are not linearly related.

The remaining four studies were undertaken by a group of researchers who have pioneered in the development of three instruments to measure the self-concept in mentally retarded adolescents. (Guthrie et. al. 1961, 1964; Kniss et. al., 1962; Gorlow et. al., 1963). The present study will utilize one of these methods and that study is discussed in detail.

Guthrie et. al. (1961) developed a self-attitude questionnaire, The Laurelton Self-Attitude Scale, on a group of 50 institutionalized and 50 non-institutionalized mildly retarded females, with half the sample serving as a replication group, whose ages ranged between 14 and 18 and who had IQ's within the range 50 to 80. Two hundred forty items were first administered to a pilot group of 40 subjects, 20 each in the institutional and non-institutional samples. The questions covered what the authors felt were significant aspects of self-attitudes. These factors were in the following areas: physical appearance, physical health, interpersonal relationships with peers, interpersonal relationships with non-peers, feelings of personal worth, and mental health. They also added 11 "lie" items. The questionnaire was repeated to the pilot groups after four weeks. After considering item-split, reliability,

and overlap of content, 101 items were discarded, and the final form of the scale (Appendix B) was administered twice to 100 institutionalized subjects with a time lapse of three weeks between tests. The scale was scored by counting the number of negative characteristics which were rejected and positive characteristics which were accepted by the subject. Statements that expressed self-attitudes were counted separately from those indicating the perceived attitude of others. Thus, six scores resulted: the total number of positive descriptions accepted (Tot+); the total number of negative descriptions denied (Tot-); the number of positive self-descriptions accepted (SS+); the number of negative self-descriptions denied (SS-); the number of positive descriptions by others accepted (OS+); and the number of negative descriptions by others denied. The latter four scores made it possible to obtain an indication of test-retest reliability and of the habits of response of the subjects. These measures were found to be reliable; test-retest correlations were all found to be reliable; test-retest correlations were uniformly above .80.

The study by Kniss et. al. (1962) was a follow-up to the above study. They chose the most reliable items of the Laurelton Self-Attitude Scale to develop a shorter version containing 50 items.

In a study generated by the results of the work of Guthrie et. al. (1961), described above, Gorlow et. al. (1963) related the six subtests scores (Tot+ , Tot-, SS+, SS-, OS+ , and OS-) of 164 institutionalized females between the ages of 16 and 22 and with IQ's ranging from 50 to 80 to a wide range of measures in the following areas: achievement, early experience (e.g., early separation from parents), personality, measures

of intelligence, school achievement, success in the institutional training program, and success on parole. The correlations were all significant, although small. The authors also related the above self-attitude measures to scores obtained by the subjects on the Social Value-Need Scale and the Hostility Scale and found that (page 555):

> There is a tendency for those expressing high degrees of self-acceptance to express less need for the support of others and to accept their own hostility.

In their latest study, Guthrie et. al. (1964) developed a non-verbal instrument to determine some of the major dimensions along which retarded subjects evaluate themselves. Ninety-nine subjects, within the age range 14-26 with IQ's between 50 and 80, and a replication sample of 100 subjects, of like age and IQ, formed the samples for that study. The non-verbal instruments were slides of paired pictures, posed by actors depicting various needs and neutral scenes. The subjects were asked to choose in which of a pair of pictures the protagonist was more like them. The same pictures were presented again with the instructions to select the picture in which the protagonist was doing the best thing. This procedure yielded reports of self-attitudes as well as ideal self-attitudes. There were 50 pairs of slides. A second set of slides, using different actors in parallel scenes, were used in the replication. Through factor analytic techniques the authors isolated positive self-attitudes, themes of popularity, acceptability to the opposite sex, compliance, and friendliness with peers. Negative themes of being ignored, actively rejected, dominant, giving

but not receiving, and being angry with peers were also isolated. Ideals centered around themes of self-confidence, receiving help, being helpful, loyal, assertive and aware of others, and avoiding involvement with peers.

The following conclusions, made in the last study, summarize, in this writer's view, the implications of all the studies done in the area of self-attitudes in retardates covered in this review (Guthrie et. al., 1964, page 48):

> Both the self-attitudes and the ideals are the result of the experience of these retarded Ss and represent major attempts to protect themselves on the part of persons who have probably received a good deal of abuse because of their limitations. In working with retardates it may well be that their response to training is influenced more by self-attitudes on the order of those we have described than by motivations which characterize those of higher ability. Their actions are designed more to protect themselves from painful rejection than to gain approval through achievement. (Italics mine.)

Statement of the Problem

The purpose of the present study was to investigate the relationship between divergent self-attitudes in female, adolescent retardates and performance on an experimentally controlled learning task. Previous work on the self-attitudes, or self-concepts, of retardates has been largely concerned with the development of techniques to measure these attitudes or in relating self-concept in retardates to broad behavioral dimensions. Such correlates of self-concept in retardates have included achievement in school, success on parole, reading ability, and the like, as described in the above review of research. The studies have shown that retardates are not homogeneous in terms of their attitudes

and feelings towards the self, and these differences in self-attitudes are related to differential functioning on the several behavioral dimensions just noted. However, the correlates of self-attitudes that have been investigated were largely uncontrolled.

It is necessary, therefore, to relate self-attitudes in retardates to situations that are more rigorously controlled and less open to subjective bias on the part of raters. Such a situation is represented by the paired-associates learning task.

Associative learning was chosen in this study because it is basic to many other and more complex forms of learning: for example, the association very early in a child's school experiences of symbols that go together to make words in learning to read; the association of events in history; the association of concepts in arithmetic, etc.

The self-attitude measuring instrument was the Laurelton Self-Attitude Scale which, as indicated above, has proven to be a reliable measure of attitudes toward the self in retardates. A High Self-Attitude Group and a Low Self-Attitude Group, equated otherwise for IQ and CA, were formed on the basis of obtained scores on the Scale, detailed later in Chapter III.

