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by

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Abstract

SEX DIFFERENCES IN THE COVARIATION OF AFFILIATION MOTIVATION, FIELD INDEPENDENCE AND INTELLIGENCE

by

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A previously obtained significant negative correlation between affiliation motivation and verbal IQ was further investigated as was a negative trend, not significant, between affiliation motivation and field independence-dependence which diminished to zero with IQ partialled out. Findings, originally obtained with high school males, were reinvestigated using 91 male and 88 female undergraduate students enrolled in colleges of the City University of New York. Subjects were further classified, based on the Bem Sex-Role Inventory, into categories of the "feminine," "masculine," "androgynous," and "undifferentiated."

Affiliation motivation was measured with the French Insight Test for which a female form was

constructed and a revised scoring system developed to control for confounding by fluency. The Group Embedded Figures Test served as the measure of field independence-dependence and verbal IQ was measured with the verbal battery of the Lorge-Thorndike Intelligence Test, Multilevel Edition.

Affiliation motivation and verbal IQ had a significant negative correlation for biological males and a zero correlation for biological females. These were significantly different from one another. There was a significant negative correlation between affiliation motivation and field independence for males and not females which disappeared with IQ controlled. Correlations between affiliation motivation and verbal IQ with field independence partialled out remained significant at about the same level, for the most part. Hence, previous findings for males were replicated. Findings based on the Bem Sex-Role Inventory were negligible, probably because scores for this measure were uncorrelated with the three major variables in the study, with the exception of a significant correlation for females.

Results were interpreted as indicating that a pure affiliation motive, independent of IQ, exists in females only because it is stereotypically appropriate. Among males, this motive was assumed to

usually represent a need in the service of other needs and, in this study, to indicate an expression of a need for assistance from others attributable to low verbal IQ.

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pace. Her detailed and knowledgeable letters, always containing a word of support and encouragement, were seriously needed and appreciated in those early months. I have truly enjoyed working with her.

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The purpose of this research was to investigate the relationship among affiliation motivation, field independence, and intelligence and to investigate the difference, if any, in the relationship as a function of sex and gender-identity.

## Field Independence-Dependence

Field independence-dependence is a cognitive style which proposes analytic perceiving at the field independent end of the continuum and global perceiving at the field dependent end of the continuum (Witkin, Dyk, Faterson, Goodenough & Karp, 1962/74). It is further proposed that field dependent persons attend more to social cues and make greater use, in ambiguous situations, of external referents when these provide information. Field independent individuals are proposed to be more self-sufficient and impersonal (Witkin & Goodenough, Note 1).

## Field Independence-Dependence and IQ

Field-independence has been found to be related to analytic tasks, as well as to other performance tests, to verbal tests, and to total IQ (Goodenough, Note 2; Riley & Denmark, 1974; Vernon, 1972; Wachtel, 1972; Zigler, 1963). Therefore, it is fairly well established that there is some relationship between

field independence, as measured by one of the commonly used tests of the construct such as the Embedded Figures Test or the Rod-and-Frame Test, and IQ, measured by a standardized group or individual intelligence test. Witkin and his colleagues do not deny the existence of the relationship, but attribute it to the common analytic component in tests of field independence and IQ. They find significant correlations with performance tests such as Picture Completion and Block Design, and a significant not a high correlation with tests of verbal comprehension (Witkin et al. 1962/74). However, other researchers (e.g. Zigler, 1963) find higher relationships with IQ in general and some view field independence as nothing more than another measure of intelligence (e.g. Brody, 1972).

Affiliation Motivation

Affiliation motivation, as measured by projective techniques such as the Thematic Apperception Test (Murray, 1943) or the French Insight Test (French, 1958), is supposed to be an enduring disposition representing the extent to which an individual wants to seek out others solely for the pleasure derived from affiliating and for no other purpose. It is alleged to be detectable in fantasy (Atkinson, 1958; McClelland, 1971). According to the theorizing of

Atkinson and his colleagues, evidence of affiliation motivation in responses on projective tests is not found in mere descriptions of interpersonal relationships, but rather in expressions of feeling about relationships implying that they are warm and companionate. Concern for someone, evidenced, for example, in a reaction to separation, can be indicative of a need for affiliation as can statements about friendship or wanting and discussion of companionate activities with no hostility present (Heyns, Veroff, & Atkinson, 1958).

## Affiliation Motivation and Affiliative Behavior

This motive supposedly remains latent until aroused in situations perceived to lead to the goal of the motive (Atkinson, 1958; McClelland, 1971). Therefore, the motive, which has sometimes been found to be unrelated to affiliative behavior in laboratory experiments (Denmark, Tangri, & McCandless, 1979) is, according to the authors of the motive measures, related to affiliative behavior under appropriate circumstances both in naturalistic situations and in research. More specifically, those high on the motive to affiliate should also engage in more affiliative behavior when the motive is aroused. Those low on the motive are

less likely to have the motive aroused and less likely to engage in affiliative behavior, according to Atkinson and his associates.

## Field Independence-Dependence and Affiliative Behavior

Field dependent persons have been shown to have an interpersonal orientation with a greater interest in other persons and in social situations than field independent persons who are characterized as impersonal (Witkin & Goodenough, Note 1). Thus, they tend to affiliate more than do field independent persons. While field dependence has been clearly related to particular kinds of affiliative behavior, there has been no attempt to investigate the relationship between field dependence and affiliation motivation, according to extensive bibliographies available, the most recent of which was compiled by Witkin, Cox and Friedman in 1976 (Note 3).

## Field Independence-Dependence, Affiliative Behavior, and Affiliation Motivation

It has been shown that field dependent persons have an interest in interpersonal relationships. With the liklihood of a relationship between affiliation motivation and affiliative behavior, when the former is elicited, it seems reasonable to expect

a relationship between field dependence and affiliation motivation as well.

And, in fact, in an unpublished exploratory study (Binstock, Note 4), three of four correlations between affiliation motivation, as measured by the French Insight Test (French, 1958), and field dependence, as measured by the GEFT or Group Embedded Figures Test (Witkin, Oltman, Raskin & Karp, 1971), were in the predicted direction and, for the total sample of 35 male subjects, the correlation, corrected for possible inflation by a between groups trend, was in the predicted direction.

Although affiliation motivation as well as affiliative behavior may be related to field independence-dependence and field independence is clearly related to IQ, there have been few attempts, if any, to explain or even speculate as to the theoretical underpinnings of the obtained clusters. It is possible that these relationships may be attributable to different parts of the variance in the field independence-dependence construct or the relationships may overlap involving the same portion of variance. Clarification of issues such as these could yield greater theoretical understanding of empirical findings.

Affiliation Motivation and IQ

Another neglected yet potentially valuable source of information would be a study of the relationship between affiliation or affiliation motivation and IQ. The examination of this unexplored relationship would provide some insight into the conceptual bases which underlie previously observed correlations as well as newly obtained ones. In fact, the previously mentioned unpublished study (Binstock, Note 4) relating the verbal battery of the Lorge-Thorndike Multi-Level Edition (L-T), Form 1, Levels F and G (Lorge Thorndike & Hagen, 1964) to Form II of the French Insight Test (scored for presence or absence of affiliation motivation in each item) did yield negative correlations for each of four high school grades and a significant negative correlation for the total sample of 35 ($r$ = - .3585, $p <$ .025) i.e. as verbal IQ increased, affiliation motivation decreased.

Field Independence-Dependence, Affiliative Behavior and IQ

A study by Crandall and Sinkeldam (1964) found a relationship ($N$ = 50, including males and females) between field dependence (as measured by the EFT)

with social dependence and affection seeking (affiliative behavior) in a free play situation, which became minimal after IQ was partialled out. This finding provides some evidence to show that IQ is not only related to field independence, but may act as a mediator in the relationship between field dependence and affiliative behavior and perhaps between field dependence and the motive to affiliate, as well. The expected relationship between field dependence and these social behaviors obtained only when the investigators, like the Witkin group, did not employ the procedure of holding IQ constant.

Field dependent persons not only engage in more interpersonal behavior than do field independent persons (at least without IQ held constant), but also show facilitated performance in groups and are less self-sufficient and less task oriented than are field independent persons. They use information from others when the situation is ambiguous more than do field independent subjects (Witkin & Goodenough, Note 1).

## Field Independence-Dependence and Affiliation Motivation with IQ as the Mediator

It was, therefore, suggested that since field dependent subjects tend to have a lower IQ, their performance is improved, in certain situations, when

the help of others is available. This need for others is likely to lead to more affiliative behavior and a tendency to prefer interpersonal situations more than do field independent subjects. This tendency or preference may relate to IQ and indicate that IQ does mediate the relationship between field dependence and affiliation, and perhaps even field dependence and affiliation motivation, in line with the Crandall and Sinkeldam finding. Support for this kind of hypothesis may well suggest reinterpretation of the motive to affiliate as a medium for the satisfaction of other goals, as advocated by Denmark, Tangri and McCandless (1979) and may mean reinterpreting at least some affiliative behavior as well.

Specifically, it was proposed that those likely to have a lower IQ, such as field dependent persons, tend to work better in groups than do field independent persons, particularly when the situation is ambiguous because they are likely to have a greater need for the help of others in these difficult situations. The need for working with or getting assistance from others may generalize to other situations perhaps manifesting itself in a general interest in being with others (as has been shown for field dependent persons) and concomitant higher scores on the motive to affiliate. Thus, a relationship between field

dependence and the motive to affiliate may, in the final analysis, be explained by measured intelligence as was the relationship between field dependence and social dependence in the Crandall et al. study.

Binstock (Note 4) found a positive relationship between field independence and verbal intelligence ($r$ = .6127, $p$ < .005) and, as previously mentioned, a negative trend in the relationship of affiliation motivation and field independence as well as a significant negative correlation for affiliation motivation with verbal IQ. When partial correlations were computed for the total sample of 35 subjects, the correlation between affiliation motivation and verbal IQ-controlling for field independence-was still significant and negative ($r$ = - .3539, $p$ = .02), indicating that when variance attributed to field independence was removed, there was still a substantial relationship between the other two variables. However, with the variance attributed to verbal IQ partialled out, the correlation between affiliation motivation and field independence-dependence was close to zero. Thus, initially, there was a nonsignificant trend in the predicted direction between the motive to affiliate and field independence which was substantially reduced when verbal IQ was partialled out. It was also anticipated that with the larger sample in the present study a significant trend

was likely to occur initially, and partialling out verbal IQ could make a significant difference.

Problems with the Previous Study

However, the original study had some problems. Four separate high school grades were used, with very few subjects for each. These were combined to form the total sample of 35, still a very small subject population and made up of varied groups (the four grades). Although the study was performed in a public high school, it was in a community composed of, for the most part, families whose socioeconomic status (SES) tended usually to be at least upper middle class. Furthermore, the study used volunteers. The community's mean IQ is well above the average to begin with, and those that volunteered tended to be the brighter students since they were the ones with an interest in participating in an unrequired research project. Therefore, the subjects tended to have very high IQs and were relatively field independent. The present research used a much larger number of Brooklyn College students instead, since they have been found by this investigator to represent very diverse levels of intelligence and a more average socioeconomic level, the former probably, in part, attributable to the CUNY open enrollment policy.

More specifically, the purpose of this research was to determine if the previously obtained relationships would be replicated with this larger sample of subjects who are more varied in SES and more varied in verbal IQ and field independence-dependence, yet more homogeneous with respect to level of maturity and associated variables.

The heterogeneity of students in the four high school grades in the previous study is attributed to the rapid maturation taking place during this period which encompasses adolescence as well as the beginning of maturity. Also, interests and goals differ greatly as a boy or girl proceeds from the first to the last year of high school.[1] In the present study, greater heterogeneity with respect to two of the variables measured (field independence and verbal IQ) was expected to raise the correlation coefficient which tends to be attenuated with a restricted range.

Another limitation in the original study, was the fact that the subjects were all males. Certainly, it seemed essential to both determine if the relation-

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[1]Even though there had been heterogeneity in the pilot study with a tendency for scores on the variables to have changed systematically with grade level of high school students and, thus force the correlation upward, this effect was controlled by using the within-groups correlation coefficient (Hills, 1957).

ships previously obtained for males not only could be replicated in males, but determine whether they held at all for females. It is possible that when males, in general, and/or more field dependent males (but not necessarily females) are more affiliative and are also higher on the motive to affiliate, it is because they are likely to have a lower IQ and need the help of others in some situations, with the interpersonal preference generalizing to other situations. It seemed likely that, for females, the relationship between field dependence and affiliation motivation could differ and/or the relationship might not be mediated by IQ. The likelihood of these variables failing to covary as they do for males is indicated by the fact that high affiliation motivation, like affiliative behavior, is stereotypically feminine and, therefore, is more valued by and occurs more often in females (Oetzel, 1966). Since this trait is stereotypically feminine, females may affiliate for the sake of affiliating and have higher scores on the motive to affiliate for its own sake and not the generalized need for assistance or information from others as described in the previous speculations. That is, females may be affiliative and value and need affiliating independent of IQ and the degree to which they need assistance from others.

