

THE BEHAVIOR OF FRUSTRATED COLLEGE FRESHMEN

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CHAPTER I
INTRODUCTION

Failure, one cause of frustration, is such a universal aspect of experience and occupies such an important place in the lives of individuals that it is surprising to find so limited an amount of experimental work being done in that area. Only two studies, in fact, recorded in psychological literature are directly related to the problem of applying experimental methods to the study of failure.

Similar Investigations: In a symposium held at the annual meeting of the American Psychological Association ^{1/} some of the broader aspects of the phenomena of frustration were discussed. The symposium presented frustration as an experimental problem. The panel members repeatedly emphasized the importance of frustration in personality development. And although the experiments reported had been carried on in the animal laboratory, they did offer implications of the frustration concept as related to social and educational problems.

In the experiment "A Study of Children's Reaction to Failure and an Experimental Attempt to Modify Them" by Keister and Updegraff, the authors (1) devised tests "by means of which one may discover what responses a child of preschool age gives when faced with failure; (2) selected a group of children evidencing undesirable modes of responses; and (3) attempted to modify, by special help or individual training the responses of children in this group."^{2/}

^{1/} Saul Rosenzweig, "Frustration as an Experimental Problem," Character and Personality, Durham, N. C., The Duke University Press, vol. VIII., Dec. 1938, No. 2.

^{2/} Mary E. Keister and Ruth Updegraff, "A Study of Children's Reaction to Failure and an Experimental Attempt to Modify Them," Child Development, vol. 8, No. 3, Sept. 1937, p. 241.

It is not only in childhood that each individual is constantly confronted with baffling situations. There seem to be some stages of growth which tax one's adjustability to the utmost. One such crisis in adjustment is at the college freshman level. For many students, habituated in poor modes of response for times of stress, the total pressure of college adjustments almost inevitably results in both social and academic failure. Keister and Updegraff state that a person's characteristic response as "he attempts to meet failure is related not only to his emotional adjustment but also to his ability to learn and profit by experience."^{3/} This point of view offers a very challenging question in regard to frustration at the college level.

Statement of Problem: The statement may well be phrased in the form of a question which would become the basis for an experimental problem. The question can be stated as follows: Is a person's characteristic response in a failure situation related to his emotional adjustment and his social and academic achievement? The experiment to be reported seeks to answer this question.

^{3/} Ibid., p. 241.

CHAPTER II

METHOD

Before such a question could be answered, it was necessary to devise a failure situation in which an individual's responses could be objectively recorded and analyzed. Among the criteria for such a problem situation were the following:

1. The problem should be solvable; yet success should be so highly improbable that only chance would enable the person to succeed in the allotted time.

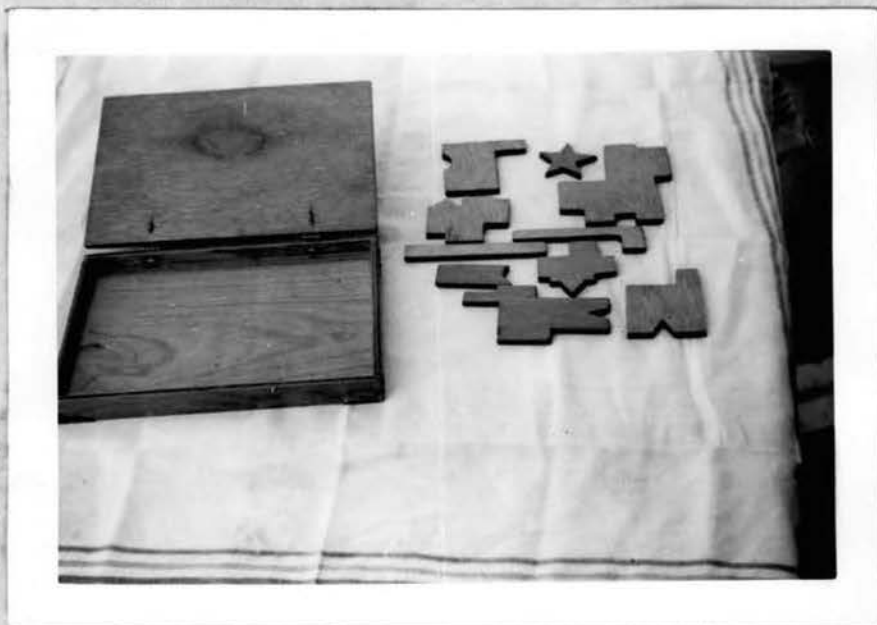
2. The problem and the conditions attending it should be sufficiently stimulating to challenge the best efforts of the observer.

3. The observer should be able to see for himself that he has failed and be able to draw his own conclusions as to whether the limitations were in the situation or in himself.

These criteria are well met by a modified form of jigsaw puzzle. It has the following added advantages: it seems to hold almost universal appeal; the element of control is in the material rather than in the examiner; and it necessitates much in the way of physical responses.

The final puzzle is a result of much experimentation with possible puzzles. It consists of a wooden box, 7"x10"x1½", with hinged lid. The box contains ten odd-shaped plywood pieces. The pieces were cut from different pieces of plywood. Care was taken to avoid clues which might arise from the similarity of the grain in any two pieces. Superfluous notches were cut in some of the pieces. While most of the pieces have to fit together, as in a jigsaw, there are open spaces around other

pieces. Some of the subjects aptly described the puzzle by saying:
"There wasn't a clue for working the puzzle in the whole box."



Procedure Used in Giving the Test: The closed puzzle box was held in the examiner's hand until the introductory remarks were made. The box was opened in such a way that the observer could see that the pieces were in the box but could not see the order of arrangement. The real object of the test was withheld from the observer.

Examiner: This puzzle box which I am about to give to you has been designed to analyze the factors involved in one's ability to see space relationships.

Contents of box are emptied before the observer.

Examiner: You will have twenty minutes in which to fit these pieces back into this box. It is not a jigsaw puzzle. You are to find a place for each piece on the bottom of the box. All pieces fit into the space with sufficient room without forcing. I will tell you when to begin.

Begin.

(5th min.) There is a way in which they will all fit in.

(15th min.) Don't let your failures bother you. Some students try for a long time—then suddenly succeed.

(20th min.) Most students finish this puzzle in twenty minutes, but you can have an extra ten minutes if you need it.

(25th min.) That really is simple. I don't believe you are trying very hard.

(30th min.) Time is up.

Each test was administered individually by the examiner. The observer was seated several feet away from the examiner at a slightly lower table. The arrangement of the environment as described enabled the examiner to observe responses accurately and to record them unobtrusively. Only three of the total group of observers were not sufficiently challenged by the problem to undertake it with vigor and interest.

Method of Recording Behavior: The method of recording behavior consisted of using an observation sheet blocked off horizontally in seconds. Listed to the left of the sheet were the following types of behavior: attempts to solve alone; concentrates on problem; no overt attempt yet; unorganized; trial and error method; discrimination in choice of pieces; succeeds; asks help; asks another to solve; rationalizes; indifference; distaste; postponement; shift of responsibility; blame; destructive behavior; stops trying. To the extreme right and parallel to the above types was a space for a description of behavior. At the bottom of the sheet was a space for a running account of verbalizations. (See Appendix.)

Each observer, upon finishing with the puzzle box, was asked to answer several questions which gave an indication of his reaction to the puzzle. The following questions appeared on a dittoed form: (1) To what cause do you attribute your failure on this test? (2) Do you believe that you could succeed if you had another opportunity at a later time? (3) What feelings were aroused in you as you worked at this test? (4) Can you recall other times when you had similar feelings? (5) Do you enjoy jigsaw puzzles? (6) Of what campus organizations are you a member? (7) What positions do you hold? (See Appendix.)

Subjects: The subjects in this study consisted of thirty-three men and thirty-seven women, all of whom were freshmen enrolled in the fall semester of 1940-41 in the School of Arts and Sciences at Oklahoma Agricultural and Mechanical College. The second semester, two of these students had changed to the School of Agriculture and four to the School of Commerce. Students in the School of Arts and Sciences were chosen

because they seemed to offer the greatest diversity of interests and abilities within any one school.