The paired-associates learning task consisted of one sample picture-pair of common objects and 12 stimulus pairs described in detail in Chapter II. The subjects were required to learn the task once without error. Two measures were obtained from a subject's performance on this task: (1) the total number of trials required to learn all 12 pairs once without error and (2) the total number of errors made in reaching that criterion of mastery.

The problem, then, was to test for differences in learning rates between those subjects having comparatively high positive self-attitudes and those having low positive self-attitudes. The following hypotheses were tested:

1. Mildly retarded female subjects who have comparatively high self-attitudes will require significantly fewer trials to meet the criterion of mastery in a paired-associates learning task than subjects who have comparatively lower positive self-attitudes.

2. Mildly retarded female subjects who have comparatively high positive self-attitudes will make fewer errors in reaching the criterion of mastery in a paired-associates learning task than subjects who have comparatively lower positive self-attitudes.

The level of statistical significance required to support the hypotheses was set at $p < .05$.

CHAPTER II

PROCEDURE OF THE STUDY

The Subjects

The subjects were 56 female mildly retarded children from seven Oklahoma City Public Schools, one Midwest City, Oklahoma, Public School, and the Laboratory School of the University of Oklahoma, Norman, Oklahoma. For the purposes of this study mild or educable retardation was operationally defined as the attainment of an IQ score within the range 50 to 80 on the Stanford-Binet Intelligence Scale or the Wechsler Intelligence Scale for Children. The chronological ages of the children were 160 to 201 months (13 years 4 months to 16 years 9 months).

The schools were randomly selected, and all the children from those schools who met the above age and IQ criteria were included in the sample. Four children were from the Midwest City School, one was from the Laboratory School of the University of Oklahoma, and 51 were from the Oklahoma City Public Schools. In the case of the latter schools parental consent agreements had to be obtained for the children's participation, in compliance with the Oklahoma City Board of Education regulations. Parental consents were obtained in the case of 51 subjects out of an original group of 71 children, a return of 72%. The letter to parents requesting consent, which was signed by the principals of each school, did not include any information on the methods, specific purpose,

or instruments used in the study (Appendix A).

None of the children had ever been diagnosed as brain-damaged as far as could be learned from the school records. In addition, physically handicapped children were not included in the study because the self-attitude scale used in the study contains many items relating to body image and the ability to play games.

The Experimenters

In order to control for experimenter bias, two experimenters administered the questionnaire and the learning task, the writer and a graduate student in Special Education at the University of Oklahoma. Each experimenter administered an equal number of questionnaires and learning tasks to subjects who were randomly assigned to each. The experimenters did not administer both the questionnaire and the learning task to any subject.

The Test Instruments

Self-Attitude. The Laurelton Self-Attitude Scale (Appendix B), discussed in the previous chapter, was administered individually and orally to each subject. The following instructions were given each subject prior to the administration of the scale:

> I am going to read you some statements, and I would like you to tell me if these statements describe you. If a statement describes you and how you feel, say "yes." If the statement does not describe you and how you feel, say "no."

To ascertain her understanding of the instructions the following sample questions were read to each subject:

> For example, if I should say, "I like to play with dolls," what would you say? If I should say "I like to play boys' games," what would you say?

Additional buffer questions, similar to the above, were asked if the child did not appear to understand the procedure.

The questionnaire is rather long, containing 150 items, a factor which made it vulnerable to the elicitation of a response set. This was particularly to be expected in the case of retarded subjects who, according to a widely accepted view, tend to perseverate. Therefore, the administration was interrupted twice, at items 50 and 100, when the instructions were repeated. After question 50 the following instructions were given to each subject:

> Listen carefully to each statement. Say "yes" if you feel that it describes you or how you feel, and "no" if you think it does not describe you or how you feel.

After item 100 the following instructions were given to each subject:

> Remember to listen carefully to each statement. If you do not think it describes you and how you feel, say "no." If you think it does describe you and how you feel, say "yes."

Each subject's responses were sorted into Yes and No stacks. After the subject left the room a record of each response was made on a specially prepared form. This record was later transferred to IBM answer sheets for scoring.

Learning Task. The paired-associates learning task used in the study and the procedures of administration were identical to that used in the study by Hiner (1962).

Test materials consisted of two booklets. Each booklet con-

tained 16 five-inch by eight-inch cardboard cards bound together in a small spiral notebook. Booklet One contained 13 cards on each of which appeared one pair of outline pictures and three blank cards serving as front, back and blank page between the sample card and the stimulus cards. The outline pictures were as follows: car-fork (sample), box-pig, chair-dress, leaf-house, comb-drum, hat-cup, bird-lamp, duck-saw, coat-sun, kite-fish, tree-shoe, bread-clock, and skates-ring, in that order. Booklet Two contained 13 cards on each of which appeared the first picture of the stimulus pair. The first picture card served as a sample card (car) for instructional purposes and the other 12 pictures as test cards. Three blank cards, placed between the sample card and the stimulus cards, were also included in this booklet.

Individual record sheets were used for each subject. The name of the subject, the total number of trials required to reach the criterion of one complete errorless learning of all 12 pairs, and the total number of errors made by the subject in reaching the criterion of mastery were recorded on each sheet.

Each subject was tested individually. She was seated to the right of the examiner, at a right angle to the examiner at the end of a small table.

The following instructions were given each subject prior to the administration of the learning task:

> Here are a number of cards (the examiner opens Booklet One). Each card has two pictures on it (the examiner shows the subject the sample pair, namely, car-fork, and says:) Look at both pictures on each card carefully. (The examiner then closes Booklet One and shows the subject

> Booklet Two, and says;) Then I will show you another set of cards like these. (The examiner shows the subject the sample card with only the first picture of the sample stimulus, namely, car, and says:) You are to tell me what picture went with this first picture. (The examiner pauses for the answer.) What you are supposed to do is remember which two pictures go together. Now as you see the two pictures together try to remember what two pictures were together.