## Endorsement of Sex-Typed Characteristics

Since differences between males and females are at least as often attributable to cultural learning as to biology (Maccoby & Jacklin, 1974; Money & Ehrhardt, 1972), it is probably often preferable to consider the degree to which the members of both sexes endorse gender-appropriate characteristics and not consider their biological sexual identity alone. Hence, finer distinctions may be made than are obtainable by merely categorizing subjects as males or females. Such distinctions could help to reveal possible differences in relationships with a gender-related variable (e.g. affiliation motivation and verbal IQ) which may not be evident when looking at biological sex alone. Therefore, not only were differences between males and females examined, but those among the "feminine," "masculine," "androgynous," and "undifferentiated," as well. The interaction of the two classifications was considered and correlations were computed for all groups and all possible combinations of them. Categories were determined with the Bem Sex-Role Inventory (BSRI) using the most recent scoring specified for it (Bem, 1974; Bem & Watson, Note 5).

## Global Perspective

The general aim of the research was to clarify

the meaning of existing constructs and previously obtained relationships by investigating some new relationships and reevaluating some recently obtained ones which appeared as gaps in the chain linking field independence-dependence to constructs in other domains. By examining how the three variables discussed were interrelated and how, if at all, the covariation changed as a function of sex and gender-identity, it was hoped that new links would emerge to improve our understanding of existing constructs and obtained relationships.

# Method

## Subjects

The subjects were 179 volunteer undergraduate students, 91 males and 88 females, mainly from Brooklyn College who ranged in age from 18 to 30. Eight subjects (four males and four females) were undergraduates at Queens College. All subjects were born in the United States. Most were part of the Brooklyn College subject pool, drawn from students in the Introductory Psychology Courses. Some were from Introductory Social Psychology and Personality courses. Subjects were recruited via a sign-up sheet on a hallway bulletin board or through requests for participants made by the investigator at the beginning of classes. The sign-up sheet contained the following information: Name of Investigator (P. Binstock), account number (28), title of project ("Personality Test Taking" and underneath "Sex Differences in Sociability and Thinking Styles"), date and time of experiment, room number (3203J), and number of hours (1 hour and 40 minutes) and number of credits (2) to be received by the participant (1 hour = 1 credit). It was requested that only those 18 to 30 years old and born in the

U.S.A. sign up. The sign-up sheet allowed for the testing of a maximum of thirty subjects at any one time.

It should be mentioned that titling the project "Sex Differences in Sociability and Thinking Styles" may have influenced responses of females, particularly field independent ones, who are less likely to be high on affiliation and perhaps affiliation motivation. These females may have known that sociability tended to be a feminine characteristic and may have made an extra effort to cooperate with the female doctoral candidate by responding more affiliatively than they typically would have on the Test of Insight. However, there was most often a span of at least, but usually more than, a few days between the time subjects signed up and their participation in the research. The time span makes it unlikely that they remembered and were influenced by the words on the sign-up sheet during the testing session.

## Measures

The Test of Insight. The Test of Insight, Form II, (French, 1958) was selected as the measure of affiliation motivation using the standard instructions for administration. This measure was selected because it relates significantly to the TAT, the

other projective measure used to assess affiliation motivation (Denmark et al., 1979), and because of the ease with which it is administered. The Insight Test, however, has the advantage of being a verbal technique while the TAT uses pictures selected in the 1930's to arouse fantasy. These may not have relevance in this era (e.g. clothing differences, the absence of black persons, etc.) and may result in reduced validity. Also, French (1958) found her measure had convergent validity since it correlated significantly with scores on sentiment and questionnaire items (similar to those used by Henry Murray), with self report measures of affiliation motivation, and with observable goal attainment.

However, the Test of Insight, like the TAT, was normed and validated on men and administered by French to men only; therefore, it was deemed inappropriate for use with the female subjects in the study. It was necessary to construct a female form of the test which meant simply retaining the content, but substituting commonplace female names for the male names in each cue and changing the gender of the pronouns in the instructions and the cues (see Appendix 1). Since comparable female names and corresponding pronouns were the only changes, it is likely that use of the female form for females was

equivalent to the use of the male form for males.

The advantage of using a projective technique rather than an objective self report measure to assess affiliation motivation is based on the assumption that people do not reveal as much of their true motivation on the latter, according to psychodynamic theorists (Mischel, 1976). These theorists propose that projective techniques allow unconscious motives to bypass inhibitions and defense mechanisms and be expressed in fantasy through projection onto their often ambiguous test stimuli. Some theorists propose that, while motives may be repressed and unconscious, there are also conscious motives that may not typically be directly expressed in behavior and may also receive expression in fantasy. Some of these motives are not ordinarily revealed, according to these theorists, because, even though they are conscious, there is not enough opportunity to express them, they are not socially sanctioned or approved of, they represent a threat to the ego etc. These motives may also be expressed in fantasy on projective tests because the threat of expressing them in this form is negligible and/or it may provide vicarious, indirect fulfillment or because the opportunity to express a need is simply there (Mischel, 1976).

Scoring for the Insight Test was based on Heyns, Veroff, and Atkinson's revision (1958) for affiliation motivation, initially developed by Atkinson (1958) for the achievement motive. French's scoring had been derived from the work of McClelland and his colleagues (McClelland, Atkinson, Clark and Lowell, 1953), but both Atkinson's model and the method devised by Heyns et al. represent revised improvements of the original work, following collection of validity data. However, the Heyns et al. method, for the purposes of this study, was modified to control for fluency. Fluency is a factor which confounds measurement of affiliation motivation (when scored with McClelland's method also), and was particularly troublesome for this research. Specifically, since fluency is positively related to verbal IQ, any negative relationship between affiliation motivation and verbal IQ, if it existed, would, of necessity, be attenuated. In fact, in the original exploratory study cited earlier (Binstock, Note 4), each story was scored only for the presence or absence of affiliation imagery (based on the Heyns et al. criteria), thus avoiding the fluency confound. When these data were rescored adding the standard sub-categories used by Atkinson and colleagues, with each given a score of one when present, the significant negative correlation previously obtained was severely

attenuated. Therefore, it became necessary to use a scoring system resembling more closely the one in the exploratory study.

In an article by Entwisle (1972) on projective measures of motivation, it is stated that:

> Since validity is limited by reliability, no more validity appears attainable with full-scale than with dichotomous scores. Inspite of lengthy writing of stories by respondents and elaborate and time-consuming scoring, then, it turns out that the fantasy-based measures are equivalent to one dichotomous decision per picture (p.382).

In fact, Entwisle points out that girls write more words per story than boys and high-IQ children write more words than do low-IQ children.

Based upon Entwisle's findings, the exploratory study, and the need to control for fluency, it seemed justifiable to score stories in response to the French items, in the present study, with an abbreviated system of +1 for affiliation imagery (to be explained in detail), and 0 for both unrelated and doubtful or task imagery, as is specified for affiliation motivation by Heyns et al. (for achievement motivation, Atkinson scores unrelated imagery -1). Task or doubtful imagery is the presence of a situation in which the motive of interest can occur but is not clearly present or a situation in which presence of the need is doubtful or uncertain. Unrelated imagery is scored, according to Heyns et al., when the need appears not to be

present in the story. In an effort to refine the dichotomous scoring system used in the pilot study, a score of +2 was given if thema(to be explained) was present. This procedure, presumably, would increase validity along with the range of scores.

While developing the modified scoring system, it was gratifying to discover that a similar system, based on Entwisle's findings, had been effectively used by Krogh (Note 6) to score for the need to nurture. Krogh found unrelated imagery (-1), task imagery (0), imagery indicating the need to nurture (+1) and thema (+2) were the most meaningful and reliable distinctions. Scoring one point, in addition to the points for imagery and sometimes thema, for each of several subcategories present in a story, as suggested by Atkinson and his colleagues, was found to often complicate scoring of the motive measures without gains and with increased confounding by verbal fluency (Entwisle, 1972; Binstock, Note 4; Krogh, Note 6).

In sum, the abbreviated system used in the present research falls somewhere between the presence-absence technique used for the exploratory study (and used by Entwisle for achievement) and Krogh's scoring of the need to nurture. Stories are scored for thema as well as imagery, but -1 for unrelated imagery is eliminated because Heyns et al.

suggest that both doubtful and unrelated imagery be scored 0 for the need to affiliate. Also, every attempt we made to separate unrelated and doubtful or task imagery proved to be unsuccessful. It almost seemed as if any situation could be construed as one in which the presence of the need for affiliation may have been appropriately present. If Entwisle is correct, the use of an abbreviated system, such as this one, is at least equally valid and more reliable than the typical lengthy, more complex version with sub-categories.

Following are the four categories into any one of which a response must fall to get a score of +1 for affiliation imagery, according to the scoring system devised by Heyns, Veroff, and Atkinson. Unless it is specified that a modification was used, the criteria parallel those set forth by Heyns et al. The presence of affiliation imagery in a story is given a maximum score of +1 even if it comes up more than once or if more than one category is present in the same story. A score of +2 is given only with the presence of thema, to be discussed shortly.

A story was scored +1 if there was evidence of concern in any one or more persons in the story over establishing, maintaining or restoring a positive affective relationship with another person or persons. Minimally accepted was an expression

of friendship. Merely stating the existence of a relationship, such as referring to a father or a sister, does not justify scoring for affiliation. In addition to the description of the kind of relationship, there must be expression of warmth or concern over maintaining or restoring it.

A story was also scored for affiliation imagery when some statement of affect such as liking, loving, or loneliness was present. The desire to be liked, be accepted, be forgiven or get sympathetic understanding, was also scored +1. Concern or some other affective reaction (e.g. sorrow, shame, grief or feeling bad) of a person in the story over a separation or disruption of a relationship was scored affiliation imagery. Without evidence that the person desires restoration of the relationship, no affiliation imagery was scored.

We added the requirement that belonging and acceptance be scored no more than +1 (i.e. not scored for thema) unless it was clear that these expressed needs were not for some contradictory purpose such as praise, status, superiority, or accomplishment to impress people or increase self-esteem. These desires are usually indicative of contradictory motives such as achievement or self-enhancement. Thus, while Heyns et al. use an example in which the need for approval is scored as if acceptance and approval were inter-

changeable (but approval is not specified in the text of the scoring manual), we required that the approval clearly be peer approval or approval as an equal in order to be scored +1 and not 0. We did not score for affiliation imagery if the approval desired was for some act performed or for something constructed or created. As we understood Heyns et al., the need to belong, be accepted, or approved of had to be for the purpose of membership in a peer group because it served as a source of enjoyment or pleasure due to the companionship and/or opportunity to socialize or form friendships which it provided. However, the clear implication of a peer relationship to score for affiliation imagery was required for the word "approval" only since this word was not specified in the text of the manual.

Without mention of friendship, liking, or wanting, a story was still scored for affiliation imagery if there was mention of a clearly companionate activity such as a party, a reunion, a visit, relaxed small talk or a bull session with no indication of hostility and the absence of any contradictory motive such as talking business. Heterosexual dating was scored if the appropriate feelings were implied or stated and the relationship was not purely sexual. Concern over marriage was scored because it is assumed to imply more than sex. In sum, companionate

activities for the purpose of being with others and engaged in for no other purpose with no evidence of any activity contradictory to that of affiliating was scored +1. Although marriage can occur for other purposes (e.g. financial), we made an exception and did not modify this criterion of Heyns et al. It came up in only one instance in our data.

The fourth category into which a statement could fall and still be scored for affiliation imagery, was mention of friendly, nurturant acts such as consoling someone, helping others, or concern over the happiness or well-being of another. These did not include acts performed out of necessity or solely in the line of duty, such as those by a father for his son, unless there was an indication of affiliative feeling as well.

