THE RELATIONSHIP BETWEEN LEVEL OF ASPIRATION AND INTELLIGENCE

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PREFACE

This study was undertaken to investigate the relationship between level of aspiration and intelligence and to investigate the relationship between intelligence and the ability to adjust level of aspiration to performance.

The writer would like to thank all the people who made this study possible. Thanks goes to Mrs. Anna T. Scruggs of Enid State School who made subjects available for the investigation and to Mr. George Bouthilet who scheduled subjects and helped in a multitude of ways.

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CHAPTER I

INTRODUCTION

Level of aspiration represents the expected future performance which an individual explicitly undertakes to reach (9, 14). An individual may aspire to obtain ten correct responses out of fifteen in a test of skill. One would then say that ten correct responses out of fifteen would be the individual's level of aspiration. Such a level of aspiration represents to some extent an objective judgment of probable future performance.

A great deal of difficulty was encountered in early investigations because of the failure to clearly distinguish between level of aspiration as a "judgment" and level of aspiration as a "goal" (10). As a "judgment" the level of aspiration ordinarily tends to remain close to the actual level of performance. It is largely determined by perceptual "anchoring points" of which the most influential is the subject's own past performance. As a goal the level of aspiration tends to remain even more above the level of performance than level of aspiration as a "judgment" in that it expresses the wishes to do well and to improve. That is what Coleman (7) calls the individual's "Ideal Self," the individual as he would like to be and is striving to become.

Rotter (23) has found that the inability to distinguish

between level of aspiration as a "judgment" and level of aspiration as a "goal" is usually due to failure to make clear to the subject exactly what is called for in the statement of future goals. Thus, failure to understand instructions leads some subjects to respond in terms of "hope," others in terms of actual expectations, and still others in terms of a compromise of the two. Instructions must then be constructed so that they are not easily misinterpreted by the subjects.

Frank (10) states that Dembo first mentioned the term "Anspruchenivеau," or level of aspiration while conducting a study of anger where subjects were observed directly in a dynamic situation.

Rotter (23) indicates that one of the first investigations on level of aspiration was made by Hoppe. Using a variety of tasks, he studied the conditions of success and failure experiences in his subjects as inferred from their spontaneous utterances and general behavior. Hoppe, however, failed to distinguish clearly between level of aspiration as a "judgment" and level of aspiration as a "goal," although recognizing that the subject's immediate or momentary goal was different from his "ideal" goal. He found that the reality of this "ideal" goal could be changed by experiences of success and failure.

Hausman (15) was one of the first to approach the study of level of aspiration as a "judgment." He based his investigation upon Hoppe's experiment although he changed the instructions so that a "prediction" of performance was made by the subject for each trial. The subject was then penalized

if he fell below his predicted performance. He received no credit for performance that was above his predicted performance. By using this method Hausman was able to obtain a quantitative measure of level of aspiration and performance.

Level of aspiration can be measured by a number of tasks. The most common tasks are those of paper and pencil test; however, other tasks are used such as ball tossing, picture identification, expected income, expected school grades, dart throwing, and performance on the Rotter Level of Aspiration Board.

Most experimental techniques for the measurement of level of aspiration usually require the individual to state his expected performance on a task. The individual then explicitly undertakes to reach this expected performance level. His "actual" performance is then measured to determine how his "actual" performance differed from his "expected" performance. This difference between "expected" performance and "actual" performance is his "difference score" ("D" score). The mean "D" score is most frequently used in level of aspiration experiments; however, "expected" performance and "actual" performance are often used without considering the "D" score.

Several investigators (11, 12, 13) have found the average "D" score to be highly consistent for a single task. Frank (10) in his survey of twenty-four studies on level of aspiration found correlations between average "D" score and each specific task to range from .25 to .70. On all but two of these studies the correlations were statistically significant. Frank (10) concludes that level of aspiration is a fairly stable personality

trait, manifesting itself in many different performances. To test this hypothesis Frank used three kinds of materials, two designed to test speed, and one to test motor co-ordination. He found that the ratio between level of performance and the level of aspiration remained constant, irrespective of the test being used to measure it.

In general, the level of aspiration tends to slightly exceed level of performance, but responds more readily to success than to failure. Success is considered to be a performance at or above level of aspiration, and failure is considered to be a performance below level of aspiration.

Child's (5) study of the effects of success and failure, using the Rotter Level of Aspiration Board, perhaps offers some of the most enlighting results on level of aspiration in this area. His conclusions were as follows:

1. The effects of failure on level of aspiration are more varied than those of success.
2. Success generally leads to a rising in the level of aspiration and failure to a lowering.
3. The greater the success, the greater is the probability of a rise in level of aspiration. The greater the failure, the greater is the probability of a lowering of level of aspiration.
4. Shifts in level of aspiration are in part a function of changes in the subject's confidence in his ability to attain goals.
5. The experience of failure is more likely than success to lead to withdrawal in the form of avoidance of setting a level of aspiration (5, p. 314).

The degree to which success or failure in one task affects the level of aspiration in another task appears to depend primarily upon the perceptual similarity of the two tasks. Frank (11) found that changes in level of performance in one task affect the height of the level of aspiration in another. The extent

of this effect depends on the degree to which the two are similar.

The levels of aspiration for successful and unsuccessful individuals have been found to differ markedly. Sumner (26) found that the "D" score is significantly less for the top quarter of a college class in academic achievement than for the lower quarter of the class. Sears (25) also found unsuccessful academic children have larger "D" scores than successful children.

Lewin is credited with the introduction of the concept of level of aspiration in personality theory. He suggests that the individual builds into his "self-image" a picture of himself not only as he is, but also as he would like to be. Lewin assumes, apparently an innate need somewhat analogous to Adler's "will to power," a need to elevate the ego above its present status. This suggests that any perceived discrepancy between the individual's performance and his inner picture of appropriate performance should create a tension which in turn should result in releasing greater effort toward the higher, unattained, goal (19).