The 12 paired pictures were presented to each subject visually at the rate of one every three seconds. Then Booklet Two was opened and the first picture of each pair was presented singly at the rate of one every five seconds. Each oral response made by the subject was recorded. A second trial was then given following the same procedure; additional trials were given as needed until the subject was able to make the 12 correct responses. Inter-trial intervals were ten seconds in length. Between trials, the examiner said:

> Now we shall look at the pictures again. Try to remember what two pictures were together.

If the subject questioned the examiner about the test, the examiner said:

> We shall keep looking at the pairs of pictures until you remember all of them.

CHAPTER III

RESULTS

The Laurelton Self-Attitude Scale was first scored for the total number of positive responses accepted (Tot+) and the total number of negative responses denied (Tot-) by each subject. These two scores were then summed to yield the Self-Attitude Index. In addition, each subject's questionnaire responses were scored along six self-attitude dimensions, namely, responses pertaining to: physical health, mental health, physical appearance, personal worth, interpersonal relations with peers, and interpersonal relations with non-peers and general self-attitude questions. A seventh sub-scale, the Lie Scale, was also culled from the questionnaire to determine if the child tended to view herself in too favorable a light. The item numbers used to make up each of the above scales are shown in Appendix C. Guthrie[1], the principal developer of the Laurelton Self-Attitude Scale, suggested the items used in each scale.

Appendix D provides the following raw data obtained on each subject: IQ, chronological age, Self-Attitude Index, number of trials needed to learn the paired-associates task without error, and the number of errors made in reaching the criterion of mastery of one errorless

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[1]Personal communication.

learning. Appendix E provides the following raw data on each of the sub-scale scores described above: Physical Health, Mental Health, Physical Appearance, Personal Worth, Interpersonal-peers, Interpersonal non-peers and General Self-attitudes, and Lie.

After the Self-Attitude Indices for all subjects were obtained, the median of that distribution (80.5) was computed. Those subjects who scored above the median were placed in the High Self-Attitude Group; those subjects who obtained scores below the median made up the Low Self-Attitude Group.

To determine whether there were any statistically significant differences in IQ between the High and Low Self-Attitude Groups, a test for homogeneity of variance was made. The F value obtained ($F = 1.14$; $p > .05$) was not statistically significant at the .05 level of confidence. A t value was then computed to compare the IQ scores of both groups. The t value obtained was not significant ($t = .085$; $p > .05$). Therefore, it was concluded that the High and Low Self-Attitude Groups did not differ in IQ.

A test for homogeneity of variance was then made to determine if the High and Low Self-Attitude Groups differed in chronological age. The test yielded an F value that was not statistically significant ($F = 1.25$; $p > .05$). A t test was then made to compare the two groups with respect to chronological age. The t value computed was not statistically significant ($t = .033$; $p > .05$). It was thus concluded that both groups were homogeneous for CA.

A homogeneity of variance test was then made to compare both High and Low Self-Attitude subjects on the number of trials needed to

learn the paired-associates task once without error. The F value obtained was significant ($F = 4.93$; $p < .01$), and it was therefore concluded that High and Low Self-Attitude Groups were not homogeneous for the number of trials variable. Since the assumption for homogeneity of variance could not be met for this variable (Winer, 1962, page 33), a non-parametric procedure was utilized (Siegel, 1956, page 111). The range of number of trials scores was divided at the median to yield Above Median and Below Median Groups. The median computed was 5.50 trials. A 2 x 2 contingency matrix was set up and a chi-square test made to determine whether the High and Low Self-Attitude Groups differed significantly on the number of trials it took their respective subjects to complete one errorless learning of the paired-associates task. The chi-square value obtained was statistically significant (chi-square = 4.59; $p < .05$). Thus, the first hypothesis of the study was supported, that is, that mildly retarded female subjects who had high positive self-attitudes needed significantly fewer trials for mastery of the learning task than subjects who had comparatively poorer self-concepts.

A homogeneity of variance test was then made to determine whether the High and Low Self-Attitude Groups differed significantly in terms of the number of errors made in reaching the criterion of one errorless learning of the paired-associates task. The test yielded an F value that was statistically significant ($F = 3.83$; $p < .05$). Since the assumption of homogeneity of variance was not met for this variable, a chi-square test was made. The median (23.50) for the range of number of errors scores was computed and an Above Median Group and a Below Median Group was formed. The chi-square value obtained was statistically

significant (chi-square = 4.57; $p < .05$). Thus, the second hypothesis of this study was confirmed, namely, that mildly retarded female subjects with comparatively higher self-attitudes made fewer errors in reaching the criterion of mastery of the paired-associates learning task than those subjects who reported poorer self-attitudes.

The data were then analyzed by means of chi-square to determine whether an individual's Self-Attitude Index score was a function of the examiner who administered the questionnaire to her. A chi-square was computed to determine if there were significantly more subjects in either the High or Low Self-Attitude Groups for each experimenter. The test yielded a value that was not statistically significant (chi-square = 2.57; $p > .05$). It was, therefore, concluded that a subject's responses to the oral administration of the questionnaire were not significantly influenced by either examiner's administration.

To determine whether the number of trials needed by the High and Low Self-Attitude subjects to master the learning task was a function of experimenter bias, a chi-square test was made. The chi-square value computed was not statistically significant (chi-square = .28; $p > .05$), and it was concluded that neither experimenter significantly influenced the subjects' performances with respect to the number of trials needed to learn the paired-associates task.