Since the stories were relatively short, we did not exclude scoring the first and last statement as specified by Heyns, Veroff, and Atkinson for the TAT, unless it repeated the cue. We gave a maximum score of +1 for a story which contained a statement in any one of Heyns, Veroff, and Atkinson's four categories which was made by any character in the story (as they suggested). The presence of additional scorable statements were not given an additional point when also present without thema. We

did not score +1 for the presence of each additional statement that represented one of the remaining subcategories, as already mentioned, not only to control for fluency, but also because the authors of the manual specify uncertainty over which categories may be validly scored for affiliation motivation.

Finally, we added the requirement that an indication of insecurity, fear, or lack of self-esteem without any clear mention of a statement in one of the four categories be excluded from consideration as an indication of affiliation imagery. For example, "He likes to be surrounded by people so that he can get lost in the crowd" was not scored. Also "She enjoys her large family because it makes her feel secure" would be excluded as an indication of affiliation imagery. Even when there was vague mention of affiliation imagery along with some contradictory opportunistic purpose for affiliating, a score of +1 was not given. For example, "She creates friendship built on a need to express her thoughts rather than on positive feelings for others."

If there was affiliation imagery and no competing or contradictory statement in the story, the story was scored for affiliation thema. The other statements did not have to also indicate affiliation as long as

they weren't contradictory or competing (e.g. insecurity and lack of self-esteem were considered competing). When a story was scored for imagery and thema it received the maximum score of +2. If neither imagery nor thema was present the story was scored 0. We, furthermore, required that a story contain at least two statements, a minimum of one with affiliation imagery and the other clearly not a contradiction to affiliation nor containing a competing motive, before we scored the story +2.

The Lorge-Thorndike verbal battery. To measure intelligence, the verbal battery of the Lorge-Thorndike Multi-Level Edition (L-T), Form 1, Level H (Lorge, Thorndike & Hagen, 1964) was selected. The choice was based on the fact that the Lorge-Thorndike is one of the better group administered intelligence tests according to the extensive reliability and validity data in the test manual. Level H is expressly for college students 18 or over. Only the verbal battery was used because of the greater likelihood of a relationship between affiliation motivation and verbal IQ as opposed to a performance measure. Affiliation Motivation is in the interpersonal domain, thus it is, in part, dependent on verbal interaction. Furthermore, the performance battery was avoided since it is known that some performance tests and field

independence are highly related. In fact, the Block Design Test, which is a performance subtest of the Wechsler Intelligence Test, is used as an estimate of field independence (Witkin et al., 1962/74). Also, Witkin had examined the analytic component (known to relate to the performance battery) as it related to affiliation, so it was of interest to now consider verbal IQ and affiliation motivation. The way in which affiliation motivation related to the analytic component, represented by the GEFT measure of field independence, was also of interest.

The Group Embedded Figures Test. The Group Embedded Figures Test (Witkin et al., 1971) was used to measure field independence-dependence because it is a standardized group version of one of the two most commonly used tests of the construct and has been normed on adults. It may well be, however, that the restructuring or analytic component is better measured by the GEFT and it is this component that relates to IQ. The RFT is most likely more related to dependence on the surround and reliance on external sources of information and so would tend to be more highly related to affiliation motivation.

The Bem Sex-Role Inventory. The Bem Sex-Role Inventory (Bem, 1974) was used to determine sex-typing. It is an important work since it considers masculinity

and femininity as independent factors rather than opposite ends of a bipolar continuum. Also, items were selected on the basis of their being judged equally desirable for either a man or a woman, not both, by both men and women rather than on the basis of endorsement. It determines the degree to which an individual endorses sex-appropriate characteristics, viewing this process as independent of biological sex. Furthermore, it takes into account those who endorse many and/or endorse strongly the characteristics of both sexes labeling them "androgynous," again disregarding biological sex. Those who endorse few and/or endorse weakly characteristics of both sexes are referred to as "undifferentiated."

While the Bem Sex-Role Inventory was used to assess degree of endorsement of sex-typed traits in the present study, it should not be assumed that all of Bem's theory is receiving unquestioned acceptance. In fact, there is definite disagreement with Bem's advocacy of the separation of biological sex and sex-typing. The present researcher agrees with Locksley and Colten (1979) who assert that biological sex is an immediately perceptible feature of a person and, as such, one cannot avoid the social consequences of one's sex. They state that the influence of a person's biological sex on the perceptions of others

and their expectations of themselves is inescapable. Biological sex evokes and elicits sex stereotypes in others, according to these authors. Therefore, the present research, even though it used the BSRI to measure degree of sex-typing, is based on the viewpoint that biological sex and sex-typing are, in the majority of cases, inevitably intertwined.

The BSRI was scored by obtaining the masculinity and femininity scores for each subject. Based on a revised scoring system (Bem & Watson, Note 5), the medians for these masculinity and femininity scores for the total sample were determined. They were 97.875 and 97.492 respectively. Those subjects above both medians were classified as "androgynous" and those with scores below both medians were classified as "undifferentiated," in relative terms since classification depended on distribution of scores in this sample. Those above the masculinity median and below the femininity median were classified as "masculine" and those who scored above the femininity median and below the masculinity median were classified as "feminine," again relatively feminine or masculine since groups depended on distribution of scores in this sample.

Procedure

Almost all subjects were tested in the same classroom in Brooklyn College (the exception being one session in a Queens College classroom) for approximately two hours. Most were tested by the investigator. About five sessions (representing approximately 10% of the sessions) with only a few subjects present were run by two female assistants and a few, with one or two subjects in each, were run by a male assistant. All were trained by the investigator. The training consisted of the investigator's describing the procedure and then the assistant observed a session run by the investigator using an instruction manual containing everything to be said and done (see Appendix 2). Assistants had each been given a copy of the instruction manual, allowing them to follow the procedure more meaningfully. The investigator then observed each assistant run the testing session, making suggestions when appropriate. The observations (no more than two were needed) continued until the investigator was satisfied that the assistant could carry out the procedure without supervision. Because of this training process and the investigator's presence at Brooklyn College as a staff

member, there were only one or two sessions at which the investigator was not present for at least a portion of the time.

Manila envelopes were made up beforehand containing all of the testing materials, in the sequence they were to be given, with a cardboard behind them. On the envelope and on the testing materials the subjects' code numbers were stamped with a rubber stamper. The number on the envelope matched the number on each of the tests inside. On the envelope, there were spaces for the subject to fill in his or her sex, his or her date of birth, and his or her country of birth, if other than the U.S.A. Upon arrival, subjects were handed an envelope and, because of the two forms of the Insight Test, a male was given one with an "M" on the bottom containing the male form and a female was given an envelope with an "F" on the bottom containing the female form. At ten minutes after the hour at which the testing was scheduled to begin, the door was closed and a "do not disturb" sign placed on it. Subjects were no longer permitted to enter and were asked to return for another testing session. Those present were told the following:

> This research is an attempt to determine if variables believed to be related are, in fact, related. After the research period is over, I will tell you more about it. If any of you would like still more information, we will arrange another meeting to discuss the project in greater detail.
>
> You have been given an envelope with a code number on it containing the materials you will be using. Please put your sex, date of birth, and the country you were born in, if other than the U.S.A., where indicated, on the envelope. There are several tests in the envelope with a cardboard behind them. When I tell you to, take the first test out, which is the one furthest from the cardboard. For now, leave the envelopes closed. Do not put your name on the envelope or on the materials inside. This procedure assures you of total anonymity. It will not be possible to identify you since these data are confidential and will be seen by no one working in the school besides myself and I do not have a sample of your handwriting. Therefore, the project will not involve any risks for you. There is nothing stressful or anxiety provoking in the procedure and anxiety has not been experienced by subjects in past administrations. Therefore, none should be experienced by you, especially since, as you can see, there will be no way to identify the person who wrote the answers. Nevertheless, it would be helpful to me if you would please do your very best on the questions and the puzzles contained in the envelope so that my dissertation will be based on accurate information and represent a useful contribution. Performance level on any one measure is of no interest for this project which is concerned only with the relationships among variables.

The subjects were reminded to put their date of birth, sex, and the country they were born in where indicated. They were told to "take out the first test which should say, 'A Test of Insight' on it." They were then told to read the standard

instructions to themselves carefully and begin as soon as they finished reading.

The Insight Test was given first because it is believed to be one of the least anxiety producing of those administered. Also, since it is a projective technique, it is the one most likely to be influenced by, or be most sensitive to, other aspects or procedures of the testing session. Upon completion of the Insight Test, subjects were told to place the test behind the cardboard and take out the second test (the BSRI) which should say at the top of the page, "On the following page, you will be shown a large number of personality characteristics." The standard instructions were read out loud while the subjects read them silently.

The L-T verbal battery was given last because it is the most time consuming measure, of those used, and is believed to be the most anxiety producing. Therefore, the GEFT was administered next. Upon completion of the BSRI, subjects were told to put the test they had just completed behind the first one and take out the third test which is a booklet saying, "Group Embedded Figures Test" on it. The standard instructions were read and the measure was timed with a stop watch. Upon completing the GEFT, subjects were told to place it behind the previous test they had taken so that now there were three

tests behind the cardboard and one remaining in front. They were told to take out the last test in front of the cardboard which consisted of a booklet and an answer sheet with a sheet of scrap paper. They were then told the following:

> Even though the booklet and answer sheet are titled the "Lorge-Thorndike Intelligence Test," we will be taking only one-half of the total test. There are five short tests and three longer ones in the booklet, as you will soon see. We will take only the five short tests. Therefore, this is not a true and complete test of intelligence and you should not regard what you think is your performance as a measure of your intelligence. Also, there is no way to judge performance without special tables and the measures are designed so that no one can get 100% and most should not be able to finish any of the tests. Again, I remind you of your total anonymity. Still please try your best.

The verbal battery of the Lorge Thorndike Intelligence Test, Multi-Level Edition (Level H) was then administered using standard instructions and was timed using a stop watch. When the test was completed, subjects were told to place the booklet and answer sheet behind the last test they had taken, so that now all tests were behind the cardboard. They were asked to close their envelopes and be sure they had their date of birth, sex, and country of origin in the appropriate spaces on the envelope.

Envelopes were then collected and subjects were immediately told the following:

The research you have just participated in is interested in finding out about the relationship between a written measure of sociability, a thinking style called field independence and verbal performance. The first measure looked at sociability, the puzzle test examined thinking style and the last series examined verbal performance. The puzzle test of the thinking style of field independence-dependence should show whether a person looks at the world in detail, or if he or she looks at things as a whole, in global terms.

Research has found a relationship between friendly or sociable behavior and field dependence, but no one has looked at field dependence and the written measure of sociability. So this study looks at this new relationship. Also, field independence has been found to relate to verbal performance, but no one has looked at measured sociability and verbal performance. Looking at these new relationships - which seem like missing links - may give us information to better understand these concepts and may tell us whether they are different from each other or really very similar. If they measure different things, they are still of interest to us.

Cognitive styles show us that people may think and learn in different ways. Those that are poor learners may greatly improve if a different approach is used, better suiting their style of thinking and learning. For this reason it is important to discover the value and meaning of cognitive styles such as field independence.

There is nothing secretive in what we have done here, but it would be useful to me if I could have the opportunity to explain the project to your classmates rather than have them get advance knowledge. Also, I would prefer to be the one to discuss it with them so that I can insure that their information is absolutely accurate. So, please do not discuss the project with your classmates till after the semester is over.

Please see me now to arrange, if you wish, to hear more information on this project.

Scoring Procedure

All of the tests were independently scored by two persons (one of whom was usually the investigator) without their awareness of other test results. The GEFT, L-T verbal battery and BSRI were initially scored by either a former student of the investigator or a Ph.D. candidate at the Graduate Faculty of the New School. The student was trained by the investigator to do the scoring, but had no knowledge of the purpose of the research. The Ph.D. candidate was familiar with these measures and the methods used to score them. Most of these tests were rescored by the investigator, but only after she and a co-rater had completed scoring all the Insight Tests. Some were rescored by the alternate scorer. Rescoring was performed without knowledge of other test scores or the scores obtained by the co-scorer. All tests for which there were scoring disagreements (there were very few) were carefully rechecked by the investigator.

The scoring of the Insight Test required some knowledge of and experience with projective measures of motives particularly since we had to develop a revised method, previously described. The investigator had taken a seminar in human motivation and had some experience scoring the Insight Test for

affiliation motivation. The Insight Test was independently scored by another rater, Edward Hahn, a Ph.D. candidate in the Social-Personality program at the Graduate School and University Center who had taken a seminar in human motivation. He had experience scoring projective measures of motives and had served as a co-rater using Krogh's scoring technique for the need to nurture. Each rater recorded scores for every item and the total for each Insight Test on a separate sheet of paper before giving the tests to the other rater for scoring. However, raters did confer afterward about any disagreements with regard to scores, in order to arrive at a score with the greatest probability of being valid.