A number of authors (7, 14, 19) suggest that a high discrepancy between level of aspiration and performance could be indicative of personality maladjustment. Adolf Meyer (21) has emphasized the role of unrealistic level of aspiration in his approach to neuroses. He states, (21, p. 555) "Failing in the achievement of their unrealistic goals, individuals develop feelings of inferiority, apprehensiveness, and other faulty

emotional attitudes." A number of studies (6, 17, 18) indicate that emotionally disturbed persons do show a greater discrepancy between actual performance and aspired performance.

Gardner (12), Rotter (23), and Sears (25), have found it necessary to interpret level of aspiration behavior in terms of processes having to do with defense of esteem.

Gould states, "It would seem doubtful whether one obtains an accurate measure of the individual's level of striving. Rather the average difference score would appear to be more nearly representative of a kind of protective mechanism against failure, than indicative of differences in the height of (real) aspiration level (13, p. 114)."

Jost (20) using schizophrenic and normal subjects found the schizophrenic group to have a larger mean "D" score. In fact, 34 per cent of the scores obtained by the schizophrenic group fell outside the range of the normal group. Most of them underestimated their performance. He also found that the LA mean score was lower for the schizophrenic group than for the normals. He concluded this was brought about on the part of the schizophrenic patients to maintain and/or bolster their self-esteem.

Frank (11) found experimental evidence to the effect that the level of aspiration is sometimes in certain tasks a means of protecting the ego-level.

Himmelweit (17) found that neurotic women, in general had a higher LA than normal women. The spread of scores of the neurotic groups was significantly larger than that of the normal

groups.

Miller (22) found that different clinical types of neurotics and psychotics had significantly different levels of aspiration. The neurasthenics mean goal discrepancy "D" score is significantly higher than that of other neurotic classifications, while those individuals with character disorders have a mean goal discrepancy close to zero.

Similar findings were reported by Cohen (6). He found that both very high LA setting and very low LA setting were related to self-rejection in normal subjects. Only those individuals who could accept themselves were able to use low positive goal setting, that is, LA near their performance but still slightly above. Bills (2) also found a slight correlation between level of aspiration and adjustment.

Level of aspiration has been found to be influenced by the group's performance. Chapman and Volkmann (4) have demonstrated that knowledge of what others did upon a test will markedly influence the subject's stated aspiration depending upon how they evaluate the other people whose scores they know. In this experiment one group of subjects were told that for a test with a maximum of 50 points, experts scored at 37 points; a second group was told that subjects similar to themselves scored 37; a third group was told that 37 points was average for WPA workers; and the fourth was given no suggestion. The group that was told that experts scored 37 had the lowest aspiration level; those told WPA workers scored 37 had the highest level of aspiration; those told 37 points was average for

subjects like themselves aspired to 31; and those with no suggestions aspired to 26.

Carroll (3) found that negro boys and girls would lower their level of aspiration when told their performance was average for white male students. Similar results were reported by Festinger (8) who found that individuals tend to adjust their level of aspiration to that of the group standards. Hilgard (16) found that level of aspiration would rise or lower as affected by the relative standing in an experimental group.

There has been some evidence that there is a sex difference in level of aspiration in both normals and neurotics (10). Sumner and Johnson (28) found a sex difference in level of aspiration and in self-estimates of performance in a classroom situation. The most striking factor of this study was that women tended to have lower discrepancies and undervaluation, in their aspirations and self-estimates. The men had higher discrepancies and overevaluations, and exhibit throughout a greater tendency to expansiveness, and daringness. These sex differences were evident at both high and low levels of performance.

Walter and Marzolf (29) found somewhat similar results with level of aspiration. Their subjects were 4th, 6th, 8th, and 12th grade students. Their results were as follows:

1. Goal discrepancy scores of boys were higher than those of girls.
2. Girls' goal discrepancy scores covered a wider range than did those of boys.
3. Though the mean goal discrepancy scores varied from grade to grade, the variance due to grade level was not significant.
4. There were marked differences in mean goal discrepancy scores, particularly in the 4th, 6th and 12th grades, and between those above and those below the median achievement level of

> their grade. These differences were, however, not significant. For the 4th and 12th grades those students below the median in achievement had a higher mean goal discrepancy score, while in the case of the 6th grade the difference though large, was reversed. However, this apparent interaction was not statistically significant (29, p. 292).

The authors (29) indicate that these data suggest that academic achievement is not as potent an influence as previously presumed.

It was concluded by Walter and Marzolf (29) that boys in general feel a greater need for achievement than girls.

Individuals with physical defects have been found to differ from normals in level of aspiration and in average "D" score.

Sheehan (27), when comparing 40 adult stutterers with 60 normals on the Rotter Level of Aspiration Board found that stutterers were significantly lower in average "D" score. Stutterers ranged more widely in their aspiration levels and succeeded more frequently. They predicted more modest performance for themselves and in general showed a lower level of aspiration.

Wenar (30) found similar results when comparing cripples with normals. In only one instance did the physical defect per se have any effect on level of task performance, yet the cripples' level of aspiration was significantly lower than the normals' level of aspiration. Their "D" score was significantly less than for normals.

The author found only two studies dealing with level of aspiration in the mentally retarded. The most recent was made by Shaw and Bensberg (26) in 1955. The Shaw and Bensberg study tested Lewin's hypothesis that the degree of differentiation

of the inner-personal regions is a negative monotonic function of the degree of mental deficiency.

Lewin's hypothesis that the boundaries between the cells of the inner personal structure of the mentally retarded child should be more rigid than those of the normal child. The more rigid boundaries of the mentally retarded child's inner personal region indicates that there is less communication between tension systems than is the case for the normal child. This would seem to suggest that level of aspiration might vary considerably in respect to "D" score for many similar tasks with the mentally retarded while the normal child should have comparable levels of aspiration for many similar tasks. An extention of this view might be that the more severely mentally retarded would show greater variability in level of aspiration among a number of different tasks than would the normals.