Sampling: A random sampling was made using the alphabetical list of students enrolled for the fall semester. Appointments were made by telephone with one-third of the students from each page of listed names. Sex was the only factor considered in choice in order that there would be an approximately equal number of men and women.

SOURCES OF ERROR

Constant Sources of Error: The most probable source of error might arise from the fact that the experiment is based on the assumption that a subject's reaction to the problem situation as previously outlined would be his characteristic reaction when faced with other baffling problems. Sixty out of the seventy subjects identified or at least recognized feelings aroused in the experimental situation as the same feelings they experienced at other times when faced with failure. The following quotations are from the students' responses to the question, "Can you recall other times when you had similar feelings?": "At examination time when I can't recall the correct answer." "Finals in particular." "Mathematics problems." "Making model aeroplanes." "When I try to understand something and can't." "If I fail something under pressure of time, such as tests or other puzzles."

Another probable source of error lies in the sampling technique used. It has been assumed that the sample tested was representative of the entire group. Of the eighty appointments made, four men and six women failed to appear to take the test. Their failure to appear may have been indicative of their usual response toward responsibilities

or new situations. This would weight test results in favor of those who can meet new situations.

Variable Sources of Error: The examiner's private office, where most of the tests were given, provided a controlled environment in which the observers could work without distraction. However, it was necessary to give some of the tests in the dormitories where there were a few interruptions.

Unusual events immediately before or after the test unduly influenced some of the subjects' response to the test. For example: One subject was reluctant to come. When she finally did arrive, holding a letter in her hand, she was too emotionally upset to give the test her best efforts. When asked to give a reason for her failure, she said: "I was trying to forget the letter so I could concentrate on the puzzle." Another subject fidgeted nervously, then said: "I almost didn't come. I have a test next hour and I have put off studying for it." One man was too miserable with a "hang-over" to care about any puzzle.

Criteria for Determining Maturity: In order to evaluate the results of the puzzle test, it was necessary to differentiate between those subjects giving undesirable or immature responses and those responding more desirably. Criteria were established in terms of behavior in the test situation.

Emotional maturity is defined as the ability to attack a difficult problem, to try one possibility after another in an attempt to reach a solution. Observers were judged to have given a mature response if their behavior met the following qualifications:

- (1) Calm deliberation in choice of pieces—obviously choosing

pieces which bore a close relationship to the background space.

(2) Periods of concentration unbroken except by the examiner's remarks.

(3) Began over again and again in face of failure.

(4) Maintained an optimistic, cheerful attitude; poised.

(5) Had determination to stick with the problem until it was solved.

(6) Stopped working because he had exhausted the possible clues and had reached the conclusion that success depended entirely on chance.

Immaturity is defined as the inability to undertake a difficult problem with poise and independence. Observers were judged to have given an immature or inadequate response if their behavior met the following qualifications:

(1) Stopped trying to solve the problem in less than the time allotted, except as in (6) under mature response.

(2) Requested help from the examiner, such as:

"Does the grain of the wood mean any thing?" "Is there a certain side this opens on?" "Here, how does it go?"

(3) Manifested destructive behavior, such as forcing the pieces into place.

(4) Made two or more rationalizations, such as:

"I guess I'm no mechanic." "I never was any good at this." "I'd just as soon quit; I'm tired. I've been washing and ironing."

(5) Evidenced exaggerated emotional responses such as swearing or sulking, or evidences of anger, as:

"I'm not discouraged. I'm disgusted!" "I'll be darned!" "It makes me furious." "I'm getting mad." "I feel like crying."

CHAPTER III

RESULTS

Subjects' responses were analyzed on the basis of the criteria set up in Chapter II of this study. The result was that twenty-one women and twenty men were judged to have made adequate responses. Seventeen women and twelve men were judged to have made inadequate responses in the experimental situation.

After a distinction had been made between those students who made adequate or inadequate responses on the test, the next problem was to see how those responses were related to the subjects' emotional and social adjustment and their academic achievement.

Two measures of emotional adjustment were available for comparison with the observer's reaction to failure. One was the scores on the Bell Adjustment Inventory which indicated the student's relative home, health, social, and emotional adjustment. The other was a subjective analysis of feelings aroused in the observer by the puzzle test.

Table I

Data gathered by means of the puzzle test and the Bell Adjustment Inventory.

(N_1 = 41 emotionally mature observers; N_2 = 29 emotionally immature observers as judged on the puzzle test.)

(Men who made desirable responses to the puzzle test)

Table I

 $N_1 = 41$

(Women who made desirable responses to the puzzle test)

Cases	Bell Adjustment Inventory					Cases	Bell Adjustment Inventory				
	Home	Health	Social	Emotions	Total		Home	Health	Social	Emotions	Total
A 1	13	2	18	19	52	C 1	5	7	5	10	27
A 2	6	3	7	2	18	C 2	9	14	8	14	45
A 3	5	12	9	21	47	C 3	1	7	14	14	36
A 4	4	2	0	2	8	C 4	7	4	7	8	26
A 5	16	9	5	12	42	C 5	7	18	4	8	37
A 6	6	7	6	8	27	C 6	8	17	19	23	67
A 7	1	10	9	9	29	C 7	7	1	7	8	23
A 8	4	12	12	3	31	C 8	1	6	21	5	33
A 9	6	8	3	16	33	C 9	13	7	8	10	38
A 10	5	6	2	10	23	C 10	5	11	13	24	53
A 11	9	14	10	4	37	C 11	8	9	7	17	41
A 12	5	14	18	15	52	C 12	10	7	6	19	42
A 13	15	9	1	7	32	C 13	2	6	9	6	23
A 14	13	5	6	4	28	C 14	2	17	3	9	31
A 15	9	9	15	7	40	C 15	1	3	8	4	16
A 16	2	3	4	2	61	C 16	16	6	6	14	42
A 17	11	2	27	11	51	C 17	9	5	13	16	43
A 18	10	5	6	7	28	C 18	0	9	5	6	20
A 19	7	11	8	7	33	C 19	10	2	3	22	37
A 20	6	6	2	4	18	C 20	1	7	9	6	23
A 21	8	5	5	10	28						
Totals	161	154	173	180	668		112	163	175	243	693
Averages	7.66	7.33	8.23	8.57	31.8		5.6	8.15	8.75	12.15	34.65

Table 1 (continued)

(Men who made undesirable responses to the puzzle test)

 $N_2 = 29$

(Women who made undesirable responses to the puzzle test)

Cases	Bell Adjustment Inventory					Cases	Bell Adjustment Inventory				
	Home	Health	Social	Emotions	Total		Home	Health	Social	Emotions	Total
B 1	2	3	6	1	12	D 1	12	14	26	26	78
B 2	2	5	6	3	16	D 2	4	6	10	9	29
B 3	0	6	5	2	13	D 3	15	8	15	22	60
B 4	23	17	20	27	87	D 4	6	6	4	0	16
B 5	2	6	7	21	36	D 5	3	6	17	8	34
B 6	14	10	6	14	44	D 6	2	7	17	4	30
B 7	23	13	12	18	66	D 7	14	14	15	10	53
B 8	22	12	12	17	63	D 8	0	9	10	17	36
B 9	1	5	8	9	23	D 9	3	5	17	17	42
B 10	4	18	19	9	50	D 10	7	6	17	11	41
B 11	4	8	10	11	33	D 11	1	4	11	6	22
B 12	4	4	1	3	12	D 12	7	5	12	8	32
						D 13	1	3	6	0	10
						D 14	9	12	12	19	52
						D 15	4	8	12	10	34
						D 16	6	13	24	24	67
						D 17	7	9	13	22	51
als	101	107	112	135	455		101	135	238	213	687
verages	8.41	8.83	9.33	11.25	37.91		5.94	7.94	14	12.52	40.41

The men and women who gave mature responses on the puzzle test also showed better emotional adjustment on the Bell Adjustment Inventory as indicated by the following scores: mature women: 5.6, home adjustment; 8.15, health; 8.75, social; 12.15, emotional; 34.65 total; immature women: 5.941, home; 7.941, health; 14, social; 12.5288, emotional; 40.235 total; mature men: 7.6666, home; 7.3333, health; 8.2381, social; 8.5714, emotional; 31.804, total; immature men: 8.416, home; 8.8333, health; 9.33, social; 11.25, emotional; 37.91 total. The differences between the combined scores of mature men and women and the combined scores of the immature groups are as follows: .5397 points on home adjustment; .6455 points on health adjustment; 3.151 points on social adjustment; and 1.5287 points on emotional adjustment. The difference on total score was 5.8435 points in favor of those students who had been judged to be more mature on the puzzle test.

