NONINTELLECTUAL FACTORS IN COLLEGE ACHIEVEMENT AT BETHANY NAZARENE COLLEGE

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PREFACE

The purpose of this study was to relate academic achievement, ability, and deviant achievement to nonintellectual factors; and to account for variance in academic achievement beyond that accounted for by measures of ability through the use of nonintellectual variables.

I would like to express my appreciation to Dr. W. P. Ewens, my committee chairman, for his advice and guidance throughout the study and in the preparation of this dissertation. I also want to thank the members of my committee Dr. Harry K. Brobst, Dr. Kenneth D. Sandvold, and Dr. James M. Seals for reading this manuscript and offering helpful suggestions.

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To the freshman and sophomore classes of Bethany Nazarene College in the 1968-69 term, I give my thanks for their taking the inventories used in this study. I want to thank the Circle K Club and the experimental psychology students for their assistance in the administration of these instruments. My gratitude is expressed to the administration and faculty of Bethany Nazarene

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CHAPTER I

THE PROBLEM

A number of tests have been used to predict academic achievement in college, but these devices, typically, only account for approximately half of the variance in achievement. Most of these instruments assess only intellectual capabilities. These have been perfected to the point that in order to add to their predictive competencies, much effort is required to produce only small gains.

Other sources of variation, therefore, are apparently operating and must be discovered if prediction of achievement is to be improved. It seems that a portion of the unexplained variance in grade point average at Bethany Nazarene College might be accounted for by considering nonintellectual factors. The contribution of intellectual and nonintellectual factors to grade point average has been diagrammed (Figure 1) by Goodstein, Crites, & Heilbrun (1963, p. 175) based on a review of research.

Statement of the Problem

It is the purpose of this study to investigate the relationships between nonintellectual factors and ability, between nonintellectual factors and achievement, and between nonintellectual factors and ability-achievement interaction; to find the relationship between nonintellectual factors and deviant achievement; and to

Intellective	Non Intel-lective	Unknown	Error and Other
(35%)	(15%)	(49%)	(10%)

Figure 1. Components of college achievement (Grade Point Average) (from Goodstein, Crites, & Heilbrun, 1963, p. 175)

determine whether nonintellectual factors yield information about achievement beyond that available from assessments of intellectual factors.

The relationship between nonintellectual factors, ability, and achievement is approached in two different ways. One way is to look at the relationships between ability and the nonintellectual factors, and achievement and the nonintellectual factors separately. The other approach is to investigate the relationship of deviant achievement and nonintellectual factors. Using deviant achievement, personality factors are related to performance above or below predicted grade point average rather than to high or low ability, or high or low achievement. The individual is compared only with his predicted performance.

Limitations of the Study

The scope of this study is defined by the choice of subjects and the selection of instruments. The subjects were freshmen and sophomores enrolled at Bethany Nazarene College in the 1968-69

term, therefore, the results can only be applied to that institution. The instruments used were the California Psychological Inventory (CPI) (Gough, 1957), the Edwards Personal Preference Schedule (EPPS) (Edwards, 1959), the Self-estimate of Ability to Do School Work Scale (Bowen, 1968), and parental educational level.

Clarification of Terms

Nonintellectual factors included the characteristics measured by the CPI, the EPPS, the Self-estimate of Ability to Do School Work Scale, and father's and mother's educational levels. Personality factors is used interchangeably with nonintellectual factors.

Ability is defined as predicted grade point average. The predicted grade point average was an average of a prediction equation which included the English usage, mathematics usage, social science reading, and natural science reading scores from the American College Testing Program (ACT) and a prediction equation which included high school grades in these four areas. The factor of ability is divided into high, average, and low levels. Since a z score of .43 divides a normally distributed group into three equal subgroups, .43 was multiplied by the standard deviation, and the product was added to and subtracted from the mean to form the high, average, and low groups. High ability is represented by any score that is more than .43 standard deviation above the mean of the predicted grade point averages. Low ability is more than .43 standard deviation below the mean of the predicted grade point averages. Average ability is between .43 standard deviation

above and below the mean of the predicted grade point averages.

Achievement is measured by the cumulative grade point average (A = 4.0, B = 3.0, C = 2.0, D = 1.0, F = 0.0). The factor of achievement is divided into three groups—high, average, and low. The subjects were divided into three groups on the basis of actual grade point average. High achievement is more than .43 standard deviation above the mean. Low achievement is more than .43 standard below the mean. Average achievement is between a .43 standard deviation above and below the mean. The terms grade point average (GPA) and performance are substituted for achievement.

Deviant achievement is represented as a deviation score based on a comparison of ability and achievement. The deviation score was derived in the following way. Four was used as an arbitrary number to represent achievement of exactly the same GPA as predicted. The number four was used so that negative numbers would not occur. Actual grade points were subtracted from predicted grade points and the difference (positive or negative) was added to four. A deviation score of 4.0 indicated achievement equal to predicted. Underachievement is a deviation score which is greater than one standard error of measurement above predicted achievement. The standard error of measurement of the prediction was 0.6. An underachiever would, thus, have a deviation score greater than 4.6. Overachievement is a deviation score which is more than one standard error of measurement below predicted (4.0). An overachiever would have a deviation score less than 3.4. High scores represent underachievement; and low scores, overachievement.

Hypotheses to be Tested

1. There are no significant relationships between any of the nonintellectual factors and ability for freshman males, freshman females, sophomore males, or sophomore females.

2. There are no significant relationships between any of the nonintellectual factors and achievement for freshman males, freshman females, sophomore males,or sophomore females.

3. There is no significant interaction between ability and achievement for any of the nonintellectual factors.

4. There is no relationship between deviant achievement and any of the nonintellectual factors for freshman males, freshman females, sophomore males, or sophomore females.

5. Nonintellectual factors do not account for any variance in achievement beyond that accounted for by ability for freshman males, freshman females, sophomore males, or sophomore females.

Significance of the Study

If this study reveals that nonintellectual factors give useful information which is not now available by using intellectual factors, it would be worthwhile to add these personality inventories, or at least scales from them to information now obtained before enrollment. If they provide no information in addition to that available from the instruments now used, it would be an indication that the time and expense in obtaining this nonintellectual data is not justified for this purpose. Underachievement is costly to society, to the individual, and to the institution. If factors can be

isolated which are characteristic of those not achieving to their full potential, students having these characteristics could be given special attention in advisement and counseling. Centi (1962, p. 188) stated that

> if colleges and universities are to ensure the optimal development of students, they cannot ignore the influence of personality and emotional factors upon achievement. Such institutions should screen students for personality and adjustment problems and provide personnel and facilities for the effective treatment of students with such problems.

It is necessary to investigate the significance of personality factors at different colleges because of the variation from one population to another (Brown & DuBois, 1964; Fink, 1963; Kearney, 1966; Mayhew, 1965; Merrill & Murphy, 1959; Watson, 1965). In a more extensive project, the necessity for institutional research was also strongly supported by the results of Holland's (1959) study which indicated a diversity among the 291 colleges investigated.

CHAPTER II

REVIEW OF THE LITERATURE

Tests of scholastic aptitude, typically do not account for nearly all the variance in academic achievement. This is an indication that there are other factors which must be considered in achievement or that the measures of ability now available are not adequate. Due to the high intercorrelations of results from instruments measuring scholastic aptitude, it seems that pursuit of measures of other factors would be the most profitable. This was the consensus of several investigators (Fishman, 1962; Hakel, 1966; Holland, 1959; Kearney, 1966; Malloy, 1955; Michael, 1965; Stern, 1963; Wechsler, 1950; Weigand, 1953). Brown, McGuire, & Holtzman (1956, p. 1) made the following statement:

> Correlation coefficients actually obtained between predictor and criterion center about .50, however, thus even the most consistent instruments account for little more than 25 per cent of the variance in subsequent achievement. Aptitude and achievement measures appear to have approached their maximum usefulness as predictive instruments, thereby suggesting the need for research leading to the construction and validation of other kinds of measures for predicting scholastic success.

First, an overview of literature concerning the relationship between nonintellectual factors and achievement will be given. Then, the research pertinent to the devices selected for this study will be reviewed. Various nonintellectual factors have been investigated in

the past as possible contributors to academic achievement. These factors were study habits, attitudes, aspirations, motivation, conformity, anxiety, interests, and self-concept. Some research focused on various measurement instruments which involved multiple factors. Measures of multiple factors were projective techniques, personality inventories, and biographical factors.

Study skills and attitude toward studying have been used in research relating to academic achievement. Brown & Holtzman (1955) used the Survey of Study Habits and Attitudes (SSHA) which was designed to measure study habits, and attitude and motivation toward studying. This questionnaire correlated .50 and .52 with first semester freshman grades for men and women. Brown et al. (1956) found that the SSHA and first semester grade correlated significantly ($p < .001$) for both men and women. In research by Kearney (1966), the SSHA predicted academic achievement. In Bosdell's (1962) research, the SSHA diffrentiated between underachievers and a norms group. In Fisher's (1966) study the SSHA did not improve prediction of academic achievement. Michael, Baker, & Jones (1964) utilized the Carter California Study Methods Survey. This instrument exhibited promise as a predictor of achievement.

Various attitude scales have been employed in the investigation of achievement. An Evaluation of Student Opinions contributed about 5% to predictive efficiency when used with the American Council on Education Psychological Examination (Woodman, 1952). The Academic Attitude Preference Inventory yielded positive results in a prediction study by Juola (1963). Negative results were obtained in two investigations with the Opinion, Attitude, and Interest Survey

(Dohner, 1966; Donnan, 1968). In two studies the Attitude-Interest Questionnaire did not result in information which was valuable for understanding achievement (Myers & Schultz, 1950; Schultz & Green, 1953). Lavin (1965) concluded in his review of study skills and attitudes that some combination of these two factors was generally useful in academic prediction.

Motivation to achieve was related to performance in these investigations. Burgess (1956) used the Thematic Apperception Test (TAT) to measure need for achievement. Overachievers scored higher on need for achievement than did underachievers. In another study with the TAT, high achievers had somewhat higher motivation than low achievers (Pierce, 1961). Parrish & Rethlingshafer (1954) obtained no relationship between need for achievement and achievement. In research by Ringness (1965), unsuccessful bright boys had lower achievement motivation than did successful bright boys. Schutter & Maher (1956) concluded that the difference between overachievers and underachievers was a difference in both motivation and efficient technique but motivation was the primary distinguishing factor. The School Motivational Analysis Test was able to predict achievement as measured by the Science Research Associates achievements tests (Pierson, Barton, & Hey, 1964). Bull (1965) hypothesized that underachievers and their parents would set overly high goals on target shooting and speed addition tasks compared to the goals set by achievers and their parents. Her hypothesis was unsupported. In his review of the literature on this area, Lavin (1965) concluded that the research results for achievement motivation were quite inconsistent, with questionnaire measures of achievement motivation

being more productive than projective measures. This may be due, however, to the methods of measurement rather than indicating that achievement motivation is not an important factor in academic performance. Stern (1963) stated that results have been inconsistent and that measurement instruments were probably not assessing the same phenomenon due in part to the complexity of the attribute of achievement motivation.

In the research cited below, conformity was considered as a variable in academic achievement. Erb (1961) discovered a difference in achievement between high conformity females and low conformity females. The difference in achievement was not present for males. The results of a study by Ringness (1965) substantiated Erb's findings for males. Ringness had no female subjects. Weigand (1953) found that more low performing students had been influenced in their occupational choice by members of their families than was the case for higher performing students. The more successful students, however, were more conforming to the demands of the academic situation than were the unsuccessful students (Wiegand, 1957). According to Burgess (1956), overachievers were better adjusted in college than were underachievers. Independence was positively related to academic achievement (Lavin, 1965). Conformity appeared to be a significant variable in performance, but the direction of this relationships hinges on the situation to which the student is conforming. Independence in decision-making but conformity to scholastic requirements were the components of college achievement.

Attempts have been made to relate anxiety to academic performance. Grooms & Endler (1960) employed a situation-restricted measure

of anxiety (Test Anxiety Questionnaire) which predicted performance for high anxiety students. Spielberger & Katzenmeyer (1959) found that the Taylor Manifest Anxiety Scale had low correlations with achievement even when ability was controlled. Anxiety, as measured by the Runner Studies of Attitude Patterns, was related to achievement for freshman females but not for males (Stix, 1966). In a review, Lavin (1965) concluded that anxiety did not directly predict academic achievement. Since anxiety may not be linearly related to performance, this may account for the negative results. Anxiety may be a positive motivational factor in achievement up to a point beyond which it interferes with performance.

Interest measures were evaluated as components of academic performance in several investigations. The results of three studies with the Strong Vocational Interest Blank (SVIB) were negative (Kearney, 1966; Klahn, 1966; Watley & Martin, 1962). Klahn (1966) used only the Nurses Key of SVIB and the criterion was continuation in a nursing program rather than grade point average. Two investigators obtained positive results with the Kuder Preference Record (Smith, 1959; Wagman, 1964) while three other attempts produeced negative results (Carmical, 1964; Lewis, 1966; Renfer, 1966). Interviews were used to assess school-related interests. High achievers had more school-related interests than did low achievers (Pierce, 1961). Cronbach (1970, p. 477) concluded, "No technique of using interest scores to predict marks has shown power to increase multiple correlations by much."

Projective techniques have been used in the assessment of factors related to achievement. Measures of need-systems by the Picture

Identification Test were not related to achievement (Fisher, 1966). Koppitz (1966) was able to identify those pupils with learning problems in the primary grades by using human figure drawings. In Berger & Sutker's (1956) research, good personality, as measured by the Rotter Incomplete Sentence Blank, was related to good college grades. Two studies did not find a relationship between college grades and types of early memories (Tolar & Fazzone, 1966; Weigand, 1957). Burgess (1956) was able to find differences in responses of under- and overachievers to cards of the Thematic Apperception Test. She did not find differences when using the Rorschach. Negative results with the Rorschach were also obtained by Clark (1958). On the basis of the studies he reviewed, Lavin (1965) stated that the Rorschach was not useful in the investigation of achievement. Stern's (1963) conclusion was similar to Lavin's.

Research relating self-concept to achievement is reviewed in the section discussing the Self-estimate of Ability to Do School Work. The literature considering biographical factors and achievement is cited in the section with research on parents' educational levels.

Personality inventories have often been used in measuring non-intellectual factors in investigations of academic achievement. Early reviewers found little indication of a relationship between personality and achievement when using personality inventories then available (Garrett, 1949; Harris, 1940; Stagner, 1933; Wolf, 1938).

Some researchers found somewhat positive results using the Minnesota Multiphasic Personality Inventory (MMPI) (Barger & Hall, 1964; Centi, 1962; McKenzie, 1964; Moss, 1966). The MMPI improved prediction (Frick, 1955) but its usefulness was not substantiated in

a later cross-validation (Frick & Keener, 1956). The Ohio State Psychological Examination was a better predictor of grades for freshman men with "normal" profiles on the MMPI than for those whose profiles were not "normal" (Hoyt & Norman, 1954). In the same study, the investigators were unable to discriminate between over- and underachievers on the basis of MMPI scales scores, however. Dowd (1952) and McQuary & Truax (1955) obtained negative results with the MMPI in attempting to differentiate underachievers and overachievers. Stern (1963) concluded that the MMPI was of little use in predicting achievement.

Of the ten scales of the Guilford-Zimmerman Temperament Survey (GZTS), a few were related to academic performance (Lewis, 1966; Suinn, 1966; Watley & Martin, 1962; Witherspoon & Melberg, 1959). The restraint scale was a variable in achievement according to all four of the studies. Charles (1966) found none of the GZTS scales to differentiate between high and low achievers. Holland (1960) found the Sixteen Personality Factor Questionnaire to be useful in predicting college grades. Some scales of the IPAT Children's Personality Questionnaire discriminated between over- and underachievers (Werner, 1966). The High School Personality Questionnaire was related to achievement as measured by the Stanford Achievement test (Cattell & Butcher, 1968). Dowd (1952) indicated that the Bernreuter Personality Inventory and the Bell Adjustment Inventory were not useful in distinguishing between non-achieving and achieving students of high ability. Griffiths (1945) also obtained negative results with the Bell Adjustment Inventory. The Edwards Personality Inventory improved prediction of grades (Oakland, 1967). The Family Relationships scale

and the Mood scale of the Minnesota Counseling Inventory discriminated between high achievers, and average and low achievers (Lewis, 1966). The Thrustone Temperament Survey did not differentiate between underachievers and achievers (Carmical, 1964). The Personality Research Inventory was not a very good predictor of academic achievement (French, 1963). Cronbach (1970) stated that the only striking exception to the failure of personality factors to predict academic achievement was the CPI. Fishman (1962) indicated that variables which are measured by the CPI would possibly be pertinent for predicting intellective criteria. In his review of multivariate measures of personality such as those given above, Lavin (1965) summarized the results into six dimensions. They were social maturity in the student role, emotional stability, achievement motivation syndrome, cognitive style, achievement via conformance, and achievement via independence. The CPI and the EPPS selected for use in this study reflect most of these dimensions. The review of the literature relevant to these instruments follows in the next two sections.