To determine whether experimenter bias was a factor in the number of errors made by High and Low Self-Attitude subjects, a chi-square value was computed and found not to be statistically significant (chi-square = 0.00; $p > .05$). Thus, the number of errors made by the High and Low Self-Attitude subjects was not a function of either

examiner's administration of the learning task.

The ch-square matrices, values and their probability levels for each of the above chi-square analyses are shown in Table 1.

To determine the relationship between each subject's trials and errors scores and her self-attitudes as reported on the eight sub-scales of the Laurelton Self-Attitude Scale, the Pearson Product-Moment Coefficient of Correlation was computed for each relationship. The correlations obtained and their probability levels are shown in Table 2. Except for the relationship between Personal Appearance and Lie sub-scale scores and the errors and trials scores, all coefficients of correlation obtained were statistically significant at better than the .05 level of confidence.

In addition, the relationship between a subject's IQ and her performance on the learning task in terms of trials and errors was obtained by means of the Pearson Product-Moment Coefficient of Correlation procedure. The correlations computed were not statistically significant; this is further support for the findings noted above that IQ scores did not differentiate the subjects in terms of their performance on the learning task.

Finally, to determine whether a subject's IQ score was significantly correlated with her Self-Attitude Index score the Pearson Product-Moment Coefficient of Correlation procedure was used. The corrrelation coefficient computed ($\underline{r}$ = .10) was not statistically significant. Therefore, it was concluded that the relationship between IQ and self-acceptance was not significantly different from zero.

TABLE 1

Chi-square Matrices, Values, and Probabilities for High and Low Self-Attitude Subjects on the Number of Errors and Trials, and Differential Experimenter Results

	Number of Subjects			
	High	Low		
Trials	Self-Attitude	Self-Attitude	Chi-Square	P
Above Median	11	19	4.59	$< .05$
Below Median	17	9		
Errors				
Above Median	10	18	4.57	$< .05$
Below Median	18	10		
Experimenters				
Experimenter A	11	17	2.57	$< .20$
Experimenter B	17	11		
	Experimenter A	Experimenter B		
Trials				
Above Median	15	13	.28	$< .70$
Below Median	13	15		
Errors				
Above Median	15	15	0.00	-
Below Median	13	13		

TABLE 2

Pearson Product-Moment Coefficients of Correlation for Eight Self-Attitude Sub-Scales, and IQ and Errors and Trials Scores Obtained by Mildly Retarded Female Subjects and their Probability Levels

Scale	r Trials	P <	r Errors	P <
Self-Attitude Index	.36	.005	.33	.005
Physical Appearance	.04	N. S.	.02	N. S.
Physical Health	.27	.025	.25	.050
Mental Health	.27	.025	.26	.025
Interpersonal-peers	.43	.005	.38	.005
Interpersonal Non-peers	.26	.025	.24	.050
Personal Worth	.42	.005	.44	.005
Lie	.13	N. S.	.10	N. S.
IQ	.19	N. S.	.17	N. S.

CHAPTER IV

DISCUSSION AND SUMMARY

The findings of this study clearly bear out the close relationship between positive self-acceptance by female adolescent retardates and performance on a paired-associates learning task. Acceptance of both hypotheses of the study, that retarded girls who reported high positive self-attitudes made fewer errors and needed fewer trials to learn the task than retardates who reported lower positive self-attitudes, lends further support to previous works discussed in Chapter I (Gorlow, et. al., 1963; Snyder, 1964; and Snyder et. al., 1965), which demonstrated the same significant positive relationships between self-acceptance and achievement. The latter studies were concerned with broad correlates of self-attitudes, for example, school achievement, personal adjustment, reading ability, and the like. This study showed that positive relationships between self-acceptance and learning also hold true for a controlled and objectively measured learning situation as well.

The analyses of the data also considered whether the subjects' IQ scores were significantly related to the scores obtained on the Laurelton Self-Attitude Scale and on the learning task. It was demonstrated that a child's placement in the High or Low Self-Attitude Group was not a function of her IQ; that a child's IQ score was not

significantly correlated with her Self-Attitude Index score; and that a child's scores on the learning task were also not significantly correlated with her IQ score. Therefore, it was concluded that IQ played no statistically significant role in how a child viewed herself or how she achieved on the learning task.

The above-mentioned lack of a relationship between IQ and self-attitude and IQ and achievement is a finding that is consistent with those of Gorlow et. al. (1963), Snyder (1964), and Snyder et. al. (1965). The findings of the present study are, however, not consistent with those of Curtis (1964). He interpreted his results as indicating that intellectual ability was linearly related to self-concept; that is, higher self-concepts were reported by subjects with higher IQ's. Curtis's study is not entirely comparable to the present work. He used four groups of subjects for his comparisons: retarded, normal, and bright subjects as well as a fourth group of subjects who had the same chronological age as the mental age of his retarded subjects. The present study considered only the retarded group. However, the two studies are comparable when one speaks of linear relationships between IQ and self-concept. In the case of Curtis's study, one would expect, if there is indeed a linear relationship between IQ and self-concept, that the largest difference in self-concept would have been obtained between the two extreme groups (i.e., the retarded and superior groups) when compared with differences found between the other groups. That hypothesis was not supported by his data, contradicting his own theory that IQ and self-concept are linearly related. Since no such relationship was found either in the present study or in the three other similar

studies mentioned above, one must conclude that a positive significant relationship between these two variables, IQ and self-concept, does not exist in mildly retarded adolescents.

Another criticism of Curtis's study must be mentioned since it bears on the question of methodology in studies of self-concept in retardates. He administered his self-concept questionnaire individually and orally to his retarded subjects only. It is quite probable that his non-retarded subjects may have responded differently to the questionnaire because of this unequal administration treatment. If that were the case, then it is not surprising that he obtained differential self-concept scores for his retarded and non-retarded groups. It is important, therefore, in any comparison study between retardates and non-retardates that oral administration procedures should apply to all subject groups compared.