In order to determine whether or not such differences as are present are statistically significant, the chi square (χ^2) method of small sample analysis was applied.^{1/} In all parts of Tables II and III for both men and women, the hypothesis is that distributions A_1 (mature) and A_2 (immature) are the same.^{2/}

^{1/} E. F. Lindquist, Statistical Analysis in Educational Research, Houghton-Mifflin Co., New York, 1940, p. 15.

^{2/} Ibid., p. 37.

TABLE II₁

Data from which the chi square (χ^2) for women's home adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
21-35					
18-20					
15-17	1	1	2	.500	.500
12-14	1	2	3	.333	.333
9-11	4	1	5	.800	3.200
6-8	5	5	10	.500	2.500
3-5	2	4	6	.333	.667
0-2	7	4	11	.636	4.452
	20	17	37		11.652

$$P = .541$$

$$Q = .459$$

$$1/PQ = 4.027$$

$$\chi^2 = 4.027 (11.652 - 10.820)$$

$$\chi^2 = 3.3505$$

$$p = 80\%$$

The obtained χ^2 of 3.3505, when interpreted on the table of probability, ^{3/} indicates that in eighty percent of subsequent samples the same differences would be found. The hypothesis is probably true; at least, it has not been disproved.

^{3/} Ibid., p. 37.

TABLE II
2

Data from which the chi square (χ^2) for women's health adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A, P
21-35					
18-20	1		1	1.000	1.000
15-17	2		2	1.000	2.000
12-14	1	4	5	.200	.200
9-11	3	2	5	.600	1.800
6-8	8	7	15	.533	4.264
3-5	3	4	7	.429	1.287
0-2	2		2	1.000	2.000
	20	17	37		12.551

$$P = .541$$

$$Q = .459$$

$$1/PQ = 4.027$$

$$\chi^2 = 4.027 (12.551 - 10.820)$$

$$\chi^2 = 6.9707$$

$$\rho = .50$$

When interpreted on the table of probability a χ^2 value of 6.9707 indicates that in only fifty percent of subsequent samples the same differences would be found. The hypothesis has an equal chance of being true or false.

TABLE II

3

Data from which the chi square (χ^2) for women's social adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A, P
21-35	1	2	3	.333	.333
18-20	1		1	1.000	1.000
15-17		6	6	.000	.000
12-14	3	4	7	.429	1.287
9-11	2	3	5	.400	.800
6-8	8	1	9	.889	7.112
3-5	5	1	6	.833	4.065
0-2					
	20	17	37		14.597

$$P = .541$$

$$Q = .459$$

$$1/PQ = 4.027$$

$$\chi^2 = 4.027 (14.597 - 10.820)$$

$$\chi^2 = 15.2099$$

$$p = .02 - .05$$

A χ^2 of 15.2099, when interpreted on the table of probability, indicates that in from two to five percent of subsequent samples these differences would be found. In other words, if the hypothesis were true a divergence as far from expectation as the sample we have could be expected only two to five times in a hundred. Therefore, it must be concluded either that the hypothesis is true and that we have a very improbable sample, or that the hypothesis is false and we have a truly random sample. The latter is the more tenable.

TABLE II
4

Data from which the Chi square (χ^2) for women's emotional adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
21-35	3	4	7	.429	1.287
18-20	1	1	2	.500	.500
15-17	2	2	4	.500	1.000
12-14	3	0	3	1.000	3.000
9-11	3	4	7	.429	1.287
6-8	6	3	9	.667	4.002
3-5	2	1	3	.667	1.334
0-2	0	2	2	.000	.000
	20	17	37		12.410

$$P = .541$$

$$Q = .459$$

$$1/PQ = 4.027$$

$$\chi^2 = 4.027 (12.410 - 10.820)$$

$$\chi^2 = 6.4029$$

$$p = .50$$

When interpreted on the probability table, the χ^2 of 6.4029 indicates that in only fifty percent of subsequent samples the same differences would be found. The hypothesis has an equal chance of being true or false.

TABLE II
5

Data from which the chi square (χ^2) for women's total adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
50-90	2	6	8	.250	.500
45-49	1		1	1.000	1.000
40-44	4	2	6	.667	2.668
35-39	4	1	5	.800	3.200
30-34	2	4	6	.333	.666
25-29	2	1	3	.667	1.334
20-24	4	1	5	.800	3.200
15-19	1	1	2	.500	.500
10-14		1	1	.000	
5-9					
0-4					
	20	17	37		13.068

$$P = .541$$

$$Q = .459$$

$$1/PQ = 4.027$$

$$\chi^2 = 4.027 (13.068 - 10.820)$$

$$\chi^2 = 9.0527$$

$$P = .50$$

A χ^2 of 9.0527, when interpreted on the probability table, indicates that in only fifty percent of subsequent samples the same differences would be found. The hypothesis has an equal chance of being true or false.

TABLE III
1

Data from which the chi square (χ^2) for men's home adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
21-35		3	3		
18-20					
15-17	2		2	1.000	2.000
12-14	2	1	3	.667	1.334
9-11	4		4	1.000	4.000
6-8	6		6	1.000	6.000
3-5	5	3	8	.625	3.125
0-2	2	5	7	.286	.572
	21	12	33		17.031

$$P = .636$$

$$\chi^2 = 4.3196 (17.031 - 13.356)$$

$$Q = .364$$

$$\chi^2 = 15.8745$$

$$1/PQ = 4.3196$$

$$P = .02 - .05$$

When interpreted on the table of probability, the χ^2 indicates that in from two to five percent of subsequent samples these differences would be found. That is, if the hypothesis were true a divergence as far from expectation as sample we have could be expected only two to five times in a hundred. Therefore, it must be concluded either that the hypothesis is true and that we have a very improbable sample or that the hypothesis is false and we have a truly random sample. The more reasonable conclusion is the latter.

TABLE III
2

Data from which the chi square (χ^2) for men's health adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
21-35					
18-20		1	1		
15-17		1	1		
12-14	4	2	6	.667	2.668
9-11	5	1	6	.833	4.165
6-8	4	3	7	.571	2.284
3-5	5	4	9	.556	2.780
0-2	3		3	1.000	3.000
	21	12	33		14.897

$$P = .636$$

$$\chi^2 = 4.3196 (14.897 - 13.356)$$

$$Q = .364$$

$$\chi^2 = 6.6565$$

$$1/PQ = 4.3196$$

$$\rho = .30 - .50$$

A χ^2 of 6.6565 when interpreted on the table of probability indicates that in thirty to fifty percent of subsequent samples the same differences would be found. This proportion does not unquestionably establish that the hypothesis is true; neither does it prove it to be false. The support of the hypothesis, however, is great enough to be considered significant.