California Psychological Inventory

The CPI has been used in a variety of situations in studying the relationship of personality factors to academic achievement. The scales of the CPI which were significantly related to various achievement variables used by researchers are given in Table I. References will be made throughout this section on the CPI to the researchers cited in Table I. A description of all CPI scales are given in Appendix B. They are dominance, capacity for status, sociability, social presence, self-acceptance, sense of well-being, responsibility,

TABLE I

RESULTS OF SOME ACHIEVEMENT RESEARCH WITH CPI SCALES

CPI Scales:		Do	Cs	Sy	Sp	Sa	Wb	Re	So	Sc	To	Gi	Cm	Ae	Ai	Ie	Py	Fx	Fe
Gough & Fink, 1964																			
Correlation with GPA																			
Average Ability	Males	*		*		*	**	**	**	*			*	**	*	**			
	Females	**	*					**	*		*		**	**	**	**	**		*
	Total	**	**				**	**	**	**	**	*	**	**	**	**	*		**
Griffin & Flaherty, 1964																			
Correlation with GPA		**	**	**		**		**			*			**	**	**			**
Holland & Astin, 1962																			
Correlation with GPA																			
	Males		*	*		*	*		*	*	*							*	*
	Females					*	*		*	*	*			*	*				
Hunt, 1961																			
Difference between																			
Under- and overachievers																			
	Males																*		
	Females	**						*			**	*		**	*				
Keimowitz & Ansbacher, 1960																			
Difference between																			
Under- and overachievers			**	*	**			*	*	**	**	*	*	**	*	*	**		
Reutzel & Flaherty, 1965																			
Difference between																			
High and low achievers		**	*	*		**		**			*			**	*	**		**	*
Young, 1962																			
Difference between																			
Achievers and underachievers		*					*	*	*	*	*		*	*	*	*			*

TABLE I (Continued)

CPI Scales	Do	Cs	Sy	Sp	Sa	Wb	Re	So	Sc	To	Gi	Cm	Ac	Ai	Ie	Py	Fx	Fe
Holland, 1959																		
Correlation with GPA																		
Male:																		
Standard		**	**	**	**		**	**	**								*	**
Cross-validation		*	**	**	**	*	**	**	**		**		**				**	**
Female:																		
Standard				**	*		**	**	**				**	*				**
Cross-validation		*		**				**	*								**	
Male:																		
CIT							*	**	**		*		**					
Harvard		**		**	**		**	**	*				*					**
MIT						*		*	*		**		**					
Princeton							*	*								**		**
Stanford				*					*					*				**
Yale							*		*		*							*
Female:																		
Radcliffe																*		*
Wellesley	*																	
Male:																		
Standard																		
Science	*	**	**	**	**		*	**	**									**
Non-science		**		**		**	*											**
Cross-validation																		
Science			*	**		*	**	**	**	**			**			*	*	**
Non-science		**	*	*	**		*	**	*				*					
Female:																		
Standard																		
Science							*	*					**					
Non-science								*						*				
Cross-validation																		
Science								**					*				*	
Non-science				**				**									*	

* $p \leq .05$ ** $p \leq .01$

socialization, self-control, tolerance, good impression, communality, achievement via conformance, achievement via independence, intellectual efficiency, psychological-mindedness, flexibility, and femininity.

Several studies have indicated that factors measured by scales of the CPI are related to various criteria of scholastic performance. The following investigations related CPI scores to achievement. Reutzel & Flaherty (1965) compared the high and low achievers. High achievers were the upper fourth of a class of college freshmen women; the low achievers were the lowest fourth of the class. Eleven of 18 scales discriminated between the two groups (Table I). Flexibility was the only scale of the 11 on which the low achievers scored higher. In an investigation by Griffin & Flaherty (1964), ten of the 18 scales of the CPI correlated with GPA.

In the following studies, nonintellectual variables were used to predict academic achievement. High School grades along with six scales of the CPI improved the prediction of college success beyond that available from the use of either personality or achievement information separately--responsibility, socialization, good impression, achievement via conformance, achievement via independence, and intellectual efficiency (Demos & Weijola, 1966). Domino (1968) used only the achievement via conformance and the achievement via independence scales of the CPI. The ability of these scales to predict achievement is a function of both the academic environment (whether conformity or independence is rewarded) and the ability of the students. In an evaluation of the CPI as a predictor of introductory psychology grades (Gough, 1964a), the achievement via independence (Ai) scale was a better predictor of grades than any of the other CPI scales. The Ai also improved prediction of grades when used with the College Vocabulary Test over the prediction made by the College

Vocabulary Test alone.

Acey (1967) administered the CPI in a timed situation. The test was recorded and only two seconds were allowed for each response. Four scales had significantly different scores. The communality score was significantly higher than under a regular administration and the psychological-mindedness, flexibility, and femininity scores were lower. The psychologoical-mindedness and the flexibility scales predicted grade point average better when the administration was timed.

In the following studies only bright students were used as subjects. Holland's (1959) study involved Merit Scholar finalists, which were divided randomly into two groups. One was the standard group and the other was a cross validation group. Male and female data were analyzed separately. In the male groups many scales were found to be significantly correlated with GPA ($p \leq .01$) for both the standard and cross-validation groups. In the female groups, several scales were significantly correlated with GPA ($p \leq .01$) for the standard sample but only two (social presence and socialization) were correlated ($p \leq .01$) for both groups. An indication of which scales had high correlations with grades is given in Table I. Multiple correlations of the Scholastic Aptitude Test (SAT) and the CPI with grades are two or three times larger than correlations of only the SAT with grades. In fact, some of the CPI scales were better predictors of performance than were the SAT scores. Mason, Adams, & Blood (1965) were able to differentiate between a group of Honors and Former Honors students, and a group of bright students not in honors programs and a normative sample. Former Honors students were those who enrolled in the honors program, but later dropped out of this program. The two

groups had different scores on the capacity for status, sociability, and responsibility scales. When all bright students were included in one group and compared with the normative sample, differences were found in scores on the self-acceptance, flexibility, sense of well-being, socialization, self-control, good impression, and achievement via conformance scales. In Norfleet's work (1968) five of the 18 CPI scales differentiated between achievers and underachievers in gifted senior women. The five scales were responsibility, socialization, tolerance, achievement via conformance, and psychological-mindedness. This study was unusual in that the subjects were seniors. The positive results indicated that these scales were able to discriminate even in a restricted ability range. The subjects were selected from the top 16% on the School and College Ability Tests.

The following research studies involved subjects other than undergraduates. In a more limited project Rosenberg, McHenry, Rosenberg, & Nichols (1962) investigated the relationship among the achievement via independence scale, the general technical score of the Army Classification Battery, and performance in three military classes (neuropsychiatry, clinical psychology, and social work procedures). Both the general technical and the achievement via independence scales were better predictors of achievement in these classes than either instrument used alone. The CPI was much better for this purpose than was the MMPI. Gough & Hall (1964) derived a regression equation which correlated .46 with performance with a cross-validation sample. Only three CPI scales correlated significantly with overall GPA in four years of medical training (sociability, tolerance, intellectual efficiency). However, the CPI showed more promise than intellective

variables. None of the four scales of the Medical College Admission Test (MCAT) used correlated with GPA nor did three indices of premedical grade point average.

In the following studies relating CPI scores to achievement positive results were obtained with younger subjects. High ability ninth and tenth grade boys participated in Young's (1962) study. The subjects were divided into an achieving and an underachieving group. Eleven of 18 scales discriminated between the two groups (Table I). In research done by Keimowitz & Ansbacher (1960), 13 scales of the CPI showed significant differences between overachievers and underachievers in mathematics (Table I). Gill & Spilka (1962) were able to find differences in achievers and underachievers of equal ability on the CPI scales. Their subjects were Mexican-American high school students. In Fink's (1962a) research, two school psychologists and a clinical psychologist judged the adequacy of self-concept on the basis of CPI profiles. An adequate self-concept was related to high achievement of freshmen in a rural high school; and an inadequate self-concept, to low achievement. The subjects were paired on intelligence and sex. In Gough & Fink's (1964) study many of the CPI scales were correlated with GPA for average ability high school males, females, and total group (Table I). Fourteen of the 18 scales were correlated significantly with GPA for the combined group of males and females. An equation based on six CPI scales (responsibility, socialization, good impression, achievement via conformance, achievement via independence, and flexibility) was able to predict differentially the achievement for average ability students. The equation correlated .44 with GPA for the total group. This equation correlated .55 with

grades for the combined male and female group of the entire ability range. According to Gough (1964b), some of the CPI scales were useful in predicting achievement. The responsibility, socialization, good impression, achievement via conformance, achievement via independence, and the intellectual efficiency scales accounted for 33% of the variance in grade point average. Snider (1966) patterned his study of Canadian high school students after Gough's (1964b) study. Using the same equation he accounted for 22% of the variance of achievement scores. He reported that Gough used the sociability scale as one of the six CPI variables in his equation. Gough actually used the socialization scale rather than the sociability scale in his study. According to abbreviations and comments in other parts of his paper, Snider apparently used the socialization instead of the sociability variable because the error occurred only in one statement. Snider constructed an equation of his own using ten CPI variables. It accounted for 19% of the variance in achievement.

Remaining in school was the criterion of academic success used by some investigators. Five scales showed a relationship between the women who remained or dropped out of college and personality factors and four scales were significant for the men (Astin, 1964). In work done by Maxwell (1960) scores from the CPI were better indicators of those who would drop out of college than was a measure of aptitude. Some scales of the CPI yielded significantly different scores depending on the academic progress of the subjects. Four categories of progress for males were no B.A. or B.S. degree, B.A. or B.S. degree only, some graduate work, and Ph.D. or professional degree. The last category was omitted in the female group. Five scales were

significantly different for the male groups and five for the female groups, but no scale was significant for both groups.

While they are less favorable than those cited above, the following studies indicated that the CPI holds promise as a factor related to academic performance. Holland & Astin (1962) found the following scales which correlated with achievement (Table I). They are listed approximately in order from highest correlations to lowest: achievement via conformance, femininity, social presence, responsibility socialization, self-control, sociability, capacity for status, achievement via independence, self-acceptance, and flexibility. However, true-false inventories were lower in predictive efficiency than past achievements, self- and teacher ratings, and measure of interest.

In the studies reviewed in this paragraph, scores on CPI were related to deviant achievement. Only the psychological-mindedness scale differentiated ($p < .05$) between male under- and overachievers. Female under- and overachievers were significantly different at the .05 level on the responsibility, good impression, and achievement via independence scales; and at the .01 level on dominance, tolerance, and achievement via conformance (Table I). It was concluded that the CPI would be of value in admission considerations for females but not for males (Hunt, 1961). Kearney's (1966) measure of deviant achievement was a difference in high school and junior college grades. CPI scales accounted for some variance in achievement that was not accounted for by some other factors.

In these research reports, the CPI was used to predict achievement. Lanier (1962) concluded that the CPI was an efficient predictor of grade point average. Those scales which were good predictors were

the dominance, self-control, socialization, and achievement via independence for the males, and achievement via independence and good impression for the females. The femininity scale was the only CPI scale which predicted academic achievement for males in the Nichols & Holland (1963) study. No CPI scale predicted achievement for females.

The investigations below involved younger subjects and yielded fewer positive results in relating the CPI scales to achievement. Pierce (1961) used tenth and twelfth grade boys. These groups were subdivided into low and high achievers of the same ability. The scores of nine scales were significantly different for low achievers and high achievers in the tenth grade; and eight scales, in the twelfth grade. The scales which differentiated between low and high achievers were not identical for the tenth and twelfth grade groups. Davids (1966) found several scales which differentiated between the high ability-high achievement group and the high ability-low achievement (underachievers) group. The groups were different on all scales ($p \leq .01$) except for the good impression and the flexibility scales. After a study of high school achievement, Fink (1962b) recommended the use of the achievement via conformance and the socialization scales in prediction.

The criterion of academic success for Swisdak & Flaherty (1964) was graduation within five years. Sociability, capacity for status, and achievement via conformance distinguished ($p \leq .10$) between graduates and nongraduates.

In research reported below, no relationships were found between the CPI scores and measures of achievement. Winkelman (1962) was not able to differentiate between the profile patterns of high, low, and

average achievers. In addition, there were no differences between these three groups on the scale scores of the CPI. Capretta, Jones, Siegel, & Siegel (1963) were unable to differentiate between Honors students with 3.25 GPA or above and those below 3.25 on four CPI scales. They used only the self-acceptance, achievement via independence, psychologocial-mindedness, and flexibility scales.

Richardson (1965) constructed a differential predictability test from a pool of CPI items. He was unable to improve the ability of the American Council on Education Psychological Examination (ACE) or the intellectual efficiency scale of the CPI to predict GPA by using this differential predictability test.

Some of the research on the CPI and academic achievement has focused on response styles. Jackson & Pacine (1961, p. 1027) concluded "that the response styles of acquiescence and consistent responses to item desirability are major response determiners of the CPI." The ability of the CPI to predict academic achievement is that it indirectly measures intelligence through response styles. However, Dickens (1963) did not find the response sets of social desirability, good impression, or acquiesence to be very influential in the scales of the CPI.

In general, the research indicated that the CPI measures personality factors which are operative in academic achievement. These factors apparently are not assessed by measures of intellectual ability.

Edwards Personal Preference Schedule

The EPPS scores have been compared to achievement in the research reviewed in this section. A description of the EPPS scales is

given in Appendix A. The scales are achievement, deference, order, exhibition, autonomy, affiliation, intraception, succorance, dominance, abasement, nurturance, change, endurance, heterosexuality, aggression and consistency. EPPS scales which researchers found related to various measures of achievement are given in Table II. Other investigators cited in Table II will be discussed later in this section.

The following studies related the EPPS scores to deviant achievement. Merrill & Murphy (1959) divided low ability college students into those achieving higher than expected (overachievers) and those achieving as expected. The achieving-as-expected group was significantly higher than the overachievers on the following scales: exhibition, autonomy, affiliation, and change. The overachievers were significantly higher on the deference, dominance, and endurance scales (Table II). The authors were optimistic about its use in further research on the relationship between academic achievement and the EPPS. In the Gebhart & Hoyt (1958) study, overachievers and underachievers were significantly different on seven of the 16 variables (Table II). Overachievers were significantly higher on the achievement, order, intraception, and consistency scales; and they were significantly lower on the nurturance, affiliation, and change scales. According to Klett (1957) overachievers had higher achievement, dominance, and endurance scores while they scored lower than underachievers on the heterosexuality, autonomy, and aggression scales (Table II). The achievement and the dominance scales contributed to the prediction of achievement beyond intelligence alone.

These researchers related the EPPS scales to achievement. The low and high ability groups were significantly different for nine of

TABLE II

RESULTS OF SOME ACHIEVEMENT RESEARCH WITH EPPS SCALES

EPPS Scales:		ach	def	ord	exh	aut	aff	int	suc	dom	aba	nur	chg	end	het	agg	con
Goodstein & Heilbrun, 1962																	
Correlation with GPA																	
Male:	Total Group	**															NC
	Low Ability				*							*					NC
	Medium Ability						*	*				*	*	**			NC
	High Ability															*	NC
Female:	Total Group																NC
	Low Ability										**	*					NC
	Medium Ability																NC
	High Ability							*									NC
Hakel, 1966																	
Correlation with GPA																	
Total Group	Quarter GPA	**		*				**	**			**		**			NC
	Core GPA			*										**			NC
Low Ability	Quarter GPA	**							**					*		*	NC
	Core GPA		*		*									*			NC
Med Ability	Quarter GPA													*			NC
	Core GPA																NC
High Ability	Quarter GPA			**				**									NC
	Core GPA			**												*	NC
Randomly selected																	
Core GPA	Group 1													*			NC
	Group 2							**						*			NC
	Group 3			*									*				NC
Quarter GPA	Group 1								*								NC
	Group 2						**							*			NC
	Group 3	*		*								*					NC

TABLE II (Continued)

EPPS Scales	ach	def	ord	exh	aut	aff	int	suc	dom	aba	nur	chg	end	het	agg	con
Gebhart & Hoyt, 1958																
Difference between																
Under- and overachievers	***		*			*	*				***	**				*
High, Med, Low Ability	***	***	*	**	*				***	**	*					**
Klett, 1957																
Difference between																
Under-and overachievers	*				*				*				*	*	*	
Merrill & Murphy, 1959																
Difference between																
Expected and overachievers		*		*	**	*			**			*		*		

* $p \leq .05$
** $p < .01$
*** $p \leq .001$
NC Not considered in the study

the 16 variables in Gebhart & Hoyt's (1958) work. The high ability group was higher on the achievement, exhibition, autonomy, dominance, and consistency scales. The low ability group was significantly higher on the deference, order, abasement, and nurturance scales. Interactions between the factors of ability and achievement were found for only two of the 16 variables. Goodstein & Heilbrun (1962) were able to find significant correlations between grade point average and personality variables for the male middle ability group (Table II). The affiliation, intraception, nurturance, change, and endurance scales had significant correlations. Only scattered instances of significant correlations between grade point and the 15 personality scales were found in the male high and low ability groups and in the female high, medium, and low ability groups. The total male group had only one significant correlation (achievement scale) in 15 correlations. There were none in the total female group. These results indicated that the EPPS may have possible utility in predicting achievement for middle ability males. Hakel (1966), in attempting to replicate Goodstein & Heilbrun's study (1962), did not find significant differences for the same scales. Hakel found more scales which were correlated both with GPA for core courses and with GPA of the previous quarter than did Goodstein & Heilbrun. Total group results are given along with the results of dividing the groups into high, medium and low ability in Table II. Also, he divided the group into three groups of subjects selected at randon. The groups should have been equal in ability. The significance of the relationship of GPA to EPPS scales is given in Table II. He concluded that it was not possible to make conclusive statements about the

relationship between achievement and personality variables because he was not able to replicate Goodstein & Heilbrun's results. O'Shea's (1967) results supported the hypotheses that high achievers would have significantly higher scores on the achievement, deference, and endurance scales; and that low achievers would score significantly higher on the heterosexuality and autonomy scales. However, his data failed to support the hypotheses that high achievers would have higher order, affiliation, and intraception scores; and that low achievers would have higher aggression scores. In another investigation (Lang, Sferra, & Seymour, 1962), five personality variables of the 15 on the EPPS were significantly related to faculty ratings of deviant achievement. The five variables were achievement, order, dominance, nurturance, and deference.

The efficiency of predictive batteries was greater when both intellective measures and personality measures (EPPS) were used together than when either was used separately (Shanker, 1961). In the research given below, the relationship of only the achievement scale of the EPPS and various measures of achievement was investigated. In one of the studies, the achievement scale was a better predictor of grade point average than was scholastic aptitude or anxiety (Reiter, 1964). Bendig (1958a) used the achievement scale and the vocabulary scale from the Cooperative Vocabulary Test. The correlation with performance was about equal for the scales. The vocabulary and the achievement scales were not highly correlated. A combination of the achievement scale and the vocabulary scale made a larger contribution to predicting achievement than either made alone. Weiss, Wertheimer, & Groesbeck (1959) selected subjects from an

introductory psychology course. The achievement scale along with a measure of academic aptitude correlated .64 ($p \leq .05$) with GPA. The aptitude measure correlated .55 ($p \leq .05$) with GPA when considered alone. The achievement scale was significantly correlated .43 with GPA; but it was not significantly correlated .18 with academic aptitude.

Studies with more limited scope used course grades as the achievement criterion and obtained positive results. The achievement scale was positively correlated with grades in introductory psychology; deference, autonomy, abasement, and change scores were negatively correlated (Bendig, 1958b). Izard (1962) investigated the relationship between actual achievement on a class test and EPPS scores and between expected performance and EPPS scores. Achievement and abasement scores were related to actual performance for males; and achievement, dominance, change, and nurturance for females.

In the research using high school students, only one investigation (Bhatnagar, 1969) reported a relationship between academic achievement and EPPS scales. He studied the relationship between six scales of the EPPS (Hindi) and academic achievement of high school students in India. The six scales were achievement, dominance, autonomy, nurturance, endurance, and aggression. Academic achievement was positively correlated with nurturance and endurance; and negatively correlated with dominance. When intelligence was held constant, only the correlations of nurturance and of endurance with academic achievement were significant.