Shaw and Bensberg (26), using predetermined performance scores, also found that in the mentally retarded there was some slight tendency for the level of aspiration of the more moderately mentally retarded subjects to have smaller discrepancy scores than those of the more mentally retarded subjects. Shaw and Bensberg's results were not compared to that of normal subjects to determine how mentally retarded subjects differed from normals.

The author is of the opinion that further exploration on level of aspiration with the mentally retarded might yield valuable information.

The immediate practical implications of a level of aspiration

study using different degrees of mental retardation are that it might give some indication as to how aware they are of their capabilities. If they are in general unrealistic in over estimating their performance, they may experience a sense of failure in everyday life. If their aspirations are below that of their performance it may mean that they are not making full use of their capabilities.

Such research may also determine if these mentally retarded individuals are capable of readjusting their level of aspiration to their actual level of performance if shown their true performance capacities. This, of course, might spare them much future frustration.

CHAPTER II

STATEMENT OF THE PROBLEM

The writer poses the following problem:

1. Is the difference between aspired performance level and actual performance level related to intelligence?

2. Is the ability to adjust aspired performance level to actual performance level related to intelligence?

The following hypotheses were offered:

1. There will be no difference in "D" score, difference between level of aspiration and actual performance, between a group of mentally retarded individuals with I.Q.'s of 34-45, a group of mentally retarded individuals with I.Q.'s of 55-70, a group of normal individuals with I.Q.'s of 93-110, and a group of normal individuals with I.Q.'s of 111-130.

2. There will be no significant differences in ability to adjust their level of aspiration (LA) to their performance level among a group of mentally retarded individuals with I.Q.'s of 34-45, a group of mentally retarded individuals with I.Q.'s of 55-70, a group of normal individuals with I.Q.'s of 93-110, and a group of normal individuals with I.Q.'s of 111-130.

CHAPTER III

EXPERIMENTAL PROCEDURE

Subjects

The normal subjects were composed of two intelligence levels of male and female summer school students attending Oklahoma State University, and the mentally retarded subjects were composed of two intelligence levels of male and female subjects at the Enid State School. An equal number of male and female subjects were included in each group.

Experimental Tasks

Task "A" (Hand Prehension)

Part I (Establishing Aspiration Level): In task "A" the subjects were presented with 15 piles of 1¼ inch blocks ranging from 3 to 15 blocks in a pile. Each subject was required to pick up with his preferred hand as many blocks as he previously stated he could. He was asked to indicate this before attempting performance. The pile of blocks that he attempted to pick up was considered his level of aspiration. He was then asked to pick up a pile of blocks on either side of that of his level of aspiration, above, if he successfully completed the preceeding trial, and below, if he failed in the preceeding trials. He was required to pick up succeeding piles of blocks (either smaller or larger) until his performance level had been determined by 4 successful trials out of 5. The largest number of blocks successfully

picked up 4 out of 5 trials was considered the subject's performance level.

Part II (Adjustment of Aspiration Level): The subject was again asked to indicate the largest pile of blocks he could pick up. An adjusted level of aspiration was defined as that LA response which matched actual (original) performance on 2 successive trials out of 10. If he unsuccessfully attempted to pick up a pile above his performance level or if he chose a pile below his performance level, he was asked to pick up succeeding piles of blocks (above or below) until his original performance level had been reached. This procedure was repeated for 10 trials or 2 successive correct trials out of 10. The level of aspiration "Adjustment" score was the number of responses required to obtain 2 successively correct responses out of a maximum of 10 trials.

Task "B" (Visual)

Part I (Establishing Aspiration Level): The subject was shown 10 picture vocabulary cards (pictures 1, 3, 5, 6, 8, 10, 11, 17, 18, and 19) from the Stanford-Binet Intelligence Scale that had been standardized for size. The subject was asked to identify the object in each picture. If he was unable to do this he was eliminated from the experiment. The subject was then asked to indicate the greatest distance at which he could see the cards well enough to identify the pictures on them. This distance was considered the individual's level of aspiration and was measured in yards. His performance level for the task was determined in the same manner as in task "A."

Part II (Adjustment of Aspiration Level): After the subject's performance level had been determined he was again asked at what distance he could correctly identify all the picture cards, and the same procedure repeated as before in task "A" (for 10 trials or 2 successive correct trials out of 10). A response was considered correct if the actual level of performance was less than 1 yard short of the estimated distance (aspired level of performance) or at any distance beyond it.

Task "C" (Auditory)

Part I (Establishing Aspiration Level): The subject was presented with a standard Beacon alarm clock with the back removed in order to permit the experimenter to stop or start the mechanism. This was demonstrated to the subject. A 1 foot square cardboard was fastened to the front of the clock to prevent the subject from seeing the experimenter stop and start the clock. The subject was asked to estimate the greatest distance at which he could hear the "ticking" of the clock. The greatest distance at which the subject estimated he would be able to hear the clock "tick" was considered his level of aspiration. The subject was given 5 trials during which the clock was "running" from 1 to 3 out of a possible 5 trials. Whether or not the clock would be "running" on any of these 5 trials was determined by a table of random numbers. The subject's actual performance level was considered to be the greatest distance (measured in yards) at which 4 correct identifications out of 5 were made. This was determined in the same manner as for Task "B," Part I.

Part II (Adjustment of Aspiration Level): After his performance level was determined he was again asked to estimate the greatest distance at which he could hear the clock "tick." The same procedure was repeated as in task "A" for 10 trials or 2 successive correct trials. A response was considered correct if the actual performance level was less than 1 yard below the subject's estimated level of performance or was beyond it.