TABLE III
3

Data from which the chi square (χ^2) for men's social adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
21-35	1		1	1.000	1.000
18-20	2	2	4	.500	1.000
15-17	1		1	1.000	1.000
12-14	1	2	3	.333	.333
9-11	3	1	4	.750	2.250
6-8	5	5	10	.500	2.250
3-5	4	1	5	.800	3.200
0-2	4	1	5	.800	3.200
	21	12	33		14.483

$$P = .636$$

$$Q = .364$$

$$1/PQ = 4.3196$$

$$\chi^2 = 4.3196 (14.483 - 13.356)$$

$$\chi^2 = 4.8682$$

$$p = .70$$

When interpreted on the table of probability, a χ^2 of 4.8682 indicates that in seventy percent of subsequent samples the same difference would be found. The hypothesis is undoubtedly true.

TABLE III

4

Data from which the chi square (χ^2) for men's emotional adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
21-35	1	2	3	.333	.333
18-20	1	1	2	.500	.500
15-17	2	1	3	.667	1.334
12-14	1	1	2	.500	.500
9-11	4	3	7	.571	2.284
6-8	5		5	1.000	5.000
3-5	4	2	6	.667	2.668
0-2	3	2	5	.600	1.800
	<hr/> 21	<hr/> 12	<hr/> 33	<hr/>	<hr/> 14.419

$$P = .636$$

$$\chi^2 = 4.3196 (14.419 - 13.356)$$

$$Q = .364$$

$$\chi^2 = 4.5917$$

$$1/PQ = 4.3196$$

$$P = .70$$

A χ^2 of 4.5917, when interpreted on the table of probability, indicates that in seventy percent of subsequent samples the same difference would be found. As in Table III, the hypothesis is probably true.

3

TABLE III

5

Data from which the chi square χ^2 for men's total adjustment on the Bell Adjustment Inventory was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
50-90	3	4	7	.429	1.287
45-49	1		1	1.000	1.000
40-44	2	1	3	.667	1.334
35-39	1	1	2	.500	.500
30-34	4	1	5	.800	3.200
25-29	5		5	1.000	5.000
20-24	1	1	2	.500	.500
15-19	2	1	3	.667	1.334
10-14	1	3	4	.250	.250
5-9	1		1	1.000	1.000
0-4					
	21	12	33		15.405

$$P = .636$$

$$Q = .364$$

$$1/PQ = 4.3196$$

$$\chi^2 = 4.3196 (15.405 - 13.356)$$

$$\chi^2 = 8.8509$$

$$P = .50 - .70$$

When interpreted on the table of probability, a χ^2 of 8.8509 indicates that in fifty to seventy percent of subsequent samples the same difference would be found. The hypothesis is probably true.

The second measure for emotional adjustment was the students' subjective analysis of feelings aroused by the experiment. In this analysis, nineteen or forty-six percent of those had had made a mature response on the puzzle test described their feelings in terms of: "interest;" "enjoyment;" "challenge;" "amusement;" and "curiosity." Only seven, or twenty-four percent of the group who had made immature responses on the puzzle test also indicated similar feelings.

The feelings: "disgust," "anger," "frustration," "impatience," "boredom," "uncertainty," and "discouragement" were described by subjects from both the mature and immature groups, as judged by their responses on the puzzle test. The difference in the mature and immature groups as differentiated by the puzzle test can also be observed by noting that a greater proportion of immature subjects indicated the feelings just listed. Another significant variation disclosed was that the mature students analyzed their feelings with finer gradations, such as: "interest, boredom, discouragement, disgust;" "anticipation, hope, uncertainty, discouragement, fear;" "amused, puzzled, desperate." Of the immature group, only one subject listed more than two gradations of feeling. They were: "disappointment, disgust, and peevishness."

An explanation for this difference might be found in the differences in the intelligence between the two groups. (See Tables VI₁ and VI₂.) It is to be expected that the more intelligent subjects would be more analytical and more likely to have vocabularies adequate to describe gradations of feeling. Another explanation may be found in the subjects' emotional adjustment. The more mature subjects may have felt more objective in making the self-analysis as well as less inhibited in putting their reactions down on paper.

The responses to the question: "To what cause do you attribute your failure on this test?" further substantiates the differentiation between maturity and immaturity as judged by the puzzle test. The observers in the mature group were able to accept their own limitations. "I just didn't get it together" or "I don't know" were characteristic answers. Several observers said they "lacked foresight," "tired too easily," "dumb," and "couldn't reason it out." The immature group shifted the responsibility for their failure, such as: "pieces were too inaccurately cut;" "lack of experience with puzzles;" "the dance made me not as mentally alert as usual;" "didn't care about it;" or "the time was too short."

The immature observers were also more concerned about the possible relationship of the puzzle with intelligence. Two asked if the results on the test would influence grades. The fact that several were embarrassed by their failure is indicative of the differences in objectivity with which the two groups approached the experiment.

According to Keister and Updegraff, persistence has a positive relationship with emotional stability.^{4/} In these test results, the two measures of the students' persistence used are: (1) the actual time spent in working at the puzzle; and (2) changes of schools or curricula.

Tables IV₁ and IV₂ show the critical ratios between the amounts of time which the mature and immature observers persisted on the puzzle test.

^{4/} Mary E. Keister and Ruth Updegraff, op. cit., pp. 241-247.

TABLE IV
1

(Men)		
$N_1 = 21$		$M = \frac{\sum X}{N}$
$M_1 = 29.5476$		$\sigma = \sqrt{\frac{\sum X^2}{N} - (M)^2}$
$N = 12$		$\sigma_m = \frac{\sigma \text{ dist}}{\sqrt{N}}$
$M_2 = 24.7500$		$\sigma_{m_1 - m_2} = \sqrt{\sigma_{M_1}^2 + \sigma_{M_2}^2}$
$\sigma_1 = 2.0234$		$CR = \frac{\text{Diff } M_1 - M_2}{\sigma_{M_1 - M_2}}$
$\sigma_2 = 3.3696$		$\sigma_{M_1} = \frac{2.0234}{4.5825} = .4415$
$\sigma_{M_1} = .4415$		$\sigma_{M_2} = \frac{3.3696}{3.4641} = .9727$
$\sigma_{M_2} = .9727$		$\sigma_{M_1} - \sigma_{M_2} = \sqrt{.1949 + .9461} = 1.0682$
		$CR = \frac{4.7976}{1.0682} = 4.4913$

TABLE IV
2

(Women)		
$N_1 = 20$		$\sigma_{M_1} = .0000$
$M_1 = 30.0000$		$\sigma_{M^2} = \frac{5.5885}{4.1231} = 1.3554$
$\sigma = 0.0000$		$\sigma_{M_1} - \sigma_{M^2} = 1.35541$
$N^2 = 17$		$CR = \frac{4.3530}{1.35541} = 3.2116$
$M^2 = 25.6470$		
$\sigma_2 = 5.5885$		

The results indicate that there is a significant difference between amounts of time persisted and maturity as determined by the experimenter's

evaluation. This is indicated by critical ratios of 4.4913 for men and 3.2116 for women.

The second measure of persistence is evidenced by the students' ability to follow through a prescribed curricula. In examining the records of the observers, it was found that thirty-one percent of the immature students had either changed schools or courses by the second semester. But nine percent of the mature students had made such changes. The mature group had a definite vocational choice and were persisting in the attainment of that goal.

The second objective of the experiment is the determination of the relation between the subjects' reaction to failure and their social adjustment.

As a means of answering this question, each subject was asked not only to give a list of the organizations to which he belonged, but also to indicate whether or not he held any offices. It is assumed that the more sociable students will be "joiners" of organizations early in their college career and that those possessing leadership ability will be given posts of responsibility at an early date. The latter assumption, however, is much less valid because of the almost universal practice of giving offices to upperclassmen.

The men who made mature responses on the puzzle test each belonged to an average of 1.238 organizations. The men who made immature responses on the puzzle test belonged to an average of 1.3636 organizations. The fact that twenty-four percent of the mature group had offices in organizations while the immature group held none suggests the possibility that the immature group were merely "joiners" and that socially, the mature group were actually more adequately

adjusted.