Some studies held less hope of relating the EPPS to achievement.

One study involved deviant achievement. Krug (1959) used performance-based prediction and aptitude-based prediction of grade point average. Performance-based prediction was from three achievement tests and high school standings. Only one difference was found between over- and underachievers using performance-based prediction. The overachievers scored significantly higher on the achievement scale. Aptitude-based prediction was from the verbal and mathematics scales of the College Board Scholastic Aptitude Test (SAT). Underachievers had lower scores on the achievement, order, and endurance scales, but they had higher scores for the affiliation and heterosexuality scales. Five differences were found between the high and low levels of predicted ability. The high ability group scored higher on the dominance and heterosexuality scales and lower on the deference, order, and abasement scales. The factors of deviant achievement and ability showed an interaction on the scales of deference, succorance, and endurance. The difference in results due to the type of prediction was interpreted as an indication that past performance accounts for the same variance as did the scales of the EPPS.

The next group of investigations related personality factors to achievement rather than to deviant achievement. In Bendig's (1958b) study, the achievement scale correlated with cumulative grade point average at the .10 level of significance. McCary (1967) divided a group of male college students into five ability groups (from composite ACT scores) then further divided these groups into five achievement groups. The number of the 15 EPPS scales which discriminated between achievement levels ranged from none to three for the five ability groups. Only one scale, heterosexuality, was significant

in more than one ability group.

Stallings (1966) in his investigation of graduate students found three scales--order, abasement, and heterosexuality-which correlated significantly with grade point average. He concluded that the addition of nonintellectual factors, as measued by the EPPS, did not increase predictability sufficiently to justify their use. He felt that nonintellectual and cognitive factors were measuring the same thing.

One project of more limited scope used high school students. Crootof (1963) used only the achievement scale of the EPPS. Bright achievers had significantly higher achievement scores than did normal achievers and bright underachievers.

Other studies were quite negative about the outcome of using the EPPS in predicting academic performance. Three of those having negative results involved deviant achievement. Diener (1960) compared the personality traits of the overachievers with the underachievers. The traits of deference, order, and endurance as measured by the EPPS distinguished between the two groups. Demos & Spolyar (1961) failed to discriminate between underachieving and achieving students of high ability and between overachieving and achieving students of low ability. Kazmier (1961) used the entire range from over- to underachievers. When no subjects were eliminated, there was no relationship between personality factors and deviant achievement.

These were investigations of achievement and personality which yielded negative results and used restricted groups. There was no significant correlation between scales of the EPPS and grade point average of pre-medical students at Columbia (Osborne, 1963). The

achievement scale of the EPPS was employed in the Uhlinger & Stephens (1960) study of male engineering freshmen. They did not find a relationship between grades and the achievement scale.

Using the EPPS, there were no personality factors which could differentiate between the high and low achievers in dental school (Charles, 1966). The author suggested that personality is not influential in achievement.

These authors reported negative results when attempting to predict GPA with the EPPS scales. Lunneborg & Lunneborg (1966b) found that the EPPS accounted for only 3% of the total variance in grade point average. Two scales (achievement and exhibition) were significantly related to academic achievement for males; three for females (intraception, abasement, and aggression). They concluded that the EPPS was not useful in predicting achievement. The achievement scale was the only EPPS scale used by Bachman (1964). The achievement score did not improve the prediction of grade point by the Scholastic Aptitude Test (SAT). Neither was it useful in predicting under- or overachievement. Lunneborg & Lunneborg (1967) used a pattern analysis technique to predict GPA. The achievement, exhibition, intraception, abasement, and aggression scales were used in the pattern analysis. This technique did not yield correlation coefficients with GPA which were higher than those obtained with raw EPPS scores. Neither did the pattern analysis increase the efficiency of predicting GPA by raw scores.

An attempt was made to control social desirability of the EPPS scales by using a forced-choice format in which the pairs of statements were equated for social desirability. The achievement scale

was no better predictor of academic achievement than was an achievement scale in which no attempt was made to control social desirability (Heilbrun, 1962).

The literature indicates that the EPPS has the least possibility of providing a measure that can be used to predict academic achievement of any of the instruments chosen for this study. Since the particular population studied seems to be a variable in prediction and since favorable results have been obtained with it, the possible value of the EPPS in this study could not be ignored. This is expecially true of the achievement scale which showed a relationship with performance in a number of studies.

Self-estimate of Ability to Do School Work Scale

The use of self-estimates as a possible achievement variable is based on the theoretical position that the self-concept is an important factor in the way an individual interprets and, therefore, how he responds to his environment. If so, self-concept should also influence the behavior, or responses of academic achievement.

Most investigations of self-concept and academic achievement found a realtionship between these two variables. The studies reviewed below related self-concept to deviant achievement. Chickering (1958) found differences in self-concepts of over- and underachievers. Nichols & Holland (1963) found self-ratings of scholarship correlated .20 with first year college grades for men and .25 for women. According to Passow & Goldberg (1962) bright underachievers perceived themselves as being less adequate in intellectual endeavors than bright pupils who were high achievers. Shaw &

Alves (1963) found negative self-concepts to be related to underachievement when ability was held constant. In a 1964 review Taylor concluded that overachievers have positive self-value and the underachievers have negative self-value in most of the research reviewed. Only two of the many investigators that he reviewed had findings which were opposite to that conclusion.

Some researchers related self-concept to achievement. Using achievement as the independent variable, a difference was found in the adequacy of the self-concepts of high and low achievers that were rural high school freshmen. High achievers had adequate self-concepts but low achievers had inadequate self-concepts. The judgements of adequacies of self-concepts was made by a clinical psychologist and two school psychologists from profiles of the CPI (Fink, 1962a). Borislow (1962) hypothesized that the relationship between self-concept and achievement depended on whether or not the student's prime goal was scholastic achievement. For students who have scholastic achievement as their prime goal, achievers have a better self-concept.

Self-concept was used to predict achievement in these studies. Holland & Astin (1962) compared the efficiency of several variables to predict college achievement. Past achievements were most efficient predictors, followed by self-ratings and teacher ratings. Baird (1969) found self-ratings on scholarship to be better predictors of college grades than high school grade point average. Self-ratings reduced the variance in GPA much more than did high school grade point average for both male and female groups. Denham (1966) compared self-ratings and biographical data to two criteria of

college success. The criteria were grade point average and hours completed. The self-ratings and biographical data were obtained from an 85-item questionnaire--the Personal Data Inventory. He found that 33 items of this inventory along with a composite of the self-ratings and biographical data accounted for more variance in college success that did the SCAT total percentile scores. College success, in this instance, was grade point average.

Younger subjects were used in the following research. Quimby (1967) was able to discriminate between the underachiever and the achiever on the basis of the relationship of the self-concept to the ideal self. The underachievers could be distinguished from the achievers when ambivalent feelings were considered. This was not found when only the boys were analyzed. The achievers and underachievers both had discrepancies between their self-concepts and their ideal self-concepts. This difference occurred only in three statments for the achievers; however, it occurred in 25 statements for the underachievers. Bledsoe & Garrison (1962) found a significant relationship between self-concept and achievement using subjects from the elementary school. Overachievers in reading had positive self-concepts and underachievers had negative self-concepts. Reeder (1955) concluded from work with middle elementary pupils that those who have low self-concepts also are underachievers. Peppin (1962) equated underachievers and overachievers on the basis of achievement test scores. He asked them to rate themselves and their peers. Overachievers gave themselves a more favorable rating than they gave their peers. The underachievers rated themselves less favorably than their peers. Brookover, Paterson, & Thomas (1962) found that there

was a correlation between achievement and self-concept of achievement for both seventh grade boys and girls. This relationship, although lower, occurred when ability was held constant. There was a significant relationship between self-concept and grade point average for students in the third, sixth, and eleventh grades (Bruck & Bodwin, 1963).

Bowen (1968) assessed ninth graders self-estimates of their ability to do school work. The instrument used contained a global self-estimate of academic ability along with self-estimates of ability in more specific areas (mathematics; and reading, writing, and language), in addition the pupils rated themselves as they thought various significant others would rate their general academic ability (mother, father, teacher, and friend). Self-estimates were related to academic achievement. The prediction of academic achievement by the combined verbal reasoning and numberical ability scores of the Differential Aptitude Test Battery was significantly improved by the addition of the Self-estimate of Ability to Do School Work Scale. The investigator recommended that this instrument be used with students of different ages and in different settings.

The results of some studies have not shown a relationship between self-concept and achievement. Buchin (1965) reported negative results in her study of college freshmen and seniors. Self-concept was not related to academic ability or performance. Deviant achievement was not related to self-concept. In an investigation of first year nursing students, Klahn (1966) did not find a consistent significant relationship between self-concept and measures of success in the first year of nursing school. Butcher (1967) used the grades 3, 4, 5,

and 6 in the highest achieving schools of Flint, Michigan. There was not a significant degree of relationship between self-concept and achievement. The restriction of the range of achievement may at least partially explain this low relationship.

In the construction of devices to measure self-concept, the investigators cited below favored specific measures rather than global or general self-evaluations. Borislow (1962) found that under-achievers could not be distinguished from achievers if measures of general, non-academic self-concept were used. Evaluations which were directly related to scholastic performance have been shown to be more valuable (Nash, 1963; Furst, 1966). Torrance (1954) indicated that a specific evaluation is less threatening than a general one. A student does not mind admitting that he is poor in English, but it is much harder for him to evaluate himself as a poor student. Brookover et al. (1962) found specific self-conept to be a better indicator of success in some subject matter areas; but the results were so varied that no general conclusions could be drawn. Farls (1967) compared general self-concepts with student self-concepts and discovered a high relationship between the two. High achievers had significantly higher student self-concepts. In only one study was there evidence that general self-concept of ability was a better predictor of achievement than self-concepts in specific subject matter areas (Brookover, LePere, Hamachek, Thomas, & Erickson, 1965).

A problem which has been encountered in studies of self-concept is that students are unrealistic in their estimates of their abilities. Reeder, Donohue, & Biblarz (1960) found that there was not much agreement between ratings of others and self-ratings in a military

setting. In Russell's study (1953) of fifth and eighth grade children, boys and girls rated their own performance significantly higher than did their teachers. The pupils' ratings were not significantly higher than peer ratings. Teacher ratings were more like scores on the Progressive Achievement Tests than were pupils' own self-ratings. The research by Manis (1958) distinguished between the congruency of self-ratings and perceived parental ratings of maladjusted and well-adjusted students. Maladjusted students indicated a greater discrepancy in their self-ratings and perceived parental ratings than did the well-adjusted students. Amatora (1956) compared self-ratings and peer-ratings. There was a high correlation between these ratings. Bledsoe & Garrison (1962) said that there are more instances of overestimation than of underestimation. Arsenian (1942) also found discrepancies between estimated ability and actual possession of ability as indicated by objective tests. In Torrance's (1954) study of college students there was little correspondence between estimated level of achievement and actual performance. In fact, over 95% of the group rated themselves in the upper half of the class. Brandt (1958), in an investigation of the self-estimates of academic and physical ability of sixth grade children, stated that at least a fourth of them consistently overrated or underrated themselves. Girls were less accurate than boys in their estimates of their own academic abilities. Both boys and girls overestimated their ability more often than they underestimated. Accuracy of self-estimates was correlated (.32) with intelligence. This was to be expected since they were overestimating their ability. Wylie (1963, p. 223) reported "a highly

significant self-favorability bias" in her study of junior high students' own estimates of their ability to do school work. The literature indicated that the consideration of self-concept is usually quite profitable in evaluating academic potential.

Parents' Educational Levels

The educational level of the father and of the mother was related to measures of college performance in the following investigations. Frankel (1960) found differences in the educational levels and occupations of parents of achievers and underachievers. Brown & DuBois (1964) did a separate analysis for the college of sciences and humanities and for the college of engineering. The items which correlated with achievement in the college of sciences and humanities were educational importance in the home, father's educational level, mother's educational level, thinking of classwork between classes, student's lowest acceptable grade point average, and parent's lowest acceptable grade point average. In the college of engineering the significant data were mother's educational level, number of hours per week study, free time between classes spent studying, student's lowest acceptable grade point average, and parent's lowest acceptable grade point average. Watson (1965) found only educational level of father to be significantly related to achievement. He considered nine factors. In Barton's (1964) research, freshman male high achievers, low achievers, and dropouts were significantly different when compared on the basis of father's educational level and mother's educational level. In another project

the Parental Educational and Occupational Questionnaire, the Facade Detection Scale, and the Student Biographical Inventory were predictors of academic performance (Brown et al., 1956).

Of the ten best predictors of achievement in Lunneborg's (1968) study, two were biographical factors. One of these was father's educational level. Only three of the ten were intellectual factors. Both mother's and father's being college graduates contributed to grade prediction. Mayhew (1965) concluded that if ethnic background, father's income, mother's educational level, and location of home in relation to a college were used as an estimate of success in college, the prediction would be comparable to an estimate based on academic aptitude or high school grades.

Sewell & Shah (1968) selected high school seniors as subjects and followed their progress for seven years. Instead of using college GPA as a criterion of college achievement, their criteria were college plans, perceived parental encouragement, college attendance, and college graduation. Mother's education was a little less important than father's education for males, but the influence of mother's and father's educational level was about the same for females. Chopra's (1967) subjects were bright high school students in India. Achievers' fathers had significantly more education than did the fathers of underachievers. The only research reviewed with negative results was with high school students. Education of parents did not discriminate between achievers and nonachievers (Fortney, 1964).

The studies which follow related other biographical factors to

academic performance. In Lunneborg & Lunneborg's (1966a) work, six of the eight best predictors of academic accomplishment were as follows: technical vocational choice, vocational philosophy of higher education, level of intended vocation, high school student government activity, age, and hours of college study. Blanton & Peck (1964) found that graduating in the upper quarter of high school class accounted for 8% of the variance in grade point; enrollment in the college of arts and sciences, 3%; carrying 15-18 hours per semester, 4%; finds stydying a job, 9%; does not find studying a chore, 4%; and asocial, 6%. This is a total of 34% of the variance accounted for by nonintellectual factors. Engle's (1966) research was done with ninth grade students in an attempt to distinguish between achievers and underachievers. Three of 11 biographical factors were positively related to accomplishments in arithmetic and reading. The factors were occupational level of family, number of times the family moved, and number of siblings living in the home. In Shaw & Brown's (1957) study, no relationships were found with six variables. Most of the information was conjectural. No unequivocal, positive results were given. Meyers (1952) indicated which scales composed his source of biographical information. They added a small ammount to the multiple correlation. Overachievers were characterized as having two or less activities, being Jewish, living in a middle to large city, having one or both foreign-born parents, being youngest of two or more siblings, and holding a high school office. Some studies utilized instruments composed of many items of information. It was not clear what specific kinds of biographical information they were using. All studies reviewed indicated that their

particular assessment of biographical information was related to achievement (Abe, 1965; Asher & Gray, 1940; Denham, 1966; Freeberg, 1967; Malloy, 1954; Malloy, 1955; Malloy & Ivanoff, 1964; and Roudabush, 1963).

Most of the research indicated that parental educational level is quite promising as a variable in achievement. Father's and mother's educational levels were selected as variables in this study.

Need for Institutional Research

Several investigators emphasized the need for institutional research in order to assess the relevance of these measures for predicting academic achievement in any given institution. Because of the diversity found in various colleges, it seemed probable that the factors influencing achievement would also vary. Mayhew (1965) made an appeal for institutional research. Brown (1962), in reviewing research on personality and college environment, indicated that differences in campus cultures should be considered in the prediction of academic achievement. In reference to background factors related to academic achievement, Watson (1965) stated that there was much variation in the relationship of nonintellectual factors and achievement as a function of the particular population and that more research was needed before using background factors. Holland (1959) discovered much variation from college to college in the validity of the individual scales of the CPI for predicting college success. The utility of the scales for a given college needs to be ascertained before their use can be warranted. Even in different colleges of the same university, different characteristics

resulted in achievement (Brown & DuBois, 1964). Sanford (1962) noted the diversity that had been found in institutions and in the students they attracted. McConnell & Heist (1962) mentioned the variety in the social backgrounds, values, interests, attitudes, and intellectual disposition of different colleges. In attempting to account for seemingly discrepant results, Lavin (1965) pointed out that behavior which is rewarded may vary from one school to another. The nonintellectual factors which relate to achievement, therefore, could vary as well. Kearney (1966) felt that there should be institutional investigations of the able learner. Lang et al. (1962, p. 360) concluded that it was "most desirable that investigations of this type be replicated at other institutions." In a discussion of the EPPS, Anastasi (1968, p. 453) stated, "The need for specific group norms on personality tests is highlighted by the large and significant mean differences found between this consumer panel and the college sample." Bowen (1968) recommended that the Self-estimate of Ability to Do School Work be used in other institutions as well as with subjects other than those in the ninth grade.

All four instruments used in this study are possible sources of predictor variables for academic achievement. The CPI, measures of self-concept, and parental education seemed to be more productive in supplying information which was related to performance than was the EPPS. An important moderator variable, however, is the particular situation and population which is involved in the research.

CHAPTER III

METHODS AND PROCEDURE

Scales

Four different measures were used to assess nonintellectual factors. These were the EPPS, the CPI, the Self-estimate of Ability to Do School Work Scale, and parental educational level. The personality inventories are designed to assess differences in normal individuals rather than distinguish between normal and disturbed persons.

Edwards Personal Preference Schedule

The EPPS (Edwards, 1959) is a 225-item inventory of personality characteristics in a forced-choice format. It has 15 personality scales and one consistency scale. The 15 personality scales are based on Murray's list of needs (Murray et al., 1938). They are achievement, deference, order, exhibition, autonomy, affiliation, intraception, succorance, dominance, abasement, nurturance, change, endurance, heterosexuality, and aggression. Further indication of the meaning of these scales along with directions for administration are given in Appendix A. A restatement of the items used in each scale is given.

Two statements representing different personality traits were

paired in each item in such a way as to hold social desirability constant. The subject was instructed to choose the statement which was most nearly true of him. Statements from each of the 15 scales are paired twice with statements from each of the other scales. In this way the subject is forced to compare each scale with each other scale in reference to himself. The consistency scale is made up of 15 pairs of statements each repeated once. If the item is answered the same way both times it occurs it increases the consistency score.

The scales were constructed on a rational basis (Anastasi, 1968). Edwards chose items which he thought represented the needs chosen from Murray's list.