Since most responses scored for affiliation motivation on the Insight Test occurred for items seven and nine, with a few to item three, words used by each subject in their responses to these items were counted and totaled to get a measure of verbal fluency. It was important to include item three because items seven and nine were both on the second page of the test, with one toward the beginning of the page and the other the next to last one on the page. Item three was on the first page of the test and in the middle of the page, so including it meant taking account of fluency, over varied

item positions. It's possible that fluency is better represented by a first page item or one in the middle rather than at the beginning or end of the page (if, for example, fluent subjects became tired of writing by the second page).

# Results

## Reliability of the Test of Insight

Since a female form of the Insight Test was constructed, for the purposes of this study, and a revised scoring system was adopted, it was of particular interest to check the test's reliability. These coefficients seem appropriately discussed before any findings can be meaningfully considered because their values will bear on interpretation of findings. However, a limiting of possible scores for each item, such as we employed, should have a positive affect on interrater consistency since it limits the number of possible alternatives available to scorers.

The total scores originally obtained for each test (i.e. before discussion) by one rater were correlated with those obtained by the other rater. The resulting interrater reliability based on the total sample of 179 cases was .896.

Internal consistency was determined by correlating agreed upon scores for item seven with agreed upon scores for item nine and correcting the correlation obtained with this modified alternate forms procedure for double length using the Spearman-Brown

prophecy formula for a test twice as long. Items seven and nine alone were selected because they were the only items responded to, to any great extent and with any consistency, with affiliation motivation.

French had constructed the test so there would be a lack of consistency. Some items were designed, to primarily, though not entirely, evoke achievement motivation, when appropriate. Some (namely items seven and nine) were intended to and usually did yield responses that could be scored for affiliation motivation (that is, if subjects had this need, it is assumed). The rest supposedly evoked, to a moderate degree, affiliation motivation and/or achievement motivation. Subjects, as a result, responded inconsistently and idiosyncratically with affiliation motivation to the other eight items, with the exception of an only slightly greater tendency to respond affiliatively to item three. Specifically, an item analysis was performed to determine more precisely the contribution of each item to total affiliation motivation scores. Items seven and nine had total scores across subjects of 192 and 175, respectively. Only item three had a share in n Aff scores with a total of 48. All other items made a negligible contribution to affiliation motivation scores with totals ranging anywhere from 0 to a

a maximum of 19 across all 179 subjects. Therefore, items seven and nine were the only two considered appropriate for an analysis of internal consistency. However, the procedure limited the possible score range to 0 - 2, attenuating the correlation. The resulting correlation coefficient between items seven and nine was significant and positive $r$ (177) = .1388, $p$ = .03. This correlation coefficient, corrected for the restricted score range so that it represented the internal consistency of a two item Insight Test, was .207 based on the total sample. This is the reliability given because, as shown by the item analysis, the total scores were primarily determined by items seven and nine.

## Means and Differences Among Groups

Means and standard deviations were computed for L-T verbal IQ, the GEFT measure of field independence-dependence, the Insight Test of n Aff (affiliation motivation), and Word count representing verbal fluency. These values were separately computed for males and females and for subjects categorized as feminine, masculine, androgynous, and undifferentiated using the BSRI. Means and standard deviations were also computed for all possible combinations of these two classifications. These values are shown in Tables 1 - 5.

Three two way analyses of variance were performed for each of the three major variables (IQ, GEFT and n Aff) with biological sex and BSRI categories as the main effects. There was a barely significant Bio.Sex (biological sex) effect for verbal IQ, with males higher than females, $F$ (1,171) = 3.61, $p$ = .059 (see Table 6). For the GEFT (see Table 7) there was a significant Bio.Sex X BSRI interaction, $F$ (3,171) = 4.32, $p$ = .0059, with masculine females, androgynous males, and undifferentiated males more field independent than the other five groups (see Table 3). This highly significant interaction effect indicates that GEFT scores varied as a function of the particular combination of BSRI category and biological sex. There was a significant Bio.Sex effect with males, as shown in other studies, significantly more field independent on the GEFT than females, $F$ (1,171) = 5.73, $p$ = .0178. Differences among BSRI categories were just short of significance (see Table 7). Also, as can be seen in Table 5, fluency was always in the expected direction with females more fluent than males, while for BSRI categories fluency was similar across groups. These findings indicate that distinctions which apply to biological sex differences (e.g. males are more field independent) did not appear when examining BSRI groups alone.

Zero-Order Correlation Coefficients

Scatter diagrams based on the previous study indicated that relationships held throughout the range of scores. Therefore, zero-order correlations were computed between IQ and GEFT (field independence), GEFT and n Aff (affiliation motivation), IQ with n Aff, and n Aff with Word count. These are shown in Tables 9 - 12.

As can be seen in Table 9, the majority of the correlations between L-T verbal IQ and GEFT (field independence) are highly significant and positive. Specifically, correlations for subjects classified with BSRI scores and those for the same subjects classified according to biological sex are significant. The only exceptions occurred for subgroups based on both BSRI category and biological sex. Namely, correlations for masculine females and androgynous males and females are not significant.

GEFT (field independence) and n Aff (affiliation motivation), as can be seen in Table 10, have a significant negative correlation, but only for males, $r\ (89) = -.2458$, $p < .02$ and the androgynous subjects, $r\ (40) = -.3488$, $p < .04$. Though there are no significant correlations for any of the subgroups, the significant correlation for androgynous subjects appears mainly to be attributable to females. Not only

is the correlation for females higher (not significantly) but, as shown in Table 1, there are more androgynous females than males.

L-T verbal IQ and *n* Aff have a significant negative correlation for six groups, one of which is males, with their correlation the only highly significant one, being beyond the .001 level (see Table 11). The correlation for females is not significant. Of the BSRI categories, there is a significant negative correlation for the feminine subjects only, $r$ (45) = - .2247, $p$ = .04. Four of the eight subgroups based on biological sex and BSRI category have significant correlations and three occurred for males and only one for females (the one is not for the feminine females). Therefore, there appears to be a distinction between the relatedness of these variables as a function of biological sex with no such systematic variation occurring for BSRI categories.

As shown in Table 12, the correlations between *n* Aff and Word count are all positive, but only the one for the total sample is significant. It seems, for the most part, the revised scoring procedure succeeded in teasing out verbal fluency on the Insight Test and avoided its confounding measurement of affiliation motivation.

Since there were differences for groups separated on the basis of biological sex, it had been considered

appropriate to present all the data with a sex breakdown. There were fairly consistent differences between males and females supporting earlier speculations, but findings, for the most part, appeared to be negligible or add little when both BSRI category together with biological sex were considered for the zero-order correlations. Also, in some cases the number of subjects in these subgroups was too small to yield meaningful findings.

Hence, all zero-order correlations for males and females and for the four BSRI categories, specifically, the masculine, feminine, androgynous and undifferentiated (based on a subdivision of the entire sample) were transformed to Fisher z scores. These groups correspond to the totals in Tables 9 - 12. The ratios of the difference to the standard error of the difference were computed for biological males compared to females and for all possible pairs of the BSRI groups yielding seven comparisons for each of the four correlation coefficients. These were tested for significance using two-tailed tests (McNemar, 1962).

There were no significant differences between the groups in each of the seven pairs for the correlation of verbal IQ with GEFT, nor were there differences for the correlation of GEFT with n Aff and n Aff with Word count. However, the correlation

between n Aff measured by the Insight Test and L-T verbal IQ for females was virtually zero and the same correlation for males was negative and highly significant, as predicted, $r$ (89) = - .4213, $p$ = .001. The difference between males and females for this correlation was, therefore, significant, $z$ = - 3.2186, $p$ = .01.

Partial Correlation Coefficients

Partial correlation coefficients were computed between n Aff and verbal IQ controlling for GEFT, between n Aff and GEFT controlling for verbal IQ and between n Aff and verbal IQ partialling out Word count. These coefficients are shown in Tables 13 - 15. These were computed for males and females, the four BSRI categories, and all combinations of these, as shown in the tables.

The correlation between n Aff and verbal IQ controlling for GEFT remained significant and negative for males at the .001 level, indicating that when variance attributed to field independence-dependence was removed, there was still a substantial relationship between the motive to affiliate and verbal IQ for this group, as predicted. However, with the variance attributed to verbal IQ partialled out, previously significant correlations between n Aff and

GEFT were reduced to almost zero for males and for the total sample. However, it wouldn't require partialling out very much to reduce the correlation substantially (Messick, Note 7). Furthermore, for the androgynous group, the partial correlation coefficient remained just barely significant, $r$ (40) = - .3048, $p$ = .053. This one coefficient is of dubious importance. Still, it represents a case in which the relationship between field independence and n Aff is not eliminated with verbal IQ partialled out. It is interesting that, as can be seen in Table 14, it is the females contributing the higher correlation and there are more androgynous females than males (see Table 1). There may be little or no relationship between the motive to affiliate and field independence-dependence, for males only, beyond that which can be explained by a shared inverse relationship with verbal IQ, at least for these data.

When the partial correlation coefficients were computed for n Aff with verbal IQ controlling for Word count, previously significant correlations between verbal IQ and n Aff remained high with some small increases in significance level. Therefore, partialling out fluency minimally affected the correlations, probably because the scoring system controlled for it successfully, it seems.

Again, correlations were transformed to Fisher *z* scores and the ratios of the difference to the standard error of the difference, based on differences between the groups in each of the seven pairs for each of the three partial correlations, were computed. No significant differences occurred among all possible pairs of BSRI groups for *n* Aff with verbal IQ controlling GEFT. This partial correlation coefficient was significantly greater for biological males as compared to females, $z = -3.0056$, $p = .01$. For the correlation of GEFT with *n* Aff controlling IQ, there were no biological sex differences, but there was a significant difference between androgynous and masculine subjects, $z = 2.1260$, $p < .05$, with the partial correlation for androgynous subjects significantly higher. When verbal IQ and *n* Aff partialling out Word count was considered, the same group difference occurred as occurred for the correlation between verbal IQ and *n* Aff. The correlation was significantly greater for biological males as compared to biological females, $z = -2.831$, $p = .01$.

## Rescoring the BSRI

According to Messick (Note 8), the scoring of the BSRI can be improved upon. If the BSRI yielded scores on a continuous dimension, then it would be possible to get correlations with other variables. Also, the

problem of getting different medians for different data yielding varying categories with differential subject classification would be eliminated.

Therefore, Messick suggests that after masculinity and femininity scores on the BSRI are transformed to standard scores, a sum of the masculinity and femininity scores be computed for each subject representing his or her androgyny score. Then, a separate score should be computed for the same subject, but now a difference score with those on one side of the mean increasingly masculine and those on the other, increasingly feminine. With this system, every subject has a score on the androgyny continuum and one on the masculinity-femininity continuum.

Scores were reevaluated according to this system for the total sample. Both the sum (A/U) and the difference (M-F) were correlated with each other, with verbal IQ, GEFT and n Aff separately for biological males and biological females.

For the most part, no significant correlations were obtained for these sum and difference scores with the three major variables in the study, indicating that the negligible findings for the BSRI may have been attributable to the failure of this test to relate systematically to these variables. The one exception was a significant correlation coefficient between M-F and the GEFT for females, $r$ (86) = .24811, $p < .02$.

This correlation indicates that masculine females are more field independent. The M-F with A/U correlation was significant for females only, $r$ (86) = .25088, $p < .02$. More masculine females were more androgynous. Masculinity scores were uncorrelated with femininity scores, indicating they represented independent factors, as Bem suggests.