Of the women who made mature responses on the puzzle test, the average number of organizations to which each belonged was 2.35. And of this group, forty percent held offices. Of the women who made immature responses on the puzzle test, the average number of organizations to which each belonged was .8235; and none of this group held an office.

Tables II₃ and III₃ indicate that there is a positive relationship between the maturity of the students as measured by the puzzle test and their response on the social scale of the Bell Adjustment Inventory. For the women the difference in maturity of is highly significant. The average score for social adjustment for the mature men shows slightly better adjustment. However, when analyzed by the chi square (χ^2) method, that slight difference was not statistically significant.

The third objective of the experiment is the determination of the relation between the subjects' reaction to failure and their scholastic achievement.

TABLE V₁

Data from which the chi square (χ^2) for women's scholastic attainment was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
3.6-4.0	2	0	2	1.000	2.000
3.0-3.5	7	4	11	.636	4.452
2.6-2.9	1	4	5	.200	2.000
2.0-2.5	8	4	12	.667	5.336
1.6-1.9	1	4	5	.200	.200
1.0-1.5	1		1	1.000	1.000
0-.9		1	1		
	20	17	37		14.988

$$P = .541$$

$$\chi^2 = 4.027 (14.988 - 10.820)$$

$$Q = .459$$

$$\chi^2 = 16.7845$$

$$1/PQ = 4.027$$

$$P = .01$$

A χ^2 of 16.7845, interpreted on the table of probability, indicates that in less than one percent of all random samples would we have a χ^2 value as large as 16.7845. In other words, if our hypothesis were true, we could expect only once in a hundred to have a sample which diverged as far from expectation as this sample. Hence, it must be concluded either that the hypothesis is true and that a very highly improbable event has occurred, or that the hypothesis is false (assuming that our sample is truly random). With such a score, the rejecting of this hypothesis is justified.

TABLE V
2

Data from which the chi square () for men's scholastic attainment was obtained

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
3.6-4.0	1	1	2	.500	.500
3.0-3.5	4	1	5	.800	3.200
2.6-2.9	4	2	6	.667	2.662
2.0-2.5	2	4	6	.333	.666
1.6-1.9	4	1	5	.800	3.200
1.0-1.5	5	2	7	.714	3.570
0-.9	1	1	2	.500	.500
	<hr/> 21	<hr/> 12	<hr/> 33	<hr/>	<hr/> 14.298

$$P = .636$$

$$\chi^2 = 4.320 (14.298 - 13.356)$$

$$Q = .364$$

$$\chi^2 = 4.0691$$

$$1/PQ = 4.320$$

$$\rho = .50 - .70$$

When interpreted on the table of probability, a χ^2 of 4.0691 indicates that in fifty to seventy percent of subsequent samples these differences would be found. The hypothesis will be found true in more than half of the subsequent samples, and is therefore verified.

Closely allied to scholastic achievement and of great concern to all the subjects was the question of the relationship between the puzzle test and the intelligence of the subjects. The question asked by most of the subjects was: "Does this test my intelligence?" The test was not designed to test intelligence, but Tables VI₁ and VI₂ reveal some interesting relationships between scores on the American Council on Education

Psychological Examination, Form 1939, and the subjects' responses in the puzzle test. The centile scores on the Psychological Examination are local norms.

TABLE VI

Data from which the chi square (χ^2)¹ for women's intelligence scores was obtained.

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
90-100	4	2	6	.667	2.668
80-89	6	1	7	.857	5.142
70-79	1	1	2	.500	.500
60-69		2	2		
50-59	1	4	5	.200	.200
40-49	2	3	5	.400	.800
30-39	3	2	5	.600	1.800
20-29		1	1		
10-19	3		3	1.000	3.000
0-9		1	1		
	20	17	37		14.110

$$P = .541$$

$$\chi^2 = 4.027 (14.110 - 10.820)$$

$$Q = .451$$

$$\chi^2 = 13.2488$$

$$1/PQ = 4.027$$

$$P = .10 - .20$$

A χ^2 of 13.2488 interpreted on the table of probability, indicates that in ten to twenty percent of subsequent samples the same differences would be found. This is not an adequate basis for rejecting the hypothesis of normality, although the results certainly do not supply additional confidence in that hypothesis.

TABLE VI

Data from which the chi square (χ^2) for men's intelligence test scores was obtained.
was

C. I.	A ₁	A ₂	A ₁ / A ₂	P	A ₁ P
90-100	4	1	5	.800	3.200
80-89	4		4	1.000	4.000
70-79	1		1	1.000	1.000
60-69	5	4	9	.556	2.780
50-59	4	3	7	.571	2.284
40-49					
30-39		1	1		
20-29	1	2	3	.333	.333
10-19				.667	
0-9	2	1	3	.667	1.334
	<u>21</u>	<u>12</u>	<u>33</u>		<u>14.931</u>

$$P = .636$$

$$Q = .364$$

$$1/PQ = 4.3196$$

$$\chi^2 = 4.3196 (14.931 - 13.356)$$

$$\chi^2 = 6.8034$$

$$P = .70$$

When interpreted on the table of probability, a χ^2 of 6.8034 indicates that in seventy percent of subsequent samples, the same differences would be found. The hypothesis is probably true.

Tables VI₁ and VI₂ indicate that the intelligence of the men is not related to maturity as measured on the puzzle test. However, there is a relation between intelligence and maturity of women as measured by the test.

CHAPTER IV
A COMPARISON OF VERBALIZATIONS

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The foregoing data of this experiment have all been treated by means of group comparisons.

The verbalizations of the subjects as recorded in the minute-by-minute record during the experimental period revealed wide individual differences in reaction. The observers' manner in approaching the problem, methods used, and expressive accompaniments would seem to offer valuable material for diagnostic purposes.

These verbalizations were selected because they seemed to reveal much concerning the desirability or undesirability of the observer's response. These quotations are typical of the group which they represent, not only in content, but also in quantity.

IMMATURE MEN

(1) — 23 minutes — easily distracted, looked up frequently, poor use of spacing:

"/1/ These things aren't sawed up very good, are they? /5/ Is that right? I hope to find it, but I don't know whether I will or not. /6/ You mean they will fit in perfectly? /10/ How much of my time is gone, or do I know that either? /13/ Hum, hum. /15/ What's the idea of it anyway? /17/ I can't get the thing to fit. /20/ I probably couldn't get it then. What's the idea, or am I supposed to wait until it's all over with? /21/ Ho, hum. /22/ I can't make it out. I don't know what it is. /23/ I give up."

(2) — 21 minutes — noisy, hurried manner, frequent sighs, much shifting of weight:

"/3/ What if I don't do this in twenty minutes? /13/ I can't find a piece to fit in that and I've tried every one. That is, unless it fits awfully loose. /21/ I never was any good at crossword puzzles. Is my twenty minutes up, you say? I'll just give up, I can't do it."

(3) — 30 minutes — noisy, talkative, whistled, made faces, tapped rhythmically on table, stopped to rub his hands together, muttered to himself, keenly interested:

"/1/ You'll probably have to keep a lot of time, because I never could do these. Start with this. It fits that. Do there. Fits smoothly. /2/ Maybe I'd better start in this. This is going to be fun, but — /5/ This is, by golly, I can't find it. I don't do enough. That would do. It'll have to come out. The guy who figured this out was sure good. I'll say that much for him, anyhow. /6/ That's supposed to fit like that. /7/ Bet a nickel I can't work the thing. /13/ How much time do I have left? If I can work an hour, might do it. Do you mind if I just think aloud? If these corners weren't there, I could get it fitted. /16/ If it fitted smoothly, I could do it, but it isn't going to fit smoothly. (Mutters) /17/ This sure is. Ugh. What's this supposed to measure? Just my curiosity, you understand. I'm beginning to think someone invented this just to fool me. /20/ I don't think I could finish it in ten minutes. I'll tell you one thing, though, if I ever saw it together, I could do it. I'll be darned, it is aggravating. /21/ I haven't done enough of these. The darn things just fit. Golly. /22/ This fits nice and smooth. /23/ I can't even work the darn thing. I can't do it, by golly. How much time? This aint gonna be worked. Golly. I'll stack them and close the lid. If they went together smooth, that would be easy. That fits nicely. That fits nicely. Gosh, something—can't get these in. They surely are many pieces that won't fit together. That's what's wrong. /26/ It still won't go in. This don't fit together properly. Ah me, I'm already past time. Guess I wasn't meant to be what this is cut out for. Golly. These fit too snugly. /28/ Did Dr. Stromberg make this? Good gosh, this fits! /29/ This thing fits together. Are you sure it fits together? If I could only get in one big piece, I might get the whole thing together. Golly. If this is a test for chemistry, Stromberg's all off. He advised me, and he better be right."