Previous studies of self-concept in retardates have not controlled for experimenter bias. A control for this factor was included in this study because it was felt that the individual and oral administration of the testing instruments brought the experimenter into close interaction with the subjects, a situation vulnerable to the elicitation of response sets in both positive and negative directions. Examination of the analyses for experimenter bias, shown in Table I, indicates that the examiners did not significantly influence a subject's responses to either the questionnaire or to the learning task. However, there was a tendency (p .20) for one experimenter, the writer, to elicit more positive self-attitudes from the subjects to whom he administered the questionnaire. While not statistically significant in the present work

this biasing tendency cannot be ignored. It is suggested that in any study where there is close experimenter-subject interaction, control for experimenter bias be included in its design.

There is a prevalent notion that the retarded are homogeneous intellectually as well as in terms of social and personal functioning (Sarason, 1959). Such categorization is to be deplored and it is suspected that this theory has attained reinforcement because of the overemphasis on intelligence test scores. The latter indices often categorize a retarded child into rigid, non-dynamic, non-personality-oriented classifications, despite warnings of clinicians to the contrary. Inspection of the raw data of this study (Appendices D and E) shows that there is wide variability for this group, homogeneous only in IQ and CA, in the scores attained on all the self-attitude sub-scales and the learning task. It will be recalled that the results of tests for homogeneity of variance were not significant for the IQ and CA variables, but were highly significant for the two learning variables considered, that is, the number of trials needed by a subject and the number of errors she made in order to master the learning task once without error. Again, these findings lend support to the increasing recognition that retardates are not homogeneous in personal and academic adjustment. These findings imply, as Snyder (Cf. quote, page 6) has pointed out, that factors other than IQ should be considered as placement criteria for Special Education classes. In addition, since those children who are more accepting of themselves function better in a learning situation, curriculum developers might well consider the importance of psychotherapy as a valid "subject" area, in addition to the more usual and

conventional subject matter, when curriculums are devised for special students. It may well be that therapeutic intervention in the classroom, geared to help these often stigmatized children achieve healthy self-attitudes, may prove more beneficial, in the long run, in increasing the rate of learning in retardates than other specialized teaching methods.

The finding that almost no relationship was found between a child's Physical Appearance sub-scale score and her learning scores is noteworthy. It is speculated that this lack of a relationship is explainable in terms of cultural expectations. In our society the verbalization that one is or is not "pretty" is a sign of false modesty or vanity, respectively, and is to be avoided. Therefore, there was probably a response set by these female adolescent retardates to avoid overt verbalization, in any clear-cut positive or negative direction, on items pertaining to physical appearance.

The Personal Worth and Interpersonal-peers sub-scales, on the other hand, correlated well with the achievement measures, as shown in Table 2. These high correlations are not surprising. Adolescent female retardates are not apparently different from normal or bright adolescents in attaching strong importance to acceptance by and of peers. In the case of the Personal Worth sub-scale, it contains many of the most potent questions directly related to the acceptance of self, a sine qua non for a healthy self-concept. These findings suggest that any future developments or refinements of self-attitude measuring instruments that use a questionnaire technique should consider these two self-attitude areas in weighing the relative worth of a questionnaire item.

A word of caution should be introduced in the interpretation of the present results, as well as of those few studies that have examined self-attitudes in retardates. The existence of correlational links between variables is not synonymous with acceptance of these links as causal links. This is not to suggest that correlational findings may not have causal implications. However, if accepted empirical procedures are followed it is felt that it is still premature to speak of cause-effect relationships between self-attitudes and behavioral adjustment in retardates. A good deal of further research, both correlational and experimental, needs to be done before we can empirically speak of causal links between self-concept and personal, social and academic adjustment. Future research might consider even more elementary forms of learning (e. g., conditioning) as they relate to self-acceptance in retardates. Ideally, experimental attempts to introduce treatment effects for one group of retardates, geared to enhance self-acceptance, might be compared with non-treated groups.

Finally, it should be noted that five of the seven studies mentioned in the present work have concentrated exclusively on female adolescent retardates. Further research might attempt to examine self-attitudes in boys, or to investigate the possibility of sex differences in self-acceptance among retardates.

Summary

The present study was an investigation into the relationship between self-attitudes reported by female, adolescent retardates and their

rate of learning on a paired associates learning task. In contrast to previous similar studies, the correlate of self-attitudes in the present work was a controlled, objectively measured learning situation, the paired-associates learning task.

Fifty-six subjects, with chronological ages ranging between 13-4 and 16-9, and with IQ's within the range 50 to 80, participated in the study. None of the children were brain-damaged or physically handicapped, as determined by school records.

Self-attitudes were measured by the Laurelton Self-Attitude Scale, a questionnaire specially developed on a female adolescent retardate sample. The learning task was a series of 12 paired pictures of common objects. The paired pictures were first presented to the subject after which only the first picture of each pair was presented, and the subject was required to remember its picture associate. Additional trials were given until the subject learned all 12 pairs once without error. The task yielded two scores: (1) the number of trials needed to master the learning task without error and (2) the number of errors made to reach this criterion of mastery.

To control for experimenter bias, two experimenters administered both the questionnaire and the learning task orally and individually to an equal number of randomly assigned subjects. Neither experimenter administered both instruments to any subject.

Two hypotheses were tested: (1) that subjects who had comparatively high positive self-attitudes would need fewer trials to master the learning task without error than the subjects who had poorer positive self-attitudes; and (2) that the subjects who had high positive self-

attitudes would make fewer errors in reaching the criterion of mastery of the learning task than subjects who had comparatively poorer self-attitudes. Both hypotheses were supported at the .05 level of confidence.