Task "D" (Stacking)

Part I (Establishing Aspiration Level): The subject was presented with 7 piles of 1¼ inch blocks. The first pile contained 5 blocks, the second 10, the third 15, and so on up to a possible maximum of 35 blocks had been reached. Each subject was asked which was the largest pile of blocks that he estimated he could stack up, one on top of the other, without them falling over. He indicated this by pointing at one of the 7 piles of blocks. The pile he selected was considered his level of aspiration. His performance level was determined in the same manner as in task "A." The criterion for successful completion was 4 correct responses out of 5.

Part II (Adjustment of Aspiration Level): After the subject's performance level had been determined he was again asked which was the largest pile of blocks he could stack up. The same procedure repeated as for Task "A," Part I. A correct response was considered his original performance level or a successful response above his original performance level. He was required to adjust his aspired level of performance to his actual level of performance on 2 successive trials out of 10

in order to meet the criterion. Instructions given for these tasks are in Appendix A.

Procedure

Four groups of subjects were selected according to their intelligence and chronological age. (Refer to Table I for mean age and intelligence quotient).

1. Group I, "Retarded Low" (RL) was composed of a sample of mentally retarded subjects at Enid State School with I.Q.'s of 34-45.
2. Group II, "Retarded High" (RH) was composed of a sample of mentally retarded subjects at Enid State School with I.Q.'s of 55-65.
3. Group III, "Normal Low" (NL) was composed of subjects attending the summer session of 1958 at Oklahoma State University with I.Q.'s of 93-110.
4. Group IV, "Normal High" (NH) was composed of subjects attending the summer session of 1958 at Oklahoma State University with I.Q.'s of 111-130.

Each group was composed of 20 subjects. None of the subjects in any of the four experimental groups had gross physical defects or other physical defects that could apparently handicap their performance on any of the tasks used in this study. The retarded groups were composed of brain injured and familial type subjects. Each of the four major intelligence groups were composed of an equal number of males and females.

Both groups of normal subjects were given the California Short-Form Test of Mental Maturity, and both retarded groups

TABLE I

MEAN I.Q. AND AGE FOR THE FOUR INTELLECTUAL GROUPS

	Low Retarded	High Retarded	Low Normal	High Normal
I.Q.	41.5	60.2	101.2	119.9
Age	32.1	29.4	25.4	24.6

were previously administered the Stanford-Binet Intelligence Scale within the last 5 years. Correlations between the Stanford-Binet Intelligence Scale and the California Short-Form of Mental Maturity have been found to be as high as .88 (1).

Subjects in each of the experimental groups were given the four tasks. The tasks used were selected in order to make rather extensive use of different sensory modalities. The four different tasks were presented in a random order to each subject.

CHAPTER IV

RESULTS

The first null-hypothesis that there would be no difference in "D" score (discrepancy between level of aspiration and performance) for the four intellectual groups tended to be substantiated. An analysis of variance using a four by two classification was utilized. An inspection of Table II reveals these F values on "D" score for the four major experimental groupings of intellectual levels for the four different tasks (Auditory, Hand Prehension, Visual, Stacking). None of these F values were significant at or beyond the .05 level of confidence.

An analysis of variance was also performed to determine if there was a sex difference in "D" score for each of the four experimental tasks. Table III demonstrates the F values for the break down of the groups for sex difference for each intellectual level on the four experimental tasks. The F values indicate that there were no significant differences among the eight different possible groupings according to intellectual level and sex difference in "D" score for the four experimental tasks.

The "D" scores were combined for the males for the four experimental groups and compared with the females' combined "D" scores. Table IV demonstrates that the F values for this comparison were not significant at the .05 level of confidence.

The two retarded groups' "D" scores were combined and

TABLE II

ANALYSIS OF VARIANCE OF "D" SCORES
FOR THE FOUR INTELLECTUAL LEVELS

Task	Source	Sums of Squares	df	Mean Square	F	P
Auditory	Between	52	3	17.33	1.89	-
	Within	699	76	9.19		
	Total	751	79			
Hand Prehension	Between	27	3	9.00	2.52	-
	Within	271	76	3.57		
	Total	298	79			
Visual	Between	6	3	2.00	.26	-
	Within	577	76	7.59		
	Total	583	79			
Stack	Between	3	3	1.00	.75	-
	Within	101	76	1.33		
	Total	104	79			

TABLE III

ANALYSIS OF VARIANCE OF "D" SCORES FOR THE EIGHT DIFFERENT GROUPINGS FOR INTELLECTUAL LEVEL AND SEX DIFFERENCE

Task	Source	Sums of Squares	df	Mean Square	F	P
Auditory	Between	72	7	10.29	1.09	-
	Within	679	72	9.43		
	Total	751	79			
Hand Prehension	Between	29	7	4.14	1.11	-
	Within	268	72	3.72		
	Total	297	79			
Visual	Between	24	7	3.43	.44	-
	Within	559	72	7.76		
	Total	583	79			
Stacking	Between	6	7	.86	.63	-
	Within	98	72	1.36		
	Total	104	79			

TABLE IV

ANALYSIS OF VARIANCE OF "D" SCORES FOR COMBINED EXPERIMENTAL GROUPS FOR MALES VS. FEMALES

Task	Source	Sums of Squares	df	Mean Square	F	P
Auditory	Between	1	1	1.00	.10	-
	Within	750	78	9.61		
	Total	751	79			
Hand Prehension	Between	6	1	6.00	1.60	-
	Within	292	78	3.74		
	Total	298	79			
Visual	Between	7	1	7.00	.95	-
	Within	576	78	7.38		
	Total	583	79			
Stack	Between	1	1	1.00	.76	-
	Within	103	78	1.32		
	Total	104	79			

compared with the two normal groups' combined "D" scores. An inspection of Table V reveals a significant F value of 4.51 which for 1 and 78 degrees of freedom (df) was significant at the .05 level of confidence. In this analysis the combined normal groups were compared with the combined retarded groups for the Auditory task. The normal subjects had the larger mean "D" score with a value of 4.40 as compared to a mean "D" score of 2.90 for the retarded subjects. (Refer to Appendix B for the means of the four experimental groups on each of the tasks).