Table 1

The Number of Subjects in Subgroups
Based on Biological Sex and BSRI Scores

| | BSRI Category | | | | |
|---|---|---|---|---|---|
| Sex | Masculine | Feminine | Androgynous | Undifferentiated | Total |
| Males | 36 | 10 | 18 | 27 | 91 |
| Females | 13 | 37 | 24 | 14 | 88 |
| Total | 49 | 47 | 42 | 41 | 179 |

Table 2

Means and Standard Deviations on the Test of Verbal IQ for Subgroups Based on Biological Sex and BSRI Scores

| Sex | BSRI Category | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Masculine | | Feminine | | Androgynous | | Undifferentiated | | Total | |
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Males | 109.11 | 13.9 | 111.90 | 16.1 | 111.28 | 7.0 | 114.30 | 11.9 | 111.38 | 12.5 |
| Females | 113.77 | 11.4 | 106.16 | 11.5 | 104.13 | 12.5 | 106.79 | 15.7 | 106.83 | 12.7 |
| Total | 110.35 | 13.4 | 107.38 | 12.7 | 107.19 | 11.0 | 111.73 | 13.6 | 109.15 | 12.8 |

Table 3

Means and Standard Deviations on the GEFT for Subgroups Based on Biological Sex and BSRI Scores

| Sex | BSRI Category | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Masculine | | Feminine | | Androgynous | | Undifferentiated | | Total | |
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Males | 8.36 | 4.7 | 8.70 | 5.6 | 10.06 | 5.3 | 12.04 | 4.3 | 9.82 | 5.0 |
| Females | 11.23 | 4.0 | 6.32 | 5.5 | 5.79 | 4.0 | 7.93 | 6.7 | 7.16 | 5.4 |
| Total | 9.12 | 4.7 | 6.83 | 5.5 | 7.62 | 5.0 | 10.63 | 5.5 | 8.51 | 5.3 |

Table 4

Means and Standard Deviations on the Test of n Aff for Subgroups Based on Biological Sex and BSRI Scores

| Sex | BSRI Category | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Masculine | | Feminine | | Androgynous | | Undifferentiated | | Total | |
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Males | 2.75 | 1.3 | 3.30 | 1.8 | 2.78 | 1.2 | 2.70 | 1.3 | 2.80 | 1.3 |
| Females | 3.00 | 1.3 | 3.05 | 1.4 | 3.71 | 1.3 | 2.93 | 1.5 | 3.21 | 1.4 |
| Total | 2.82 | 1.3 | 3.11 | 1.4 | 3.31 | 1.3 | 2.78 | 1.3 | 3.00 | 1.3 |

Table 5

Means and Standard Deviations of the Word Count Measure of Fluency for Subgroups Based on Biological Sex and BSRI Scores

| | BSRI Category | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sex | Masculine | | Feminine | | Androgynous | | Undifferentiated | | Total | |
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Males | 65.64 | 31.4 | 65.80 | 17.8 | 61.94 | 27.9 | 71.26 | 19.5 | 66.59 | 26.1 |
| Females | 86.92 | 35.5 | 78.68 | 38.8 | 84.67 | 42.6 | 86.21 | 36.7 | 82.73 | 38.6 |
| Total | 71.29 | 33.5 | 75.94 | 35.7 | 74.93 | 38.4 | 76.37 | 27.1 | 74.53 | 33.8 |

Table 6

Analysis of Variance of Verbal IQ Scores for BSRI Categories and Biological Sex

| Source | SS | df | MS | F |
|---|---|---|---|---|
| BSRI | 319.978 | 3 | 106.659 | .68 |
| Bio.Sex | 566.611 | 1 | 566.611 | 3.61* |
| BSRI X Bio.Sex | 955.130 | 3 | 318.377 | 2.03 |

*$p$ = .0590

Table 7

Analysis of Variance of GEFT Scores for BSRI Categories and Biological Sex

| Source | SS | df | MS | F |
|---|---|---|---|---|
| BSRI | 173.141 | 3 | 57.713 | 2.33 |
| Bio.Sex | 141.899 | 1 | 141.899 | 5.73* |
| BSRI X Bio.Sex | 321.284 | 3 | 107.095 | 4.32** |

*$p$ = .0178
**$p$ = .0059

Table 8

Analysis of Variance of *n* Aff Scores for BSRI Categories and Biological Sex

| Source | SS | df | MS | F |
|---|---|---|---|---|
| BSRI | 5.152 | 3 | 1.717 | .97 |
| Bio.Sex | 3.073 | 1 | 3.073 | 1.73 |
| BSRI X Bio.Sex | 6.484 | 3 | 2.161 | 1.22 |

Table 9

The Zero-Order Correlation Coefficients for Verbal IQ with GEFT for Subgroups Based on Biological Sex and BSRI Scores

| | BSRI Category | | | | |
|---|---|---|---|---|---|
| Sex | Masculine | Feminine | Androgynous | Undifferentiated | Total |
| Males | .5365*** | .8449** | .3597 | .6380*** | .5850*** |
| Females | .4158 | .6138*** | .3629 | .6965* | .5848*** |
| Total | .5300*** | .6786*** | .4250* | .6937*** | .6016*** |

Note. Two-tailed tests of significance.

*p = .005
**p = .002
***p = .001

Table 10

The Zero-Order Correlation Coefficients for GEFT with n Aff for Subgroups Based on Biological Sex and BSRI Scores

| | BSRI Category | | | | |
|---|---|---|---|---|---|
| Sex | Masculine | Feminine | Androgynous | Undifferentiated | Total |
| Males | - .1676 | - .5196 | - .1321 | - .2812 | - .2458** |
| Females | .5133 | - .1780 | - .3271 | .3555 | - .0532 |
| Total | .0108 | - .2440 | - .3488* | - .0078 | - .1768** |

Note. Two-tailed tests of significance.

*p< .04
**p< .02

Table 11

The Zero-Order Correlation Coefficients for Verbal IQ with n Aff for Subgroups Based on Biological Sex and BSRI Scores

| | BSRI Category | | | | |
|---|---|---|---|---|---|
| Sex | Masculine | Feminine | Androgynous | Undifferentiated | Total |
| Males | - .4175** | - .6572* | - .1854 | - .4142** | - .4213**** |
| Females | .4514 | - .2247 | - .0334 | .5464* | .0402 |
| Total | - .2095 | - .3396** | - .1823 | - .0171 | - .2108*** |

Note. Two-tailed tests of significance.

*p = .04
**p = .03
***p = .01
****p = .001

Table 12

The Zero-Order Correlation Coefficients for n Aff with Word Count for Subgroups Based on Biological Sex and BSRI Scores

| | BSRI Category | | | | |
|---|---|---|---|---|---|
| Sex | Masculine | Feminine | Androgynous | Undifferentiated | Total |
| Males | .1136 | .4337 | .2948 | .1045 | .1628 |
| Females | .2108 | .2657 | - .0751 | .3868 | .1801 |
| Total | .1587 | .2555 | .1407 | .2581 | .1996* |

Note. Two-tailed tests of significance.

*p = .01

Table 13

The Partial Correlation Coefficients for IQ with n Aff Controlling GEFT for Subgroups Based on Biological Sex and BSRI Scores

| | BSRI Category | | | | |
|---|---|---|---|---|---|
| Sex | Masculine | Feminine | Androgynous | Undifferentiated | Total |
| Males | - .3938* | - .4773 | - .1491 | - .3177 | - .3530** |
| Females | .3049 | - .1487 | .0970 | .4455 | .0880 |
| Total | - .2538 | - .2443 | - .0402 | - .0162 | .1328 |

Note. Two-tailed tests of significance.

*p = .019
**p = .001

Table 14

The Partial Correlation Coefficients for GEFT with n Aff Controlling IQ for Subgroups Based on Biological Sex and BSRI Scores

| | BSRI Category | | | | |
|---|---|---|---|---|---|
| Sex | Masculine | Feminine | Androgynous | Undifferentiated | Total |
| Males | .0735 | .0883 | - .0713 | - .0242 | .0009 |
| Females | .4012 | .0520 | - .3383 | - .0417 | - .0946 |
| Total | .1469 | - .0197 | - .3048* | .0056 | .0009 |

Note. Two-tailed tests of significance.

*p = .053

Table 15

The Partial Correlation Coefficients for IQ with n Aff Controlling Word Count for Subgroups Based on Biological Sex and BSRI Scores

| | BSRI Category | | | | |
|---|---|---|---|---|---|
| Sex | Masculine | Feminine | Androgynous | Undifferentiated | Total |
| Males | - .4378** | - .6208 | - .1878 | - .4413* | - .4435**** |
| Females | .4344 | - .3461* | .0093 | .4242 | - .0460 |
| Total | - .2423 | - .4121** | - .2349 | - .1343 | - .2719*** |

Note. Two-tailed tests of significance.

*p< .04
**p< .01
***p< .001
****p< .0001

## Discussion

Field independence was inversely related to affiliation motivation, as predicted, paralleling findings for affiliative behavior (Witkin and Goodenough, Note 1), for biological males and the androgynous. When verbal IQ was partialled out, the correlations diminished, also as predicted, to zero for the biological males (replicating earlier findings) and only to an acceptable but low significance level for the androgynous. Verbal IQ was inversely related to affiliation motivation for males, as occurred in the pilot study, and not for females, supporting earlier theorizing. But expected relationships, as a function of sex-typing, determined by the BSRI, did not obtain. It might be expected that findings for feminine subjects would parallel those of females and masculine subjects would parallel those of males supporting earlier speculations. No such similarities and corresponding group differences occurred. Judging from the tables, findings for subjects categorized with this measure did not appear to be systematic. This is probably due to its failure to relate to two of the three major variables and, for the one variable it related to, it related for females only.

Reliability of the Insight Test

The reliability of the Insight Test seems appropriately considered before findings can be interpreted. The meaning of hypothesized relationships which did obtain and interpretation of those that failed to obtain are, in part, contingent upon assessment of the effectiveness of this test, as it was used in this study. If raters could not agree on scores, for example, and scores were based on one individual's ratings, their meaning or validity would have to be seriously questioned as would the replicability of the findings.

The modified scoring system for the Insight Test, however, appears to have been effective. With inter-rater reliability of .896, it can be assumed that other raters following the system would come close to scoring as we did; therefore, consistency across raters can be expected. The test appeared to be valid because raters seemed to agree on the meaning of affiliation motivation and because the test, similarly scored in the pilot study, related to variables as expected and those results were replicated in the present research, for males.

Internal consistency was much less satisfactory, but then consistency is not the aim of projective techniques which aim for breadth and diversity. As

already discussed, the French items were meant to tap affiliation motivation differentially. But more than that, projective techniques are intended to evoke individual differences no matter how idiosyncratic. Their ambiguity is intentional so as to allow anyone to say anything as a response. Also, individuals have many unconscious needs, some of which are more important to them than are others. When they express a need, even though it is a pressing need, to one or two items, this catharting may reduce the energy to a low enough level so that the need no longer presses to be discharged. They then (according to Freudian theory) are likely to express another need with more energy invested in it to the next item. This process continues usually till the test ends. Therefore, consistency among items is neither expected nor is it found for projective measures of motives. In fact, Entwisle (1972) states that the homogeneity of projective measures of motives rarely exceeds .30 to .40.

Since reliability increases as test length increases, the use of the equivalent of a two item test to examine reliability in this study, had to have limited the correlation coefficient as did use of a score range from 0 to 2. The reliability of four items (the equivalent of two, two item tests) discussed by Entwisle was a maximum of .16 for girls and .19 for

boys, not very different from the .207 value in the present study. Entwisle, however, used an alpha coefficient obtaining the average of all possible intercorrelations among the four items.

What can be assumed, based on items seven and nine, is, that if a test could be constructed of 10 items like seven and nine which are designed to evoke affiliation motivation equally well, a more acceptable level of internal consistency would be achieved. But even on a test of 10 consistent items, one might be faced with the problem of some individuals having expressed their need for affiliation and depleted the energy invested in it so that, after a few items, they would express another need. Still a third problem remains, however. It's possible that the items which are less obviously meant to evoke affiliation motivation may measure it most validly in those very high on the motive. They may be the more critical items affecting total scores, though infrequently and inconsistently responded to with affiliation motivation. Perhaps both subtle and obvious items are useful or even necessary. Then at what cost can we give up striving for homogeneity on projective measures? Since reliability places a limit on validiity, if a test is valid it must also be reliable even if it isn't internally consistent,

there being several kinds of reliability.

However, while there is some evidence for the validity of the Insight Test for males, there is no such evidence for females since n Aff did not correlate with other variables for females. Furthermore, the female form was a revised form, never used before and, therefore, had never been found to correlate with other variables. Therefore, not only did the test have very low internal consistency, it lacked evidence of validity, at least for females.

Nevertheless, the revisions necessary for the female form were minimal and should not have reduced the test's effectiveness. Also, there was high inter-rater reliability adding to the acceptability of the test. There having been some evidence supporting the value of the female form of the Insight Test and a bit more supporting the value of the male form, as they were used and scored herein, findings are discussed and interpreted in the following paragraphs.