Additional analyses of the data were made as follows: to determine the effect of IQ on learning the paired associates task; to determine the effect of IQ on placement in the High and Low Self-Attitude Groups; to determine the effect of a subject's IQ on her Self-Attitude Index score, the major sub-scale of the Laurelton Self-Attitude Scale; to determine the effect of CA on placement in the High and Low Self-Attitude Groups; to determine the effect of experimenter bias on a subject's performance on the questionnaire and the learning task; and the correlation of seven sub-scales of the Laurelton Self-Attitude Scale (Physical Appearance, Physical Health, Mental Health, Interpersonal-peers, Interpersonal-non-peers and General, Personal Worth, and Lie) with the two scores obtained on the learning task by the subjects.

The results of the aforementioned analyses were as follows: IQ was not a significant effect in a subject's placement in the High or Low Self-Attitude Group; IQ was not significantly a factor in the rate of learning on the paired-associates task; IQ was not significantly related to the Self-Attitude Index scores of the subjects; CA was not a significant factor in determining placement in the High or Low Self-Attitude Group; experimenter bias was not a significant effect on performance on either the self-attitude scale or the learning task; and positive significant correlations were obtained between all the sub-scales of the self-attitude questionnaire and the learning task scores, with the exception of the Physical Appearance Scale and the Lie Scale.

It was demonstrated that female, adolescent retarded subjects who accepted themselves better performed better on a learning task than subjects who had poor attitudes toward the self. This supported all previous works comparing self-attitudes in retardates and performance on a broad dimension of achievement.

The implications of these findings for the Special Education curriculum as well as for future research on self-concept in retardation were discussed. It was concluded that psychotherapeutic efforts to help retardates achieve healthy self-attitudes would probably be more beneficial in the long run than the sole reliance on orthodox teaching programs. It was suggested that consideration be given to the formal inclusion of psychotherapy as a curriculum area in Special Education. In addition, since personality factors in retardation appear to play important roles in learning independent of IQ, such factors should be considered in placement and program criteria for Special Education. It was suggested that future research should control for examiner bias and that differential treatment of subjects in comparison studies with non-retardates be avoided.

REFERENCES

Curtis, Leonard T. "A Comparative Analysis of the Self-Concept of the Adolescent Mentally Retarded in Relation to Certain Groups of Adolescents." Dissertation Abstracts, 25 (5): 2846-2847, 1964.

Gorlow, L., Butler, A. and Guthrie, G. "Correlates of Self-Attitudes of Retardates." American Journal of Mental Deficiency, 1963 67, 549-555.

Guthrie, G., Butler, A. and Gorlow, L. "Patterns of Self-Attitudes of Retardates." American Journal of Mental Deficiency, 1961, 66, 222-229.

Guthrie, G., Butler, A., Gorlow, L. and White, G. N. "Non-Verbal Expression of Self-Attitudes of Retardates." American Journal of Mental Deficiency, 1964, 69, 42-49.

Heber, Rick. Personality, in Mental Retardation; a Review of Research, Stevens, Harvey A. ed. University of Chicago Press, Chicago, 1964.

Hiner, Gladys Webber. "A Comparison of Associative Learning Rates of Bright, Normal and Retarded Children." Unpublished dissertation; University of Oklahoma, 1962.

Kniss, Janet T., Butler, A. J., Gorlow, L. and Guthrie, G. M. "Ideal Self Patterns of Female Retardates." American Journal of Mental Deficiency, 1962, 67, 245-249.

Miller, M. B. "Psychometrics and Clinical Studies in Mental Deficiency, 1954-59: A Selective Review and Critique." American Journal of Mental Deficiency, 1960, 65, 182-193.

Rogers, C. R. Client-centered therapy. Houghton-Mifflin, New York: 1951.

Sarason, S. B. Psychological Problems in Mental Deficiency. New York: Harper & Brothers, 1959.

Siegel, Sidney. Nonparametric Statistics. McGraw-Hill Book Co., New York: 1956.

Snyder, Robert T. "An Investigation of Personality Variability as a Major Determiner of the Degree of Academic Attainment Among Educable Retardates." Dissertation Abstracts. 25 (6): 3409, 1964.

Snyder, Robert T., Jefferson, William and Strauss, Ruth. "Personality Variables as Determiners of Academic Achievement of the Mildly Retarded." Mental Retardation, 1965, 3, 15-18.

Winer, B. J. Statistical Principles in Experimental Design. McGraw-Hill Book Co., New York: 1962.

Wylie, R. C. The Self Concept: A Critical Survey of Pertinent Research Literature. Lincoln, University of Nebraska Press, 1961.

APPENDICES

APPENDIX A

Request for Parental Consent

Dear Parents:

I am writing to request your permission to permit your child to participate in a research study at the school.

I hope that this study will help us develop better school programs for boys and girls.

The information obtained in this study will be treated as strictly confidential.

Would you kindly sign below indicating your consent to your child's participation in the study. I appreciate your cooperation in this study.

Yours very truly,

Principal

Permission is granted for my child to participate in the above-mentioned study.

_____

(Signature of parent or guardian)

APPENDIX B

The Laurelton Self-Attitude Scale

1. I always do what I am told.
2. The teacher thinks I'm sort of nervous.
3. People think that I get upset too easily at work.
4. Others think I have trouble getting along with older people.
5. I feel at ease playing games with older people.
6. New jobs scare me to death.
7. It is easy for me to read out loud in class.
8. People think I get into more trouble than most girls my age.
9. I am as smart as most girls.
10. I tell the truth every single time.
11. Other girls can sew better than I can.
12. People think I am pretty good at games and sports.
13. It's my fault when something goes wrong.
14. At school, the girls think I am as good looking as the others.
15. I am better than others.
16. I like to stand up for people.
17. Sometimes other people think I am a pest.
18. I feel left out of things.
19. It takes me a long time to make up my mind.
20. I seem to get into a lot of fights.
21. I can tell what is right and wrong.
22. At times I feel like swearing.