The second hypothesis that there would be no significant differences among the four different intellectual groups in their ability to adjust their level of aspiration (LA) to their performance level was rejected for each of the experimental tasks.

In the case of the Hand Prehension task the analysis of variance of "Adjustment" scores yielded an F value of 3.56 for the four different intellectual groups. For 3 and 76 df this F value was significant at beyond the .05 level of confidence. The F value for this experimental task is presented in Table VI.

T tests were utilized to determine which intellectual groups differed significantly in mean "Adjustment" score on the Hand Prehension task. An inspection of Table VII reveals that the retarded low (RL) group differed significantly in mean adjustment score when compared with the other three groups, that is, the retarded high (RH), the normal low (NL) and the normal high (NH). These differences were all significant at the .01 level of confidence in each of the three comparisons. In each comparison the RL group had the larger mean score (refer to Appendix C).

TABLE V

ANALYSIS OF VARIANCE OF "D" SCORES FOR THE COMBINED EXPERIMENTAL GROUPS FOR NORMAL VS. RETARDED

Task	Source	Sums of Squares	df	Mean Square	F	P
Auditory	Between	41	1	41.00	4.51	.05
	Within	710	78	9.10		
	Total	751	79			
Hand Prehension	Between	12	1	12.00	3.28	-
	Within	286	78	3.66		
	Total	298	79			
Visual	Between	0	1	0.00	.00	-
	Within	583	78	7.47		
	Total	583	79			
Stack	Between	0	1	0.00	.00	-
	Within	104	78	1.33		
	Total	104	79			

TABLE VI

ANALYSIS OF VARIANCE OF "ADJUSTMENT" SCORES
FOR THE FOUR INTELLECTUAL LEVELS

Task	Source	Sums of Squares	df	Mean Square	F	P
Auditory	Between	66	3	22.00	10.43	.01
	Within	160	76	2.11		
	Total	246	79			
Hand Prehension	Between	66	3	11.00	3.56	.05
	Within	235	76	3.09		
	Total	307	79			
Visual	Between	19	3	6.33	3.31	.05
	Within	145	76	1.91		
	Total	164	79			
Stack	Between	40	3	13.33	4.63	.01
	Within	219	76	2.88		
	Total	259	79			

TABLE VII

T TESTS OF "ADJUSTMENT" SCORES FOR THE FOUR DIFFERENT INTELLECTUAL LEVELS ON THE HAND PREHENSION TASK

Groups	Mean Difference	Σ dev.^{2}	df	t
Rl-Rh	1.50	294.4	38	5.39**
Rl-Nl	2.50	204.4	38	10.87**
Rl-Nh	2.60	202.6	38	11.31**
Rh-Nl	1.00	93.6	38	6.66**
Rh-Nh	1.10	91.8	38	4.58**
Nl-Nh	.10	1.8	38	4.34**

*P<.05

**P<.01

The retarded high group had a significantly greater mean "Adjustment" score than the normal low or the normal high group on the Hand Prehension task. These differences were significant at the .01 level of confidence as is indicated in Table VII. The normal low group was also significantly higher in mean "Adjustment" score than the normal high group on this task. This difference was also significant at the .01 level of confidence.

Analysis of variance was performed on the Auditory task to determine if the four intellectual groups differed in "Adjustment" scores. Table VI reveals a significant F value of 10.43. With 3 and 76 df this F value is significant at the .01 level of confidence.

T tests were utilized to determine which intellectual groups differed significantly in mean "Adjustment" score on the Auditory task. The retarded low group had a larger mean "Adjustment" score than the other three intellectual groups. An inspection of Table VIII reveals that this difference was significant at the .01 level of confidence in all three comparisons.

The retarded high group did not differ significantly in mean "Adjustment" score from the normal low group, but did differ significantly from the normal high group on the Auditory task. This difference was significant at the .05 level of confidence. The two normal groups did not differ significantly in mean "Adjustment" score on this task.

Analysis of variance on the Visual task for the four intellectual levels yielded an F value of 3.31 as may be seen in Table VI. For 3 and 76 degrees of freedom (df) is significant

TABLE VIII

T TESTS OF "ADJUSTMENT" SCORES FOR THE FOUR DIFFERENT INTELLECTUAL LEVELS ON THE AUDITORY TASK

Groups	Mean Difference	Σdev.^{2}	df	t
Rl-Rh	2.10	232.00	38	8.75**
Rl-Nl	2.20	226.00	38	9.16**
Rl-Nh	2.20	225.10	38	9.05**
Rh-Nl	.10	10.60	38	2.00
Rh-Nh	.10	8.70	38	2.17*
Nl-Nh	.10	2.70	38	0.00

*P<.05

**P<.01

at the .05 level of confidence. Appendix C lists the mean "Adjustment" scores for the four intellectual groups for the four experimental tasks.

T tests were utilized to determine which intellectual groups differed significantly in mean "Adjustment" score on the Visual task. An inspection of Table IX reveals that the mean "Adjustment" score for the retarded low group differed significantly from the mean "Adjustment" score for the three other intellectual groups. This difference was significant at the .01 level of confidence for retarded low vs. normal low and retarded low vs. normal high groups. The difference between the means of the retarded low and retarded high groups was significant at the .05 level of confidence.

A t test revealed that the retarded high group differed significantly in mean "Adjustment" score from the normal low group and the normal high group on the Visual task. There was no significant difference in mean "Adjustment" score between the two normal groups on this task. (Refer to Table IX).