California Psychological Inventory

The CPI (Gough, 1957) is a 480-item inventory with a true-false format. The view of the individual is from a social interaction frame of reference. It was designed for use with socially functioning individuals. It has 18 scales, which are dominance, capacity for status, sociability, social presence, self-acceptance, sense of well-being, responsibility, socialization, self-control, tolerance, good impression, communality, achievement via conformance, achievement via independence, intellectual efficiency, psychological mindedness, flexibility, and femininity.

The sense of well-being, good impression, and communality scales are validity scales. The sense of well-being scale was based on responses of subjects instructed to fake-bad. They were asked to answer as if they were disturbed by preoccupations and internal conflicts. They were compared with hospitalized psychoneurotic

patients. The good impression scale was formed from a comparison of the responses of subjects given the items under normal conditions with their responses when asked to answer in such a way as to make the best impression possible. Communality is an indication of social desirability in that it consists of items keyed in the direction in which they are commonly answered. Test scores are to be interpreted as invalid only when the scores are extreme on these scales. Intermediate scores may be interpreted in the same way as the other scales (Gough, 1957).

The social presence, self-acceptance, self-control, and flexibility scales were keyed rationally. The items were chosen on an intuitive basis and evaluated on the basis of internal consistency (Gough, 1957).

The remaining scales were keyed empirically on the basis of significant differences in responses of groups which were designated as being high in the pertinent characteristic compared with those who were low in the characteristic. Criteria independent of the testing situation were used in defining the groups (Gough, 1957). A further description of the scales and directions for administration are given in Appendix B.

Self-estimate of Ability to Do School Work Scale

The Self-estimate of Ability to Do School Work Scale is a seven-item self-concept scale. The subject was instructed to rate himself in two specific areas (mathematics; and reading, writing, and language); in general school ability; and as he thought four significant others would rate him (mother, father, teacher, and friend). Nine

rating categories were used which correspond to various percentiles. Each of the rating categories were represented by a numerical value ranging from 9 for highest ratings to 1 for lowest. The scale and the instructions given to the subjects are given in Appendix C. A mean of the seven items was used for analysis in this project. This scale was taken from a study done by Bowen (1968) using ninth grade pupils.

Father's and mother's educational levels were obtained on the same sheet as the self-estimate ratings. Numerical values were used to indicate educational level: 8 indicated an advanced degree; 7, graduate work; 6, college graduate; 5, attended college; 4, high school graduate; 3, attended high school; 2, grade school through eighth grade; and 1, less than eighth grade.

Selection of Subjects

The subjects were 515 freshmen and sophomores enrolled at Bethany Nazarene College in the 1968-69 academic year. The freshmen included those who completed the first semester. The sophomores were those who had accumulated enough hours to be classified as sophomores (24 to 53 semester hours) at the end of the first semester of the 1968-69 term provided that they had not transferred from another college or that they were not classified as a sophomore for three semesters. Another requirement of all subjects was that they have an ACT predicted grade point average on file with the college.

The number of subjects in each group is given in Table III. The only exceptions were that there were 52 sophomore males instead of 53 for the aggression scales of the EPPS; and there were 77 sophomore

TABLE III

NUMBER OF SUBJECTS IN EACH GROUP

	Fr Male	Fr Female	So Male	So Female
EPPS	128	163	53	79
CPI	129	163	57	83
Self-estimate	131	163	67	92
Father and Mother educational level	131	163	67	92

females instead of 79 for the aggression scale. These differences were because of careless marking of responses so that this particular scale was unscoreable for these subjects.

Procedure

The EPPS, the CPI, and the Self-estimate Scale were administered to the freshmen on the Friday afternoon of registration and orientation week for the first semester of the 1968-69 term (August 30, 1968). This was the week just prior to the first week of classes.

The inventories were given to the sophomores at two different testing periods. The CPI was administered on March 19, 1969. The EPPS and the Self-estimate Scale were given on April 2, 1969. The tests were given at separate times because there was no time interval of sufficient length when sophomores were together. Also, the tests were found to be rather long to be given in one testing period.

The directions given to both classes are given in Appendices A,

B, and C along with descriptions of the inventories used. The directions were read to the freshmen at appropriate intervals throughout the testing period. To conserve time in the short testing periods available, the directions were given to the sophomores in written form. Conditions were not the same for both groups and no direct comparisons were made between the data for freshmen and that for the sophomores.

Any items omitted by the subjects were answered by tossing a coin unless the omission were excessive (more than five) in relationship to the whole test or if several were included on the same scale (more than two). Had the items been left unanswered, it would have been equivalent to answering the items in the non-keyed direction. This would have introduced a systematic bias. Therefore, by the use of an unbiased method, an omitted item had an equal chance of being scored in the keyed or non-keyed direction.

Treatment of the Data

Hypotheses 1 and 2 were related to the questions, Are personality factors correlated with ability? and Are personality factors correlated with achievement? Pearson's Product Mement correlation was used for each nonintellectual factor to answer these questions. The analysis of variance was not used as was originally planned. The questions could be answered from the correlation coefficients necessary for the multiple correlation coefficients used for Hypothesis 5.

Hypothesis 3 was that there is no significant interaction between ability and achievement when considering nonintellectual factors. This was evaluated with a 4 x 2 factorial analysis of

variance. The four factors were ability, performance, classification, ans sex. The factors of classification and sex were included so that they could be held constant, not for interpretation purposes. Since ability and performance were correlated, there were very few subjects in the high ability-low performance cell (Cell I) (Figure 2), or the low ability-high performance cell (Cell IX). It was not possible to obtain a measure of within groups variance (error) for these cells; therefore, higher order interactions were used as a measure of error. In order to assess the interaction it was necessary to do two analyses of variance for the means of each cell for each nonintellectual factor. One of the analyses considered the four cells (II, III, V, VI) of high ability-high performance, high ability-average performance, average ability-high performance, and average ability-average performance. The other analysis involved the four cells (IV, V, VII, VIII) of low ability-low performance, low ability-average performance, average ability-low performance, and average ability-average performance (Figure 2).

Hypothesis 4 was that there is no relationship between deviant achievement and nonintellectual factors. Pearson's Product Moment correlation was used to evaluate this relationship.

Hypothesis 5 was that nonintellectual factors do not account for any variance in deviant achievement beyond that accounted for by ability. This was answered by multiple correlations and regression analysis (Steel & Torrie, 1960).

The original Hypothesis 6 was a separate hypothesis about the relationship of biographical factors and achievement. Parents' educational levels yielded data which could be treated statistically

Ability		Low	Average	High
	High	I	II	III
	Average	IV	V	VI
	Low	VII	VIII	IX
		Low	Average	High
			Performance	

Figure 2. Ability versus Performance Cells

just as the other data so this hypothesis was omitted and the data was included in the tests of the hypotheses given above.

CHAPTER IV

RESULTS

The results relating to each hypothesis will be treated as a unit. The hypotheses will be discussed for each of the scales of the nonintellectual factors separately; furthermore, the report for each of the scales must be subdivided into freshman males, freshman females, sophomore males, and sophomore females since the results are not the same for all groups.

Nonintellectual Factors and Ability

Hypothesis 1. There are no significant relationships between any of the nonintellectual factors and ability for freshman males, freshman females, sophomore males, or sophomore females. Correlation coefficients and significance levels for the relationship of nonintellectual factors and ability are given in Table IV.

Fourteen scales of the CPI were correlated ($p < .05$) with ability for at least one of the subject groups. Only four scales showed no correlation. The scales which were correlated significantly with ability for all four subject groups were the capacity for status (freshman males, .26; freshman females, .24; sophomore males, .42; sophomore females, .42), responsibility (freshman males, .45; freshman females, .35; sophomore males, .45; sophomore females, .31), achievement via independence (freshman males, .46; freshman females,

TABLE IV

CORRELATION OF ABILITY AND NONINTELLECTUAL FACTORS

	Fr Male	Fr Female	So Male	So Female
CPI:				
Dominance	.16	.23**	.17	.32**
Capac for status	.26**	.24**	.42**	.42**
Sociability	.27**	.11	.23	.25*
Social presence	.16	-.03	.11	.32**
Self-acceptance	.24**	.07	.18	.32**
Well-being	.46**	.17*	.23	.12
Responsibility	.45**	.35**	.45**	.31**
Socialization	.41**	.28**	.49**	.07
Self-control	.11	.11	.24	-.04
Tolerance	.39**	.21**	.34*	.16
Good impression	-.04	.02	.23	.11
Communality	.37**	.20*	.30*	.04
Ach via conform	.37**	.29**	.34*	.37**
Ach via indep	.46**	.40**	.51**	.32**
Intellect effic	.55**	.32**	.38**	.36**
Psychol-mindedness	.07	.11	.16	.29**
Flexibility	.06	-.04	-.01	.13
Femininity	-.16	.02	-.01	.01
EPPS:				
Achievement	.40**	.28**	.19	.40**
Deference	.03	-.02	.14	-.25*
Order	-.03	-.04	.02	-.001
Exhibition	.09	.04	-.003	.11
Autonomy	-.10	-.08	-.14	-.12
Affiliation	-.06	-.01	-.07	.02
Intraception	.07	.04	-.06	-.15
Succorance	-.07	.14	.08	.04
Dominance	.17*	.03	.16	.22
Abasement	-.01	.06	-.01	-.13
Nurturance	-.08	.08	-.13	-.06
Change	-.22*	-.24**	-.06	.01
Endurance	.06	.07	.07	.06
Heterosexuality	-.04	-.09	-.005	-.06
Aggression	-.10	-.14	-.03	.0006
Consistency	.39**	.11	.27*	.17
Self-estimate	.70**	.60**	.72**	.59**
Father ed level	.14	.22**	.29*	.14
Mother ed level	.26**	.27**	.35**	.22*

** $p \leq .01$ * $p \leq .05$

.40; sophomore males, .51; sophomore females, .32), and intellectual efficiency (freshman males, .55; freshman females, .32; sophomore males, .38; sophomore females, .36). The achievement via conformance scale was significantly correlated with ability $p \leq .05$ for sophomore males (.34) and $p \leq .01$ for the other three groups (freshman males, .37; freshman females, .29; sophomore females, .37). The dominance (CPI) scale was correlated ($p \leq .01$) with ability for both female groups (freshmen, .23; sophomores, .32). The sociability scale was correlated at the .01 level of significance for freshman males (.27) and at the .05 level for sophomore females (.25). The social presence scale correlated ($p \leq .01$) with ability for sophomore females (.32). The self-acceptance scale was related ($p \leq .01$) to ability for the freshman male (.24) and the sophomore female (.32) groups. The socialization scale was correlated ($p \leq .01$) with ability for all groups except sophomore females (freshman males, .41; freshman females, .28; sophomore males, .49). The tolerance scale was correlated with ability at the .01 level of significance for the two freshmen groups (males, .39; females, .21) and at the .05 level for sophomore males (.34). The communality scale was correlated with ability at the .01 level for freshman males (.37) and at the .05 level for freshman females (.20) and sophomore males (.30). The psychological-mindedness scale was correlated with ability ($p \leq .01$) for the sophomore females (.29).

The Self-estimate Scale correlated ($p \leq .01$) with ability for all groups (freshman males, .70; freshman females, .60; sophomore males, .72; sophomore females, .59). The mother's educational level correlated with ability at the .01 level of significance for the two fresh-

man groups (males, .26; females, .27) and for sophomore males (.35), and at the .05 level for sophomore females (.22). Father's educational level was significantly correlated with ability for freshman females (.22) ($p \leq .01$) and for sophomore males (.29) ($p \leq .05$).

Five of the 16 scales of the EPPS were related to ability. The achievement scale was related ($p \leq .01$) for all groups except sophomore males (freshman males, .40; freshman females, .28; sophomore females, .40). The deference scale was negatively correlated (-.25) ($p \leq .05$) with ability for sophomore females. The dominance scale was correlated (.17) ($p \leq .05$) for freshman males. There was a negative relationship between the change scale and ability at the .01 level for freshman females (-.24) and at the .05 level for freshman males (-.22). The consistency scale was related to ability at the .01 level for freshman males (.39) and at the .05 level for sophomore males (.27).

Nonintellectual Factors and Performance

Hypotheses 2. There are no significant relationships between any of the nonintellectual factors and achievement for freshman males, freshman females, sophomore males, or sophomore females. The correlation coefficients and significance levels for the relationships between nonintellectual factors and GPA for all scales and all groups are listed in Table V.

Seventeen of the 18 scales of the CPI were related to performance for at least one of the four groups. Five scales were correlated ($p \leq .01$) with actual grade point average for all groups. They were the responsibility (freshman males, .48; freshman females .42; sopho-

TABLE V

CORRELATION OF ACTUAL GRADE POINT AVERAGE AND NONINTELLECTUAL FACTORS

	Fr Male	Fr Female	So Male	So Female
CPI:				
Dominance	.15	.18*	.03	.27*
Capac for status	.19*	.22**	.28*	.34**
Sociability	.20*	.04	.03	.21
Social presence	.10	-.06	.06	.26*
Self-acceptance	.26**	.04	.14	.21
Well-being	.45**	.24**	.19	.24*
Responsibility	.48**	.42**	.51**	.32**
Socialization	.47**	.40**	.42**	.30**
Self-control	.17*	.26**	.24	.13
Tolerance	.39**	.28**	.24	.28**
Good impression	-.04	.14	.17	.25*
Communality	.42**	.26**	.19	.07
Ach via conform	.32**	.40**	.38**	.51**
Ach via indep	.42**	.40**	.56**	.42**
Intellect effic	.49**	.38**	.39**	.35**
Psychol-mindedness	-.11	.08	.20	.32**
Flexibility	-.13	-.13	.19	.04
Femininity	-.07	.16*	.11	.04
EPPS:				
Achievement	.33**	.28**	.20	.31**
Deference	.14	-.01	.31*	-.13
Order	.02	.10	.18	.07
Exhibition	.06	-.04	-.08	.17
Autonomy	-.19*	-.08	-.01	-.19
Affiliation	-.02	-.07	-.23	.06
Intraception	.19*	.06	.03	-.20
Succorance	-.12	.11	-.10	.08
Dominance	.12	.07	.08	.22
Abasement	.04	-.03	.19	-.19
Nurturance	-.04	.02	-.22	-.12
Change	-.22*	-.21**	-.13	-.02
Endurance	.10	.09	.14	.14
Heterosexuality	-.17*	-.05	-.23	-.07
Aggression	-.08	-.14	.06	.02
Consistency	.34**	.05	.14	.11
Self-estimate	.58**	.45**	.65**	.53**
Father ed level	.08	.21**	.22	.09
Mother ed level	.20*	.24**	.34**	.16

** $p \leq .01$ * $p \leq .05$

more males, .51; sophomore females, .32), socialization (freshman males, .47; freshman females, .40; sophomore males, .42; sophomore females, .30), achievement via conformance (freshman males, .32; freshman females, .40; sophomore males, .38; sophomore females, .51), achievement via independence (freshman males, .42; freshman females, .40; sophomore males, .56; sophomore females, .42), and intellectual efficiency scales (freshman males, .49; freshman females, .38; sophomore males, .39; sophomore females, .35). The capacity for status scale was related to GPA for all groups. It was related at the .05 level for freshman males (.19) and for sophomore males (.28) and at the .01 level for the freshman females (.22) and for sophomore females (.34). The tolerance scale was correlated ($p \leq .01$) for all groups except sophomore males (freshman males, .39; freshman females, .28; sophomore females, .28). The sense of well-being scale was correlated with performance at the .01 level for both freshman groups (males, .45; females, .24) and at the .05 level for the sophomore female group (.24). The communality scale was correlated ($p \leq .01$) with GPA for both freshman groups (males, .42; females, .26). The self-control scale was related to performance at the .01 level for freshman females (.26) and at the .05 level for freshman males (.17). The dominance scale was correlated with GPA for both female groups (freshman, .18; sophomore, .27). The self-acceptance scale was correlated (.26) ($p \leq .01$) for the freshman males. The psychological-mindedness scale was correlated (.32) ($p \leq .01$) with GPA for sophomore females. Four scales were correlated with performance at the .05 level for at least one group. They were as follows: social presence (.26) and good impression (.25) for the sophomore female group; sociability (.20)

for the freshman male group; and femininity (.16) for the freshman female group. The flexibility scale was the only scale of the CPI not significantly correlated for any group.

The mean of the self-estimate rating scale correlated ($p \leq .01$) with performance for all groups (freshman males, .58; freshman females, .45; sophomore males, .65; sophomore females, .53). The mother's educational level was related to GPA at the .01 level for freshman females (.24) and sophomore males (.34) and at the .05 level for freshman males (.20). Father's educational level was significant at the .01 level for freshman females (.21).

Seven of the 16 EPPS scales were significantly related to performance for at least one of the groups. Achievement was correlated ($p \leq .01$) for all groups except sophomore males (freshman males, .33; freshman females, .28; sophomore females, .31). The change scale was negatively related to GPA for freshman females (-.21) ($p \leq .01$) and for freshman males (-.22) ($p \leq .05$). The measure of consistency was related (.34) ($p \leq .01$) to performance for freshman males. For the sophomore male group, deference was significantly correlated (.31) ($p \leq .05$) with GPA. Intraception (.19) and heterosexuality (-.17) were negatively correlated at the .05 level with GPA for freshman males.

Nonintellectual Factors and Ability-Performance Interaction

Hypothesis 3. There is no significant interaction between ability and achievement for any of the nonintellectual factors. The F values of the ratio of the mean square for interaction and for error are given in Table VI.

TABLE VI

INTERACTION OF ABILITY AND PERFORMANCE IN CONSIDERING NONINTELLECTUAL FACTORS (F VALUES)

	High Cells	Low Cells
CPI:		
Dominance	.01	.37
Capacity for status	.00	.74
Sociability	.12	.10
Social presence	.11	.31
Self-acceptance	.10	.25
Well-being	.00	1.11
Responsibility	.12	.73
Socialization	.17	.24
Self-control	.08	.91
Tolerance	.10	1.21
Good impression	.84	.55
Communality	.00	.33
Achievement via conformance	.00	.28
Achievement via independence	.12	.35
Intellectual efficiency	.19	1.00
Psychological-mindedness	.05	.84
Flexibility	.06	.60
Femininity	.01	.26
EPPS:		
Achievement	.04	.28
Deference	.02	1.34
Order	.27	.12
Exhibition	.52	.03
Autonomy	2.00	3.54
Affiliation	1.25	5.83*
Intraception	1.04	.69
Succorance	1.60	.60
Dominance	.39	.01
Abasement	.13	.22
Nurturance	.22	.96
Change	.08	.29
Endurance	.51	.06
Heterosexuality	.08	.01
Aggression	.78	.30
Consistency	.18	.06
Self-estimate	1.17	.69
Father ed level	1.66	.39
Mother ed level	1.74	.00

* $p \leq .05$

In order to assess the interaction of ability and performance on nonintellectual factors, it was necessary to compute two analyses of variance for each scale. This was necessitated since there were too few subjects in the low ability-high performance cell and the high ability-low performance cell to obtain a measure of within cells variance (error). The high cells analysis of variance included the high ability-high performance, the high ability-average performance, the average ability-high performance, and the average ability-average performance cells. The low cells included the low ability-low performance, low ability-average performance, average ability-average performance, and average ability-low performance cells. The only factor which showed a significant interaction between ability and performance when considering nonintellectual factors was the interaction for low cells on the affiliation scale. Since 74 interactions were considered ($p \leq .05$), some significant interactions would be expected by chance alone.