23. People think I am healthy enough to do any kind of job.

24. I look as nice as other girls.

25. People think I am as popular as most girls.

26. In housework I am as good as most girls.

27. People think other girls learn more quickly than I do.

28. I am as strong as other girls.

29. Sometimes I act silly.

30. People think I have as many older persons for friends as other girls do.

31. I need help more than some of the girls in school.

32. Sometimes at home, I wish I were dead.

33. I am often nervous when I am with older people.

34. Most people think I am pretty healthy.

35. The future looks good.

36. I need a lot of pushing to get something done.

37. I moan and complain a lot.

38. I need help.

39. I am as smart as the other girls in school.

40. Some of the girls think I am full of fun.

41. Most people think I am as healthy as they are.

42. Some people think I am poor at sports.

43. I think I am pretty.

44. I get mad more easily than some girls in school when the teacher scolds me.

45. Other people think I am well liked at work.

46. At home, they think I should dress better.

47. I have a quick temper.

48. I often do things to make people feel badly.

49. I like everyone I know.

50. I am a pest to people.

51. I have hardly any friends at home.

52. Some girls I play games with think I am weaker than they are.

53. Other people think I am as healthy as most girls who go to school.

54. I like to help people who get in trouble.

55. I am always kind.

56. At school, the teacher seems to like other girls better than she likes me.

57. I am quite a show-off.

58. I have a good record.

59. I sometimes hurt people.

60. People think I get sick in school more than most girls.

61. I feel I am getting ahead.

62. I am proud of myself.

63. It is good to get high marks at school.

64. I feel I am an important person.

65. I need someone to tell me to do my work.

66. Others think that I control my temper pretty well.

67. I talk too much.

68. I get along as well with most girls as the rest do.

69. Sometimes, I am too nosy.

70. It is hard to make friends at school.

71. I think I am as honest as most girls.

72. People I play games with think I am as strong as most girls my age.

73. I am a clumsy person.

74. Most girls think they are better-looking than I am.

75. Others think I could behave better.

76. Most people think I make friends as easily as other people.

77. Most people feel I get along OK in games with older people.

78. I can read and write as well as I need to.

79. People think I obey older people at home very well.

80. People think I am usually happy at home.

81. Older girls always spoil the fun when we have games.

82. I am as healthy as most girls who play games.

83. I find it harder to learn something than some girls.

84. I usually apologize when I am wrong.

85. Most people at work dress better than I do.

86. I can cook as well as most girls.

87. I like to spy on people.

88. Other girls look nicer than I do.

89. People think I'm the sort of girl who does what the teacher tells me.

90. My parents think I am pretty run down.

91. I do my work better than most of the other girls.

92. I try my best.

93. I sometimes swear.

94. I am scared most of the time.

95. I am about as pretty as the rest of my family.

96. I am pretty lucky.

97. I have as many friends in school as the other kids do.

98. I am as strong as the rest of my family.

99. I am as happy at school as most girls.

100. People think I make friends easily with older people.

101. I am too shy for my own good.

102. At home, they say I look nice.

103. I cheat when I get a chance.

104. Some of the girls I play with think they play better than I can.

105. I feel tired a lot.

106. Some girls think I am a cry baby.

107. My looks are as nice as any who go to school.

108. I get excited too easily when things go wrong.

109. I am as popular around home as most girls my age.

110. People think I have a lot of friends in school.

111. Other girls think I could be more friendly with them.

112. I can do most of the things I try.

113. My mother thinks I am weaker than the rest of the family.

114. School work is just too hard for me.

115. I am full of fun.

116. I am a pleasing person.

117. My looks are good enough for school.

118. I try to do my best.

119. A lot of girls in school are prettier than I am.

120. In sports, the girls think I cry more easily than other girls.

121. I do my work well.

122. Most people think I am strong enough to play games.

123. Most people think I play as well as other girls.

124. A lot of jobs are too hard for me.

125. Sometimes I think of things too bad to talk about.

126. I think I am a bright girl.

127. In games, people feel that I am too hard to get along with.

128. I usually look pretty nice around the house.

129. When we play games, other girls think I look as nice as they do.

130. I am always good.

131. I am easy to get along with.

132. I like to make people feel happy.

133. Others think I learn school work easily.

134. Others think that I can get along better with older people in sports and games than most girls do.

135. I need someone to want me.

136. I feel I am someone special.

137. I am usually fairly happy.

138. People think I have fewer friends at work than most girls.

139. I always have good manners.

140. It is hard for me to make up my mind.

141. My looks would help me in any job.

142. At school I am as healthy as anyone.

143. Some girls get along better with older people than I do.

144. My feelings are easily hurt.

145. I can sew as well as most girls.

146. People think I have a hard time getting along with girls at school.

147. People think I get upset more easily than other girls.

148. I feel as happy around older people as other girls do.

149. People think other girls are happier about working than I am.

150. Sometimes I get angry.

APPENDIX C

Coding of Items for Laurelton Self-Attitude Scale

Sub-scale	"Yes" Responses	"No" Responses
Physical Appearance	14, 24, 43, 95, 102, 107, 117, 128, 129, 141	46, 74, 85, 88, 119
Physical Health	23, 28, 34, 41, 53, 72, 82, 98, 122, 142	52, 60, 90, 105 113
Interpersonal-Peers	23, 40, 68, 97, 109, 110, 123	70,111, 146
Interpersonal-Non-Peers or General	5, 16, 30, 45, 54, 76, 77, 79, 84, 89, 100, 131, 132, 134, 148	4, 8, 17, 20, 33, 48, 50, 51, 56, 59, 69, 75, 81, 87, 127, 138, 143
Personal Worth	7, 9, 12, 15, 21, 26, 39, 58, 62, 64, 71, 78, 86, 91, 92, 112, 116, 118, 121, 126, 133, 136, 145	11, 13, 27, 29, 31, 36, 42, 57, 65, 67, 73, 83, 103, 104, 114, 124
Mental Health	35, 61, 66, 80, 96 99, 115, 137	2, 3, 6, 18, 19, 32 37, 38, 44, 47, 94, 101, 106, 108, 120, 135, 140, 144, 147, 149.
Lie Scale	1,10,49,55, 130, 139	22, 93, 125, 150
Self-Attitude Index	(All "Yes" responses except Lie Scale)	(All "No" responses except Lie Scale)

Note: Item 63 not scored.

