An Investigation of the Relationships between Self-Esteem, Social Intelligence and Word Association Styles in Female College Students

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AN INVESTIGATION OF THE INTERRELATIONSHIPS BETWEEN SELF-ESTEEM, SOCIAL INTELLIGENCE, AND WORD ASSOCIATION STYLES IN FEMALE COLLEGE STUDENTS

by

Carolyn Kowatsch

A Dissertation Submitted to the Faculty of the Graduate School of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

June

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VITA

Carolyn Ann Kowatsch, nee Shough, was born on March 21, 1947, in Cincinnati, Ohio. She lived in Covington, Kentucky and Cincinnati, Ohio during her childhood.

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She married Helmut Kowatsch on August 15, 1970.

They have no children.
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CHAPTER I

INTRODUCTION

Self-esteem is a central variable for many theorists and researchers. Since it seems to play a critical role in people's lives, an understanding of its development and functioning would be useful for any one who has an important influence on the molding of others, like parents, educators, counselors, and pastors. Often the focus of psychotherapy is, in fact, to raise the self-esteem of the individual based on a realistic evaluation of the self.

A great deal of developmental and clinical literature emphasizes the idea that "what we experience as self is a reflective product of social interaction (Cottrell, 1969, p. 548)." From a developmental point of view, how an individual evaluates and conceives of himself is learned from how he perceives himself being evaluated by the others with whom he interacts. Thus, he would feel positive about himself if his interpersonal interactions have been successful, if he has been responded to positively.

A key factor in this interaction would seem to be the individual's interpersonal competence. This falls under the domain of social intelligence. This variable has come back into popularity for researchers in recent years. Very little is known about the relationship between social intelligence and other variables because few adequate measures
were available for many years (this will be discussed more fully in the Review of the Literature). Investigators have attended mostly to how an individual's social skills were evaluated by others with whom he interacts. They have also been interested in what a person's understanding of social situations is. A few studies using the subject's own evaluation of his social skills have been done. The person's actual use of his social skills in a social interaction has been the most difficult to assess because social interactions involve many complex variables.

All the behavior in a social situation is a form of communication. Communication, both verbal and nonverbal, has also just recently begun to be studied with some success. Eye contact is one of these nonverbal variables that has been found to be important in social interactions. It would also seem to be true that an individual who can express himself in language that is easily understood by most people would be a more effective communicator. Word association is one way of assessing whether common words are readily available and used by a person.

This research is an attempt to assess just how these variables of social intelligence, self-esteem, word association styles, and eye contact are associated with one another. It is expected that optimal self-esteem and greater social intelligence will be related. It is also expected that there will be a positive correlation between social intel-
ligence and the frequency of common associates. Further, the absence of eye contact in a social interaction should decrease the effectiveness of communication. Finally no significant relationship is expected to be found between self-esteem and word association styles.

The assumptions underlying these hypotheses can be summarized as follows:

1. There is a basic human need for self-esteem. The attempt to satisfy this need is a major determinant of behavior. It is undetermined whether this need is innate or learned shortly after birth.

2. There is an optimal level of self-esteem which is neither too low nor unrealistically high.

3. The more optimal the self-esteem the more effectively the individual will function.

4. An antecedent of optimal self-esteem is successful life experiences with others.

5. Successful life experiences with others result from an accumulation of successful social interactions or social exchanges with others.

6. Successful social interactions rely heavily on the utilization of communication skills, both verbal and nonverbal. Communication skills are necessary for the receiving, interpreting, and sending of messages.
(7) Consequently, those with optimal self-esteem should have better communication skills.

(8) Eye contact is an important nonverbal cue for communication.

(9) The ability to express oneself in language that is familiar to others and easy to understand facilitates communication.

(10) Consequently, the tendency to express oneself using common and familiar words should be correlated with social intelligence.
CHAPTER II

REVIEW OF THE RELATED LITERATURE

Since a considerable amount of research has been done on self-esteem, it is considered first in this review. This is followed by a survey of the literature on social intelligence. It is an equally important variable in this investigation, but it has been less thoroughly studied by researchers generally. After this a review of some of the research literature on the variable of eye contact in social interactions is provided. Finally, a brief summary of the pertinent studies on word association is presented.

Research Literature on Self-Esteem

**Definition, development, and assessment.** Rosenberg (1968) stated the case for the importance of self-esteem and its influence on our lives. He said:

> it directs thought and action in a wide variety of areas. To an important extent it determines our values, our memory processes, our perspectives on the interpretations of facts, our standards of evaluation and reference points, our goals, our choice of friends, marital partners, groups, associations, occupations, or environments generally. As a pervasive influence, there are few factors which can match it (p. 345).

James (1968) defined it as the "average feeling tone which each one of us carries with him (p. 43)." He said it was determined by the "ratio of our actualities to our pretensions (p. 45)." Coopersmith (1967) stated that it is "the evaluation which the individual makes and customarily
maintains with regard to himself...a personal judgment of worthiness that is expressed in the attitudes the individual holds toward himself (p. 4)." Argyle (1967) termed it "the extent to which a person approves of and accepts himself, and regards himself as praiseworthy, either absolutely or in comparison with others (p. 120)." Cohen (1968) defined it as the degree of correspondence between an individual's ideal and actual concepts of himself (p. 383)." Gordon (1968) stated that "the very general evaluative dimension of self-conception is usually termed self-esteem or self-regard (p. 122)." Ossorio and Davis (1968) stated that it is the person's "sense of self worth (p. 362)." Gergen (1971) defined it as "the extent to which the individual feels positively about himself (p. 11)."

All these authors would probably agree that a workable definition is the degree of positive or negative evaluation the individual has with regard to himself.

In order to clarify self-esteem more fully, it is important to first understand self-esteem within the context of self-concept theory.

Vanderpool (1966) pointed out that a number of personality theorists have given serious attention to the self-concept: Adler (1924), Angyal (1941), Freud (1950), Fromm (1939), Horney (1937), Lecky (1945), Maslow (1954), McClelland (1951), Mead (1934), Rogers (1951), Snygg and Combs (1949), and Sullivan (1947). It was also of central signifi-
In their review of self-theory, Hall and Lindzey (1970) pointed out that the term "self" has come to have very distinctive meanings. Attitudes, feelings, perceptions, and evaluations are thought of as self-as-object. Thinking, perceiving, and doing activities define the self-as-process or subject. Self-perceptions relate to both these aspects. The total self as experienced by the individual, the self of which he is aware is called the phenomenal self (Snygg & Combs, 1949). The total of all these awarenesses and perceptions is his image of himself in his self-concept (Fitts, Adams, Radford, Richard, Thomas, Thomas, & Thompson, 1971). Fitts et al. stressed that there are really three principal subselves: Identity Self, Behavioral Self, and Judging Self.

The Identity Self, self-as-object, is determined by the labels and symbols assigned to the self by the individual to describe himself and establish his identity. Each of these elements of identity are at times influenced by the way he perceives, responds to, and interacts with his phenomenal world and the observations and judgments he makes about himself as he functions.

The Behavioral Self is the self-as-doer. What the individual does is determined partly by internal and external stimuli. The consequences of his behaviors influence their continuation or extinction and the development of new behaviors. The consequences are also influential in deter-
mining whether these new behaviors are incorporated into the Identity Self.

The Judging Self is the self-as-observer-and judge. It observes the other two selves, attributes values to the labels given to the Identity Self, and approves or disapproves of the actions of the Behavioral Self. This evaluative tendency provides the material for self-esteem (Coopersmith, 1967). Fitts et al. (1971) explained that "self-perceptions focus primarily upon those characteristics of the Identity Self and those actions of the Behavioral Self that are immediately involved in either the maintenance or enhancement of the self (p. 18)." Once esteem is established and maintenance assured, it is less important in coloring self-perceptions. Whether this need for self-esteem is innate or learned is still a moot point. Combs and Snygg (1959) proposed that there is a basic motivation in man to maintain and enhance the phenomenal self. Gergen (1971) agreed that this need is basic, but thought that it might be "learned shortly after birth because of the frequent and continuous association between being esteemed and physical drive reduction, tactile pleasure and reduction of pain (p. 68)."