Nonintellectual Factors and Deviation Scores

Hypothesis 4. There is no relationship between deviant achievement and any of the nonintellectual factors for freshman males, freshman females, sophomore males, or sophomore females. The previous sections have dealt with actual levels of ability and achievement. This section will be concerned with nonintellectual factors associated with deviations in ability and performance. Are nonintellectual factors related to students' achieving above or below their predicted level?

Table VII is a list of the correlation coefficients for the

TABLE VII

CORRELATION OF DEVIATION SCORES AND NONINTELLECTUAL FACTORS

	Fr Male	Fr Female	So Male	So Female
CPI:				
Dominance	-.10	-.06	.11	-.07
Capac for status	-.08	-.09	-.01	-.08
Sociability	-.08	.04	.17	-.05
Social presence	-.01	.06	.01	-.06
Self-acceptance	-.19*	.003	-.03	.02
Well-being	-.30**	-.19*	-.06	-.24*
Responsibility	-.35**	-.28**	-.29*	-.16
Socialization	-.36**	-.31**	-.12	-.39**
Self-control	-.16	-.26**	-.11	-.25*
Tolerance	-.27**	-.21**	-.02	-.26*
Good impression	.03	-.18*	-.02	-.26*
Communality	-.31**	-.19*	.01	-.06
Ach via conform	-.18*	-.31**	-.21	-.37**
Ach via indep	-.26**	-.20*	-.30*	-.30**
Intellect effic	-.29**	-.26**	-.19	-.16
Psychol-mindedness	.21*	-.02	-.13	-.18
Flexibility	.24**	.15	-.27*	.08
Femininity	-.02	-.20	-.16	-.05
EPPS:				
Achievement	-.16	-.15	-.09	-.06
Deference	-.18*	.0003	-.30*	-.06
Order	-.06	-.17*	-.24	.10
Exhibition	-.02	.10	.11	-.15
Autonomy	.19*	.05	-.13	.18
Affiliation	-.02	.09	.26	-.07
Intraception	-.21*	-.05	-.11	.16
Succorance	.12	-.03	.23	-.08
Dominance	-.04	-.07	.04	-.10
Abasement	-.07	.09	-.28*	.16
Nurturance	-.10	.04	.19	.11
Change	.15	.08	.12	.05
Endurance	-.10	-.07	-.13	-.15
Heterosexuality	.22*	-.01	.33*	.05
Aggression	.04	.07	-.12	-.03
Consistency	-.19*	.02	.07	-.002
Self-estimate	-.31**	-.10	-.21	-.21*
Father ed level	-.01	-.10	-.02	.003
Mother ed level	-.09	-.09	-.14	-.02

** $p \leq .01$ * $p \leq .05$

relationship of deviation scores and nonintellectual factors. Most coefficients were negative, indicating that a high score on most scales was related to overachievement.

Thirteen CPI scales indicated a relationship between deviant achievement and personality. Achievement via independence was the only scale which correlated for all four groups. For freshman female (-.20) and sophomore male (-.30) groups the negative correlation was significant at $p \leq .05$; for freshman male (-.26) and sophomore female (-.30) groups, $p \leq .01$. The socialization scale was negatively correlated ($p \leq .01$) for all groups except sophomore males (freshman males, -.36; freshman females, -.31; sophomore females, -.39). The achievement via conformance scale was negatively correlated with deviant achievement at the .01 level for female groups (freshmen, -.31; sophomores, -.37) and at the .05 level for freshman males (-.18). The responsibility (freshman males, -.35; freshman females, -.28) and the tolerance (freshman males, -.27; freshman females, -.21) scales were negatively correlated with the deviation scores at the .01 level for freshmen. Responsibility was negatively correlated $p \leq .05$ for sophomore males (-.29); and tolerance, for sophomore females (-.26). The sense of well-being scale was negatively correlated ($p \leq .01$) for freshman males (-.30) and ($p \leq .05$) for both female groups (freshmen, -.19; sophomores, -.24). Intellectual efficiency was negatively correlated ($p \leq .01$) with deviation scores for freshmen (males, -.29; females, -.26). Self-control was negatively correlated for freshman females (-.26) ($p \leq .01$) and for sophomore females (-.25) ($p \leq .05$). Communality was negatively correlated with deviation scores for freshman--males (-.31), ($p \leq .01$) and females (-.19),

($p \leq .05$). For freshman males flexibility was positively related to underachievement (.24) ($p \leq .01$) and for sophomore males the relationship was opposite (-.27) ($p \leq .05$). Good impression correlated negatively ($p \leq .05$) with deviation scores in the female groups (freshmen, -.18; sophomores, -.26). Two scales were significant ($p \leq .05$) for only freshman males; self-acceptance related negatively (-.19); psychological-mindedness (.21), positively.

The average of the self estimate scale related negatively to deviation scores for freshman males (-.31) ($p \leq .01$) and for sophomore females (-.21) ($p \leq .05$). Neither educational level of the father nor of the mother was significantly related to deviation scores for any group.

Seven EPPS scales were correlated ($p \leq .05$) with deviant achievement for at least one group. However, none were significantly correlated with deviation scores for the sophomore female group. The deference scale was negatively correlated with deviant achievement for freshman males (-.18) and sophomore males (-.30). The order scale negatively correlated with deviation scores for freshman females (-.17). The heterosexuality scale was positively correlated for males (freshmen, .22; sophomores, .33). Intraception (-.21) and consistency (-.19) scales were negatively related to the deviation scores for the freshman male group; autonomy scale (.19) was positively related for this group. Abasement was related (-.28) to discrepancies between the predicted and actual achievement of sophomore males.

Nonintellectual Factors and Prediction of Performance

Hypothesis 5. Nonintellectual factors do not account for any variance in achievement beyond that accounted for by ability for freshman males, freshman females, sophomore males, or sophomore females. Multiple correlation coefficients were computed to determine the degree of relationship among nonintellectual factors, ability, and achievement. The multiple correlation coefficients are given in Table VIII. All relationships are significant at the .01 level.

Multiple correlation coefficients were squared to yield coefficients of determination. They are given in Table IX. The combination of ability and nonintellectual factors accounted for 45% to 64% of the variance in GPA.

The coefficients of determination were used in a regression analysis to indicate the contributions of nonintellectual factors to the prediction of GPA after considering ability (Steel & Torrie, 1960). The F values indicating whether the unique contributions of nonintellectual factors were significantly larger than the contribution of ability alone are given in Table X. No nonintellectual factor significantly improved prediction across all groups.

Thirteen of the CPI scales reduced the variance in prediction of actual GPA for at least one of the groups. The socialization scale reduced the variance significantly ($p \leq .01$) for all groups except sophomore males. The responsibility scale reduced the variance for both of the freshman groups at the .01 level of confidence and at the .05 level for sophomore males. The sense of well-being and achievement via independence scales reduced the variance ($p \leq .05$)

TABLE VIII

MULTIPLE CORRELATION COEFFICIENTS OF ACTUAL GRADE POINT AVERAGE, ABILITY, AND NONINTELLECTUAL FACTORS*

	Fr Male	Fr Female	So Male	So Female
CPI:				
Dominance	.74	.70	.69	.76
Capac for status	.74	.70	.68	.76
Sociability	.74	.70	.69	.76
Social presence	.74	.70	.68	.76
Self-acceptance	.74	.70	.68	.76
Well-being	.75	.71	.68	.77
Responsibility	.76	.72	.72	.76
Socialization	.76	.73	.69	.80
Self-control	.74	.72	.68	.77
Tolerance	.75	.71	.68	.77
Good impression	.74	.71	.68	.77
Communality	.75	.71	.68	.76
Ach via conform	.74	.73	.70	.79
Ach via indep	.74	.71	.72	.78
Intellect effic	.75	.72	.70	.76
Psychol-mindedness	.76	.70	.69	.76
Flexibility	.76	.70	.71	.76
Femininity	.74	.71	.69	.76
EPPS:				
Achievement	.74	.70	.72	.77
Deference	.75	.70	.75	.77
Order	.74	.71	.74	.77
Exhibition	.74	.70	.72	.77
Autonomy	.74	.70	.72	.78
Affiliation	.74	.70	.74	.77
Intraception	.75	.70	.72	.77
Succorance	.74	.70	.73	.77
Dominance	.74	.70	.72	.77
Abasement	.74	.70	.74	.77
Nurturance	.74	.70	.73	.77
Change	.74	.70	.72	.77
Endurance	.74	.70	.72	.77
Heterosexuality	.75	.70	.75	.77
Aggression	.74	.70	.71	.76
Consistency	.74	.70	.72	.77
Self-estimate	.74	.70	.71	.76
Father ed level	.74	.70	.67	.75
Mother ed level	.74	.70	.68	.75

* All coefficients significant at $p < .01$.

TABLE IX

PERCENT OF VARIANCE IN ACTUAL GRADE POINT AVERAGE ACCOUNTED FOR BY ABILITY AND NONINTELLECTUAL FACTORS

	Fr Male	Fr Female	So Male	So Female
CPI:				
Dominance	55%	49	48	58
Capac for status	55	49	46	58
Sociability	55	49	48	58
Social presence	55	49	46	58
Self-acceptance	55	49	46	58
Well-being	56	50	46	59
Responsibility	58	52	52	58
Socialization	58	53	48	64
Self-control	55	52	46	59
Tolerance	56	50	46	59
Good impression	55	50	46	59
Communality	56	50	46	58
Ach via conform	55	53	49	62
Ach via indep	55	50	52	61
Intellect effic	56	52	49	58
Psychol-mindedness	58	49	48	58
Flexibility	58	49	50	58
Femininity	55	50	48	58
EPPS:				
Achievement	55	49	52	59
Deference	56	49	56	59
Order	55	50	55	59
Exhibition	55	49	52	59
Autonomy	56	49	52	61
Affiliation	55	49	55	59
Intraception	56	49	52	59
Succorance	55	49	53	59
Dominance	55	49	52	59
Abasement	55	49	55	59
Nurturance	55	49	53	59
Change	55	49	52	59
Endurance	55	49	52	59
Heterosexuality	56	49	56	59
Aggression	55	49	50	58
Consistency	55	49	52	59
Self-estimate	56	49	50	58
Father ed level	55	49	45	56
Mother ed level	55	49	46	56

TABLE X

F VALUES FOR REDUCTION DUE TO NONINTELLECTUAL FACTORS AFTER CONSIDERING ABILITY

	Fr Male	Fr Female	So Male	So Female
CPI:				
Dominance	.29	.18	.81	.12
Capac for status	.001	.84	.002	.11
Sociability	.0006	.44	1.78	.06
Social presence	.18	.64	.01	.07
Self-acceptance	2.10	.02	.04	.24
Well-being	5.02*	5.29*	.15	4.43*
Responsibility	8.53**	11.93**	5.79*	1.58
Socialization	9.73**	15.06**	.90	13.84**
Self-control	2.17	11.07**	.64	5.52*
Tolerance	3.72	6.15*	.003	5.33*
Good impression	.05	5.19*	.02	5.21*
Communality	6.69*	4.80*	.03	.26
Ach via conform	.81	15.03**	2.62	12.92**
Ach via indep	2.59	5.36*	6.82*	7.06*
Intellect effic	3.08	9.57**	2.21	1.34
Psychol-mindedness	7.95**	.02	.90	2.03
Flexibility	9.89**	3.41	4.36*	.63
Femininity	.54	6.71**	1.52	.18
EPPS:				
Achievement	.33	2.57	.39	.003
Deference	4.05*	.0004	5.08*	.80
Order	.66	5.28*	3.06	.85
Exhibition	.016	1.77	.66	1.56
Autonomy	3.49	.24	.90	1.92
Affiliation	.18	1.41	3.51	.33
Intraception	5.31*	.67	.65	1.64
Succorance	1.27	.04	2.94	.47
Dominance	.01	.68	.10	.44
Abasement	.71	1.55	4.25*	1.55
Nurturance	.16	.47	1.80	.94
Change	.98	.63	.74	.19
Endurance	.96	.64	.87	1.57
Heterosexuality	5.94*	.04	5.99*	.13
Aggression	.03	.56	.71	.06
Consistency	.83	.17	.31	.03
Self-estimate	2.56	.43	7.38**	2.48
Father ed level	.17	1.00	.06	.06
Mother ed level	.04	.77	1.66	.004

** $p \leq .01$ * $p \leq .05$

for three groups. The exceptions were the sophomore male group for the sense of well-being scale and the freshman males for the achievement via independence scale. The achievement via conformance scale significantly reduced the variance ($p \leq .01$) for the two female groups. The self-control scale had a significant F value for the female groups--freshman, $p \leq .01$ and sophomores, $p \leq .05$. The flexibility scale was significant for the freshman males ($p \leq .01$) and for the sophomore males ($p \leq .05$). The tolerance and the good impression scales yielded a significant value ($p \leq .05$) for both female groups. The communality scale was significant ($p \leq .05$) for the two freshman groups. Three scales reduced the variance in prediction ($p \leq .01$) for freshman groups--intellectual efficiency and femininity for females and psychological-mindedness for males. The self-estimate scale was the only scale that reduced the variance in prediction at the .01 level for sophomore males. Neither educational level of the father nor of the mother reduced the variance beyond the reduction due to ability for any of the groups. Five scales of the EPPS increased the predictive efficiency of ability. Both the deference and the heterosexuality scales significantly improved prediction ($p \leq .05$) for the male groups. The following scales reduced the variance ($p \leq .05$) for at least one group: order, freshman females; intraception, freshman males; abasement, sophomore males.

CHAPTER V

DISCUSSION OF RESULTS AND SUMMARY

In this chapter the relationship between nonintellectual factors and achievement will be discussed. Each hypothesis will be treated separately. Recommendations and a summary of the study are also included.

Nonintellectual Factors and Ability

Hypothesis 1. There are no significant relationships between any of the nonintellectual factors and ability for freshman males, freshman females, sophomore males, or sophomore females. The correlation coefficients for this hypothesis are in Table IV in Chapter IV.

The null hypothesis was rejected for the following scales for freshman males: capacity for status, sociability, self-acceptance, sense of well-being, responsibility, socialization, tolerance, communality, achievement via conformance, achievement via independence, intellectual efficiency, achievement (EPPS), consistency, self-estimate, and mother's educational level ($p \leq .01$); dominance (EPPS), and change ($p \leq .05$).

The null hypothesis was rejected when considering the scales listed below for freshman females; dominance (CPI), capacity for status, responsibility, socialization, tolerance, achievement via

conformance, achievement via independence, intellectual efficiency, achievement (EPPS), change, self-estimate, father's educational level, and mother's educational level ($p \leq .01$); sense of well-being and communality ($p \leq .05$).

Hypothesis 1 was not accepted for sophomore males on these scales: capacity for status, responsibility, socialization, achievement via independence, intellectual efficiency, self-estimate, and mother's educational level ($p \leq .01$); tolerance, communality, achievement via conformance, consistency, and father's educational level ($p \leq .05$).

In the sophomore female group, the following scales did not support the null hypothesis: dominance (CPI), capacity for status, social presence, self-acceptance, responsibility, achievement via conformance, achievement via independence, intellectual efficiency, psychological-mindedness, achievement (EPPS), and self-estimate ($p \leq .01$); sociability, deference, and mother's educational level ($p \leq .05$).

Nonintellectual Factors and Achievement

Hypothesis 2. There are no significant relationships between any of the nonintellectual factors and achievement for freshman males, freshman females, sophomore males, or sophomore females. Hypothesis 2 was not supported for each group by the scales given below. Information for this hypothesis was reported in Table V of Chapter IV.

The null hypothesis was not supported for freshman males with the following scales: self-acceptance, sense of well-being, responsibility, socialization, tolerance, communality, achievement via

conformance, achievement via independence, intellectual efficiency, achievement (EPPS), consistency, and self-estimate ($p \leq .01$); capacity for status, sociability, self-control, autonomy, intraception, change, heterosexuality, and mother's educational level ($p \leq .05$).

Hypothesis 2 was not supported for freshman females by these scales: capacity for status, sense of well-being, responsibility, socialization, self-control, tolerance, communality, achievement via conformance, achievement via independence, intellectual efficiency, achievement (EPPS), change, self-estimate, father's educational level, and mother's educational level ($p \leq .01$); dominance (CPI), and femininity ($p \leq .05$).

The null hypothesis was not supported for sophomore males by the following scales: responsibility, socialization, achievement via conformance, achievement via independence, intellectual efficiency, self-estimate, and mother's educational level ($p \leq .01$); capacity for status, and deference ($p \leq .05$).

For the sophomore females, the scales given below did not support Hypothesis 2: capacity for status, responsibility, socialization, tolerance, achievement via conformance, achievement via independence, intellectual efficiency, psychological-mindedness, achievement (EPPS), and self-estimate ($p \leq .01$); dominance (CPI), social presence, and good impression ($p \leq .05$).

In general, based on scale interpretations (Appendices A and B), the high achiever in comparison to the low seemed to be characterized by traits which are identified by personality inventories as having an achievement orientation, integrity, adequate self-estimate,

non-judgmental social attitudes, minimal worries and complaints, and a capacity for status; also, as being conscientious, responsible, dependable, socially mature, personally and intellectually efficient, permissive, accepting, and free from self-doubts and disillusionment.

Few generalizations can be drawn according to the classification and sex of the subjects. The low achieving freshmen, however, had more self-control and gave more modal responses. The high achieving females showed more leadership ability, dominance, persistence, and social initiative than the low achieving females.

Nonintellectual Factors and Ability-Performance Interaction

Hypothesis 3. There is no significant interaction between ability and achievement for any of the nonintellectual factors. The information for this hypothesis is presented in Table VI cited in Chapter IV. The null hypothesis was supported.

Nonintellectual Factors and Deviation Scores

Hypothesis 4. There is no relationship between deviant achievement and any of the nonintellectual factors for freshman males, freshman females, sophomore males, or sophomore females. The correlation coefficients for nonintellectual factors and deviation scores are given in Table VII of Chapter IV.