APPENDIX D

IQ, Chronological Age, Self-Attitude Index, Errors and Trials on a Learning Task of Female Retarded Subjects

Subject	IQ	CA (mos.)	Self-Attitude Index	Trials	Errors
1	77	183	82	9	45
2	70	200	87	5	23
3	73	177	65	8	23
4	68	180	73	4	13
5	56	176	72	9	48
6	73	171	29	12	74
7	69	178	86	9	39
8	70	172	92	6	28
9	77	183	75	4	25
10	72	184	107	5	25
11	62	173	88	8	32
12	78	165	122	4	16
13	73	191	105	4	10
14	63	171	53	27	150
15	63	185	95	8	38
16	71	196	82	4	16
17	60	199	79	10	60
18	62	170	67	5	23
19	77	175	79	5	14
20	67	176	63	3	15
21	59	183	69	7	31
22	68	201	101	3	11

Subject	IQ	CA (mos.)	Self-Attitude Index	Trials	Errors
23	70	175	81	5	15
24	59	178	98	9	49
25	55	190	93	7	21
26	71	169	76	6	31
27	64	187	109	4	12
28	64	170	90	4	11
29	64	188	77	11	47
30	70	179	110	5	23
31	62	177	123	9	57
32	71	173	108	6	18
33	68	170	76	6	25
34	62	169	67	7	35
35	72	170	89	4	14
36	56	171	80	8	30
37	64	196	89	5	27
38	71	175	73	11	41
39	54	164	81	5	18
40	74	188	66	9	43
41	75	181	86	5	22
42	70	174	76	4	11
43	64	198	70	7	25
44	77	175	96	6	18
45	71	176	94	5	21
46	71	175	83	5	17

Subject	IQ	CA (mos.)	Self-Attitude Index	Trials	Errors
47	59	177	46	11	50
48	76	172	80	3	7
49	67	184	80	6	18
50	73	160	80	6	24
51	70	175	61	4	19
52	62	179	61	5	25
53	67	196	79	8	26
54	50	179	64	6	19
55	72	188	98	11	63
56	58	196	123	4	19

APPENDIX E

Physical Appearance, Physical Health, Interpersonal-peers, Interpersonal-non-peers or General, Personal Worth, Mental Health and Lie Scale scores from the Laurelton Self-Attitude Scale Responses of Female Retarded Subjects

Subject	Physical Appearance	Physical Health	Interpersonal peers	Interpersonal-non-peers-Gen.	Personal Worth	Mental Health	Lie
1	8	12	6	21	20	15	7
2	6	13	8	22	25	14	6
3	6	5	5	20	18	12	7
4	4	6	6	18	17	21	4
5	5	8	5	17	21	16	6
6	4	3	2	10	7	1	2
7	7	11	7	22	24	15	4
8	10	13	9	20	23	18	5
9	7	13	6	14	17	18	4
10	7	14	6	26	28	25	6
11	6	5	6	26	25	23	5
12	11	15	10	31	31	24	7
13	9	14	9	26	33	15	7
14	7	5	3	16	12	11	5
15	6	12	9	26	21	22	8
16	10	11	8	19	21	14	5
17	6	6	6	26	20	18	9

Subject	Physical Appearance	Physical Health	Interpersonal peers	Interpersonal-non-peers-Gen.	Personal Worth	Mental Health	Lie
18	7	5	8	21	17	9	7
19	4	12	7	20	17	20	2
20	2	6	5	19	16	16	5
21	5	9	4	21	22	10	6
22	10	14	8	24	29	16	4
23	3	6	7	24	22	19	6
24	9	10	9	25	21	22	6
25	10	12	7	20	26	17	7
26	4	8	6	21	23	15	6
27	10	13	8	25	32	24	8
28	6	8	7	24	27	19	3
29	4	14	5	22	17	16	2
30	9	14	9	25	29	25	4
31	13	14	10	30	30	27	9
32	9	14	6	24	32	24	8
33	7	8	5	17	23	16	7
34	4	9	4	18	20	15	4
35	9	11	7	27	21	15	4
36	9	10	6	18	25	11	7
37	10	9	8	22	23	17	5
38	5	8	4	21	16	18	2
39	7	10	8	21	21	14	5
40	6	6	6	17	23	10	5

Subject	Physical Appearance	Physical Health	Interpersonal peers	Interpersonal-non-peers-Gen.	Personal Worth	Mental Health	Lie
41	5	8	7	21	26	23	3
42	2	10	6	24	24	11	9
43	5	3	6	18	21	17	6
44	5	14	8	24	24	22	5
45	7	12	7	22	26	22	6
46	7	14	8	23	17	14	9
47	4	5	1	13	11	11	3
48	4	12	4	23	19	17	4
49	9	11	5	18	20	18	7
50	6	7	4	23	24	21	7
51	3	3	6	19	16	16	6
52	9	7	3	14	18	10	4
53	7	11	5	21	20	15	4
54	4	5	7	14	21	13	4
55	11	14	5	25	24	19	4
56	11	14	5	25	24	19	4