Taylor (1953) proposed that as a result of exploratory activity and experiences with one's own body, the boundaries of the self begin to be defined. The individual begins to differentiate himself from the things around him (Jersild, 1960). Only during this period is the individual's self-
concept based almost entirely on his perceptions of himself and the things he perceives as extensions of himself. After the early differentiation of the self from the rest of the world, "the remainder of the process of self-concept development is generally believed to be largely social in nature (Taylor, 1953, p. 19)." Cooley (1902) first attempted to describe this process in his clarification of the Looking-Glass Self, or social self. The basic premise is that the self imagines a perception of itself in the mind of another and this affects behavior. Mead (1934) departed from this idea of self-as-experienced and placed emphasis on the social inter-action itself. This development was accepted and expanded by other theorists. Sullivan (1947) said the self is made up of "reflected self-appraisals (p. 22)." This referred to the self-evaluations made by a person based on the perception of other's behavior toward him. Kinch (1963) affirmed this. "The individual's conception of himself emerges from social interactions and, in turn, guides or influences the behavior of that individual (p. 481)." Cottrell (1969) also stated that "what we experience as self is a reflective product of social interaction (p. 548)." Garrison (1965) agreed with a social explanation of how the self-concept develops, but added the individual's own characteristics as an important influence also. He stated that "the self concept emerges from the behavior of others toward the individual and indirectly from physical and mental attributes of the individual himself (p. 147)."
Some of the individual's social interactions are more critical than others. From family members and later significant others, the individual learns the values which he attaches to his perceptions of himself. Combs and Snygg (1959) stated that the family is important because it provides the person with his earliest experiences with feelings of adequacy or inadequacy, feelings of acceptance or rejection, opportunities for identification, and expectancies concerning acceptable goals and values. Special friends, perhaps a teacher, a spouse, etc., can also be important in later years.

There are four major factors which contribute to self-esteem (Coopersmith, 1967). The first and foremost factor is the amount of respectful and accepting treatment that the individual receives from the significant others in his life. The second factor is his history of successes and the status and position he holds in the world. This factor refers to the actual competence the individual displays in life. It forms the basis in reality for self-esteem. It is measured by the material manifestations of success and by indications of social approval. The third factor is the individual's values and aspirations, because the indices of success are not interpreted equally favorably by all people. They are screened through the individual's values and goals, which are derived in large measure from the family and from a comparison of himself with others (Festinger, 1954). Fitts et al. (1971) stressed that self-actualization is an innate
goal. Thus, self-esteem is enhanced whenever the individual engages in self-actualizing behavior. The fourth factor is the individual's manner of responding to evaluation. The ability to defend self-esteem and to maintain internal consistency (Lecky, 1945) often directly results in perceptual distortions, defenses, and controls.

Raimy (1948) was the first to develop a methodology for measuring self-esteem. He was actually concerned with measuring self-reference changes during psychotherapy, but provided researchers with a tool for measuring the self-concept. His original dissertation has recently been revised and published in book form (1971). Since then, a number of other researchers have tried to assess the self-concept. Strong and Feder (1961) cited four major techniques that have been developed for measuring the self-concept. All four methods have been used to provide data about the self-esteem dimension, one of the most frequently measured self-concept variables.

The Q technique was developed by Stephenson (1953). It is the correlation of the results obtained by giving many tests to two or more persons on one occasion. Thus, it is the correlation of persons rather than tests. It makes possible both idiopathic and comparative studies of the individual's self-concept with similar self concepts of others. The Q sort is one of these methods. Various statements on cards are sorted according to certain given instructions. Here the
individual provides his own frame of reference. Many Q sorts have been developed. The Q sort of Butler and Haigh (1954) is one of the most popular. Truax, Wargo, Carkhuff, Kodman and Moles (1966) used the "Rockefeller Modification" of this Q sort to analyze changes that occurred during psychotherapy. Dymond (1953) developed an adjustment score for this Q sort as well. Another major Q sort was developed by Hilden (1958). Strong and Feder (1961) pointed out that although the Q sort provides "a certain uniqueness in measurement, the correlation of persons does not take into strict account certain mean differences. Individuals may be grouped according to similarity in profiles but may be entirely different in personality structure (p. 171)." They also added that the procedure is time consuming.

Free response questions or open-ended sentences have been used to a limited extent as a method of measuring self concept. This technique provides a projective quality to the responses and allows for a fuller expression of needs. Two of the most important are the Incomplete Sentence Blank (Rotter & Willerman, 1947) which provides a single measure of overall adjustment and the W-A-Y Technique developed by Bugental and Zelen (1949, 1950). The W-A-Y required the subject to write three responses to the question; "Who are you?" Parks (1951) extended the technique to include eight questions with three answers to each. The main difficulties with these techniques are that quantification and objective scoring
are difficult and that it is hard to classify the responses according to pre-selected categories (Strong & Feder, 1961).

In the checklist method the individual checks the appropriate adjectives or statements that describe the self. The major checklists are the: Interpersonal Check-List developed by Leary (1957), Self-Evaluation Scale created by Matteson (1956, 1958), Merrill and Heathers Checklist (1954), and the Gough Adjective Checklist (1955), later revised by Gough and Heilbrunn (1965). Strong and Feder (1961) criticized this method because it provides no way for quantitatively rating the separate items involved. In this respect the Likert-type rating method appears to have an advantage.

The majority of rating scales designed to measure self-concept utilize ratings based on a 5-point scale. The value of the ratings are then used as numerical weights to arrive at a total score for all the items. There are several frequently used Likert-type rating methods: Index of Adjustment and Values (Bitts, Vance, & McLean, 1951), Self-Rating Inventory (Brownfain, 1952), Berger Scales (1952), Philips Questionnaire (1951), Self-Activity Inventory (Worchel, 1957; Hillson & Worchel, 1957), Sheerer Scale (1949), Jourard Questionnaire (1957), Fey Questionnaire (1954), Ewing Personal Rating Form (1954), and Tennessee Self Concept Scale (Fitts, 1965). This last test is a multidimensional test providing a number of different scores. It seems to be one of the most comprehensive and useful of the Likert-type rating measures. Strong
and Feder (1961) pointed out that since the total score is obtained by summing the weights assigned to each item, the uniqueness of the individual items is obliterated. This method also assumes that all the items hold equal importance. There are also difficulties with reliability due to subject biases in terms of giving only median or extreme ratings.

Vanderpool (1966) noted that several other well-known instruments have been somewhat successfully adapted to measure the self: Barron Ego-Strength Scale (1953), the Sixteen Personality Factor Questionnaire (Cattell & Eber, 1957) and the Personal Orientation Inventory (Shostrum, 1963, 1964).

Correlates of self-esteem. Throughout the research literature on the self-concept, self-esteem is consistently one of the main variables measured, but frequently not the only one. Many of the studies cited below report a correlation between a particular variable and several aspects of the self-concept. The attention here, however, was only on self-esteem. Consequently, these other aspects are not reported in this survey. Good summaries of the research on the self-concept in all its guises are provided by Gordon and Gergen (1968), Lowe (1961), and Wylie (1961). Also, Studies on the Self Concept and Rehabilitation (Fitts, 1970, 1972a, 1972b, 1972c; Fitts et al, 1971; Fitts & Hamner, 1969; Thompson, 1972) is a series of monographs in which a number of studies were reported that utilized the Tennessee Self Concept Scale.
With regard to adjustment, Friedman (1955) reported that normal subjects had positive attitudes toward the self on a realistic basis. Paranoid schizophrenics also had positive attitudes toward the self, but they were based on unrealistic self-appraisal. Neurotics maintained negative self-attitudes based upon realistic self-appraisal. Thus, he considered positive appraisal on a realistic basis as an indicator or adjustment. Smith (1958) made almost 300 correlations and concluded that having a positive self-concept is indeed related to adjustment.

Most of the researchers in this area utilized linear correlations (Lowe, 1961). Some investigators, however, do not think that the relationship between adjustment and self-esteem is so simple. Block and Thomas (1955) conceived of maladjustment as lying at both ends of the continuum, with the middle range the more optimal level of self-esteem. Fitts (1972c) agreed with this. He found that "the optimal range is in the middle or slightly above average...Extreme scores in either direction are deviant (p. 6)." Thompson (1972) reaffirmed this. He stated that for most TSCS scores, including that indicating self-esteem, extremely low scores or high scores are undesirable and indicate maladjustment. He indicated that curvilinear measures of correlation should be utilized for analyses. Fitts (1972 c), after surveying a number of studies relating self-esteem and psychopathology, summarized this opinion quite well. He stated,
The most striking results found in the TSCS literature are that low self-esteem or defensiveness and unrealistically high self-esteem are almost universally associated with psychiatric symptoms, antisocial behavior and maladaptive, ineffective behavior of all types and that the self-esteem aspect of the self concept does not change very readily. (p. 114).