The null hypothesis was rejected by the following scales for freshman males: sense of well-being, responsibility, socialization, tolerance, communality, achievement via independence, intellectual efficiency, flexibility, and self-estimate ($p \leq .01$);

self-acceptance, achievement via conformance, psychological-mindedness, deference, autonomy, intraception, heterosexuality, and consistency ($p \leq .05$).

These scales did not support Hypothesis 4 for freshman females: responsibility, socialization, self-control, tolerance, achievement via conformance, and intellectual efficiency ($p \leq .01$) sense of well-being, good impression, communality, achievement via independence, and order ($p \leq .05$).

For sophomore males, the null hypothesis was not substantiated by the scales given below: responsibility, achievement via independence, flexibility, deference, abasement, and heterosexuality ($p \leq .05$). The null hypothesis was not supported by these scales for sophomore females: socialization, achievement via conformance, and achievement via independence ($p \leq .01$); sense of well-being, self-control, tolerance, good impression, and self-estimate ($p \leq .05$).

Fewer traits seemed to correlate with deviant achievement than correlated with performance. However, some generalizations can be made. The traits which characterized the overachiever were the same as those typical of the high achiever although fewer scales correlated with over- and underachievement.

The overachievers were more achievement oriented than underachievers. They had integrity, non-judgmental social attitudes, minimal worries and complaints, and freedom from self-doubt and disillusionment. They were socially mature, conscientious, responsible, dependable, permissive, and accepting.

Some trends can be seen in traits which distinguished the overachievers and underachievers in groupings according to classification and sex. The male underachievers indicated a greater interest in

interaction with the opposite sex. The male overachievers were higher on deference. The female overachievers were more capable of creating a good impression. The freshman overachievers were more personally and intellectually efficient than the freshman underachievers; and they gave more modal responses.

Nonintellectual Factors and Prediction of Performance

Hypothesis 5. Nonintellectual factors do not account for any variance in deviant achievement beyond that accounted for by ability for freshman males, freshman females, sophomore males, or sophomore females. The F values for the reduction due to nonintellectual factors after considering ability are listed in Table X of Chapter IV.

The null hypothesis was rejected for freshman males when using the following scales: socialization, psychological-mindedness, and flexibility ($p \leq .01$); sense of well-being, communality, deference, intraception, and heterosexuality ($p \leq .05$).

In the freshman female group, these scales did not support the null hypothesis: responsiblity, socialization, self-control, achievement via conformance, intellectual efficiency, and femininity ($p \leq .01$); sense of well-being, tolerance, good impression, communality, achievement via independence, and order ($p \leq .05$).

Hypothesis 5 was rejected for sophomore males for these seven scales: self-estimate ($p \leq .01$); responsibility, achievement via independence, flexibility, deference, abasement, and heterosexuality ($p \leq .05$).

When the following scales were considered, the null hypothesis was not supported for sophomore females: socialization and

achievement via conformance ($p < .01$); sense of well-being, self-control, tolerance, good impression, and achievement via independence ($p < .05$).

The socialization scale improved prediction ($p < .01$) for all groups except sophomore males. The sense of well-being and achievement via conformance scales improved predictions ($p < .05$) for all groups except one. The exception for the sense of well-being scale was sophomore males; the exception for the achievement via independence scale was freshman males. The achievement via conformance scale improved prediction for females at the .01 level of confidence. The tolerance and good impression scales were useful for females at the .05 level. The self-control scale increased the predictability of GPA for females (freshmen, $p < .01$; sophomores, $p < .05$). The flexibility scale improved prediction for males (freshmen, $p < .01$; sophomores, $p < .05$). The responsibility scale was useful for prediction for freshman females ($p < .01$) and sophomore males ($p < .05$). Communality increased predictability for freshmen ($p < .05$). The following scales improved prediction ($p < .01$) for one group: intellectual efficiency (freshman females), psychological-mindedness, (freshman males), and femininity (freshman females).

Four EPPS scales improved prediction of GPA for only one group. One scale was useful for two groups. The heterosexuality scale improved prediction of GPA for both male groups ($p < .05$). The following scales increased prediction ($p < .05$) for one group: deference (sophomore males), order (freshman females), intraception (freshman males), and abasement (sophomore males).

The self-estimates improved prediction ($p < .01$) for sophomore males. This is the only scale which significantly increased the

predictability of GPA at the .01 level for sophomore males. Neither father's nor mother's educational level improved prediction for any group. The CPI provided more information which was useful in predicting GPA in addition to ability than did the other instruments.

Recommendations

Both the CPI and the Self-estimate Scale measured components of GPA at Bethany Nazarene College. The CPI measured a unique portion of achievement not assessed by measures of ability. On the basis of this study, these two instruments should be considered as variables in research of academic achievement.

Another recommendation is that the CPI and the Self-estimate Scale be administered routinely to entering freshmen at Bethany Nazarene College. This information could be used in counseling, advisement, and screening. In screening it could be used especially as additional information for decisions about admitting low ability students. If he has the characteristics of the overachievers, a low ability student would be more likely to benefit from college experience. Those students exhibiting the chrarcteristics of the underachiever could be given counseling.

A final recommendation for the use of the Self-estimate Scale at the college level is that the reference group be more precisely defined. The students are asked to compare themselves with other students. Freshmen are in the process of transition and may be comparing themselves with high school students or with college students.

Summary

The purpose of this study was to relate nonintellectual factors to academic achievement. Nonintellectual factors were measured by the CPI, EPPS, Self-estimate of Ability to Do School Work, and parents' educational level. The subjects were 515 freshmen and sophomores enrolled at Bethany Nazarene College. Tests were administered in the 1968-69 academic year. The following questions were investigated: 1. Are nonintellectual factors associated with ability? 2. Are nonintellectual factors related to achievement? 3. Is there an interaction between ability and achievement when considering nonintellectual factors? 4. Are nonintellectual factors related to deviant achievement? 5. Will nonintellectual factors improve the prediction of grade point average beyond the ACT prediction?

The five questions were answered by considering each of the 37 nonintellectual factors individually for each group. In general, both ability and performance were related to factors measured by the CPI, EPPS achievement scale, self-estimate of ability, and parental educational level. There was no interaction between ability and performance when considering nonintellectual factors. The CPI was useful in improving the prediction of grade point average by ability; and also the CPI measured factors which were related to deviant achievement. The CPI scales which were most useful throughout the study were the sense of well-being, responsibility, socialization, tolerance, communality, achievement via conformance, achievement via independence, and intellectual efficiency scales.

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APPENDIX A

The following are the directions used in the administration of the EPPS:

> This schedule consists of a number of pairs of statements about things that you may or may not like; about ways in which you may or may not feel. Look at the example below.
>
> A I like to talk about myself to others.
>
> B I like to work toward some goal that I have set for myself.
>
> Which of these two statements is more characteristic of what you like? If you like "talking about yourself to others" more than you like "working toward some goal that you have set for yourself," then you should choose A over B. If you like "working toward some goal that you have set for yourself" more than you like " talking about yourself to others," then you should choose B over A.
>
> You may like both A and B. In this case, you would have to choose between the two and you should choose the one that you like better. If you dislike both A and B, then you should choose the one that you dislike less.
>
> Some of the pairs of statements in the schedule have to do with your likes, such as A and B above. Other pairs of statements have to do with how you feel. Look at the example below.
>
> A I feel depressed when I fail at something.
>
> B I feel nervous when giving a talk before a group.
>
> Which of these two statements is more characteristic of how you feel? If "being depressed when you fail at something" is more characteristic of you than "being nervous when giving a talk before a group," then you should choose A over B. If B is more characteristic of you than A, then you should choose B over A.
>
> If both statements describe how you feel, then you should choose the one which you think is more characteristic. If neither statement accurately describes how you feel, then you should choose the one which you consider to be less inaccurate.
>
> Your choice, in each instance, should be in terms of what you like and how you feel at the present time, and not in terms of what you think you should like or how you think you should feel. This is not a test. There are no right or wrong answers. Your choices should be

a description of your own personal likes and feelings. Make a choice for every pair of statements; do not skip any.

The pairs of statements on the following pages are similar to the examples given above. Read each pair of statements and pick out the one statement that better describes what you like or how you feel. Make no marks in the booklet. On the separate answer sheet are numbers corresponding to the numbers of the pairs of statements. Check to be sure you are marking for the same item number as the item you are reading in the booklet.

Write your name on the answer sheet.

The following is an indication of the item content of the scales of the EPPS (Edwards, 1959, p. 11):

1. ach Achievement: To do one's best, to be successful, to accomplish tasks requiring skill and effort, to be a recognized authority, to accomplish something of great significance, to do a difficult job well, to solve difficult problems and puzzles, to be able to do things better than others, to write a great novel or play.

2. def Deference: To get suggestions from others, to find out what others think, to follow instructions and do what is expected, to praise others, to tell others that they have done a good job, to accept the leadership of others, to read about great men, to conform to custom and avoid the unconventional, to let others make decisions.

3. ord Order: To have written work neat and organized, to make plans before starting on a difficult task, to have things organized, to keep things neat and orderly, to make advance plans when taking a trip, to organize details of work, to keep letters and files according to some system, to have meals organized and a definite time for eating, to have things arranged so that they run smoothly without change.

4. exh Exhibition: To say witty and clever things, to tell amusing jokes and stories, to talk about personal adventures and experiences, to have others notice and comment upon one's appearance, to say things just to see what effect it will have on others, to talk about personal achievements, to be the center of attention, to use words that others do not know the meaning of, to ask questions others cannot answer.

5. aut Autonomy: To be able to come and go as desired, to say what one thinks about things, to be independent of others in making decisions, to feel free to do what one wants, to do things that are unconventional, to avoid situations where one is expected to conform, to do things without regard to what others may think, to criticize those in positions of authority, to avoid responsibilities and obligations.

6. aff Affiliation: To be loyal to friends, to participate in friendly groups, to do things for friends, to form new friendships, to make as many friends as possible, to share things with friends, to do things with friends rather than alone, to form strong attachments, to write letters to friends.

7. int Intraception: To analyze one's motives and feelings, to observe others, to understand how others feel about problems, to put one's self in another's place, to judge poeple by why they do things rather than by what they do, to analyze the behavior of others, to analyze the motives of others, to predict how others will act.

8. suc Succorance: To have others provide help when in trouble, to seek encouragement from others, to have others be kindly, to have others be sympathetic and understanding about personal problems, to receive a great deal of affection from others, to have others do favors cheerfully, to be helped by others when depressed, to have others feel sorry when one is sick, to have a fuss made over one when hurt.

9. dom Dominance: To argue for one's point of view, to be a leader in groups to which one belongs, to be regarded by others as a leader, to be elected or appointed chairman of committees, to make group decisions, to settle arguments and disputes between others, to persuade and influence others to do what one wants, to supervise and direct the actions of others, to tell others how to do their jobs.

10. aba Abasement: To feel guilty when one does something wrong, to accept blame when things do not go right, to feel that personal pain and misery suffered does more good than harm, to feel the need for punishment for wrong doing, to feel better when giving in and avoiding a fight than when having one's own way, to feel the need for confession of errors, to feel depressed by inability to handle situations, to feel timid in the presence of superiors, to feel inferior to others in most respects.

11. nur Nurturance: To help friends when they are in trouble, to assist others less fortunate, to treat others with kindness and sympathy, to forgive others, to do small favors for others, to be generous with others, to sympathize with others who are hurt or sick, to show a great deal of affection toward others, to have others confide in one about personal problems.

12. chg Change: To do new and different things, to travel, to meet new people, to experience novelty and change in daily routine, to experiment and try new things, to eat in new and different places, to try new and different jobs, to move about the country and live in different places, to participate in new fads and fashions.

13. end Endurance: To keep at a job until it is finished, to complete any job undertaken, to work hard at a task, to keep at a puzzle or problem until it is solved, to work at a single job before taking on others, to stay up late working in order to get a job done, to put in long hours of work without distraction, to stick at a problem even though it may seem as if no progress is being made, to avoid being interrupted while at work.

14. het Heterosexuality: To go out with members of the opposite sex, to engage in social activities with the opposite sex, to be in love with someone of the opposite sex, to kiss those of the opposite sex, to be regarded as physically attractive by those of the opposite sex, to participate in discussions about sex, to read books and plays involving sex, to listen to or to tell jokes involving sex, to become sexually excited.

15. agg Aggression: To attack contrary points of view, to tell others what one thinks about them, to criticize others publicly, to make fun of others, to tell others off when disagreeing with them, to get revenge for insults, to become angry, to blame others when things go wrong, to read newspaper accounts of violence.

APPENDIX B

The following are the directions used in the administration of the CPI:

> This booklet contains a series of statements. Read each one, decide how you feel about it, and then mark your answer on the special answer sheet. MAKE NO MARKS ON THE TEST BOOKLET. If you agree with a statement, or feel that it is true about you, answer TRUE. If you disagree with a statement, or feel that it is not true about you, answer FALSE. In marking your answers on the answer sheet, make sure that the number of the statement is the same as the number on the answer sheet. Be sure to answer either TRUE or FALSE for every statement, even if you have to guess at some.

The following are the scale descriptions of the CPI as given in the manual (Gough, 1957, pp. 12-13):

> CLASS I. MEASURES OF POISE, ASCENDANCY, AND SELF-ASSURANCE
>
> 1. Do (dominance) To assess factors of leadership ability, dominance, persistence, and social initiative.
>
> 2. Cs (capacity for status) To serve as an index of an individual's capacity for status (not his actual or achieved status). The scale attempts to measure the personal qualities and attributes which underlie and lead to status.
>
> 3. Sy (sociability) To identify persons of outgoing, sociable, participative temperament.
>
> 4. Sp (social presence) To assess factors such as poise, spontaneity, and self-confidence in personal and social interaction.
>
> 5. Sa (self-acceptance) To assess factors such as sense of personal worth, self-acceptance, and capacity for independent thinking and action.
>
> 6. Wb (sense of well-being) To identify persons who minimize their worries and complaints, and who are relatively free from self-doubt and disillusionment.
>
> CLASS II. MEASURES OF SOCIALIZATION, MATURITY, AND RESPONSIBILITY
>
> 7. Re (responsibility) To identify persons of conscientious, responsible, and dependable disposition and temperament.

8. So (socialization) To indicate the degree of social maturity, integrity, and rectitude which the individual has attained.

9. Sc (self-control) To assess the degree and adequacy of self-regulation and self-control and freedom from impulsivity and self-centeredness.

10. To (tolerance) To identify persons with permissive, accepting, and non-judgmental social beliefs and attitude.

11. Gi (good impression) To identify persons capable of creating a favorable impression, and who are concerned about how others react to them.

12. Cm (communality) To indicate the degree to which an individual's reactions and responses correspond to the modal ("common") pattern established for the inventory.

CLASS III. MEASURES OF ACHIEVEMENT POTENTIAL AND INTELLECTUAL EFFICIENCY

13. Ac (achievement via conformance) To identify those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior.

14. Ai (achievement via independence) To identify those factors of interest and motivation which facilitate achievement an any setting where autonomy and independence are positive behaviors.

15. Ie (intellectual efficiency) To indicate the degree of personal and intellectual efficiency which the individual has attained.

CLASS IV. MEASURES OF INTELLECTUAL AND INTEREST MODES

16. Py (psychological-mindedness) To measure the degree to which the individual is interested in, and responsive to, the inner needs, motives, and experiences of others.

17. Fx (flexibility) To indicate the degree of flexibility and adaptability of a person's thinking and social behavior.

18. Fe (femininity) To assess the masculinity or femininity of interests. (High scores indicate more feminine interests, low scores more masculine.)

APPENDIX C

The following are the directions used in the administration of the Self-estimate of Ability to Do School Work Scale and an example of this instrument along with the questions about father's and mother's educational levels:

> On the form that has been distributed, you will make estimates of your ability to do school work. . . . First, fill in the two blanks at the top of the form. Write your last name first, . . . then your first name and middle name or initial. In the blank by sex, place "M" or "F" to indicate your sex. . . . /Then fill in the remaining blanks with the appropriate information./
>
> Now read the directions and glance over the rating scale. Notice the column headed Rating Scale. You will place one of the numbers, one through nine, in each blank at the bottom of the form. When you place the number in the blank, you will be making a self-rating of your ability to do school work as compared to other students. Notice the column headed Distribution of Students. You will decide which number to use in each blank by looking at this column. For example, if you decide that you are in the bottom 4% in ability, or among the bottom 4 in 100 students, you will use the number 1 from the Rating Scale column. If you decide you are in the middle 20% in ability, or if there are as many students who are above you in ability as below you in ability, you will use the number 5 from the Rating Scale column. If you decide that you are in the top 4% in ability, or among the top 4 in 100 students, you will use the number 9 from the Rating Scale column. Before filling in each blank at the bottom of the form, you will look at the column headed Distribution of Students and decide how you stand in ability in comparison to other students. Then use the number in the Rating Scale column straight across from the group you selected. Any number from 1 through 9 may be used in each blank. . . .
>
> Now look at the statements at the bottom of the form. In the first blank, you will give a self-rating of your mathematical ability. In the second blank, you will give a self-rating of your reading, writing, and language ability. In the third blank, you will give a self-rating of your

general or overall ability to do school work. In the last four blanks, statement Nos. 4 through 7, you will give the rating that you think other people who are important in your life would give. If your mother or father is not living, choose another adult who, in your opinion, would be most likely to fill this position in relationship to you. In making the last two ratings, think of teachers of friends in general. . . .

Be as honest, accurate, and frank as possible in making the ratings. Do not discuss your ratings with anyone. Your ratings will be treated as confidential information. Take time to read each statement carefully and refer to the Rating Scale at the top of the form. However, you do not need to take a great deal of time to decide on the rating. Remember that any number from 1 through 9 may be used in any blank. As soon as you have completed all blanks, . . . /go on to the next questionnaire./ (Bowen, 1968, pp. 85-86)

Name_____ Major_____ Sex_____
(Last) (First) (Middle) M or F

Highest educational level of father:_____

of mother:_____

Directions: Place the appropriate number from the following rating scale in the blanks at the bottom of the page.