MATURE MEN

(1) — 30 minutes — excellent concentration, slow deliberate movements, and excellent use of spacing:

(To self) — "/5/ Do all the edges fit? Well, just so they're all in the bottom. /15/ That's, I'd better start over again. /20/ Hum, all right, I should be able to do this, I hope. /30/ I know it's simple, but I don't seem to be able to get anywhere with it. Oh my goodness!" (Time was called. He was reluctant to stop.)

(2) — 30 minutes — very intent on the problem, excellent use of spacing, tense at first, relaxed the last 15 minutes:

"/2/ Do these things all fit in here or not? /4/ Whew, whew. /5/ I'll take your word, but — /6/ There is a way. /7/ It seems like an awful waste of space. /11/ How much time have I got? /14/ Whew, whew. /15/ It doesn't bother me as far as the failure is concerned, I won't expect to work it in ten minutes or half an hour. /20/ I don't think it will do much good, but I'll try. I always thought I was good at working puzzles. /21/ This thing doesn't fit together. /24/ Tell me, is there a system for working this thing? It seems more like a hit or miss proposition. /25/ Well, it looks simple, I grant you that. But it doesn't seem very simple after you start on it. /27/ Hum. /29/ That won't work either."

(3) — 30 minutes — very quiet, rather an aloof air as he worked, smiled frequently:

"/1/ This looks interesting. /5/ There must be, they were when I came in. /7/ This is not a jigsaw puzzle. They just fit in the box. /20/ I don't know whether it's going to help any or not. /25/ It may be easy for some people."

IMMATURE WOMEN

(1) — 30 minutes — pats feet, scowls, noisy, shuffling of pieces, squirms about in chair:

"/1/ Oh, dear, this is terrible. Are you sure they go in? I've heard about this from the kids. /5/ I don't know. I had them all fixed so all but one medium sized piece would go in. /15/ How much time do I have to work on? /20/ Do I have to work the thing? /25/ I can't put it together. Do they all fit real close?"

(2) — 30 minutes — much puzzling over pieces, drums on the desk with fingers, noisy, rough handling of pieces, chews gum constantly, hands tremble:

"/5/ I've never seen anything like it in my life. I used to be good at jigsaw puzzles, too. /11/ Does it have any particular shape when I get through? Oh, good. Do you mean they all have to go on the board, or just be put together. /15/ I didn't even catch on to what I was supposed to be going here for about 15 minutes. /20/ It hasn't done it for me yet. Oh, has 20 minutes gone by? Have to be flat. /25/ Oh, it's silly. I can't get a little thing like this together. /26/ I tried for 15 minutes and I didn't do what I was supposed to, so now I don't know what I'm doing. /29/ Had it pretty well a while ago, but now I've forgot how. (Time is called. She slams down pieces.) It's disgusting. I'll fret over that for a week. Disgusting—a simple thing like that!"

(3) — 20½ minutes — many superfluous movements, trial and error method:

"/1/ Gee, golly. There's plenty of room. Does it fit perfectly, or am I allowed to ask? /2/ Has anyone ever done it? /3/ I wish I had my Dad here. This doesn't make sense. /4/ They don't even make sense. /6/ They don't fit perfect, though. Something is crazy. /9/ I might as well give up now. I never will be able to get it. /15/ I can't make her do. /16/ I'm not discouraged; I'm disgusted. I never worked one in my life. /20/ I couldn't do it. I'm leaving." (When asked if roommate was ready, she said: "My roommate rides a horse, and I swim, and that doesn't go with this.")

(4) — 15½ minutes — sat down confidently, slow, deliberate movements, whistles, drops pieces, gets noisy:

"/1/ Makes me feel like a kid. /5/ I won't believe it until I see it done. /10/ Let's throw this away and then I'll have it. /14/ I can't even get this one back I had in. /15½/ I quit."

(5) — 30 minutes — hurried, bustling movements, tosses pieces about, forces pieces, laughs, and sighs:

"/1/ I'm not getting anywhere. I must be stupid. /2/ Goodnight. /3/ How silly! Is everyone else as dumb as I am, or am I the exception? I'll try this. Wait a minute. Well. /4/ I'm getting disgusted. This does go together? /5/ That's some consolation. I'll be darned. /6/ Looks like that ought to be it. /7/ I'm afraid my twenty minutes will be up before I even get started. It looks real simple. /8/ I've done every one of them. /9/ That makes me furious. That star has to go in there. /11/ I'll be darned. /12/ Well, it looks as if some of them would fit. When I get through, will you try and do it for me? It looks as if I'm through now as far as it goes. /13/ I can't do it. Ignorant, looks like. Looks like I would do something. I know I'm not that silly. /14/ Do they fit real close? How stupid. Those points have to go on the star. That makes me mad. I don't know what to do. /15/ I'm going to work and work at it and let it go at that. I think this goes here. No, I can tell by the wood. /17/ I'll be darned. /19/ I could go on like this forever. /21/ I could go on forever. I thought I could tell this by the wood. It makes me furious. /24/ When you see a poor soul, don't you want to get up and help them? I saw this together, or I'd think you were fooling. /25/ This makes me mad. Yes, I've tried everything. No parts fit. /27/ When can you put me out of misery? How long have I worked? Do you mean that I've worked almost thirty minutes? Don't tell anyone I worked those last ten. /28/ It'll make me furious when you show me how. I'm so interested I've pulled the whole table cloth off. /29/ I remember a show once where a man tried to work a puzzle and everyone laughed; and here I am. Is that three minutes up? Isn't that disgusting? This is gonna give someone a good laugh."

MATURE WOMEN

(1) — 30 minutes — excellent concentration, very discriminating in choice of pieces, rather slow movements, smiles frequently:

"/5/ But they don't seem to fit together. The only way you could fit it together is by trial and error. /20/ All right. /30/ Now will you show me how to do it?"

(2) — 30 minutes — quiet matter-of-fact procedure, poised, starts over, cheerful, excellent utilization of space, very intent on problem:

"/5/ I'm beginning to wonder. /19/ I'm just afraid I don't get it. /20/ I'm afraid ten minutes won't do me any good. /24/ They don't any of them just seem to fit."

(3) — 30 minutes — careful deliberate movement, laughs frequently, fair concentration:

"/1/ This looks easy enough. Oh me, I have twenty minutes to get all these in. /4/ Too many pieces. /5/ I want to see you assemble this when I get through. It looks simple enough. /8/ Is my time up? /15/ Oh, dear, I wish this would suddenly go together. Has anyone ever gotten it in? /16/ That empty space is too little. /20/ I don't know if it'll do any good or not. It doesn't take me this long to do a jigsaw puzzle. /22/ Are there several different ways this can be put in? /24/ This is a mess. I should have left them where I had them in the first place. /25/ I don't see why I can't do it. It looks simple enough. /28/ I shouldn't have started taking them all out again. I had them all in but three, and now I have four out. /29/ Terrible." (She wanted to work at the puzzle more. She said she would like to own one and work at it alone.)

(4) — 30 minutes — shifting attention, trial and error method, extremely pleasant throughout, slow deliberate movements:

"/1/ I just have to put them in, flat on the bottom? /2/ Oh, my goodness! /5/ There is? I was just beginning to wonder. Better than working any jigsaw puzzle. /7/ Heavenly days! /15/ It really seems so funny. /20/ I must need it certainly, but I don't know. /25/ My goodness, I thought it was. You think you're smart until you start something like this. /26/ You think this is simple, eh?"