## Field Independence-Dependence and Affiliation Motivation as Mediated by Verbal IQ

Witkin and his associates have proposed that those on the field dependent end of the construct (low scorers on the GEFT) perceive the world globally

as opposed to analytically, are dependent on their surround with relatively poor orientation in space and, on the positive side, are friendly, more interested in others, and have a better memory for faces (Messick & Damarin, 1964). However, many individuals have characteristics on both ends of the continuum. Field dependent individuals are not very different from field independent individuals, according to Witkin et al. (1962/74), on verbal tasks. Yet Vernon (1972), among others, states that significant relationships have been found between verbal tests and field independence. He cites a study in which correlations between the EFT and vocabulary tests are higher than those between the EFT and Object Assembly or Picture Completion (performance tests of the WAIS). However, there are studies, cited by Witkin et al. (1962/74), in which these relationships are not found. According to Witkin, the great majority of studies do not show a large difference between field independent and field dependent persons on verbal tasks, and those that do show vast differences represent one extreme on a continuum.

For the sample of subjects in this study using the measures discussed, there were significant positive correlations between field independence and verbal IQ as well as some significant negative relationships,

one of which occurred for biological males but not for biological females, between affiliation motivation and field independence. The latter became insignificant or close to zero with verbal IQ partialled out. These findings parallel those of Crandall and Sinkeldam (1964), but they looked at affiliative behavior. They found, for a sample of boys and girls, a minimal relationship between field dependence and social dependence with IQ controlled. However, for androgynous persons, the same correlation remained significant, but at a low level, with verbal IQ partialled out.

Of course, as in any correlational study, it is possible that a factor other than IQ, but related to it and/or to affiliation motivation, may have accounted for the link between n Aff and verbal IQ or field independence-dependence and affiliation motivation in males.

For example, one factor that might account for the negative relationship between affiliation motivation and verbal IQ in males is need for achievement. This motive has sometimes been found to be negatively related or to conflict with need for affiliation, at least in adult females (Hoffman, 1975; Horner, 1975). However, Skolnick (1966) found, in a 20 year longitudinal study using both male and female children and adults, that achievement and affiliation are positively correlated in childhood and adulthood and for both

sexes. If these findings are valid, then need for achievement is not likely to account for the negative relationship between affiliation motivation and verbal IQ in males. Although no conclusive evidence is available, there is a suggestion that IQ and need for achievement are positively correlated, if related at all (Weiner, 1972). With n Aff and n Ach positively correlated, if n Ach were accounting for the relationship between n Aff and verbal IQ, in males, the relationship would still be negative. Yet the indications are that there is, if anything, a positive relationship between verbal IQ and n Ach. This type of reasoning could not be applied to females, both because there was no relationship for them between n Aff and verbal IQ in this study and because the research is not clear for females (cf. Denmark et al., 1979).

There were items on the French Insight Test meant to tap either n Ach or n Aff. As a result, for items meant to evoke n Ach, the n Aff obtained may just have been the fall out or what was left over after achievement was expressed. This reasoning assumes that increased responding with one, would result in decreased responding with the other. In this case, the correlation with verbal IQ would be determined, at least in part, by n Ach. However,

there is no evidence for these motives being ipsative.

More importantly, the item analysis, discussed earlier, indicates that the vast majority of total scores were accounted for by items 7 and 9 with total item scores across subjects for each, 192 and 175 respectively. For these two items there was no competition between n Ach and n Aff. Therefore, a subject's total score varied as a function of the degree to which he responded with affiliation motivation to items 7 and 9. Subjects did not respond with the need to achieve to these items, nor with the need to affiliate to other items, in most cases.

Although indications are that correlations are not likely to be accounted for by the need to achieve, this motive may have been responsible or there may be other correlates of verbal IQ and/or n Aff which would explain findings. However, even if measured intelligence is the mediating factor, the direction of the causal sequence may be the reverse of that proposed. Perhaps those that affiliate to obtain assistance from others and express a concomitant desire to be with others acquire less knowledge than more self-sufficient individuals.

Some arguments favor the original causal sequence (from intelligence to affiliation motivation). Firstly, Atkinson and colleagues state that motives

are developed in childhood and remain latent until aroused by appropriate circumstances, namely situations perceived to lead to the goal state (Atkinson, 1958; McClelland, 1971). On the other hand, there is support for a genetic component responsible for, at least, some piece of the variance in intelligence (e.g. Guilford, 1967). Still more compelling is the evidence that intelligence causes achievement rather than achievement causing intelligence, but only in middle class whites, and not lower class black children (Crano, Kenney, & Campbell, 1972). However, it should be pointed out that not only is class a moderating factor for this causal sequence, but age is related as well. There is a possibility that intelligence causes achievement in children, but, later on, at greater levels of complexity, the causal sequence is often reversed (Messick, Note 7).

Even if the proposed causal sequence is correct (i.e. verbal intelligence is the mediator in the relationship of affiliation motivation and field independence in the present research), this study together with the many studies showing a relationship between field independence and verbal IQ do not run counter to the findings of Witkin and his colleagues. They also found some significant relationships between field independence and performance measures,

verbal tests and total IQ (Goodenough, Note 2; Witkin et al., 1962/74).

However, the difference between the viewpoint of the Witkin group and the critics of field independence may possibly be explained by the fact that the correlations fall on a continuum with values normally distributed so that extremely high and very low correlations may be at the two ends and the majority in the middle. It is the middle, with what are most likely low but significant correlations, that Witkin and his colleagues focus on, particularly for verbal IQ. Critics, having performed or looked at a few studies with very high correlations, as found in the present study, may be focusing on one end of this continuum.

Furthermore, the GEFT and EFT are not the only measures of the construct. Perhaps the other major test, the RFT, may more accurately measure field independence-dependence than the EFT or GEFT and maybe it relates to affiliation and affiliation motivation with verbal IQ controlled.

Further research is needed on the question of the relative validity of the EFT and RFT as measures of field independence. Among the studies indicating a failure of these tests to relate highly is one by Denmark, Havlena and Murgatroyd (1971) which found

that for extreme scores, the RFT and EFT correlated .82, but using continuous data, the correlation was only .43. A correlation of .43 accounts for only 18% of the variance, leaving 82% of the variance unaccounted for. There should be more than 18% overlap for two measures of the same construct before they can be regarded as having convergent validity. The GEFT, like the IQ test, is a written test with a time limit, while the RFT is not. Perhaps the EFT lacks discriminant validity since it correlated highly with verbal IQ. As already indicated, the GEFT gets at the analytic component and is more likely to correlate with IQ in general while the RFT gets at dependence on the surround and is more apt to correlate with n Aff independent of verbal IQ.

Affiliation Motivation and Verbal IQ

Though field independence-dependence, when IQ was partialled out, did not correlate with affiliation motivation in males, the findings do not clearly support the a priori hypotheses. For one thing, the relationship was not eliminated in androgynous subjects. That correlation was mainly accounted for by the female correlation and there were many more androgynous females. But, the finding for males together with the significant negative relationship

between n Aff and verbal IQ lend some support to the theory that, for biological males only, affiliation motivation may often be an expression of a need for assistance from others because of a relatively lower verbal IQ. Witkin, using tests of field independence, proposed a similar explanation when he stated that field dependent individuals who have less analytic ability use other people for assistance in ambiguous or difficult situations (Witkin and Goodenough, Note 1). The present study is saying this also, but for verbal IQ rather than analytic ability. In fact, for biological males, the negative correlation between verbal IQ and affiliation motivation, controlling for fluency, was significant at the .0001 level, but for females the correlation was virtually zero. For males, as their verbal IQ increased, their expressed need to affiliate decreased.

One can point to the male clubs and comaraderie in the pubs, prominent in the Victorian and Edwardian eras as well as to the ties of friendship formed in the army, at the poker table and on the baseball field as evidence of a true need to affiliate in men (Schmeidler, Note 9). Yet there are those who would say much of the participation in sport is for the sake of the sport and many frequented the local pub for the purpose of drinking.

In the opinion of this researcher, to be sure, there are those men who may have developed a genuine interest in warm, friendly relationships for their own sake and these men affiliate mainly to serve this need for affiliation. But many men may not have developed this need and this assumed lack of it may account for the findings in this study; that is, the strong negative relationship of affiliation motivation and verbal IQ and the findings for field independence. According to earlier theorizing, this assumed absence of the motive will result in many men affiliating and expressing a desire to affiliate mainly in the service of other needs, as suggested by Denmark et al. (1979). The source of the absence, as discussed, is very likely a failure, on the part of society, to value this need in men. Men are encouraged to be independent, tough minded, unemotional, self-reliant and to be rugged individualists with their mind on the business at hand at all times, leaving little room for companions (see masculine traits on BSRI; Bem, 1976).

The striking absence of a relationship between affiliation motivation and verbal IQ for women, in light of the one for men in this study, may indicate that there exists a pure motive to affiliate in our culture independent of verbal IQ, in females only, for the most part. This pure motive represents a desire

for warm, friendly relationships for their own sake, and for no other purpose, when it exists.

Females are taught to be friendly, smile pleasantly, be sociable and not disturb themselves with serious matters. Tending to the household is their only responsibility and any time left over is usually spent chatting with friends, according to society's traditional image of stereotypic femininity (Bem, 1976; Hacker, 1975; Klein, 1975). Consequently, it may be that whether a female is bright or dull, she often values affiliating and expresses a pure desire to affiliate. Need to achieve and need to affiliate do not necessarily compete in men or in women. It may be merely that men are more rewarded than are women for achievement (Mednick, 1978). Similarly, Mednick's suggestion for achievement may also apply to affiliation. Women may be more rewarded than are men for affiliation. The need to affiliate may potentially be as strong in men, but may be masked because of restrictions imposed by societal stereotypes (Bem, 1976).

Findings with the BSRI Categories

When subjects were grouped into the BSRI categories, hypotheses in this study became more questionable. If affiliation motivation was un-

correlated with verbal IQ, in women, then these variables were independent of one another. If these were strongly related in men, some portion of the variance of one overlapped with the variance in the other. To explain this difference with the fact that, for women, affiliation is valued and a stereotypically appropriate feminine quality which occurs, therefore, all along the bright to dull continuum, seemed reasonable. But then there were the BSRI findings which did not support this theorizing. The lack of support is based on the assumption that, in the majority of cases, some relatedness exists between ascribing feminine traits to oneself and being a biological female (most likely, often stereotypically feminine) and ascribing male traits to oneself when a biological male (probably, often stereotypically masculine).

The difference did not generally occur, however, when comparing feminine and masculine individuals. The small group of feminine males sometimes had correlations which appeared to resemble those of males as much as did those of masculine males. Feminine females seemed to resemble males more than masculine females did, in some cases. The negative correlation for the feminine group between n Aff and verbal IQ was significant, whereas for the

masculine group it was not significant, though the correlations were not significantly different from one another. Findings were negligible and, again, did not support the previous theorizing. Neither n Aff nor verbal IQ related to the BSRI and the GEFT related, for females only. These facts either imply that the BSRI does not adequately measure sex-identity or they contradict the theorizing which underlies the major hypotheses. These two possibilities are separately considered.

The striking difference between biological males and biological females for the correlation between n Aff and verbal IQ (with and without fluency controlled), in particular, makes it difficult to discount the previous assumptions made, on the basis of a single self report measure.

But there were other factors besides BSRI results which made hypotheses in the research appear questionable.

1. There was the low internal consistency of the Insight Test and the fact that a revised form of the test was used for the first time for female subjects. (However, as mentioned, the revisions were minimal and unlikely to result in less effective tests.)

2. Another factor which may have influenced

findings was the nature of the sample. Brooklyn College has a large proportion of black students. Though no statistics on the proportion of black students were obtained, there appeared to be approximately 20% to 30% in the subject population. (This may have influenced results.)

3. There were the demand characteristics of the sign-up sheet, already mentioned. Perhaps women, particularly field independent women, who tend to be less affiliative knew that women would be expected to be more sociable and responded more affiliatively out of a desire to cooperate with the female doctoral candidate. (However, the standard deviation for women was similar to the one for men. A smaller standard deviation would have been expected if women were more cooperative and responded affiliatively, narrowing their score range. Also, there was a time lag between the signing up and participation in the research so that subjects may not have recalled the title of the project.)

4. But more important than the demand characteristics is the possibility that some other unknown correlate or correlates of verbal IQ and/or n Aff was responsible for the results. Therefore, any support of the original hypotheses must be regarded as tentative.

The alternative to discarding the hypotheses on the basis of BSRI results is to examine its many problems. In the first place, it is a self report measure. The gender-typed variable in this study, affiliation motivation, was measured with a projective test. If Mischel (1976), among others, is correct, then the projective measure gets at the true unconscious motive, while self report measures represent the qualities and needs that a person aspires to and not those which he actually possesses.