Rating Scale for Your Ability to Do School Work
(As Compared to Other Students)

Distribution of Students	Rating Scale
Top 4%	9
Next 7%	8
Next 12%	7
Next 17%	6
Middle 20%	5
Next 17%	4
Next 12%	3
Next 7%	2
Bottom 4%	1

1. Your ability to do school work in which math is used. . . _____

2. Your ability to do school work in which reading, writing, and language are used primarily . . . . . _____

3. Your general ability to do school work. . . . . _____

4. How you think your mother would rate your general ability to do school work . . . . . _____

5. How you think your father would rate your general ability to do school work . . . . . _____

6. How you think a teacher would rate your general ability to do school work . . . . . _____

7. How you think a friend would rate your general ability to do school work . . . . . _____

(After Bowen, 1968, p. 84)

APPENDIX D

Appendix D includes Tables XI through XVII, which give the subject group and subgroup means and standard deviations. Table XI contains the subject group means and standard deviations of each nonintellectual scale. Tables XII through XV contain the means and standard deviations of each scale for the different levels of ability and actual grade point average for each subject group. Tables XVI and XVII include the means and standard deviations of each scale for the deviant and consistent achievers for each subject group.

TABLE XI

SUBJECT GROUP MEANS AND STANDARD DEVIATIONS
OF EACH NONINTELLECTUAL SCALE

	Fr Male		Fr Female		So Male		So Female	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
CPI:								
Dominance	25.1	5.9	25.3	6.3	27.6	6.1	25.6	6.5
Capac for status	15.7	3.9	15.6	3.9	18.0	3.7	17.2	4.1
Sociability	21.5	5.0	21.2	4.8	22.8	5.0	21.2	5.0
Social presence	31.5	6.2	29.2	5.6	32.4	5.4	30.8	5.8
Self-acceptance	19.3	4.0	19.3	4.0	20.8	3.5	19.7	4.2
Well-being	31.4	6.7	32.5	4.9	34.3	5.8	33.9	5.4
Responsibility	27.2	5.4	30.0	4.3	30.2	4.5	31.4	3.8
Socialization	35.5	6.6	39.8	5.6	36.9	6.4	40.5	4.9
Self-control	24.4	7.2	26.0	7.5	26.7	7.6	28.5	7.8
Tolerance	18.6	4.5	18.4	5.2	20.9	5.4	21.0	4.2
Good impression	16.1	5.3	14.9	5.5	17.1	6.4	17.0	6.0
Communality	22.8	5.1	25.6	2.7	24.2	4.3	24.9	2.0
Ach via conform	23.7	4.9	24.7	4.5	24.9	4.6	26.3	4.7
Ach via indep	16.3	3.8	16.8	3.6	18.8	3.5	19.0	3.6
Intellect effic	33.6	6.3	33.9	5.0	36.7	5.3	36.1	5.1
Psychol-mindedness	9.7	2.4	8.9	2.5	10.4	2.7	9.5	2.6
Flexibility	9.6	3.3	8.6	3.3	9.4	3.6	8.7	3.2
Femininity	16.4	3.5	24.0	3.1	16.6	3.9	24.2	3.2
EPPS:								
Achievement	14.1	4.2	11.2	3.7	14.9	3.5	12.7	3.8
Deference	12.2	3.6	12.6	3.6	12.2	3.8	12.6	3.2
Order	10.4	4.0	10.7	4.5	11.0	4.9	12.0	4.5
Exhibition	15.3	3.4	14.7	3.4	15.0	3.3	14.2	3.8
Autonomy	13.2	4.3	11.6	4.5	13.4	4.1	11.5	4.1
Affiliation	15.2	4.0	17.7	3.8	15.6	4.1	17.8	3.6
Intraception	15.4	4.3	17.1	4.1	14.8	4.9	16.7	5.4
Succorance	12.0	4.1	13.3	4.2	11.4	4.4	13.0	4.4
Dominance	14.0	4.7	11.8	4.5	15.6	4.7	11.1	4.5
Abasement	15.5	4.7	18.2	4.7	15.8	3.9	17.5	4.4
Nurturance	15.1	4.5	17.3	4.3	16.6	4.6	17.7	4.2
Change	15.5	3.9	16.2	4.8	14.7	4.5	17.5	4.4
Endurance	13.6	4.9	13.0	4.9	12.8	5.2	12.2	4.6
Heterosexuality	15.5	6.1	13.9	6.1	13.6	6.3	13.8	5.4
Aggression	12.2	4.3	10.2	4.5	12.2	5.1	9.0	4.4
Consistency	10.7	2.2	11.3	1.8	10.8	2.0	11.4	2.1
Self-estimate	6.3	1.2	6.4	1.1	6.9	1.2	6.5	1.2
Father ed level	4.4	1.6	4.2	1.7	4.7	1.9	4.2	1.4
Mother ed level	4.1	1.1	4.1	1.2	4.5	1.1	4.2	1.1

TABLE XII

MEANS AND STANDARD DEVIATIONS FOR DIFFERENT ACHIEVEMENT AND ABILITY LEVELS FOR FRESHMAN MALES

	Low Ability		Med Ability		High Ability		Low Achieve		Med Achieve		High Achieve	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
CPI												
Dominance	24.5	4.1	24.3	6.3	26.2	6.5	24.1	5.3	25.3	5.9	25.7	6.3
Capac for status	14.8	3.6	15.0	3.7	16.9	4.0	15.0	3.8	15.7	4.0	16.2	3.9
Sociability	20.0	3.6	21.2	5.4	22.9	5.3	20.3	4.4	21.9	5.4	22.1	5.2
Social presence	29.5	3.6	32.4	6.7	32.2	7.1	31.0	4.0	31.6	6.8	31.9	7.3
Self-acceptance	17.9	3.2	19.6	4.0	20.1	4.2	18.1	3.7	19.9	4.1	19.8	4.0
Well-being	27.7	6.3	30.5	6.4	34.9	5.3	28.3	6.9	31.3	6.5	34.0	5.7
Responsibility	24.4	5.5	26.3	4.7	30.0	4.4	24.5	5.6	26.7	4.9	29.8	4.3
Socialization	32.3	5.5	34.9	6.6	38.4	6.2	32.6	5.6	34.3	5.8	38.8	6.7
Self-control	24.0	6.1	23.1	7.4	25.8	7.6	23.6	5.2	23.0	8.0	26.2	7.7
Tolerance	16.6	4.6	18.1	4.3	20.7	4.0	17.0	4.2	17.9	4.8	20.6	4.0
Good impression	17.4	5.6	14.8	5.2	16.3	5.0	16.5	5.2	15.7	6.1	16.1	4.8
Communality	20.3	5.1	22.6	5.6	24.9	3.7	20.3	5.5	23.2	4.6	24.7	4.4
Ach via conform	22.0	4.9	22.6	4.3	25.9	4.5	22.4	4.6	23.2	4.7	25.2	4.9
Ach via indep	14.3	3.3	15.7	3.8	18.4	3.3	15.0	3.5	15.4	3.7	18.1	3.6
Intellect Effic	29.3	5.1	32.9	5.9	37.6	4.8	30.1	6.2	34.0	5.7	36.4	5.4
Psych-mindedness	9.8	2.4	9.4	2.8	10.0	2.0	10.3	2.3	9.4	2.4	9.5	2.4
Flexibility	9.2	3.8	9.7	3.0	9.8	3.3	10.7	2.6	9.1	3.9	9.1	3.2
Femininity	17.2	4.2	16.2	3.3	15.8	2.9	16.6	4.2	16.3	2.9	16.2	3.3

TABLE XII (Continued)

	Low Ability		Med Ability		High Ability		Low Achieve		Med Achieve		High Achieve	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
EPPS												
Achievement	12.4	4.1	13.7	3.6	15.8	4.2	12.2	3.8	14.7	3.9	15.2	4.3
Deference	12.1	3.3	12.1	3.8	12.5	3.6	11.5	3.3	12.1	3.1	12.9	4.1
Order	11.0	3.9	10.1	3.9	10.2	4.3	10.6	3.4	9.6	4.0	10.9	4.4
Exhibition	14.4	3.2	15.8	2.9	15.7	3.8	15.1	3.5	15.8	3.1	15.2	3.6
Autonomy	13.0	4.2	14.2	5.0	12.3	3.5	14.4	5.0	13.2	4.0	12.1	3.6
Affiliation	15.7	3.9	15.0	4.3	15.1	3.8	15.2	3.9	15.0	4.4	15.4	3.7
Intraception	15.7	3.9	14.0	3.8	16.3	4.7	14.1	3.7	15.8	4.3	16.1	4.6
Succorance	12.3	3.4	12.2	4.4	11.6	4.2	12.6	3.8	11.4	4.1	12.0	4.3
Dominance	12.6	3.2	14.3	4.8	14.8	5.3	13.5	3.7	14.6	5.0	14.1	5.1
Abasement	15.6	4.0	15.3	4.6	15.7	5.3	15.0	3.8	16.2	5.0	15.5	5.1
Nurturance	16.0	4.5	14.3	4.5	15.3	4.3	15.2	4.8	15.7	4.9	14.6	3.8
Change	16.4	3.2	15.8	3.5	14.5	4.6	16.3	3.0	15.5	3.8	14.7	5.6
Endurance	14.2	4.7	12.5	4.0	14.0	5.8	13.2	4.4	12.6	4.8	14.6	5.4
Heterosexuality	14.6	4.4	17.2	6.7	14.6	6.3	16.7	4.9	16.1	6.6	13.9	6.3
Aggression	12.8	4.6	12.4	3.6	11.7	4.6	12.9	4.5	11.4	3.9	12.4	4.3
Consistency	9.6	2.3	10.6	2.1	11.6	1.7	9.9	2.3	10.4	2.1	11.6	1.7
Self-estimate	5.4	1.1	5.8	0.9	7.3	0.7	5.5	1.0	6.1	1.0	7.0	1.0
Father ed level	4.2	1.4	4.4	1.5	4.5	1.8	4.3	1.5	4.0	1.5	4.6	1.7
Mother ed level	3.8	1.3	4.0	1.0	4.4	1.1	3.9	1.0	4.0	1.0	4.4	1.2

TABLE XIII

MEANS AND STANDARD DEVIATIONS FOR DIFFERENT ACHIEVEMENT AND ABILITY LEVELS FOR FRESHMAN FEMALES

	Low Ability		Med Ability		High Ability		Low Achieve		Med Achieve		High Achieve	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S. D.
CPI												
Dominance	24.1	6.1	24.6	5.4	26.6	6.8	24.6	5.0	24.1	6.4	26.4	6.5
Capac for status	14.8	3.4	15.3	3.4	16.4	4.4	14.5	3.3	14.9	3.9	16.4	3.9
Sociability	20.8	5.1	21.2	4.5	21.4	5.0	21.2	5.6	20.8	4.8	21.5	4.7
Social presence	30.1	5.9	29.3	6.0	28.7	5.2	29.4	5.7	30.0	6.3	28.7	5.2
Self-acceptance	19.1	3.7	19.1	3.9	19.5	4.3	19.1	3.7	19.1	4.2	19.4	4.0
Well-being	31.6	4.7	32.4	5.1	33.2	5.0	29.8	4.0	31.6	4.7	33.9	4.9
Responsibility	28.2	4.6	29.6	4.1	31.6	3.8	27.4	3.6	28.4	4.7	31.9	3.4
Socialization	37.7	5.0	40.0	5.9	41.1	5.3	36.5	5.3	38.5	5.3	41.7	5.2
Self-control	24.4	7.2	26.2	7.4	26.9	7.7	22.1	5.6	24.4	7.4	28.2	7.4
Tolerance	17.5	5.3	17.8	4.8	19.4	5.2	16.1	4.5	17.6	4.8	19.6	5.3
Good impression	14.4	5.7	14.6	5.4	15.4	5.5	14.0	5.4	13.7	4.9	15.9	5.7
Communality	25.2	2.7	25.1	3.1	26.3	2.1	24.6	3.9	25.1	2.8	26.2	1.9
Ach via conform	23.0	4.9	24.4	4.2	26.0	4.1	22.2	4.2	23.2	4.4	26.5	3.9
Ach via indep	15.4	3.5	16.4	2.7	18.0	3.7	14.8	3.5	15.8	3.1	18.1	3.4
Intellect Effic	32.7	5.0	32.9	4.8	35.3	5.0	30.8	4.4	32.7	4.7	35.6	4.9
Psych-mindedness	8.5	2.5	8.7	2.6	9.3	2.4	8.6	2.3	8.7	2.8	9.2	2.4
Flexibility	8.6	3.3	9.0	3.3	8.3	3.3	9.2	3.4	9.0	3.3	8.2	3.2
Femininity	23.3	2.8	24.3	3.5	24.4	2.9	23.3	2.3	23.4	3.2	24.7	3.1

TABLE XIII (Continued)

	Low Ability		Med Ability		High Ability		Low Achieve		Med Achieve		High Achieve	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
EPPS												
Achievement	10.0	3.0	10.8	3.7	12.4	3.8	9.8	2.5	10.5	3.5	12.2	3.9
Deference	13.0	3.5	12.0	4.3	12.7	2.9	14.4	3.8	11.6	3.6	12.7	3.3
Order	10.8	4.3	10.9	4.6	10.6	4.6	9.7	4.3	10.6	4.2	11.2	4.7
Exhibition	14.9	3.6	14.4	3.3	14.8	3.3	15.2	2.9	14.6	4.0	14.7	3.0
Autonomy	12.1	3.9	12.2	5.0	10.8	4.4	11.2	4.1	12.6	4.9	11.0	4.2
Affiliation	17.5	3.6	18.0	4.0	17.6	3.8	19.7	2.4	16.9	3.9	17.6	3.9
Intraception	17.3	4.6	16.8	3.7	17.2	4.2	17.3	3.3	16.8	4.0	17.2	4.4
Succorance	12.3	4.5	13.6	4.3	13.7	3.9	12.2	4.0	13.5	4.4	13.4	4.1
Dominance	11.7	4.7	11.5	4.2	12.0	4.6	11.2	4.4	11.5	4.8	12.1	4.3
Abasement	17.5	5.0	18.6	4.4	18.5	4.7	18.5	4.5	18.0	5.3	18.3	4.3
Nurturance	16.4	4.4	17.7	4.4	17.6	4.2	17.3	4.2	17.0	4.4	17.4	4.4
Change	17.8	3.6	16.2	4.9	15.3	5.2	17.8	4.0	17.0	4.9	15.3	4.8
Endurance	12.8	4.1	12.4	4.6	13.5	5.5	12.2	4.4	12.7	4.1	13.4	5.5
Heterosexuality	14.7	5.4	13.8	5.8	13.4	6.6	13.6	6.0	14.6	5.7	13.4	6.3
Aggression	11.0	4.8	10.2	4.7	9.7	4.1	9.4	4.1	11.5	4.7	9.6	4.3
Consistency	11.2	1.9	11.1	1.8	11.6	1.8	11.7	1.9	11.1	1.8	11.4	1.8
Self-estimate	5.7	1.1	6.0	0.8	7.0	1.0	5.8	1.3	6.0	0.9	6.8	1.0
Father ed level	3.8	1.6	4.3	1.7	4.5	1.7	3.4	1.3	4.1	1.7	4.6	1.7
Mother ed level	3.8	1.1	4.0	1.0	4.4	1.3	3.6	1.1	4.0	1.2	4.3	1.1

TABLE XIV

MEANS AND STANDARD DEVIATIONS FOR DIFFERENT ACHIEVEMENT AND ABILITY LEVELS FOR SOPHOMORE MALES

	Low Ability		Med Ability		High Ability		Low Achieve		Med Achieve		High Achieve	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
CPI												
Dominance	28.3	5.5	23.9	7.4	28.7	5.4	26.4	6.1	27.4	6.7	28.1	5.8
Capac for status	16.0	3.6	15.8	3.3	19.4	3.3	16.3	3.9	17.5	3.8	18.7	3.6
Sociability	21.5	4.0	20.4	5.4	24.1	4.9	22.3	5.8	23.3	5.0	22.7	5.0
Social presence	31.1	3.3	32.7	4.5	32.8	6.3	31.0	6.2	32.9	4.8	32.5	5.8
Self-acceptance	19.5	3.2	20.2	3.6	21.5	3.5	18.1	4.1	21.3	3.6	21.2	3.0
Well-being	32.7	6.7	33.2	4.4	35.1	6.0	32.6	7.5	33.2	5.8	35.3	5.5
Responsibility	28.0	3.8	27.9	4.0	31.7	4.3	27.3	4.7	28.8	3.7	31.7	4.4
Socialization	33.4	6.2	33.8	5.8	39.1	5.8	33.6	6.8	34.3	4.6	39.2	6.5
Self-control	23.3	9.3	25.6	5.9	28.1	7.4	24.3	5.2	23.7	9.0	29.0	6.5
Tolerance	18.3	5.4	18.8	4.7	22.5	5.1	18.3	4.8	20.1	5.6	22.0	5.1
Good impression	15.4	8.0	14.9	5.8	18.5	5.8	16.3	5.3	14.7	7.0	18.8	5.9
Communality	22.5	5.6	23.8	3.6	24.9	4.1	23.7	5.8	23.5	4.7	24.7	3.8
Ach via conform	24.6	5.3	23.7	3.6	27.1	4.5	24.1	4.4	24.0	4.7	27.4	4.3
Ach via indep	15.9	3.5	18.1	2.4	20.0	3.3	16.0	2.3	17.6	3.0	20.1	3.4
Intellect Effic	34.4	6.8	34.6	3.5	38.2	4.8	32.3	5.8	36.4	5.4	37.9	4.7
Psych-mindedness	9.9	3.0	9.2	3.0	10.9	2.4	9.4	2.0	10.1	3.7	10.7	2.1
Flexibility	9.6	4.5	9.6	3.4	9.2	3.4	7.8	3.3	9.0	4.0	9.9	3.4
Femininity	16.4	4.4	16.4	4.8	16.7	3.4	17.3	5.6	15.5	4.1	17.1	3.2

TABLE XIV (Continued)