(5) — 30 minutes — quiet, pleasant manner, absorbed in the problem, steady, continuous effort to solve the puzzle, very discriminating in choice of pieces:

"/5/ Is there? /7/ Do they fit together? /15/ I don't seem to be getting so very far."

(6) — 30 minutes — very intent on problem, good use of spaces, hurried movements, many sighs, frequent laughs:

"/1/ I'm not doing very good. /2/ Are they supposed to fit exactly? Hmm. /3/ Hmm. /4/ Huh. /5/ Do they really fit right? /7/ The point is to get them all into the box whether they fit or not. /15/ Boy, I think this is fun. I don't think I can do it in the time, though. /20/ I'm afraid I'm going to need a lot more than that. /25/ I'll bet it's simple. But I don't seem to get it. /29/ Hmm."

The samples of verbalizations just quoted are indicative of the difference between the number of words spoken by the mature and the immature groups while working on the puzzle test. Mature men had an average of 65.19 words; immature men, 124.45 words; mature women, 51.19 words; and immature women, 98.12 words. The ratio of words was two-to-one for the immature group. This may indicate a greater distractibility of the immature. They exhibit less poise and are more likely to seek assistance, sympathy, and encouragement by means of language.

CHAPTER V
SUMMARY AND CONCLUSION

This experiment was designed to determine whether or not a person's characteristic response in a failure situation is related to his emotional, social, and academic achievement.

The results of the study indicate that:

(1) When comparisons were made with the Bell Adjustment Inventory, those students who made mature responses on the puzzle test also showed better emotional adjustment on the Bell Inventory. However, in the case of women's health, the immature group showed slightly better adjustment.

(2) The scores analyzed by the chi square (χ^2) method indicate that only in the case of men's home adjustment and women's social adjustment do we find a statistical difference between mature and immature groups as differentiated by the puzzle test.

For the other parts of the Bell Inventory there was a 50 - 80 percent probability that in subsequent samples the same differences would be found. The null hypothesis has not been disproved, and the conclusion that the groups belong in the same distribution is justified.

(3) The subjective analysis of feelings aroused by the experiment shows a two-to-one ratio between immature and mature groups in feelings of frustration.

(4) A significant fact disclosed was the ability of the mature group to analyze their feelings with finer gradations.

(5) The more mature subjects were more objective in their analysis

of the causes of their failure.

(6) The critical ratios between amounts of time persisted and maturity as measured by reaction to the puzzle test are large enough to indicate significant differences between the groups.

(7) Thirty-one percent of immature students either changed courses or schools the second semester, while only nine percent of mature students made such changes. This would be indicative of a greater stability on the part of the more mature students.

(8) There is a positive relationship between the sociability and maturity of students. No one in either of the immature groups held an office in a campus organization; whereas twenty-four percent of the mature men and forty percent of the mature women had been elected to places of leadership. An analysis of the social scores on the Bell Adjustment Inventory uphold this hypothesis. (See Tables II₃ and III₃)

(9) There is a positive relationship between the semester grade averages and the maturity of the women. For the men, there is less than a chance relationship between semester grade averages and maturity.

(10) There is a significant relationship between the intelligence test scores of the women and their maturity. For the men, there is an indication of a relationship between intelligence test scores and maturity.

(11) A comparison of verbalizations revealed great differences between verbal responses of the mature and immature groups. The ratio of words was two-to-one for the immature groups. The immature group sought assistance, sympathy, and encouragement by means of language. The mature group maintained a friendly, yet impersonal, relationship with the examiner.

Conclusion: The puzzle test as presented in this experiment is too laborious and time-consuming to be used with large numbers of students. However, a counselor might use the method for diagnosing specific difficulties as a basis for remedial treatment of those students who have acquired inadequate modes of response. It should be of particular value when working on problems of adjustment which require a problem-solving approach.

Suggestions for Further Study: It would be valuable to follow these subjects through their college course to see if the relationships disclosed by the tests are retained. One semester in college is far too short a time to place too much confidence in the prognostic value of the test.

An experiment of this type should be planned in the spring or summer in order that the tests could be given before mid-term of the fall semester. Approximately fifty percent of the freshmen who enroll for the fall term drop out the first year. A large percent of these have left by mid-term of the following semester. Thus a delay in testing would allow the results to be weighted in favor of those students who can meet new situations.

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Yes No ?
c Do you have difficulty in starting conversation with a person to whom you have just been introduced?

Yes No ?
a Do you feel that your parents have been unduly strict with you?

Yes No ?
d Do you get angry easily?

Yes No ?
b Has it been necessary for you to have frequent medical attention?

Yes No ?
c Do you find it difficult to speak in public?

Yes No ?
b Do you sometimes have difficulty getting to sleep even when there are no noises to disturb you?

Yes No ?
a Has either of your parents certain personal habits which irritate you?

Yes No ?
d Are you troubled with feelings of inferiority?

Yes No ?
b Do you feel tired most of the time?

Yes No ?
d Do you consider yourself rather a nervous person?

Yes No ?
c Do you find that you tend to have a few very close friends rather than many casual acquaintances?

Yes No ?
d Do you often feel self-conscious because of your personal appearance?

Yes No ?
a Do you love your mother more than your father?

Yes No ?
c Do you find it easy to ask others for help?

Yes No ?
b Are you subject to attacks of indigestion?

Yes No ?
c Have you frequently known the answer to a question in class but failed when called upon because you were afraid to speak out before the class?

Yes No ?
a Does either of your parents become angry easily?

Yes No ?
c Are you troubled with shyness?

Yes No ?
b Are you subject to tonsillitis or laryngitis?

Yes No ?
d Are you ever bothered by the feeling that things are not real?

Yes No ?
a Have the actions of either of your parents aroused a feeling of great fear in you at times?

Yes No ?
b Do you frequently experience nausea or vomiting or diarrhea?

Yes No ?
c Are you sometimes the leader at a social

Yes No ?
91c When you want something from a person with whom you are not very well acquainted, would you rather write a note or letter to the individual than go and ask him or her personally?

Yes No ?
92a Have you disagreed with your parents about your life work?

Yes No ?
93c Do you find it easy to make friendly contacts with members of the opposite sex?

Yes No ?
94b Were you ill much of the time during childhood?

Yes No ?
95d Do you worry over possible misfortunes?

Yes No ?
96c Do you hesitate to enter a room by yourself when a group of people are sitting around the room talking together?

Yes No ?
97a Have your relationships with your mother usually been pleasant?

Yes No ?
98d Are you bothered by the feeling that people are reading your thoughts?

Yes No ?
99b Do you frequently have difficulty in breathing through your nose?

Yes No ?
100c Are you often the center of favorable attention at a party?

Yes No ?
101a Have you frequently had to keep quiet or leave the house in order to have peace at home?

Yes No ?
102b Do you sometimes have shooting pains in the head?

Yes No ?
103a Was your home always supplied with the common necessities of life?

Yes No ?
104c Do you enjoy social dancing a great deal?

Yes No ?
105a Was your father what you would consider your ideal manhood?

Yes No ?
106d Have you ever felt that someone was hypnotizing you and making you act against your will?

Yes No ?
107b Are you considerably underweight?

Yes No ?
108a Is either of your parents very nervous?

Yes No ?
109d Does criticism disturb you greatly?

Yes No ?
110c Do you make friends readily?

Yes No ?
111b Have you ever had a skin disease or skin eruption, such as athlete's foot, carbuncles, or boils?

Yes No ?
112a Are your parents permanently separated?

Yes No ?
113b Have you ever had a skin disease or skin eruption, such as athlete's foot, carbuncles, or boils?

Yes No ?
114a Are your parents permanently separated?