Perhaps researchers who are trying to relate self-esteem to another variable, should pay attention to the optimal rather than highest level of self-esteem, especially if they are utilizing the TSCS.

Thompson (1972) surveyed many studies which attempted to relate self-esteem with age. He concluded:

In general, it appears that the profiles of the junior high, high school, and elderly Ss are deviant, while the profiles of college students and adults appear to be within normal limits. . . . samples of older and younger Ss contain a greater proportion of individuals with extreme scores than do samples of Ss in the middle age range (p. 20).

He also stated that the self-esteem scores for both groups were very different. He said,

The young people have comparatively low self-esteem. . . . With adults, the high scores. . . . would be clear evidence of maladjustment, but these patterns now appear to be typical of teenagers. The elderly, on the contrary, show high self-esteem in all areas except Physical Self, yet this self-regard appears to be partially a product of unrealistic self-enhancement (p. 22).

In trying to assess the relationship between self-esteem and other factors, it would seem advisable to use the group that earns the more normative scores, namely adults or college students, or at least make some allowance for the increased variance in the scores of the young or elderly age groups.

Thompson (1972) also surveyed research in the area of race. He stated that the Negro samples showed a characteristic
TSCS profile. He found that "most samples studied...had a below average level of self-esteem. A characteristic pattern was an elevated Physical Self and Personal Self Score and a lowered Moral-Ethical Self Score. (p. 38)" Lefebvre (1971) found similar results. He reported that Negro children had lower self-esteem than white children. Race seems to be a significant variable.

Coopersmith (1967) and Rosenberg (1965) found a weak, generally nonsignificant relationship between self-esteem and social class. Coopersmith concluded that there is not a clear and definite pattern between the two. He added that, "Though persons from the upper and middle classes are more likely to express favorable self-attitudes than persons in the lower group, the differences...are neither as large nor as regular as might have been expected (p. 83)." In a survey of the economically disadvantaged, Thompson (1972) found similar results. There was a great deal of variance across the samples studied. He suggested that "the self-concepts of adults are likelier to be an index of the effectiveness with which he has dealt with his disadvantage than the actual degree of disadvantage itself (p. 53)."

Coopersmith (1967) and Rosenberg (1965) found no significant differences between religious affiliation and self-esteem for Protestants, Catholics or Jews. Both did report a tendency for Jews to express higher self-esteem than the others, but this was not significant.
Coopersmith (1967) reported that children in smaller families are no higher in self-esteem than are those in larger families. Rosenberg (1965) reported that only children have higher self-esteem than those who have siblings. Coopersmith (1967) confirmed this, but also found that it was true for first borns as well as only children.

Coopersmith (1967) reported that mothers of children with high self-esteem are more loving and have a closer relationship with their children than do mothers of those with low self-esteem. Their acceptance seemed to be a crucial variable in the development of self-esteem.

When it comes to parental disciplinary techniques, Coopersmith (1967) found that families of children with high self-esteem established the most extensive set of rules. They are also the most zealous, but democratic, in enforcing them. He stated that "This establishes the authority of the parent, defines the environment, and provides standards by which a child can judge his competence and progress (p. 214)." The pattern for the low self-esteem group consisted of few and poorly defined limits and harsh and autocratic methods of control.

Coopersmith also reported a curvilinear relationship between self-esteem and training for dependency. He suggested that the dependent person lacks certainty of esteem and is constantly nagged by doubts and fluctuations as to his true worth. Parental behaviors appear to have an important, but
Coopersmith (1967) reported that persons with high self-esteem are likely to be more creative than persons with low self-esteem. He stated, "They appear to be more flexible and imaginative, and capable of more original solutions and interpretations (p. 63)."

Coopersmith (1967) found data to support the hypothesis that persons with high self-esteem have higher aspirations than do others, and presumably gain their own esteem by meeting these expectations. Thus, he concluded that "experiences of success lead to expectations of success and that aspirations mirror these expectations (p. 147)."

Thompson (1972) found that the studies relating self-esteem to anxiety indicated that there is a substantial linear relationship between them. This is one of the most consistent findings for the self-concept, and these studies utilized broad ranges of people and a variety of self-esteem levels. Fitts (1972a) updated Thompson's review, but the studies he cited led to the same conclusion.

Fitts (1972b), in a monograph on the self-concept and performance, hypothesized that "in general, and other things being equal, the more optimal the individual's self concept the more effectively he will function (p. 4)." He surveyed numerous studies and concluded that the general hypothesis is supported. With regard to continuation in training, he found that individuals with negative and deviant
self-concepts are more likely to drop out of training prior to its completion, and to make frequent changes in employment. In the academic performance of both students and teachers, the self-concept is a better predictor of noncognitive behavior (attitudes, morale, social and interpersonal behavior) than of purely cognitive performance. If the individual is borderline in academic aptitudes, then his self-concept tends to be a more crucial variable. Fitts also presented evidence that individuals with optimal self-concepts tend to utilize their intellectual abilities more efficiently than those with poor self-concept.

Fitts (1972b) also suggested that a corollary of the general performance hypothesis is also true, namely, "improvement in the self concept will result in improvement in behavioral functioning, i.e., self-actualization (p. 72)." In another monograph (1971) he and his associates studied the relationship between self-concept and self-actualization. He concluded that "no variable appears to be more consistent in its association with behavioral competence than self concept (p. 99)." Specifically he concluded that persons with positive self-concepts gave evidence of being able to use both positive and negative experiences to enhance their personal growth. Also, persons with a high frequency of positive experiencing were more likely to have a positive self-concept than those who were perceived as being more ordinary. Vargas (1968) found high self-esteem individuals to evidence generally
healthier personalities and to display greater warmth and openness in their interpersonal interactions. Duncan (1966) and Seeman (1966) added that they also have greater environmental contact and intellectual efficiency. Richard (1966), Thomas (1969), and Thomas and Seeman (1971) found more complete, efficient, and adaptive cognitive, perceptual, and physiological functioning.

Social behavior is a complex variable. In order to explain its relationship to self-esteem, social behavior is divided into behavior that is a direct expression of social intelligence and other behaviors which are not directly related to social intelligence. The relationship with these other social behaviors is considered first. Since social intelligence is one of the major variables in this research, a more thorough discussion of it is provided before the discussion of its relationship to self-esteem. Social intelligence is defined and discriminated from related terms, and an attempt is made to clarify how it expresses itself in social interactions. The various methods for measuring social intelligence are described. Finally, research studies relating social intelligence to self-esteem are described.

Research relating self-esteem and social behaviors that are not direct expressions of social intelligence. In general, positive correlations have been found in the studies which attempt to assess self-esteem and the subject's acceptance of others (Gergen, 1971; Wylie, 1961). Both authors
pointed out that there are some real difficulties in the design of these studies. Wylie added that there are some puzzling exceptions and contradictions in the reported results. A number of studies have been done which attempted to find a relationship between self-esteem and authoritarian tendencies as measured by the California F Scale of Rokeach's Dogmatism Scale (Wylie, 1961). Wylie concluded that the relationship is still unclear. Thompson (1972) also found that the data are neither significant nor consistent across the studies. Fitts (1972a) attributed this to the fact that the researchers were looking for a linear relationship, when the actual relationship is probably curvilinear.

Sundby (1962) found no appreciable relationship between self-esteem and conforming behavior. Fitts (1972a) obtained Sundby's data and did an additional analysis employing a statistic for discovering curvilinear correlations, Eta. He found coefficients of a much greater magnitude. This indicated that subjects at both ends of the self-esteem continuum are more likely to show greater conformity to group pressure. Diggory (1966) and Wylie (1961) also reported data to support the hypothesis that there is an inverse relationship between self-esteem and persuasibility. Perhaps this is another example in which a relationship between self-esteem and another variable appears to be linear, but is actually curvilinear when a more discriminating measure of self-esteem is used.
Four studies have been done which attempted to assess the relationship between self-esteem and self-disclosure. Doyne (1969) and Vosen (1966) both found that self-disclosure generated an increase in self-esteem. Jourard (1968) found that among high self-esteem subjects the incidence of self-disclosing is high. This was supported by Shapiro (1968). Jourard also found that the high self-disclosing subjects were also rated high in interpersonal competence.