	Low Ability		Med Ability		High Ability		Low Achieve		Med Achieve		High Achieve	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
EPPS												
Achievement	13.5	3.1	15.8	3.2	15.1	3.6	15.3	4.2	13.5	3.5	15.6	3.2
Deference	11.4	4.2	12.1	2.9	12.5	3.9	10.5	3.4	11.7	3.3	12.9	4.1
Order	11.1	6.7	10.3	3.2	11.1	4.7	9.0	3.6	10.4	5.9	11.7	4.4
Exhibition	14.7	4.0	14.8	2.7	15.1	3.3	16.5	3.3	13.8	3.2	15.3	3.3
Autonomy	14.0	5.2	14.3	4.1	12.9	3.8	12.3	5.1	14.2	3.5	13.1	4.3
Affiliation	15.3	3.2	15.3	4.6	15.7	4.4	16.8	5.3	15.8	3.1	15.2	4.5
Intraception	16.4	4.0	13.2	4.7	14.8	5.2	14.2	5.7	14.6	3.8	15.1	5.4
Succorance	10.5	3.8	10.7	5.2	11.9	4.3	11.7	5.2	11.3	3.8	11.4	4.6
Dominance	15.4	3.2	14.7	5.7	16.0	4.8	15.0	4.6	15.5	5.2	15.8	4.5
Abasement	16.7	4.0	14.3	4.4	15.9	3.8	14.3	5.2	16.0	4.0	16.0	3.7
Nurturance	16.4	4.8	17.5	5.6	16.4	4.3	19.5	6.7	15.6	4.0	16.6	4.4
Change	14.4	4.3	16.4	5.3	14.3	4.4	15.0	3.7	16.1	4.8	13.8	4.4
Endurance	13.5	3.4	12.2	4.8	12.8	5.9	13.2	4.8	13.2	3.6	12.6	6.2
Heterosexuality	11.8	5.7	17.2	6.9	13.2	6.2	17.7	4.6	13.4	6.7	12.9	6.3
Aggression	13.2	6.2	11.1	3.5	12.1	5.2	7.6	4.4	13.7	5.1	12.0	4.9
Consistency	9.6	2.5	11.7	1.0	11.0	1.9	11.8	1.2	9.9	2.4	11.1	1.8
Self-estimate	5.9	1.2	6.2	1.0	7.6	0.8	5.9	1.0	6.3	1.2	7.5	0.8
Father ed level	3.8	1.4	4.4	2.2	5.2	1.8	4.3	1.9	4.2	1.7	5.2	1.9
Mother ed level	3.7	0.9	4.4	1.2	4.7	1.0	3.7	0.8	4.0	1.0	4.9	1.0

TABLE XV

MEANS AND STANDARD DEVIATIONS FOR DIFFERENT ACHIEVEMENT AND ABILITY LEVELS FOR SOPHOMORE FEMALES

	Low Ability		Med Ability		High Ability		Low Achieve		Med Achieve		High Achieve	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
CPI												
Dominance	22.3	5.7	26.0	6.2	26.8	6.8	22.4	4.8	24.9	6.7	26.4	6.5
Capac for status	15.3	4.1	16.9	4.1	18.6	3.8	16.1	3.4	16.0	4.6	18.1	3.8
Sociability	20.0	4.6	21.1	5.5	21.9	4.9	20.6	6.5	20.2	5.3	21.8	4.7
Social presence	28.9	5.6	30.6	5.5	31.8	5.9	31.0	5.1	28.9	5.0	31.8	6.1
Self-acceptance	18.2	4.2	19.4	3.7	20.7	4.6	19.6	4.0	18.8	4.0	20.2	4.5
Well-being	32.3	5.3	34.4	6.2	34.3	4.6	31.1	7.2	33.4	6.1	34.6	4.6
Responsibility	29.0	3.2	31.6	4.0	32.3	3.5	30.0	2.8	30.1	4.4	32.3	3.4
Socialization	39.7	5.3	40.2	4.9	41.0	4.7	39.8	6.6	38.6	5.5	41.6	3.9
Self-control	26.8	6.5	29.9	7.7	28.1	8.4	25.7	8.3	28.4	8.1	28.9	7.6
Tolerance	19.3	3.3	21.7	4.6	21.4	4.0	19.3	3.6	19.8	4.9	22.0	3.5
Good impression	14.8	5.0	17.6	4.7	17.4	7.2	13.4	6.8	16.7	5.5	17.6	6.1
Communality	25.6	2.1	25.8	2.5	26.1	1.5	26.3	2.2	25.4	2.8	26.2	1.4
Ach via conform	23.1	3.6	26.1	4.4	28.1	4.6	21.7	3.7	24.4	4.2	28.1	4.3
Ach via indep	16.8	2.6	19.2	3.8	19.9	3.5	17.3	4.1	17.6	3.4	20.0	3.3
Intellect effic	33.5	4.3	36.2	5.1	37.4	5.1	34.8	6.2	34.7	5.2	37.1	4.7
Psych-mindedness	8.2	2.3	9.8	2.5	9.9	2.6	8.4	2.7	8.6	2.2	10.1	2.6
Flexibility	9.2	3.4	8.1	3.3	8.9	3.1	9.8	2.4	8.3	3.3	8.7	3.2
Femininity	23.8	3.4	23.9	2.6	24.6	3.6	25.3	2.8	23.6	3.3	24.3	3.3

TABLE XV (Continued)

	Low Ability		Med Ability		High Ability		Low Achieve		Med Achieve		High Achieve	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
EPPS												
Achievement	11.4	4.1	11.8	2.6	14.1	4.0	10.1	4.4	12.1	2.8	13.5	4.0
Deference	12.7	3.3	13.2	3.6	12.0	2.7	12.0	2.8	13.5	3.5	12.2	2.9
Order	10.9	3.1	12.4	4.4	12.2	5.1	10.4	3.8	12.2	4.4	12.0	4.6
Exhibition	14.0	4.4	14.1	3.4	14.4	3.8	13.8	4.7	13.6	3.7	14.7	3.7
Autonomy	12.2	3.2	12.4	4.3	10.5	4.3	14.8	2.8	11.9	3.7	10.8	4.3
Affiliation	17.5	3.4	18.0	3.1	17.7	4.1	17.4	4.5	17.5	2.9	18.0	3.8
Intraception	16.6	5.0	18.2	5.4	15.4	5.5	17.0	4.5	17.5	6.1	16.1	5.2
Succorance	13.4	4.3	12.2	4.5	13.4	4.4	14.0	4.5	12.1	4.7	13.4	4.1
Dominance	10.7	3.4	10.1	3.8	12.1	5.3	8.4	2.8	10.5	4.1	12.0	4.8
Abasement	18.7	4.1	16.8	4.5	17.4	4.6	21.4	3.1	17.6	4.6	16.8	4.3
Nurturance	17.7	4.8	17.9	3.4	17.5	4.5	19.0	5.1	17.6	3.6	17.5	4.4
Change	16.8	4.3	18.2	4.0	17.3	4.8	15.8	5.1	17.8	4.5	17.6	4.2
Endurance	11.3	3.7	11.6	5.6	13.1	4.1	8.8	2.7	13.0	5.0	12.2	4.4
Heterosexuality	15.2	4.3	13.5	6.3	13.2	5.2	17.7	4.8	13.0	5.6	13.7	5.2
Aggression	9.9	3.2	8.7	3.7	8.9	5.2	8.2	4.3	9.6	3.6	8.9	4.8
Consistency	11.0	2.3	11.4	2.4	11.6	1.8	12.4	2.0	10.8	2.4	11.6	1.9
Self-estimate	5.6	0.9	6.2	1.1	7.3	0.9	5.4	1.1	6.0	1.1	7.0	1.0
Father ed level	3.6	1.3	4.5	2.3	4.2	1.4	3.6	1.2	4.1	1.3	4.3	1.4
Mother ed level	3.6	1.2	4.5	1.0	4.2	1.0	3.5	1.1	4.1	1.2	4.4	1.0

TABLE XVI

MEANS AND STANDARD DEVIATIONS FOR DEVIANT AND CONSISTENT ACHIEVING FRESHMEN

	Males						Females					
	Overach		Consist ach		Underach		Overach		Consist ach		Underach	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
CPI												
Dominance	26.5	6.5	24.8	5.7	24.9	6.0	26.7	6.3	24.8	6.2	27.7	6.3
Capac for status	16.2	4.2	15.5	3.6	15.7	4.5	16.5	3.6	15.3	3.8	17.1	5.7
Sociability	22.8	5.3	21.2	4.8	21.6	5.4	21.8	5.1	20.7	4.6	25.8	5.4
Social presence	33.7	6.8	30.7	6.4	32.5	5.1	29.7	5.0	28.9	5.7	32.6	6.6
Self-acceptance	21.3	3.9	19.1	3.8	18.4	4.3	19.9	4.2	18.9	3.9	21.8	3.4
Well-being	34.4	5.2	31.6	6.4	28.4	7.7	33.4	5.4	32.3	4.8	30.7	5.0
Responsibility	29.8	4.1	27.5	5.3	24.2	5.3	31.8	2.7	29.5	4.7	29.8	2.6
Socialization	39.5	6.1	35.4	6.7	32.7	5.0	41.9	4.5	39.4	5.6	35.8	7.4
Self-control	24.6	7.9	24.5	7.7	23.8	4.8	28.0	7.5	25.7	7.5	20.7	4.5
Tolerance	20.4	4.7	18.7	4.5	17.4	4.3	20.5	5.2	17.8	5.1	18.1	3.1
Good impression	14.4	5.0	16.3	5.5	16.8	4.8	16.3	6.3	14.5	5.2	14.0	5.6
Communality	25.8	2.6	23.0	5.2	20.3	5.2	26.0	1.5	25.6	2.7	23.1	4.9
Ach via conform	25.3	4.6	23.6	4.8	22.8	5.0	26.9	4.0	24.0	4.5	25.1	3.9
Ach via indep	18.0	4.7	16.3	3.5	15.1	3.8	18.2	3.6	16.3	3.5	17.9	2.5
Intellect effic	37.2	5.7	33.5	5.8	31.5	7.2	35.8	5.1	33.3	4.9	33.1	5.8
Psych-mindedness	9.2	3.1	9.6	2.2	10.5	2.2	8.8	2.3	9.0	2.6	8.8	2.0
Flexibility	9.2	3.0	9.1	3.5	11.4	2.4	8.4	2.3	8.6	3.5	9.8	4.1
Femininity	16.8	3.4	16.3	3.3	16.2	4.1	24.8	3.2	23.8	3.0	23.4	3.0

TABLE XVI (Continued)

	Males						Females					
	Overach		Consist ach		Underach		Overach		Consist ach		Underach	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
EPPS												
Achievement	15.4	3.9	14.0	4.2	13.3	4.3	12.3	3.7	11.0	3.7	10.6	3.2
Deference	11.8	4.5	12.7	3.3	11.2	3.5	12.5	3.3	12.6	3.6	13.0	5.3
Order	9.5	5.1	10.8	3.9	9.8	3.4	11.1	4.5	10.8	4.5	8.1	4.1
Exhibition	16.0	3.0	15.0	3.3	15.7	4.0	14.2	3.0	14.8	3.5	15.8	2.8
Autonomy	13.0	4.1	12.8	4.3	14.3	4.4	11.6	3.3	11.6	4.8	10.4	4.2
Affiliation	15.3	4.3	15.3	4.1	14.8	3.5	17.3	2.9	17.8	4.1	18.8	3.7
Intraception	16.6	6.1	15.5	3.9	14.0	3.7	16.8	4.7	17.2	4.0	17.0	2.7
Succorance	11.8	4.1	11.8	4.0	12.6	4.4	13.5	4.6	13.1	4.1	14.7	3.0
Dominance	14.6	4.9	13.7	4.8	14.7	4.2	13.0	4.8	11.2	4.3	14.1	5.3
Abasement	15.4	4.3	16.0	4.8	14.1	4.4	17.0	4.8	18.6	4.6	18.7	5.6
Nurturance	14.6	2.6	15.5	4.9	14.4	4.0	16.9	4.5	17.4	4.2	17.7	5.6
Change	13.8	5.4	15.7	3.7	16.1	3.1	16.0	4.1	16.2	5.0	17.4	4.9
Endurance	13.3	6.4	14.1	4.6	11.9	4.4	12.9	5.7	13.1	4.6	10.4	5.1
Heterosexuality	15.4	5.5	14.5	6.4	18.4	4.6	14.8	6.8	13.7	5.7	12.0	8.1
Aggression	13.2	4.6	11.7	4.1	13.3	4.4	9.7	5.4	10.4	4.2	10.3	5.2
Consistency	12.2	1.1	10.4	2.3	10.4	1.9	11.0	1.8	11.4	1.9	11.3	2.0
Self-estimate	6.7	1.3	6.3	1.1	5.9	1.3	6.4	1.2	6.3	1.1	6.7	1.4
Father ed level	4.7	1.9	4.2	1.5	4.7	1.6	4.4	1.7	4.2	1.7	4.4	2.1
Mother ed level	4.3	1.4	4.1	1.1	3.9	1.2	4.3	1.2	4.0	1.1	4.4	1.7

TABLE XVII

MEANS AND STANDARD DEVIATIONS FOR DEVIANT AND CONSISTENT ACHIEVING SOPHOMORES

	Males						Females					
	Overach		Consist ach		Underach		Overach		Consist ach		Underach	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
CPI												
Dominance	25.3	5.8	28.2	6.2	28.6	5.8	26.0	6.5	25.4	6.6	No data	
Capac for status	17.9	3.8	18.0	3.9	18.0	2.8	17.8	3.2	17.1	4.4	No data	
Sociability	20.2	4.4	23.6	4.9	23.0	6.8	21.5	3.8	21.2	5.4	No data	
Social presence	31.1	4.7	33.1	5.4	30.4	7.1	31.4	5.7	30.6	5.8	No data	
Self-acceptance	19.8	2.5	21.4	3.5	18.8	4.9	19.6	4.8	19.6	4.2	No data	
Well-being	33.7	5.0	34.8	5.8	31.4	8.0	35.0	4.1	33.7	5.7	No data	
Responsibility	31.3	6.5	30.4	3.4	25.6	4.4	32.0	3.0	31.2	4.0	No data	
Socialization	34.9	8.4	38.1	5.2	32.0	7.6	43.2	4.0	39.9	4.7	No data	
Self-control	28.2	5.5	26.6	8.4	23.4	5.3	28.9	7.4	28.6	7.8	No data	
Tolerance	19.8	5.0	21.7	5.4	17.6	5.2	22.3	2.6	20.8	4.4	No data	
Good impression	16.6	6.1	17.2	6.7	17.6	5.1	18.0	6.5	16.8	5.8	No data	
Communality	23.5	4.6	24.6	4.0	22.6	6.6	25.8	1.4	25.9	2.2	No data	
Ach via conform	26.0	5.0	26.2	4.5	23.6	5.2	27.9	4.1	26.0	4.8	No data	
Ach via indep	20.5	3.6	18.5	3.4	16.8	2.2	20.4	2.7	18.7	3.7	No data	
Intellect effic	37.8	5.9	37.0	4.8	32.6	6.6	37.0	3.7	35.9	5.4	No data	
Psych-mindedness	10.9	2.1	10.2	3.0	10.2	1.5	10.3	2.3	9.3	2.6	No data	
Flexibility	11.0	2.4	9.0	3.8	8.4	3.8	8.8	2.8	8.7	3.3	No data	
Femininity	18.1	3.1	16.2	3.9	15.8	5.0	25.0	2.7	23.9	3.4	No data	

TABLE XVII (Continued)

	Males						Females					
	Overach		Consist ach		Underach		Overach		Consist ach		Underach	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
EPPS												
Achievement	16.3	3.5	14.4	3.2	15.6	5.0	13.1	4.0	12.6	3.8	No data	
Deference	13.3	2.5	12.3	4.1	9.2	1.3	12.8	2.1	12.5	3.4	No data	
Order	12.3	4.7	11.1	4.9	7.4	3.8	13.3	4.3	11.6	4.5	No data	
Exhibition	13.2	3.4	15.6	3.2	14.0	3.5	15.7	3.8	13.9	3.7	No data	
Autonomy	15.3	4.2	12.7	4.1	14.2	3.3	11.0	4.8	11.6	4.0	No data	
Affiliation	12.7	4.3	16.2	3.6	16.4	5.7	17.4	3.5	17.9	3.6	No data	
Intraception	15.5	4.3	15.1	5.0	11.6	4.6	15.1	6.0	17.1	5.3	No data	
Succorance	9.3	4.3	12.0	4.2	11.2	5.4	12.0	4.0	13.3	4.4	No data	
Dominance	15.2	5.1	15.3	4.5	19.0	5.1	11.3	3.2	11.0	4.8	No data	
Abasement	16.7	2.2	16.0	4.1	12.4	3.5	16.7	4.1	17.6	4.5	No data	
Nurturance	14.5	5.1	17.1	4.2	17.0	6.4	17.5	5.0	17.7	4.0	No data	
Change	15.2	6.2	14.2	3.9	17.4	4.7	18.0	3.5	17.4	4.6	No data	
Endurance	15.4	6.4	12.1	5.0	13.6	3.0	13.1	5.3	11.9	4.4	No data	
Heterosexuality	11.5	6.6	13.4	6.3	18.6	4.3	14.0	5.8	13.8	5.3	No data	
Aggression	12.6	5.9	12.1	5.1	11.5	3.5	8.9	5.6	9.0	4.0	No data	
Consistency	11.2	1.5	10.6	2.2	12.2	0.8	11.2	2.4	11.5	2.0	No data	
Self-estimate	7.3	1.7	6.9	1.1	6.3	0.9	6.8	1.1	6.4	1.2	No data	
Father ed level	4.7	2.3	4.8	1.9	4.2	0.8	4.2	1.5	4.2	1.4	No data	
Mother ed level	4.6	1.7	4.5	1.0	4.0	0.6	4.4	1.0	4.2	1.1	No data	

APPENDIX E

TABLE XVIII

KUDER-RICHARDSON FORMULA 21 RELIABILITIES OF SCALES

Scales	Fr Male	Fr Females	So Males	So Females
CPI:				
Dominance	.69	.73	.72	.75
Capacity for status	.49	.49	.45	.55
Sociability	.67	.65	.69	.68
Social presence	.66	.57	.55	.59
Self-acceptance	.49	.49	.34	.56
Sense of well-being	.82	.67	.79	.75
Responsibility	.69	.56	.59	.46
Socialization	.74	.68	.72	.58
Self-control	.78	.79	.80	.81
Tolerance	.65	.73	.77	.60
Good impression	.68	.71	.78	.75
Communality	.87	.72	.86	.55
Achievement via conformance	.64	.59	.64	.65
Achievement via independence	.47	.39	.37	.41
Intellectual efficiency	.71	.55	.62	.59
Psychological-mindedness	.02	.18	.29	.19
Flexibility	.53	.54	.61	.51
Femininity	.24	.08	.39	.17
EPPS:				
Achievement	.80	.53	.88	.53
Deference	.76	.47	.88	.31
Order	.75	.70	.83	.68
Exhibition	.41	.39	.38	.53
Autonomy	.64	.69	.61	.63
Affiliation	.58	.57	.62	.51
Intraception	.64	.63	.74	.80
Succorance	.61	.62	.67	.66
Dominance	.71	.69	.71	.69
Abasement	.71	.74	.57	.69
Nurturance	.68	.67	.70	.65
Change	.57	.73	.68	.68
Endurance	.74	.73	.77	.70
Heterosexuality	.84	.84	.86	.79
Aggression	.64	.70	.76	.70

VITA

2

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Candidate for the Degree of

Doctor of Education

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