Analysis of variance of "Adjustment" scores for the Stacking task yielded an F value of 4.63 which for 3 and 76 df is significant at the .01 level of confidence as is shown in Table VI.

T tests were utilized to determine which intellectual groups differed significantly in mean "Adjustment" score on the Stacking task. An inspection of Table X reveals that the retarded low group had a significantly different mean "Adjustment" score than the other three groups. The mean difference in all

TABLE IX

T TESTS OF THE ADJUSTMENT SCORES FOR THE FOUR INTELLECTUAL LEVELS ON THE VISUAL TASK

Groups	Mean Difference	Σdev.^{2}	df	t
Rl-Rh	.60	267.00	38	2.37*
Rl-Nl	2.60	205.00	38	9.28**
Rl-Nh	2.50	202.60	38	10.87**
Rh-Nl	1.00	72.20	38	7.29**
Rh-Nh	.90	73.00	38	6.52**
Nl-Nh	.00	11.00	38	0.00

*P<.05

**P<.01

TABLE X

T TESTS OF ADJUSTMENT SCORES OF THE FOUR EXPERIMENTAL GROUPS ON THE STACKING TASK

Groups	Mean Difference	$\Sigma dev.^2$	df	t
Rl-Rh	2.40	328.80	38	11.42**
Rl-Nl	2.10	243.60	38	8.40**
Rl-Nh	2.30	239.60	38	9.20**
Rh-Nl	.70	98.40	38	2.40*
Rh-Nh	.90	94.40	38	6.00**
Nl-Nh	.20	9.20	38	.41

*P<.05

**P<.01

three cases was significant at the .01 level of confidence. In each comparison the RL group had the larger mean score as is revealed in Appendix C. The retarded high group differed significantly in mean "Adjustment" score from the normal low group and the normal high group on the Stacking task. The difference in mean "Adjustment" score was significant at the .05 level of confidence for the former and significant at the .01 level of confidence for the latter. There was no difference in mean "Adjustment" score between the normal low and the normal high groups on the Stacking task.

Analysis of variance was performed using the "Adjustment" scores of the combined retarded groups compared to the combined normal groups for each of the four experimental tasks. The F values for the Auditory, Hand Prehension, and Stacking tasks were significant at the .01 level of confidence. An inspection of Table XI reveals these significant F values for the normal vs. the retarded groups on the four experimental tasks.

An eight group analysis of variance was performed on the "Adjustment" scores for all the different groupings of sex and intellectual level for each task. Table XII indicates a significant F value for each of the four experimental tasks. The F values for each of these analyses were significant at the .01 level of confidence.

T tests of mean "Adjustment" scores were made for all the comparisons that could be made for the various sex and intellectual combinations for the four different experimental tasks. (Refer to Tables XIII-XVI).

TABLE XI

ANALYSIS OF VARIANCE OF ADJUSTMENT SCORES FOR THE COMBINED EXPERIMENTAL GROUPS FOR NORMAL VS. RETARDED

Task	Source	Sums of Squares	df	Mean Square	F	P
Auditory	Between	28	1	28.00	10.04	.01
	Within	218	78	2.79		
	Total	246	79			
Hand Prehension	Between	49	1	49.00	15.17	.01
	Within	252	78	3.23		
	Total	301	79			
Visual	Between	7	1	7.00	3.48	-
	Within	157	78	2.01		
	Total	164	79			
Stack	Between	33	1	33.00	11.38	.01
	Within	226	78	2.90		
	Total	259	79			

TABLE XII

ANALYSIS OF VARIANCE OF ADJUSTMENT SCORES FOR THE EIGHT DIFFERENT GROUPINGS FOR INTELLECTUAL LEVEL AND SEX DIFFERENCE

Task	Source	Sums of Squares	df	Mean Square	F	P
Auditory	Between	120	7	17.14	9.79	.01
	Within	126	72	1.75		
	Total	246	79			
Hand Prehension	Between	171	7	24.44	13.50	.01
	Within	130	72	1.81		
	Total	301	79			
Visual	Between	44	7	6.28	3.78	.01
	Within	120	72	1.66		
	Total	164	79			
Stack	Between	70	7	10.00	3.80	.01
	Within	189	72	2.63		
	Total	259	79			

TABLE XIII

SIGNIFICANT T TESTS OF ADJUSTMENT SCORES FOR THE DIFFERENT COMBINATIONS OF SEX AND INTELLECTUAL LEVEL ON THE AUDITORY TASK

Groups	Mean Difference	Sums of Squares	df	t
Rl(M)-Rl(F)	3.3	132.9	18	9.71**
Rl(M)-Rh(M)	3.6	141.0	18	17.02**
Rl(M)-Rl(F)	3.6	130.6	18	9.72**
Rl(M)-Nl(M)	3.8	127.4	18	10.55**
Rl(M)-Nl(F)	3.8	127.4	18	10.55**
Rl(M)-Nh(M)	3.8	127.4	18	10.55**
Rl(M)-Nh(F)	3.8	127.4	18	10.55**
Rl(F)-Rh(F)	0.3	10.5	18	2.72*
Rl(F)-Nl(F)	0.5	10.5	18	4.54*
Rl(F)-Nh(F)	0.5	10.5	18	4.43*

*P<.05

**P<.01

TABLE XIV

SIGNIFICANT T TESTS OF ADJUSTMENT SCORES FOR THE DIFFERENT COMBINATIONS OF SEX AND INTELLECTUAL LEVEL ON THE VISUAL TASK

Groups	Mean Difference	Sums of Square	df	t
Rl(M)-Rl(F)	2.2	122.6	18	4.03**
Rl(M)-Rh(M)	2.1	102.9	18	4.56**
Rl(M)-Rh(F)	2.3	100.1	18	5.00**
Rl(M)-Nl(M)	2.2	102.6	18	4.58**
Rl(M)-Nl(F)	2.3	101.1	18	5.55**
Rl(M)-Nh(M)	2.4	101.1	18	2.18*
Rl(M)-Nh(F)	2.1	102.9	18	4.57**
Rh(M)-Nl(F)	0.2	6.9	18	2.54*
Rh(M)-Nh(M)	0.3	6.9	18	3.33**
Nh(M)-Nh(F)	0.3	6.9	18	2.50*