An example of possible flaws in the Bem scale, is that "friendly" is considered a neutral item, rather than a feminine one, even though affiliation and affiliation motivation have almost always been found to occur more frequently in women. According to Atkinson, friendship is a hallmark of affiliation motivation and, therefore, should be a feminine not a neutral item. It seems what Bem (1976) considered neutral was, by the standards in this research, feminine.

Bem's feminine items appear generally less desirable than the masculine items and, perhaps, than the feminine attribute (affiliation motivation) studied in the present research. In fact, the feminine items do not seem positive, though Bem considers them positive. Somehow "self reliant" sounds more valuable than "yielding,"

"independent" more significant than "shy" and "assertive" more desirable than "flatterable" (the latter is unclear in meaning to many test takers). "Acts as a leader" is certainly to be preferred to "childlike" by mature individuals, but there are some more equivalent pairs on the test such as "strong personality" and "loyal."

It may be that Bem's more obviously stereotypic characteristics are independent of what is, perhaps, the more subtly stereotypic characteristic studied in the present research. Perhaps what is openly attributed to women may often not be very desirable, but affiliation and affiliation motivation may be residual attributes (from dependency and permission to express emotion, for example, bestowed on women by societal norms) on which males were shortchanged. That is, the woman as homemaker, with less to do, is encouraged to be sociable and form friendships. The male must be the breadwinner and has little time for "chit chat." His few free hours are only enough for a ball game and a newspaper. As women begin emerging in what was a man's world, they bring with them this appropriate, acceptable and seemingly desirable greater frequency of affiliative behavior and stronger affiliation motivation (Oetzel, 1966) which, until recently, men have been

deprived of, or deprived expression of, for the most part. But since the permission to possess this quality comes as a residual of other factors, it is subtly feminine and not really considered one of the more typical stereotypic feminine traits and, therefore, does not appear in Bem's work. Hence, we may be seeing two kinds of sex-typed factors, the more obvious, traditional, and direct stereotypic traits, as in Bem's study, and the more subtle type in this study. They are probably somewhat independent of one another, as evidenced by the fact that masculine and feminine scores were uncorrelated with major variables (including affiliation motivation) in this study, with the exception of the GEFT for females. Furthermore, it is not clear that obvious male stereotypic traits are less desirable than subtler ones. Another possibility exists, however. It may be that affiliation and affiliation motivation are losing their identity as stereotypic feminine traits and, for this reason, they do not appear on the BSRI.

The consideration of the possibly less desirable quality of the feminine items compared to the masculine on the BSRI brings us to the issue of response style. While Bem (1979) asked both men and women to judge which items were desirable for women

and which were desirable for men, she did not ask each judge which items they found more desirable for themselves. Hence, she obtained items which, both men and women agreed, were desirable for women in terms of the stereotype of femininity and were desirable for men in terms of the stereotype of masculinity. But there is the problem of what each would find desirable for himself or herself, as a person, that was not considered when Bem equated for stereotypic desirability. This may be why the masculine items seem more desirable than the feminine for people in general and this possibility means that one factor that the BSRI could be getting at is social desirability responding in place of sex-typing. Correlating responses to items with desirability ratings of items independent of their sex-relatedness, may yield the necessary answers. It should be pointed out that even with desirability responding carefully controlled, it is usually not completely eliminated (Hahn, Note 10).

Also, if response style on self report measures is being considered, the BSRI seems like a perfect target for interpretive acquiescers or those who tend to ascribe many characteristics to themselves. This factor may be operating for androgynous individuals, in particular, or, perhaps, those very

high on femininity or masculinity, as well. Couch and Keniston (1960) partly emphasize interpretive acquiescence when they refer to extroverted, impulsive, stimulus accepting yeasayers. It may be that introverted, cautious, stimulus rejecting naysayers are the undifferentiated subjects and those who are low feminine or low masculine. Interpretive acquiescers supposedly have a lower IQ and the androgynous had an (insignificantly) lower verbal IQ than the undifferentiated, masculine, and feminine subjects. In fact, this investigator noticed prior to this research that when her students who had taken the BSRI found their place in one of the four groups, the very outspoken students (perhaps the more expansive extraverted yeasayers who are stimulus accepting) were often androgynous and shy individuals were almost invariably undifferentiated (perhaps introverted naysayers who are stimulus rejecting and, therefore, undifferentiated). It might be valuable to correlate BSRI scores with Couch and Keniston's Agreement Response Scale which is their measure of yeasaying and naysaying. However, acquiescence is, most likely, only one part of the variance. Another possibility is the Bem and Allen (1974) conception that some individuals have more traits than others ( the androgynous, perhaps) and

traits do not invariably apply to everyone.

To conclude, it seems as though the relationship between the GEFT and affiliation motivation in males is partly explained with verbal IQ. Verbal IQ and affiliation motivation were inversely related for men but not for women. Despite the fact that BSRI results did not parallel these findings for the masculine and feminine subjects, it still seems acceptable to tentatively suggest that affiliation motivation is valued more by women and, for this reason, may be independent of verbal IQ for them. It may be that affiliation motivation, because it is not as valued nor as appropriate for men, tends to increase as verbal IQ decreases. For men it seems possible that it is, for the most part, a motive in the service of other needs, in this case an expressed desire to affiliate because of a need for the help of others. Affiliation motivation, then, can have status as a pure motive, but perhaps mainly for women. It may require reinterpretation as it applies to men.

The measures of affiliation motivation have been developed and refined over many years, and the measure for this study presumably represented a refinement (though far from perfect). Before the BSRI can be fully accepted as a measure of sex-typing

and androgyny, it would seem further investigation and refinement of this relatively new technique are needed, particularly since androgyny (finding feminine and masculine traits desirable) is so valuable a conception (see Bem, 1979). Still, we need to determine what the BSRI is measuring with greater certainty. For the present, however, findings based on BSRI categories should not alone raise serious doubts with regard to the outcomes and theorizing in the present research. But together with the other questionable aspects mentioned, any conclusions must remain very tentative.

The importance of the conception of androgyny is, in a sense, evident in the findings of this study. Acceptance of individuals who find both feminine and masculine qualities desirable is essential if women, taught to value affiliation, are going to reconcile conflicts with other expectations; for example, that they also not be too bright and remain as homemakers. The independence of intelligence and desire to affiliate, for women, was demonstrated in this study.

Very often, women who are affiliative and have other feminine qualities discover that they also have attributes which are not feminine, according to cultural tradition. They may, for example, discover

they are gifted or bright and aggressive and, unlike some others, dissatisfied as homemakers. In order for them to resolve this conflict and pursue their goals while remaining feminine in some respects, society will have to come to an acceptance of androgyny. Only then can these women aspire to achieve goals previously reserved for men only, without conflict or having to turn their backs on societal norms.

Appendix 1

CODE #_____DATE_____

A TEST OF INSIGHT

(FORM II)

This is a test of your understanding of the reasons why people behave as they do. You will be given a characteristic behavior of each of a number of women. Your task is to explain why each woman behaves as she does. Read each description and then decide what you think would usually be the reason why a woman does what this woman does. Decide what this woman is like, what she wants to have or do, and what the results of her behavior are apt to be. Write your explanation in the spaces in the booklet. If you think of more than one explanation give the one you think is most important.

1. Mary never hesitates to express an opinion.

2. Jane likes a good argument.

3. Susan never keeps anything to herself.

4. Gail said, "Look what I've done".

5. Louise worries a lot about how she has done on examinations.

6. Elaine cares very little about what other people think of her.

7. Joan gives lots of parties.

8. Helen works much harder than most people.

9. Carol enjoys being a member of a large family.

10. Ann will usually volunteer for a difficult task.

Appendix 2

INSTRUCTION MANUAL
(READ ALOUD EVERYTHING THAT IS NOT IN CAPS TO GROUP)

1. HAND OUT ENVELOPES. (GIVE THOSE MARKED "M" TO MALES AND THOSE MARKED "F" TO FEMALES). HAND OUT PENCILS AND PSYCHOLOGY 2 SUBJECT POOL FORMS ALSO. CLOSE DOOR AT TEN MINUTES AFTER THE HOUR AND DO NOT PERMIT SUBJECTS TO ENTER ONCE RESEARCH HAS BEGUN. PUT SIGN SAYING, "PLEASE DO NOT DISTURB, TESTING SESSION IN PROGRESS" ON OUTSIDE OF DOOR.

2. This research is an attempt to determine if variables believed to be related are, in fact, related. After the research period is over, I will tell you more about it. If any of you would like still more information, we will arrange another meeting to discuss the project in greater detail. You have been given an envelope with a code number on it containing the materials you will be using. Please put your sex, date of birth, and country you were born in, if other than the USA, where indicated, on the envelope. There are several tests in the envelope with a cardboard behind them. When I tell you to, take the first test out, which is the one furthest from the cardboard. For now, leave the envelopes closed. Do not

put your name on the envelope or on the materials inside. This procedure assures you of total anonymity. It will not be possible to identify you since these data are confidential and will be seen by no one working in the school besides myself and I do not have a sample of your handwriting. Therefore, the project will not involve any risks for you. There is nothing stressful or anxiety provoking in the procedure and anxiety has not been experienced by subjects in past administrations. Therefore, none should be experienced by you, especially since, as you can see, there will be no way to identify the person who wrote the answers. Nevertheless, it would be helpful to me if you would please do your very best on the questions and the puzzles contained in the envelope so that my dissertation will be based on accurate information and represent a useful contribution. Performance level on any one measure is of no interest for this project which is concerned only with the relationships among variables.

INSIGHT TEST

3. Please be sure your sex, date of birth, and the

country you were born in, if other than the USA, are on the envelope. Now take out the first test which should say, "A Test Of Insight" Form II. Please read the instructions to yourselves carefully after you have put your envelopes aside. It is not necessary to fill in any information at the top of the first page. Begin as soon as you finish the instructions. You may use pen for this and the next test. (DO NOT READ INSTRUCTIONS OUT LOUD).

BEM SEX ROLE INVENTORY

4. AFTER IT SEEMS AS IF EVERYONE IS DONE AND THIS HAS BEEN VERIFIED - WHICH SHOULD BE AFTER ABOUT TWENTY-FIVE MINUTES, SAY:

Now if you have completed all your responses on The Test Of Insight, place the test behind the cardboard and take out the second test which should say, at the top of the page, "On the following page, you will be shown a large number of personality characteristics." Now read the instructions silently while I read them out loud, starting at the top of the page.

READ EVERYTHING ON THIS PAGE OUT LOUD.

On the following page, you will be shown a large number of personality characteristics. We would like you to use those characteristics in order to describe yourself. That is, we would like you to indicate, on a scale from 1 to 7, how true of you these various characteristics are. Please do not leave any characteristic unmarked.

Example: sly

Mark a 1 if it is NEVER OR ALMOST NEVER TRUE that you are sly.

Mark a 2 if it is USUALLY NOT TRUE that you are sly.

Mark a 3 if it is SOMETIMES BUT INFREQUENTLY TRUE that you are sly.

Mark a 4 if it is OCCASIONALLY TRUE that you are sly.

Mark a 5 if it is OFTEN TRUE that you are sly.

Mark a 6 if it is USUALLY TRUE that you are sly.

Mark a 7 if it is ALWAYS OR ALMOST ALWAYS TRUE that you are sly.

Thus, if you feel it is sometimes but infrequently true that you are "sly, never or almost never true that you

are "malicious", <u>always or almost always true</u> that you are "irresponsible", and <u>often true</u> that you are "carefree", then you would rate these characteristics as follows:

| | |
|---|---|
| Sly | 3 |
| Malicious | 1 |

| | |
|---|---|
| Irresponsible | 7 |
| Carefree | 5 |

AFTER ANY QUESTIONS HAVE BEEN ANSWERED - Now turn the page and begin.

GROUP EMBEDDED FIGURES TEST

5. AFTER EVERYONE HAS COMPLETED THE BSRI -
Please put the test you have just completed behind the first test which should be in back of the cardboard, and take out the third test in front of the cardboard which is a small booklet saying, "Group Embedded Figures Test" on it. Please put your envelopes aside temporarily. Now start reading the Directions which include two practice problems for you to do. When you get to the end of the Directions on Page 3, please stop. Do not go beyond Page 3. (DO NOT READ INSTRUCTIONS WITH SUBJECTS, BUT CIRCULATE TO BE SURE PRACTICE PROBLEMS ARE BEING DONE AND CORRECTLY AND PAGE IS NOT TURNED). AFTER COMPLETION OF PAGE 3 BY ALL SUBJECTS.