Several researchers have studied interpersonal selectivity. Wylie (1961) reported that people chosen as friends are perceived by the subject to be more similar to himself than are disliked persons. This, however, has little to do with actual similarity. Kiesler and Baral (1972) found that self-esteem also affects which romantic partners are chosen. They found that subjects chose a partner similar to them in self-esteem. They suggested that these results indicated that the possession of high self-esteem changes what the person believes is a realistic and practical choice for him, rather than that he is aiming unrealistically high. Even when the subject has to choose a partner in order to obtain a prize, he tends to select someone who has been evaluated as having an ability similar to his own. This means that low ability Ss favored low ability partners regardless of the value of the prize (Diggory, 1966). Thus, subjects seem to choose someone close to them in self-esteem and evaluated ability in many situations.
Wylie (1961) stated that a subject's reaction to being evaluated by others is one of the few areas of the self-concept where true experimentation has been done. She stated that:

It seems that Ss will, under certain conditions, change their self-evaluations after experimentally induced success or failure. These changes are most likely to involve self-ratings on the experimental task itself, or on the characteristic which has been evaluated, and are least likely to involve reports on global self-regard. The latter seems to be affected little if any by a single experimental failure or evaluation. There is some evidence that changes in self-rating upward after success are more frequent than are changes downward after failure (p. 198).

Ossorio and Davis (1968) added that gain or loss in self-esteem effects how the subject likes the evaluator.

Aronson and Linder (1965) reported data which they thought supported the hypothesis that "if O's behavior toward P was initially negative but gradually became positive, P would like O more than he would had O's behavior been uniformly positive (p. 156)." Another study should be mentioned. Deutsch and Solomon (1959) found that all subjects responded more favorably to positive evaluation. When the evaluation was held constant, however, subjects responded more favorably when external evaluation was consistent with their own self evaluations. Gergen (1971) also found that characteristics of the evaluator, like credibility, were very important in determining how the individual would react to an evaluation as well.

Gergen (1971) reported an interesting study on social comparison. Subjects were students who answered an advertise-
ment for a part-time job. They were given a self-esteem measure alone. Then they filled out another self-esteem measure in the presence of a confederate who was described as another applicant for the job. For half the subjects he appeared to be socially desirable. Mr. Clean wore a dark business suit and carried an attache case. From his case he removed several sharpened pencils and revealed a statistics book and a philosophy text. The other "half of the subjects met Mr. Dirty, who wore a smelly sweat shirt and no socks, and appeared generally dazed by the entire procedure (p. 23)." He carried a copy of the *Carpetbaggers*. Gergen found that the mere presence of the stimulus person could cause a shift in esteem level. When Mr. Clean was present, there was a tendency for all subjects to experience a decrease in self-esteem. Mr Dirty produced just the opposite effect.

Finally, Fitts (1972a) surveyed a number of studies and concluded that high self-esteem Ss are more secure, requiring less personal space between themselves and others for comfort on social interactions.

Research Literature on Social Intelligence

**Definition and assessment.** Thorndike (1920) defined social intelligence as a certain "ability to understand and manage men and women, girls and boys...to act wisely in human relations (p. 288)." Vernon (1933) expanded this definition by stating that

...'social intelligence' apparently includes ability to get along with people in general, social technique or ease in society, knowledge of social matters, suscepti-
bility to stimuli from other members of a group, as well as insight into the temporary moods or the underlying personality traits of friends and of strangers (p. 44).

Thorndike and Vernon clearly indicated that there are two aspects to social intelligence, understanding and acting. These two characteristics play an important role in how social intelligence is measured. This will be discussed later.

A number of other definitions and terms have often been used in discussing social intelligence. Several of these stressed only the understanding aspect of social intelligence. O'Sullivan, Guilford and deMille (1965) said that behavioral cognition was one form of social intelligence. They defined it as "the ability to understand the thoughts, feelings and intentions of other people as manifested in discernable, expressable cues (p. 6)." Wedeck (1947) described an "ability to judge correctly the feelings, moods, motivations of individuals (p. 133)," but did not term it social intelligence.

Empathy has been one of the most common terms used to refer to this understanding aspect. Hogan (1969) defined empathy as "the intellectual or imaginative apprehension of another's condition or state of mind without actually experiencing that person's feeling...Empathy refers only to the act of constructing for oneself another person's mental state (p. 308)." Taft (1955) stated that empathy is probably a combination of social intelligence and general intelligence.

Role-taking, or the ability to put oneself in another's
shoes, is almost identical to empathy. This term, however, was preferred by both Mead (Hogan, 1969) and Horrocks and Jackson (1972). They moved closer to Thorndike's definition with this term, though, because they stressed that it comes from actually experiencing different roles in the individual's own life.

Feffer and Suchotliff (1966) preferred to adapt Piaget's (1948) term of decentering to indicate skill in social interactions. Once again it is much like empathy. They stated that "effective social interaction is a function of each individual's ability to consider his behavior simultaneously from different viewpoints (p. 416)." He did explain how this ability affects the acting wisely dimension. He stated

The dovetailing of responses involved in effective social interaction requires that each participating individual modify his intended behavior in the light of his anticipation of the other's reaction to this behavior. In order to accurately anticipate this reaction, one must be able to view his intended behavior from the perspective of the other. Modifying one's behavior in the light of this anticipation further requires that one must also view the intended action from his own perspective at the same time. The cognitive organization of the individual capable of effective social interaction can, accordingly, be interpreted as one in which different viewpoints are considered simultaneously in relation to each other such that the distortion engendered by a given perspective or centering is equilibrated or corrected by another perspective. (pp. 415-416)

Shanley, Walker, and Foley (1971) summarized a number of other concepts that appear to be related to the understanding or cognitive aspect of social intelligence: the perception of persons (Bruner & Tagiuri, 1954), the ability to judge
people (Taft, 1955), skill in social perception (Bronfenbrenner, Harding, & Gallwey, 1958), and intuition in the judgment of complex interpersonal situations (Westcott, 1968). Insight (Allport, 1937) is also a pertinent concept.

A few investigators have stressed the wise action aspect rather than understanding, but they often assume that the understanding aspect is included. Moss and Hunt (1927) stated that social intelligence is the "ability to get along with people (p. 108)." Wechsler (1958) described it as "facility in dealing with human beings (p. 8)." Weinstein (1969) used the term interpersonal competence to describe wise social action. He stated that it is "the ability to accomplish interpersonal tasks (p. 755)." Interpersonal competence is a term that frequently alternates with social intelligence when wise action is the focus of attention.

It might also be useful to distinguish social intelligence from the related concepts of social competence and sociability. Social competence is concerned with social adjustment as measured by age, occupation, employment history, marital status, intelligence, and education (Phillips & Zigler, 1961). Sociability, which relates closely to extraversion, is concerned with the "numbers of self-reported friends, social functions attended, amount of written correspondence, etc. (Walker & Foley, 1973, p. 846)."

Social intelligence, by definition, is generally utilized within the context of social interaction (excluding
attempts to measure it by paper and pencil tests). Watzlawick (1967) pointed out that all behavior in an interactional situation has message value, is communication. He added that this means that you cannot not communicate, since everything you do, activity or inactivity, is behavior. Thus, social intelligence expresses itself through the exchange of messages, or communication.

From a communication theorist's standpoint, the two aspects of social intelligence could be redefined. The cognitive or understanding aspect would be the individual's ability to receive and interpret correctly the communications being sent consciously and unconsciously by the other. The behavioral or acting aspect would be the ability to send on all levels the communication the individual wishes expressed in the manner that will facilitate most the other's ability to receive it. The latter implies an ability to call on understanding in order to determine best what message to send and how to send it. Thus, one who acts wisely is likely to have both types of social intelligence. It is possible, however, that an individual may have a good understanding of social interactions, but be unable to utilize it effectively in his interactions.

Weinstein (1969) gave some clues as to why this may be possible. He stated that interpersonal competence, the ability to act wisely, is dependent upon three variables. "First, the individual must be able to take the role of the
other accurately so that he can predict the impact that various actions will have on the alter's definition of the situation (p. 757)." This is often termed empathy, which was mentioned above as an alternate term for the understanding aspect. "Second, the individual must possess a large and varied repertoire of lines of actions (p. 758)." These are frequently termed social acts or social techniques. "Third, the individual must possess the intra-personal resources to be capable of employing effective tactics in situations where they are appropriate (p. 758)." An individual can lack any one of these variables and fail to act wisely in social interactions.