Yes No ?
115b Have you ever had a skin disease or skin eruption, such as athlete's foot, carbuncles, or boils?

Yes No ?
116a Are your parents permanently separated?

Yes No ?
117b Have you ever had a skin disease or skin eruption, such as athlete's foot, carbuncles, or boils?

Yes No ?
118a Are your parents permanently separated?

Yes No ?
116d Does some particular useless thought keep coming into your mind to bother you?

Yes No ?
117a Has either of your parents dominated you too much?

Yes No ?
118c Does it upset you considerably to have a teacher call on you unexpectedly?

Yes No ?
119b Do you find it necessary to watch your health carefully?

Yes No ?
120d Do you get upset easily?

Yes No ?
121a Do you occasionally have conflicting moods of love and hate for members of your family?

Yes No ?
122c Do you find it difficult to start a conversation with a stranger?

Yes No ?
123d Do you worry too long over humiliating experiences?

Yes No ?
124b Have you frequently been absent from school because of illness?

Yes No ?
125d Does it frighten you to be alone in the dark?

Yes No ?
126a Has either of your parents made you unhappy by criticizing your personal appearance?

Yes No ?
127c Do you like to participate in festive gatherings and lively parties?

Yes No ?
128d Do you have ups and downs in mood without apparent cause?

Yes No ?
129b Do you have teeth that you know need dental attention?

Yes No ?
130c Do you feel self-conscious when you recite in class?

Yes No ?
131a Did your parents frequently punish you when you were between 10 and 15 years of age?

Yes No ?
132d Do ideas often run through your head so that you cannot sleep?

Yes No ?
133b Have you had any trouble with your heart or your kidneys or your lungs?

Yes No ?
134a Have you often felt that either of your parents did not understand you?

Yes No ?
135c Do you hesitate to volunteer in a class recitation?

Yes No ?
136d Have you ever been extremely afraid of something that you knew could do you no harm?

Yes No ?
137b Do you frequently come to your meals without really being hungry?

Yes No ?
138a Have you felt that your friends have

Yes No ?
139b Have you felt that your friends have

Yes No ?
140a Have you felt that your friends have

Yes No ?
141b Have you felt that your friends have

Yes No ?
142a Have you felt that your friends have

Yes No ?
143b Have you felt that your friends have

DIRECTIONS: Are you interested in knowing more about your own personality? If you will answer *honestly* and *thoughtfully* all of the questions on the pages that follow, it will be possible for you to obtain a better understanding of yourself.

There are *no right or wrong* answers. Indicate your answer to each question by marking the answer space under the "Yes," the "No," or the "?." Use the question mark only when you are certain that you cannot answer "Yes" or "No." There is no time limit, but work rapidly.

Yes No ?
: : :
1 Do you often have much difficulty in thinking of an appropriate remark to make in a group conversation?

Yes No ?
: : :
2 Do you take cold rather easily from other people?

Yes No ?
: : :
3 Have you been embarrassed because of the type of work your father does in order to support the family?

Yes No ?
: : :
4 Do you enjoy social gatherings just to be with people?

Yes No ?
: : :
5 Are your eyes very sensitive to light?

Yes No ?
: : :
6 Did you ever have a strong desire to run away from home?

Yes No ?
: : :
7 At a reception or tea do you seek to meet the important person present?

Yes No ?
: : :
8 Has illness or death among your immediate family tended to make home life unhappy for you?

Yes No ?
: : :
9 Do you take responsibility for introducing people at a party?

Yes No ?
: : :
10 Do you frequently have spells of the "blues"?

Yes No ?
: : :
11 Are you subject to hay fever or asthma?

Yes No ?
: : :
12 Do you day-dream frequently?

Yes No ?
: : :
13 Has either of your parents insisted on your obeying him or her regardless of whether or not the request was reasonable?

Yes No ?
: : :
14 Have you ever had scarlet fever or diphtheria?

Yes No ?
: : :
15 Did you ever take the lead to enliven a dull party?

Yes No ?
: : :
16 Do you sometimes feel that your parents are disappointed in you?

Yes No ?
: : :
17 Are you troubled with the idea that people are watching you on the street?

Yes No ?
: : :
18 When riding on a train or a bus do you sometimes engage fellow-travelers in conversation?

Yes No ?
: : :
19 Has either of your parents frequently criticized you unjustly?

Yes No ?
: : :
20 Do you often feel lonesome, even when you are with people?

Yes No ?
: : :
21 Have your relationships with your fa-

Yes No ?
23c : :
22 Do you feel embarrassed if you have to ask permission to leave a group of people?

Yes No ?
24d : :
23 Do you often feel just miserable?

Yes No ?
25c : :
24 Do you feel embarrassed when you have to enter a public assembly after everyone else has been seated?

Yes No ?
26b : :
25 Do you frequently feel very tired toward the end of the day?

Yes No ?
27e : :
26 In school is it difficult for you to give an oral report before the class?

Yes No ?
28d : :
27 Does the thought of an earthquake or a fire frighten you?

Yes No ?
29b : :
28 Have you lost weight recently?

Yes No ?
30a : :
29 Do you think your parents fail to recognize that you are a mature person and hence treat you as if you were still a child?

Yes No ?
31d : :
30 Does it frighten you when you have to see a doctor about some illness?

Yes No ?
32a : :
31 Do you feel there has been a lack of real affection and love in your home?

Yes No ?
33b : :
32 Have you ever been seriously injured in any kind of an accident?

Yes No ?
34a : :
33 Has lack of money tended to make home unhappy for you?

Yes No ?
35c : :
34 Do you feel very self-conscious in the presence of people whom you greatly admire, but with whom you are not well acquainted?

Yes No ?
36a : :
35 Has either of your parents frequently found fault with your conduct?

Yes No ?
37d : :
36 Are you easily moved to tears?

Yes No ?
38b : :
37 Have you ever had a surgical operation?

Yes No ?
39d : :
38 Do you dread the sight of a snake?

Yes No ?
40c : :
39 Would you feel very self-conscious if you had to volunteer an idea to start a discussion among a group of people?

Yes No ?
41a : :
40 Does your mother tend to dominate your home?

Yes No ?
42d : :
41 Are you frightened by lightning?

Yes No ?
43b : :
42 Do you have many colds?

Yes No ?
45a : :
43 Have your parents frequently objected to the kind of companions that you go around with?

Yes No ?
46b : :
44 Have you had considerable illness during the last ten years?

Yes No ?
47a : :
45 Have you frequently disagreed with either of your parents about the way in which the work about the home should be done?

Yes No ?
48d : :
46 Have you frequently been depressed because of low marks in school?

Yes No ?
49b : :
47 Are you subject to attacks of influenza?

Yes No ?
50d : :
48 Do you blush easily?

Yes No ?
51b : :
49 Do you often feel fatigued when you get up in the morning?

Yes No ?
52c : :
50 If you come late to a meeting would you rather stand or leave than take a front seat?

Yes No ?
53d : :
51 Do you sometimes envy the happiness that others seem to enjoy?

Yes No ?
54c : :
52 Have you had a number of experiences in appearing before public gatherings?

Yes No ?
55b : :
53 Do you frequently suffer discomfort from gas in the stomach or intestines?

Yes No ?
56a : :
54 Have there been frequent family quarrels among your near relatives?

Yes No ?
57c : :
55 If you were a guest at an important dinner would you do without something rather than ask to have it passed to you?

Yes No ?
58b : :
56 Do you frequently have spells of dizziness?

Yes No ?
59a : :
57 Have you frequently quarreled with your brothers or sisters?

Yes No ?
60d : :
58 Are you often sorry for the things you do?

Yes No ?
61a : :
59 Is either of your parents very easily irritated?

Yes No ?
62c : :
60 Have you had experience in making plans for and directing the actions of other people?

Yes No ?
63d : :
61 Do you get discouraged easily?

Yes No ?
64b : :
62 Are you subject to eye strain?

Yes No ?
65a : :
63 Have you ever been afraid that you might jump off when you were on a high place?