*P<.05

**P<.01

TABLE XV

SIGNIFICANT T TESTS OF ADJUSTMENT SCORES FOR THE DIFFERENT COMBINATIONS OF SEX AND INTELLECTUAL LEVEL ON THE HAND PREHENSION TASK

Groups	Mean Difference	Sums of Squares	df	t
Rl(M)-Rl(F)	2.2	160.0	18	5.64**
Rl(M)-Rh(M)	2.5	152.1	18	6.09**
Rl(M)-Rh(F)	2.3	163.3	18	5.47**
Rl(M)-Nl(M)	2.1	130.4	18	5.82**
Rl(M)-Nl(F)	3.4	128.4	18	8.09**
Rl(M)-Nh(M)	3.4	128.4	18	8.09**
Rl(M)-Nh(F)	3.4	128.4	18	8.09**
Rh(M)-Nl(M)	0.6	25.4	18	3.75**
Rh(M)-Nl(F)	0.9	23.7	18	6.00**
Rh(M)-Nh(M)	0.9	23.7	18	6.00**
Rh(M)-Nh(F)	0.9	23.7	18	6.00**
Rl(F)-Nl(F)	1.2	31.6	18	6.66**
Rl(F)-Nh(F)	1.1	34.7	18	6.11**
Rh(F)-Nl(F)	1.1	34.9	18	6.11**
Rh(F)-Nh(F)	1.1	34.9	18	6.11**

*P<.05

**P<.01

TABLE XVI

SIGNIFICANT T TESTS OF ADJUSTMENT SCORES FOR THE DIFFERENT COMBINATIONS OF SEX AND INTELLECTUAL LEVEL ON THE STACKING TASK

Groups	Mean Difference	Sums of Squares	df	t
Rl(M)-Rl(F)	2.4	105.0	18	7.05**
Rl(M)-Rh(M)	1.6	135.4	18	7.52**
Rl(M)-Rl(F)	2.2	95.8	18	6.87**
Rl(M)-Nl(M)	2.8	85.3	18	12.17**
Rl(M)-Nl(F)	2.7	87.0	18	9.31**
Rl(M)-Nh(M)	3.0	83.8	18	14.34**
Rl(M)-Nh(F)	2.9	84.5	18	13.81**
Rh(M)-Rh(F)	0.6	65.4	18	2.30*
Rh(M)-Nl(M)	1.1	54.9	18	4.16**
Rh(M)-Nl(F)	1.2	56.6	18	5.00**
Rh(M)-Nh(M)	1.4	53.4	18	5.18**
Rh(M)-Nh(F)	1.3	54.1	18	5.41**
Nl(M)-Nl(F)	0.6	65.4	18	2.22*
Nl(M)-Nh(M)	1.1	54.9	18	4.58**
Nl(M)-Nh(F)	1.2	56.6	18	5.00**
Rl(F)-Nh(F)	0.5	23.7	18	3.33**
Rh(F)-Nl(F)	0.4	17.0	18	3.33**
Rh(F)-Nh(F)	0.7	14.5	18	7.77**

*P<.05

**P<.01

The retarded low males had a larger mean "Adjustment" score than all the other groups of the males and females for the other three intellectual levels on each of the four experimental tasks. In each of these comparisons the difference in means as revealed by t test was significant. Tables XIII-XVI demonstrate these differences.

Table XVII demonstrates the F values for the combined males vs. the combined females on "Adjustment" score for each of the four experimental tasks. With 1 and 78 df an F value of 4.71 for the Auditory task was significant at the .05 level of confidence. The F values for males vs. females on the other three tasks were not significant.

TABLE XVII

ANALYSIS OF VARIANCE OF ADJUSTMENT SCORES FOR COMBINED EXPERIMENTAL GROUPS FOR MALES VS. FEMALES

Task	Source	Sums of Squares	df	Mean Square	F	P
Auditory	Between	14	1	14.00	4.71	.05
	Within	232	78	2.97		
	Total	246	79			
Hand Prehension	Between	6	1	6.00	1.59	-
	Within	295	78	3.78		
	Total	301	79			
Visual	Between	6	1	6.00	2.96	-
	Within	158	78	2.03		
	Total	164	79			
Stack	Between	12	1	12.00	3.79	-
	Within	247	78	3.17		
	Total	259	79			

CHAPTER V

DISCUSSION

The results of this experiment suggest that level of intelligence is not significantly related to "D" score, that is, discrepancy between level of aspiration and level of actual performance.

Previous results (23, 24, 30) tend to indicate that the level of aspiration for physically handicapped individuals tends to be more conservative than that for normals. These studies conclude that physically handicapped persons tend, in general, to be more "realistic" in estimating their performance. The results of the present study suggest that mentally retarded persons and normal persons of varying intellectual levels are alike in their accuracy in estimating their "actual" level of performance. From the present findings it may be inferred that mentally retarded persons do not perceive their defects in the same manner as physically handicapped persons.

The results of the present study, though similar, do not entirely substantiate the study by Shaw and Bensberg (26) in which they found that severely retarded subjects tend to have larger "D" scores than less severely retarded subjects. The writer also concluded that the severely retarded subjects had larger discrepancies in general than did the less severely

retarded; however, when the mean "D" scores of the two retarded groups were combined it was found that their combined "D" score was less than the combined "D" score for the normal groups. This difference was significant at the .05 level on the Auditory task. The Shaw and Bensberg study would tend to predict that the combined retarded scores would be higher than the combined normal scores.