Weinstein's third variable includes a number of complex and elusive variables, like motivation, self-identity, neurotic blocks, perhaps self-esteem, etc. These can determine whether or not a person can utilize cognitive social intelligence in his behavior.

The second of these variables, social techniques, has been widely studied in the last few years. Investigators have attempted by means of videotape, pictures, tapes, and direct observations, to analyze the various actions that are utilized in an actual social interaction. Stated more simply, they are trying to find out how people communicate. Argyle (1967, 1972) provided one of the most complete lists of social acts. These are bodily contacts, physical proximity, orientation, posture, head-nods, gestures, facial expressions,
eye movement, nonlinguistic aspects of speech (tone of voice, accent, volume, rate, speech errors, silence, etc.), and speech itself (pitch pattern, stress pattern, juncture, syntax, and semantics). Dittman (1972) added psycho-physiological responses, like blushing or perspiring. There is one more major cue that the individual needs to interpret in a social interaction that would not, as such, be considered a social act, namely appearance. The individual does have voluntary control over many aspects of his appearance. What he does with these aspects might be considered indirect social acts. There are, however, other aspects, like physique, bodily condition, attractiveness, etc., that are not so easily controlled. He brings these to any social interaction, often without knowing how they will affect the other person. Several investigators have focused on just part of this area. Kinesics, or body movement was studied by Davis (1971) and Scheflen and Scheflen (1972). Bosmajian (1971) and Hinde (1972) concentrated on nonverbal communication. Those researchers who studied eye contact will be discussed later since this is an important methodological variable in this research.

Until recently there was a lag in research on social intelligence and a dearth of adequate measures (Suran, 1970), but interest has increased in the last few years. Walker and Foley (1973) have provided the best summary of this research currently available. They noted that interest in social intelligence has tended to die out and revitalize it-
self intermittently. They discussed these cycles and the popular tests for each period.

The majority of studies they reviewed utilized cognitive measures of social intelligence. These investigators were mainly attempting to measure the understanding aspect of social intelligence, and they frequently used paper and pencil tests. The most frequently used tests were the George Washington Social Insight Test (Moss, Hunt, & Omwake, 1949; Moss, Hunt, Omwake, & Ronning, 1927), Chapin Social Insight Test (Chapin, 1939), Kerr and Speroff Empathy Test (Kerr & Speroff, 1947) and the Six Factor Test of Social Intelligence (O'Sullivan et al., 1965). Walker and Foley (1973) indicated that the Six Factor Test of Social Intelligence appears to be one of the most promising tests. The Feffer Role Taking Test (Feffer, 1959) has also been utilized with some success.

Two other cognitive measures require interaction between the subject and another person. The Dymond Rating Test (Dymond, 1949, 1950) was described by Walker and Foley (1973). It requires "a subject (S1) to: (a) rate self, S1; (b) rate another subject S2; (c) rate S2 as S2 would rate S2; (d) rate himself, S1, as S2 would rate S1 (p. 20)." The correspondence between these scores provides different empathy measures. This technique has been adapted and utilized in many interpersonal situations. The Interpersonal Perception Method (Laing, Phillipson, & Lee, 1966) is quite similar. It was designed for use in dyads where the two persons respond to
the test in terms of their perceptions of self and the others. Scores are derived by comparing the responses of both persons.

The method of using behavioral measures has been generally neglected, perhaps because it is so difficult to take account of all the variables involved in an actual interpersonal situation. Considering the exciting but still rather primitive state of research on communication, merely measuring the social acts or behavioral cues would not be sufficient to conclude that one individual has more social intelligence than another. Perhaps this will be possible some day, when the correlations between these variables and social intelligence are known. Consequently, investigators today need some criterion for assessing an actual social interaction and concluding that varying degrees of social intelligence have been displayed. Two major methods have been utilized; social influence in social interaction and password.

Cohen (1956) tried to measure the amount of actual social influence, one criterion of interpersonal competence, that different individuals exerted. In this case he was concerned with individuals who had different degrees of self-esteem. Undergraduates were asked to assess some common conflict-arousing "case history" accounts individually and then to discuss these accounts with a partner and provide a joint interpretation of the material. Actual influence was measured by comparing the contribution of the person's individual assessment of the material before the interaction to
the combined assessment he and his partner made after the interaction. A somewhat similar method was used by Thomas and Burdick (1954). The subjects did not, however, provide a joint assessment after the interaction. Each subject once again made an individual assessment. Actual influence was measured by the correspondence between content elements in the individual interpretations made after the interaction.

Feffer and Suchotliff (1966) attempted to adapt the password game as a social intelligence measure. It has since been used by Duncan (1973) and Delaney (1973) in complementary studies. They stressed that it was a good decentering task. Decentering was discussed above as one term for the understanding aspect of social intelligence. Feffer and Suchotliff believed that password provided a method for assessing decentering skills in an actual interaction, thus, moving into the wise action domain. The criterion becomes successful communication, which they believe requires skill at decentering. The specific task is to communicate a word to another subject by means of one word cues. The other subject attempts to guess the word by giving one-word responses. Feffer and Suchotliff stated that in password:

The donor's relative adequacy in communicating the test word was viewed as being based upon his ability to select, from the myriad of association possibilities available to him, the association clue with the most information value to the recipient. This selection in turn, was considered to be a function of the donor's ability to modify his intended behavior not only in the light of a general instructional set (that of communicating the test word), but also in the light of his anticipation of the recipient's possible response as well as the recipient's previous responses.
It appeared necessary for the recipient, on the other hand, to modify possible responses in the light of previous clues, his past responses, and the general instructional set of guessing the test word. The progressive modification and dovetailing of responses thus required to communicate and receive the test word appeared to rest importantly upon the relative ability of each participant to attend simultaneously to aspects of his experience from more than one viewpoint. (p. 418).

They had two conditions, loud and silent. In the loud condition the players were face-to-face, and the receiver responded verbally to the verbal cues of the sender. In the silent condition the sender gave verbal clues, but his back was to the receiver who wrote his response. Then the experimenter indicated whether the receiver had guessed the word correctly or if play should continue. They found that the subjects in the loud condition did better than those in the silent condition. They attributed this to the fact that the situation did not allow for decentering, i.e., dovetailing the responses to fit what was just said.

It could be that placing the subjects back-to-back had an effect by eliminating cues like eye contact, rather than that the situation did not allow for decentering. This possibility is raised because password is also a situation that allows for a great number of nonverbal communicative cues to be given. This includes those that are designed to provide feedback on how well the subject is doing, as well as those which would make the receiver feel more comfortable and aware of the sender's interest. The sender's ability to utilize these cues appropriately and the receiver's ability to read and integrate them with the verbal cue provided would
seem to be an important part of the password process.

Whatever one's interpretation of password, since research using it is still so rudimentary, it is important to be aware of what one might ordinarily think are less important variables.

Some researchers have measured social intelligence indirectly by having those with whom the individual interacts judge his social intelligence, resulting in a perceived interpersonal competence score. Two major methods have been used: sociometric techniques and observer ratings. The sociometric technique asks the judge or judges to select from a group of people the one person who best fulfills the criterion for one of a number of questions. (Wrightsman, Richard, & Noble, 1966). An example would be "Which individual displays the most effective social behavior?" One scale, the Personality Integration Reputation Test (PIRT) (Duncan, 1966), relies heavily on assessing various individual's interpersonal competence in order to come to an overall conclusion about the person displaying the greatest behavioral competence. Behavioral competence is considered to be the way in which personality integration expresses itself. Other researchers have merely asked parents, teachers, superiors, peers, observers, etc. to rate the subject according to a rating scale on some variable like interpersonal competence (McClain, 1969; Swan, 1970).

Although it may sound paradoxical, self-report measures
have also been used to measure social intelligence. Here the individual is the judge of his own social intelligence. Since his evaluation must be screened through his overall perceptions of himself, defenses, self-attitudes, etc., it is not as reliable a measure as one which objectively measures the subject's behavior. Sometimes this might be a more important variable, though, than his actual social intelligence. The researcher utilizing this technique might ask the individual to rate his social intelligence, include a question about these skills within another questionnaire, or just ask him directly.

The Fundamental Interpersonal Relations Orientation-Behavior Test (FIRO-B) is a rather complex self-report test which purports to measure interpersonal competence (Schutz, 1967).