Before I give the signal to start, let me review the points to keep in mind.

1. Look back at the simple forms as often as necessary.
2. Erase all mistakes.
3. Do the problems in order. Don't skip a problem unless you are absolutely "stuck" on it.

4. Trace only one simple form in each problem. You may see more than one, but just trace one of them.

5. The simple form is always present in the complex figure in the same size, the same proportions, and facing in the same direction as it appears on the back cover of this booklet.

Be sure and trace all lines of the simple form and erase anything incorrect. Are there any questions about the directions? Raise your hand if you need a new pencil during the test. When I give the signal, turn the page and start the First Section. You will have two minutes for the seven problems in the First Section. Stop when you reach the end of this section. Go ahead.

START TIMING BY BEGINNING STOP WATCH IMMEDIATELY AND OBSERVE IT TILL TWO MINUTES HAVE PASSED. THIS IS A PRACTICE SECTION SO CIRCULATE AND ASSIST, IF NECESSARY.

6. AS SOON AS TWO MINUTES HAVE PASSED, SAY:

Stop - whether you have finished or not. When I give the signal, turn the page and start the Second Section. You will have five minutes for the nine problems in the Second Section. You may not finish all of them, but

work as quickly and accurately as you can. Raise your hand if you need a new pencil during the test. Ready, go ahead. START TIMING BY BEGINNING STOP WATCH IMMEDIATELY.

7. AFTER FIVE MINUTES HAVE PASSED, ACCORDING TO CAREFUL OBSERVATION OF THE STOP WATCH, SAY:
Stop - whether you have finished or not. When I give the signal, turn the page and start the Third Section. You will have five minutes for the nine problems in the Third Section. Raise your hand if you need a new pencil during the test. Ready, go ahead. START TIMING IMMEDIATELY BY BEGINNING STOP WATCH THE MOMENT YOU SAY GO AHEAD.

8. AFTER FIVE MINUTES HAVE PASSED ACCORDING TO THE STOP WATCH, SAY:
Stop - whether you have finished or not. Please close your test booklets, and put them behind the previous tests you've taken so that now there should be three tests behind the cardboard and one remaining in front of the cardboard consisting of a booklet, an answer and a piece of scrap paper. Take out the last test

booklet including answer sheet and scrap paper and put your envelope aside. The booklet and answer sheet should say, "Lorge-Thorndike Intelligence Test".

LORGE-THORNDIKE INTELLIGENCE TEST

9. Even though the booklet and answer sheet are titled "Lorge-Thorndike Intelligence Test", we will be taking only one-half of the total test. There are five short tests and three longer ones in the booklet, as you will soon see. We will be taking only the five short tests. Therefore, this is not a true and complete test of intelligence and you should not regard what you think is your performance as a measure of your intelligence. Also, there is no way to judge performance without special tables and the measures are designed so that no one can get 100% and most should not be able to finish any of the tests. Again, I remind you of your total anonymity. Still please try your best.

10. Now turn your test booklet to page 3. We will read the directions and do the practice excercises on page 3 together. You read silently while I read aloud.

This booklet contains five tests which will give you a chance to show what you know and how well you think. You will be given directions to answer a certain number of exercises on each test; you will not be asked to try all the exercises on any one test. Before you begin each test, you will be told where to start and where to stop.

You will mark all your answers on your separate answer sheet. The answer sheet will also help you to keep the right place in each test. It has answer spaces for marking only those exercises that you are supposed to try. Do not write in this booklet.

Look at the first practice exercise below. It is correctly marked on the answer sheet. Study it carefully to see for yourself just how you are to mark your answers.

1. Choose the word which has the same meaning, or most nearly the same meaning, as the word in dark type

at the beginning of the line.

dog A afraid B song C animal D large E fly

(PAUSE) A dog is an animal, so C is the correct answer. Under practice Excercise 1, for the Verbal Batter, C is blackened.

Now look at the next two samples. Choose the right answer and then, on the answer sheet, make a heavy black pencil mark in the answer space that has the same letter as the answer you picked.

2. In the group of choices lettered F to K, find the word that will make the best, the truest, and the most sensible complete sentence.

The sun always rises in the _____.

F east G wind H night J rain K water

(PAUSE) The right answer is east. East is choice F, so you should have blackened in the F space.

3. Choose the right answer to this problem and mark

the answer space.

A boy bought a pencil for 10¢ and some paper for 10¢. How much did he spend?

L 5¢ M 10¢ N 15¢ P 20¢ Q none of these

(PAUSE) The right answer is P, so you should have blackened in the P answer space on your answer sheet.

If you wish to change an answer, erase your mark completely, and then make another mark in the right answer space.

You may find some of the exercises very easy and some of them rather hard. Try to answer every exercise in the part of the test that you are supposed to do, but do not spend too much time on those that you find very hard. Do those that you can, and then, if you still have time left, go back and do those that you skipped. You are not expected to be able to answer all the exercises correctly. Always do your very best.

At the beginning of each test there are directions that tell you what to do, and you will be told where you are to start and where you are to stop on that test. Wait until you are told to begin before turning the page.

Now look again at your answer sheet. When you are marking your answers on the answer sheet, be sure you are marking in the correct column. If you skip a question, be sure to skip the answer spaces that go with that question.

Remember to make all your marks on the separate answer sheet. If you need to do any figuring, do it on the scratch paper you have been given. Make no marks in the test booklet.

11. Turn the page to Test 1 and read directions to yourself while I read them aloud.

For each exercise in this test you are to read the word in dark type at the beginning of that exercise. Then, from the five words that follow you are to choose the

word that has the same meaning or most nearly the same meaning as the word in dark type. Look at sample exercise O.

O. loud A quick B noisy C hard D heavy E weak

The word which has most nearly the same meaning as loud is noisy. The letter in front of noisy is B, so on your answer sheet make a heavy black pencil mark in the B answer space for exercise O.

Do all the exercises in this test the same way. Try every exercise in your section of the test.

Turn to Level H in your booklet on page 6 and begin with exercise 36. Continue to the end of test 1 on page 7. Begin! (START TIMING)

12. AFTER EXACTLY SEVEN MINUTES ON STOP WATCH, SAY: Stop even if you haven't finished. Stop work and put down your pencil. Now turn to Test 2 on page 8. Read the directions silently while I read them aloud.

In each exercise in this test, a word has been left out of a sentence. Read the sentence carefully; then, from the five words that follow, choose the one word that will make the best, the truest, and the most sensible complete sentence. Look at sample exercise O.

O. Hot weather comes in the _____.

A fall B night C summer D winter E snow

The best answer is summer. The word summer makes the best, truest, and most sensible complete sentence. The letter in front of summer is C, so on your answer sheet make a heavy black pencil mark in the C answer space for exercise O.

Do all the exercises in this test the same way. Try every exercise in your section of the test.

Turn to Level H on page 10 and begin with exercise 29. Continue to the end of test 2 on page 12. Begin! (START TIMING).

13. AFTER EXACTLY SEVEN MINUTES ON THE STOP WATCH, SAY: Stop. Even if you have not finished, stop and put down your pencil. Now turn to test 3 on page 13. Read the directions silently while I read them aloud.

In this test you are to work some arithmetic problems. After each problem are four possible answers and a fifth choice, "none of these", meaning that the correct answer is not given.

Work each problem and compare your answer with the four possible answers. If the correct answer is given, fill in the space on the answer sheet that has the same letter as the right answer. If the correct answer is not given, fill in the space on the answer sheet that has the same letter as "none of these". Look at sample exercise O.

O. If candy costs a cent a piece, how much will nine pieces cost?

A 1¢ B 7¢ C 8¢ D 9¢ E none of these

The correct answer is 9¢. The letter in front of 9¢ is D do on your answer sheet make a heavy black pencil mark in the D answer space for exercise O.

Now look at sample exercise OO.

OO. Mrs. Jones bought a pound of potatoes for 10¢ and

a pound of spinach for 15¢. How much did she spend?

F 5¢ G 10¢ H 15¢ J 20¢ K none of these

The correct answer is 25¢. The answers at F, G, H, and J are wrong, so you would choose "none of these" as your correct answer. The letter in front of "none of these" is K so on your answer sheet make a heavy black pencil mark in the K answer space for excercise OO.

Do all the exercises in this test the same way. Try every exercise in your section of the test.

Now turn to Level H on page 15 and begin with exercise 22. Continue to the end of test 3 on page 17. Begin! (START TIMING).

14. AFTER EXACTLY SEVEN MINUTES ON THE STOP WATCH, SAY: Stop. Even if you have not finished, stop and put down your pencil. Now turn to test 4 on page 18. Read the directions silently while I read them aloud.

For each exercise in this test, a series of words is given in dark type. You are to figure out how the

words in dark type are alike, then you are to choose the one word among the five on the line below that belongs with the words in dark type. Look at sample exercise O.

O. rose daisy violet

A red B garden C sweet D grow E lily

All the words in dark type are the names of flowers. Of the five words on the line below, only lily is the name of a flower. The letter in front of lily is E, so on your answer sheet make a heavy black pencil mark in the E answer space for exercise O.

Now look at exercise OO. Think in what way the words in dark type go together. Then find the word on the line below that belongs with them.

OO. go run walk move

F think G dream H march J sing K seem

The right answer is march. The letter in front of march is H so on your answer sheet make a heavy black pencil mark in the H answer space for exercise OO.

Do all the exercises in this test the same way. Try every exercise in your section of the test. Turn to Level H on page 20 and begin with exercise 29. Continue to the end of test 4 on page 22. Begin! (START TIMING)

15. AFTER EXACTLY SEVEN MINUTES ON THE STOP WATCH, SAY: Stop. Even if you have not finished, stop and put down your pencil. Now turn to test 5 on page 23. Read the directions silently, while I read them aloud.

For each exercise in this test, a pair of words is given that are related to each other in some way. Look at the first two words and figure out how they are related to each other. Then, from the five words on the line below, choose the word that is related to the third word in the same way. Look at sample exercise O.

O. laugh → happy : cry →

A wonder B sad C hide D lost E rough

The right answer is sad because you laugh when you are happy and you cry when you are sad. The letter before sad is B so on your answer sheet make a heavy black

pencil mark in the B answer space for exercise O.

OO. chair ⟶ sit : bed ⟶

F lie G bedroom H night J crib K tired

The right answer is lie because you sit in a chair and you lie in bed. The letter in front of lie is F so on your answer sheet make a heavy black pencil mark in the F answer space for exercise OO.

Do all the exercises in this test the same way. Try every exercise in your section of the test. Turn to Level H on page 25 and begin with exercise 29. Continue to the end of test 5 on page 27. Begin! (START TIMING).

16. AFTER EXACTLY SEVEN MINUTES ON THE STOP WATCH,SAY: Stop even if you have not finished. Stop and put down your pencil. Place the booklet and the answer sheet behind the last test you've taken, so that all tests are now behind the cardboard. Close your envelopes and be sure you have your sex, date of birth, and country of origin, if other than the USA, on the envelope where indicated.

COLLECT ENVELOPES AND PENCILS.

## DEBRIEFING

The research you have just participated in is interested in finding out about the relationship between a written measure of sociability, a thinking style called Field independence and verbal performance. The first measure looked at sociability, the puzzle test examined thinking style and the last series examined verbal performance. The puzzle test of the thinking style of field independence-dependence should show whether a person looks at the world in detail or if he or she looks at things as a whole, in global terms.

Research has found a relationship between friendly or sociable behavior, and field dependence, but no one has looked at field dependence and the written measure of sociability so this study looks at this new relationship. Also, field independence has been found to relate to verbal performance, but no one has looked at measured sociability and verbal performance. Looking at these new relationships-which-seem like missing links-may give us information to better understand these

concepts and may tell us whether they are different from each other or really very similar. If they measure different things, they are still of interest to us.

Cognitive styles show us that people may think and learn in different ways. Those that are poor learners may greatly improve if a different approach is used, better suiting their style of thinking and learning. For this reason it is important to discover the value and meaning of cognitive styles such as field independence.

There is nothing secretive in what we have done here, but it would be useful to me if I could have the opportunity to explain the project to your classmates rather than have them get advance knowledge. Also, I would prefer to be the one to discuss it with them so that I can insure that their information is absolutely accurate. So, please do not discuss the project with your classmates till after the semester is over.

Please see me now to arrange, if you wish, to hear more information on this project.

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