When the four intellectual groups were analyzed to determine if there was any difference in their ability to adjust their LA to their "actual" performance level it was found that the retarded low group was less proficient in making this "Adjustment." They required a significantly greater number of trials in their attempt to adjust their LA to their actual level of performance than any of the other three different intellectual levels. In general, the retarded high group was less apt in making this "Adjustment" than the two normal groups.

The demonstration in this experiment that retarded individuals have more difficulty in adjusting their LA to actual performance tends to substantiate Lewin's theory of "tension systems." Lewin's theory (19) considers the boundaries between tension systems of mentally retarded individuals to be firmer than that for normal individuals. Lewin suggests that mentally retarded individuals are less likely to substitute a task once started than normal persons. The results of the present study also indicate that the mentally retarded persons have more difficulty in adjusting their aspiration level or possibly in reducing their amount of internal tension once they have become in-

volved in a task.

Significant sex differences were also found in this investigation. The males, when all groups were combined, had a significantly greater mean "Adjustment" score than did the females on the Auditory task. The males also had a larger mean "Adjustment" score on the three other experimental tasks, but these differences were not significant.

The sex difference may be, to some extent, due to cultural learning. In our society males, to a greater extent than females, are taught not "to-give-up" easily but to continue striving for their goal. If we interprete the results in terms of Lewin's theory of "tension systems" we find some evidence here of learning, perhaps, affecting the rigidity of these "tension systems" in that the retarded males have less permeable systems than do females of a comparable intellectual level.

CHAPTER VI

SUMMARY AND CONCLUSIONS

This study was undertaken to investigate the relationship between "D" score (discrepancy between level of aspiration and level of actual performance) and intellectual level for two groups of mentally retarded subjects with different intellectual levels and two groups of normal subjects with different intellectual levels.

The four intellectual groups were also compared to determine if there were any differences in ability to adjust their level of aspiration (LA) to their performance level.

The subjects were presented with four experimental tasks. The subjects were then required to indicate their LA for each of these tasks. Actual performance was then compared with their aspired level of performance which resulted in a "Difference" ("D") score. Following the determination of their "D" score each subject's ability to adjust his aspired level of performance to his actual level of performance was determined.

The following conclusions were drawn by the writer:

1. Mentally retarded and normal individuals do not differ significantly in discrepancy between level of aspiration and performance ("D" score).
2. Mentally retarded subjects, especially at the lower I.Q. levels of 45-55, appear to have more difficulty in adjusting

their LA to their actual performance level than do retarded subjects with an I.Q. range of 65-75. In the higher intellectual levels this "Adjustment" appears to be less difficult.

3. Mentally retarded males required a significantly greater number of trials to adjust their LA to their actual performance level than do mentally retarded females.

4. Males, in general, tend to require more trials to adjust their LA to their actual performance level than do females.

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APPENDIX A

INSTRUCTIONS

Task "A": "Here are some piles of blocks. Which pile is the largest pile of blocks that you think you could pick up with one hand? (Have them point). Go ahead and try to pick up that pile. (After the attempt the Experimenter, E, goes to the next pile, above or below, and says), Try to pick up this pile. (E continues until the subject's performance level is determined). (E then asks), Which pile of blocks do you think you can pick up? (This continues for ten trials or three successive correct trials).

Task "B": "See these cards, please name them for me. (Subject names cards). Tell me what is the greatest distance I can back up from you and you can see the cards well enough to name them all correctly. I will back up and you tell me where to stop when you think you can name all the cards correctly. (E starts backing up and says), Tell me to stop when you can still see the cards well enough to name them all correctly. (After the S's first attempt E goes to the next yard mark, above or below, and says), Lets try them here. (E continues until performance level is determined, then E asks), "What is the greatest distance I can back up and you can still name all the cards correctly? (This continues for ten trials or two successive correct trials).

Task "C": "This is a clock with the back removed so I can start or stop it (demonstrate). Tell me how far I can back

up and you can still tell if the clock is 'ticking' or not 'ticking.' (Then E starts backing up and states), Tell me to stop when you think you could tell when the clock is 'ticking' or not 'ticking.' (E asks on each trial), Is it 'ticking?' (After performance E goes to the next yard mark, above or below, and says), Lets try it here. (E continues until performance level is determined, then E asks), How far can I back up and you can still hear the clock? (This continues for ten trials or two successive correct trials).

Task "D": "Here are some piles of blocks. Which pile of blocks is the most that you think you could stack up one on top of the other without the blocks falling over? Point to them. (After the subject points, E states), All right pick them up. (After the subject attempts to stack a pile of blocks E goes to the next pile, above or below, and asks), Do you think you can stack up this pile? Go ahead and try to stack this one up. (E continues until performance level is determined, then E asks), Which pile of blocks do you think you can stack up? (This is continued for ten trials or two successive correct trials).

(After the experiment has been completed E asks the subjects), "Please do not tell other individuals who are going to take the test about the tasks. If they find out about the tasks they may practice them."

APPENDIX B

MEANS OF THE FOUR INTELLECTUAL LEVELS IN "D" SCORES

Group	Hand[x]	Stack[x]	Vision*	Audition*
Rl	1.7	1.3	3.2	3.0
Rh	2.6	1.2	3.8	2.7
Nl	3.4	1.0	2.3	3.8
Nh	2.5	1.5	3.7	4.9

[x]units of measurement in yards

*units of measurement in blocks

APPENDIX C

MEANS OF THE FOUR INTELLECTUAL LEVELS IN ADJUSTMENT SCORES*

Groups	Hand	Stack	Vision	Audition
Rl	4.6	4.5	3.8	4.3
Rh	3.1	3.1	3.2	2.2
Nl	2.1	2.4	2.2	2.1
Nh	2.0	2.2	2.2	2.1

*Units of measurement in number of trials to match LA to performance on two successive trials or a total of 10 trials.

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