Hogan (1969) recently developed another self-report measure of social intelligence. He was specifically concerned with empathy. This measure is self-report in the sense that the subject is asked to say whether certain statements are true with regard to himself. It is more indirect than some of the other techniques because many of the items are not obviously concerned with empathy. A subject who gets a high score has responded to the statements in the same way as people who are high in empathy do, but on many of the items he may be unaware that he is making a statement about his empathy or social skills. This test may reveal more about whether he is similar to people who have empathy, rather than if he feels that he does have empathy.
Research relating self-esteem and social intelligence.

Fitts (1970) attributed great importance to interpersonal behavior in trying to achieve self-esteem and self-actualization. He hypothesized that it might be possible to shortcut Maslow's hierarchy of needs by teaching interpersonal competence (1972c). He stated that "the development of interpersonal skills might elevate self esteem even prior to the satisfaction of all lower order needs (p. 115)." He presented his case as follows:

(1) Since all of man's major needs are continuing needs, it is not merely the immediate or temporary satisfaction of these needs that is crucial, but the assurance that they can and will be met. Since man also needs to be independent and meet his own needs, this assurance is best attained through his own personal competence. (2) Since satisfaction of many of the basic needs can only be accomplished through interaction with other people, such personal competence must also include interpersonal competence...the development of interpersonal competence facilitates the development of other types of competence. (3) The satisfaction of lower order needs clearly paves the way for satisfaction of higher order needs...the satisfaction of higher order needs, or the acquisition of competence in satisfying those needs, contributes to the satisfaction of lower order needs. Thus new competence, especially in human relations, which improves self-esteem should help the individual with his other esteem needs as well as his love, security, and physiological needs (Fitts, 1970, p. 8-9).

He presented a Wheel Model which is intended to clarify ways in which people can improve their interpersonal competence, and thus increase self-esteem and move toward self-actualization, even before the satisfaction of lower order needs.

Leuba (1962) also gives central importance to interpersonal competence in improving self-esteem. He stated that "no single factor can probably do more to promote psychological
well-being and to prevent serious personality maladjustment than the development of warm, friendly, effective, interpersonal relationships (p. 1)." He also tried to provide a system for improving self-understanding and self-esteem by improving interpersonal skills.

Despite their certainty that self-esteem and interpersonal competence are related a great deal has not been done to prove this scientifically. Most of the studies surveyed, however, did report a positive relationship between the two.

A few investigators did try to use a behavioral measure in their research. Thomas and Burdick (1954) in a study described above found that pairs of subjects with high self-esteem exhibited a greater degree of mutual influence than did persons with low self-esteem. Cohen (1956) in another study described above found that the assessment made by the high self-esteem subjects before an interaction with a low self-esteem subject contributed more to the final joint assessment than did the assessment by the low subject. Cohen (1968) concluded from these studies that individuals with high self-esteem exert more influence in the interpersonal situation and, therefore, display greater interpersonal competence.

Perceived interpersonal competence measures were also used by some researchers. Cohen (1956) and Thomas and Burdick (1954) both reported that high self-esteem subjects were perceived to exert more influence than low esteem sub-
jects. McClain (1969) studied counselor trainees and found that those rated as high in interpersonal skills also had more positive self concepts. In the sensitivity training situation Swan (1970) and Young (1970) both found similar results. Fitts (1971) also reported the same conclusion. Wrightsman, Richard, and Noble (1966) used sociometric ratings and also came to the same conclusion. Only Coopersmith (1967) found a contradictory result. He assessed the relationship somewhat indirectly by using popularity as a criterion. He hypothesized that "popularity is a manifest indication of social success; level of success is presumably related to self esteem (p. 48)." He found, however, that popularity is not associated with self-esteem for children. It seemed to be more related to behavioral poise and a confident, forthright exterior whether it expressed the individual's real feelings or not. It is possible, although not too probable, that an individual could be perceived as socially effective without being popular. Perhaps the positive relationship reported by the other researchers holds true only for adults.

Researchers have also used self-report measures. Cohen (1956) reported that high self-esteem subjects perceived themselves as exerting more influence than the lows perceived themselves exerting. Thompson (1972) reported that the relationship between self-esteem and interpersonal relationships is curvilinear when more complex measures are used, TSCS and FIRO-B. He concluded that subjects who score at the normal
or optimal level on one variable are likely to score at the normal level on the other variable. Deviant self-esteem subjects also display deviant interpersonal behavior. Coopersmith (1967) found that persons who perceive themselves as having difficulty in social situations are likely to evaluate themselves poorly. He indicated that this was an important variable in determining self-esteem. These studies suggest that the relationship between self-esteem and interpersonal competence appears to be positive and linear, but may actually be curvilinear when measures are used that allow for finer discriminations.

The cognitive or understanding aspect of social intelligence has generally been neglected by researchers attempting to relate self-esteem and social intelligence. Perhaps the crucial variable is actually using social intelligence in interpersonal situations. This assumes cognitive social intelligence. Is cognitive social intelligence then related to self-esteem? This has not yet been demonstrated. Also, it has not been proven to what extent having good cognitive social intelligence without good behavioral social intelligence influences self-esteem, if at all. Two studies have been done which attempted to investigate this, but the results are somewhat limited. Rothenberg (1970), working with children, found only a low correlation between social sensitivity and self-concept. She suggested that this might be because children may find it difficult to be honest when
they are asked directly about themselves and their skills. She suggested that these children may have more accurate, but not more positive self-concepts. Coopersmith (1967) did not find honesty a difficulty in his study with children though.

Perhaps the relationship is not as solid or clear as it would be for adults. It was pointed out earlier that Pitts (1972a) and Thompson (1972) considered the self-esteem scores of children to be deviant. Cardillo (1971) used the Interpersonal Perception Method and TSCS in his study of disturbed marriages. He found that interpersonal functioning and self-concept appear to have a positive linear relationship. Couples in which both spouses have a healthy self-concept are more likely to communicate more clearly and have a good marital relationship. He used adults, but had a small sample (20 couples). His results indicated that there may be a positive correlation between self-esteem and social intelligence for adults. Overall, the relationship between self-esteem and cognitive social intelligence is still very unclear.

**Summary of the relationship between social intelligence and self-esteem.** The relationship generally seems to be curvilinear between the two variables. They are positively correlated up to the point where self-esteem exceeds the optimal range. Then the relationship begins to reverse itself.

The college age and adult samples seem to be the most
logical to use in trying to relate self-esteem to another variable because they are believed to express the more "normal" scores. Perceived interpersonal competence clearly indicates that the relationship is positive. There is also some weak evidence from the studies using the behavioral measure of social influence. Actually using an interpersonal situation to study the relationship seems essential because most theorists attend to interpersonal competence as the crucial variable. Consequently, a study using the behavioral measure of password might be quite useful.

The relationship between cognitive social intelligence and self-esteem is very unclear, especially for adults. This still needs to be investigated further using measures like the Six Factor Test of Social Intelligence.

More evidence also needs to be found on how the individual's own evaluation of his social intelligence relates to self-esteem. Self-report measures could be used somewhat effectively here. This research is an attempt to provide some evidence in these needed areas by assessing the relationship between these two variables using behavioral, cognitive and self-report measures, with a college age sample. Attention is given to the possibility of a curvilinear rather than linear relationship. A verbal intelligence measure is included because social intelligence has been found to be correlated with it. Finally, the effect of eye contact on the behavioral measure of social intelligence is considered.
As can be seen from the discussion that follows, eye contact seems to have a significant impact on social interactions. 

**Research Literature on Eye Contact in Social Interactions.**

Eye contact is one social act that has been given considerable attention recently. Since it is a variable utilized in this research, a brief summary of what others have discovered is included here.

During social interaction people look each other in the eye repeatedly. Kendon (1967) reported that people look at the other person about 50% of the time. "Without eye-contact (EC) people do not feel that they are fully in communication (Argyle & Dean, 1965, p. 289)." The amount of eye contact varies throughout and between encounters. Some of the factors determining this amount have been identified. The point in the conversation is important. There is more eye contact when the subject is listening than when he is speaking, and people look up at the end of speeches and phrases and look away at the start of long utterances (Argyle & Dean, 1965). The topic of discussion is a determining variable. There is more eye contact when less personal topics are discussed (Exline, Gray & Schuette, 1965). The quality of the discussion contributes as well. Burroughs, Schultz and Autrey (1973) found that the eye contact of the subjects increased with the quality of the arguments to which they were listening. Further, there are individual differences in eye contact. Women engage in more eye contact in a variety
of situations (Exline, 1963). Libby (1970) reported that there seem to be stable individual differences in the maintaining and breaking of eye contact and the direction of looking. The state of the relationship between those in the dyad is also critical. There is less eye contact if there is tension in the relationship (Argyle & Dean, 1965). There is more eye contact if A likes B (Mehrabian, 1968). Finally, the emergence of eye contact is a function of age. Wolff (1963) reported that eye contact first appeared between the 25th and the 28th day in the lives of infants.

Argyle and Dean (1965) pointed out that eye contact can have a variety of meanings and serve a number of different functions. It can be interpreted only within the context of the other communicative stimuli (facial expression, verbal tones, etc.). Some of the functions it serves are: information seeking, such as feedback; signaling that the channel is open, that one person is attending to the other; concealment and exhibitionism; and the establishment and recognition of social relationships, such as sexual attraction, hate, friendship, and dominance.

Argyle and Dean (1965) added that there are both approach and avoidance forces behind eye contact, making Miller's (1944) conflict analysis applicable. They stated that there is a point of equilibrium for intimacy. If this equilibrium is disturbed along one of the dimensions (eye contact, physical proximity, intimacy of topic, amount of smiling, etc.),
an attempt will be made to restore it by making an adjustment along one of the other dimensions.

In their research they found that subjects would stand closer to a second person when his eyes were shut rather than open. They also found that there was less eye contact and glances were shorter the closer two subjects were placed together, when one member of each pair was a confederate who gazed continuously at the other. Stephenson and Rutter (1970) concluded that these results were just an artifact of observer performance. They suggested that more accurate methods of assessing are needed, but their criticism of Argyle and Dean's study does not seem that valid.

The most relevant research on eye contact has been done using it as a dependent variable. In all the studies cited above this was part of the basic design. Some of those who used eye contact as a dependent variable were concerned with its relationship to needs. Libby and Yaklevich (1973) reported that subjects who were high in the need of nurturance maintained more eye contact. Efran and Broughton (1966) found that people look more at others from whom they expect approval. Efran (1968) found that this effect is influenced by status differences. Fugita (1974) induced social anxiety in his subjects and found that they looked more at the approver than the nonapprover when both confederates were higher in status than the subject. There was no difference in eye contact given to confederates lower in status. Nevill (1974)
aroused dependency in his subjects and found that they engaged in greater eye contact and showed greater field dependency. Modigliani (1971) found that induced embarrassment leads to decreased eye contact.

Recently, investigators have begun using eye contact as an independent variable. Nichols and Champness (1971) found that the frequency and amplitude of GSR responses were greater when the subjects' gazes were reciprocated. They suggested that this reflects emotional responding during eye contact. Varying eye contact also reflected how the subject perceived the examiner. Kendon and Cook (1969) found that individuals who look in long gazes are more liked than people who look in short, frequent gazes. LeCompte and Rosenfeld (1971) did a study in which videotapes of the experimenter reading instructions under one of two conditions (glancing at or not looking up) were utilized. Glancing at the subjects produced ratings of the experimenter as less nervous and less formal. Mehrabian and Williams (1969) found that eye contact correlated significantly with the degree of perceived persuasiveness of the experimenter and with increased intention to persuade. Another indication that eye contact can be a positive stimulus is that it can be used as a reinforcer in the operant conditioning of verbal behavior (Krasner, 1958).

The effect of eye contact, however, is not always positive. Ellsworth and Carlsmith (1968) reported that, with positive verbal content, frequent eye contact produced positive evaluations; but with negative verbal content, it re-
sulted in negative evaluation. Scherwitz and Helmreich (1973) found just the opposite result. They reported a second study in which they tried to clarify this. They found that with a personal positive evaluation, the confederate was better liked when low eye contact was established. With impersonal positive evaluation, high eye contact led to greater attraction. In a third study they found that subjects low and intermediate in social competence were positively influenced by eye contact. Subjects who were high in social competence were not affected by eye contact. Ellsworth and Carlsmith (1973) reported that subjects in whom anger was induced gave more shock to the victim when eye contact was established. The results were interpreted in terms of the subject's efforts to avoid or eliminate the aversive eye contact. Ellsworth, Carlsmith, and Henson (1972) reported that staring can be aversive as well.

As can be seen, even such a seemingly small social act as eye contact can have a tremendous influence on and interact with a large number of variables. Since eye contact seems to have a significant impact on social interactions, it might be useful to assess the influence of its presence or exclusion on the behavioral measure of social intelligence, password. If its exclusion significantly alters the interaction, then varying social acts in the password situation might provide clues as to their importance for behavioral social intelligence.
It is now time to turn to the discussion of word association styles.

**Research Literature on Word Association Styles**

**Definition and assessment.** Woodworth (1948) provides a good brief history of the early development of research on word association. Eventually, several methods for obtaining word associates were utilized (Woodworth & Schlosberg, 1954). In discrete free association, the subject is instructed to respond with the first word that occurs to him as soon as the experimenter presents the stimulus word. With continuous free association, the subject responds with a series of the single words that occur to him first, as rapidly as possible. With discrete controlled association, the subject is instructed to respond in some specific way, i.e., give the opposite word. With continuous controlled associations, $S$ gives a series of words, but he is instructed to limit his associations in some fashion.

Researchers began to notice that some responses occurred for a stimulus word more often than others. Rosanoff (1927) constructed a list of 100 familiar English nouns and adjectives. He gave them orally to 1000 normal $S$s. From this he developed a table of the frequency of various response words to each stimulus word. This became known as the Kent-Rosanoff norms for frequency of word associates. Since then several other lists of norms have been gathered (Palermo & Jenkins, 1964; Postman & Keppel, 1970).
The stimulus-response behavior is generally supposed to show the strength of association existing between the two words. Some of the factors which determine this associative strength have been identified (Andreas, 1967). They are

1. frequency of individual response words. For example, a group of Ss of similar background will tend to give one of a fairly small number of response words.

2. frequencies within response categories. Response words can be classified as being a definition (synonym, supraordinate, subordinate), completion or prediction (a functional or descriptive association), coordinates and opposites (similar or contrasting responses), or unique (personal experience of $S$, evaluative, clang, etc.) in relation to the stimulus word.

3. reaction time. The response latency between stimulus and response has been an important measure of associative strength.

4. rate of response production. In the method of continuous association, the number of items produced in each successive interval is one measure of performance.

5. clustering. In free-continuous association, $S$ is likely to produce clusters of words in sequence at various points in the performance.
Relationship between word association styles and other variables. The relationship between age and word association styles has frequently been of interest to researchers (Brown & Berko, 1960; Entwisle, 1966a; 1966b; Ervin, 1961; Francis, 1972; Kagen, Rossman, Day, Albert, & Phillips, 1964; Newman, 1969; Shepherd, 1970). Kurdek (1973) has presented an excellent summary of the relationship between word association and children at various ages. He reported that there is a U-shaped phenomenon for response commonality and response heterogeneity with increasing age. Also, there is a general shift from syntagmatic to paradigmatic responding at about age seven or eight. Paradigmatic responding seems to evolve from grammatical form classes in the following sequence: nouns, adjectives, verbs, and adverbs. Syntagmatic responses are those of different grammatical form class from the stimulus word. Paradigmatic responses are those of the same grammatical form class as the stimulus word. Jenkins (1960) noted that for college students those giving more common responses also gave more paradigmatic ones. Perhaps there is an overlap here. Entwisle (1966b) reported that girls give more paradigmatic and common responses then boys at various ages.

Socio-economic level has also been a variable of interest to researchers of word association styles. Reynolds, Bickely, Champion, & Dekle, (1971) reported that "educationally deprived" children showed a lag in the paradigmatic shift.
Heider (1971) found that children in different classes have different styles of encoding and decoding which actually affect interpersonal communication.

Several researchers have attempted to relate creativity to a tendency to give remote associates (Guilford, 1950; Mednick, 1962, 1968; Taylor, 1964; Taylor & Holland, 1967). This point is still quite controversial.

Some researchers have noted a tendency for those who display some forms of psychopathology to give unusual or remote associates more frequently than normals. (Buchwald, 1957; Chapman, 1958; Mednick, 1969). The greatest attention has been given to those who have been diagnosed as schizophrenic. Some studies have assessed the relationship between social behavior and word association styles. Role-taking was discussed earlier as one aspect of social intelligence.

O'Connor (1945) indirectly related word association styles to role-taking ability. He developed a significant common response category for responses on a word association test. He was attempting to devise a Personality Work-sample as part of a repertoire of aptitude testing for executive positions in sales organizations. He isolated the responses of 56 stimulus words in a 100 word test which differentiated men and women who were successful in some supervisory or group influencing position. Those who scored at the extremes on his significant response classification were said to have either a subjective (low) or objective (high) personality.
He described the extremely subjective personality as follows:

One who scores in this section of the personality scale rarely sees another's true point of view, but holds to a distant goal with visionary clearness, ignoring both the expedient course and the momentary situation (p. 19).

The extremely objective personality can see another's true point of view:

Men and women who score objectively or extremely objectively belong in some supervisory or group influencing position...The objective man cannot be socially independent and retain his buoyant capacities (p. 20).

As can be seen, role-taking ability and significant responding are related in that both are concerned with the S's ability to take the role of another, especially so that he can assess the social situation for more effective communication.

Licht (1947) was also interested in relating O'Connor's significant response category to different occupations. She found that people who gave a high number of significant associates were frequently executives, salesmen, teachers, and politicians. Those who tended to give unique responses were scientists, artists, musicians, engineers, and writers. Thus, those who were in more supervisory positions gave more significant associates. It might be that people who have attained supervisory positions have learned to express themselves more effectively in language that is familiar to most people, resulting in more significant common associates.

Further evidence for a positive correlation between role-taking ability and a tendency to give more common associates rather than unique ones comes from Feffer and Suchotliff (1966).
Their password task devised to measure the S's role-taking ability was discussed above. They reported a significant association between popularity of responses with password effectiveness and success at a role taking task. They concluded that this is because these variables are based upon a common decentering dimension. This was also discussed above as an aspect of social intelligence.

Kurdek (1973) tried to directly assess the relationship between password skill and O'Connor's significant response category for children. He found that those mother-child pairs where both members scored above the median on significant responses had a greater frequency of password successes. Significant responses were also related to overall paradigmatic responses for children. Kurdek indicated that significant responses are representations of paradigmatic responses. One might still wonder, however, if this relationship is found because password success and common associates are critical because they indicate role-taking ability. Perhaps it would be useful to obtain a supplemental total common associates score for O'Connor's test. This could be done easily by adding the scores on his common associates and significant associates categories to obtain a total common associates score. Overall, there does seem to be a significant positive relationship between social intelligence and the frequency of common associates. The evidence is still somewhat limited. This study is designed in part to
consider this relationship.

Most of the studies relating word association styles to self-esteem have been concerned with the subject's reaction time to trait words. They are also more concerned with overall self-concept rather than just self-esteem. Results indicate that there is a delayed reaction time for trait words where there has been a discrepancy in ratings between self and ideal self (Bills, 1953; Roberts, 1952). Delayed associations are assumed to be related to defensiveness (Lowe, 1961).

There is really no direct basis in the research literature for suggesting that there is a specific relationship between self-esteem and the commonality of associates. Indirectly, one might argue that if self-esteem and social intelligence are found to be related, then self-esteem and common associates might be related because common associates are related to role-taking ability. This argument is extremely tenuous, however, indicating that this area still needs to be investigated. This research is also an attempt to shed some light on this area.

Summary

It can be concluded from this review that there are still many unanswered questions about the interrelationships between self-esteem, social intelligence, and word association styles. The purpose of this research is to try to answer some of these questions.

The TSCS is used to assess self-esteem since a large
portion of the studies in the literature on self-esteem used this measure, and there is considerable evidence for the reliability and validity of the test. Further, a college age sample is used since these students were reported to express more "normal" scores on the TSCS. Also, most of the research relating social intelligence and self-esteem has been done with children so data still need to be obtained for young adults. The measures of social intelligence used in this research include cognitive, behavioral, and self-report tests. In this way it can be determined whether all three or only certain measures are significantly related to self-esteem and word association styles. Subtests from Guilford's Six Factor Tests of Social Intelligence were selected to be the cognitive measures since quite a bit of research has recently been done using them. The new Hogan's Empathy Test and a derivative Interpersonal Competence Test are used for the self-report measures. A modified form of password serves as the behavioral measure. Eye contact and no eye contact treatments are utilized to determine the importance of this non-verbal cue in the password interaction. O'Connor's Word Association Test is the instrument used to classify the subjects' word association styles.

After reviewing the literature on the interrelationships between these variables, the following hypotheses are made:

(1) Those subjects in the eye contact treatment earn
better scores than those subjects who do not receive eye contact on the password measures (total number of words guessed correctly, the median number of clues received and the median time it took to guess each word).

(2) There is a curvilinear relationship between self-esteem and social intelligence as measured by the cognitive, behavioral, and self-report measures. Specifically, it is hypothesized that there is a positive linear correlation between social intelligence and self-esteem up to the point where the self-esteem scores become higher than the optimal range. Here the relationship reverses itself, with those who score in Fitts's (1965) high range on self-esteem receiving low scores on the social intelligence measures. The subhypotheses are that:

(a) There is a curvilinear correlation between cognitive social intelligence as measured by Guilford's Cartoon Predictions and Expression Grouping subtests, and self-esteem as measured by the Tennessee Self Concept Scale (TSCS);

(b) There is a curvilinear relationship between self-reported social intelligence as measured by Hogan's Empathy Test and
the Interpersonal Test and self-esteem as measured by the TSCS;

(c) There is a curvilinear relationship between behavioral social intelligence as measured by an adapted form of the password game and self-esteem as measured by the TSCS.

(3) There is a positive correlation between social intelligence and the frequency of significant common responses as measured by O'Connor's word association test. The subhypotheses are that:

(a) Individuals with greater cognitive social intelligence, as measure by Guilford's Cartoon Predictions and Expression Grouping subtests, have a greater number of total and significant common responses as measured by O'Connor's Word Association Test;

(b) Individuals with greater self-reported social intelligence as measured by Hogan's Empathy Test and the Interpersonal Competence Test have a greater number of significant and total common responses as measured by O'Connor's test;

(c) Individuals with greater behavioral social intelligence as measured by password
have a greater number of total and significant common responses as measured by O'Connor's Test.

(4) There is no significant relationship between self-esteem as measured by the TSCS and the frequency of significant common associates as measured by O'Connor's test.
CHAPTER III

METHOD

Subjects

Subjects were 92 females from a small mid-western, Catholic college. All subjects were volunteers. They were promised and given a feedback summary in which the nature of the study, some pertinent research, and the overall results were discussed. Female students from a similar college were used in obtaining the clues for password.

Measures

Pretest Information Sheet. This was given in order to obtain the name, age, years of education, academic major, and parental occupation of the subjects. This enabled the researcher to provide a more adequate demographic description of the sample studied. It was necessary to obtain each subject's name so that her SAT scores could be obtained.

Coleman Index. The father's occupation was rated according to the Coleman Index (Coleman, 1959). In case of the father's absence or unemployment, the mother's occupation was substituted. This index assigns various occupational groups to specific socio-economic levels which are designated by numbers ranging from one (lowest) to seven (highest).  

1 This is actually a reverse of Coleman's Index, but it is easier to manipulate statistically this way because a low level is indicated by a low numeral.
Scholastic Aptitude Test. This was obtained from each student's file. Although it was designed as a measure to predict college achievement (Wallace, 1972), it was used as a measure of verbal intelligence here. Consequently, the validities reported for it are not applicable here. It does seem to have adequate construct validity as a measure of verbal intelligence since it uses sentence completion, antonyms, analogies, and reading comprehension. It is also a highly perfected test from a psychometric point of view (Dubois, 1972). A direct descendant from the Army Alpha Test, it was first administered in 1926. All the items are carefully constructed, edited, and tried out before they are used operationally. It is continuously being adapted and revised with each new form.

The reported reliabilities for it are quite high. Internal consistency reliability estimates for 12 recent forms cluster closely around .91 for the verbal scores. The parallel-form reliabilities average two points lower (Dubois, 1972).

This is a widely used instrument. It was used here as a control measure of verbal intelligence.

Tennessee Self Concept Scale. Dr. William Fitts developed this scale in 1955 after compiling a large pool of self-descriptive items from a number of other self-concept measures. The mimeographed form was revised and published 10 years later (Fitts, 1965). It has had a significant impact on self-concept research with 210 references to its
credit by 1970 (Lefebvre, 1971). It is a Likert-type instrument consisting of 100 self-descriptive statements. It can be used with subjects who are 12 years of age or older and who have at least a sixth grade reading level. Two forms are available, a Counseling Form and a Clinical and Research Form. The Clinical and Research Form was used in this study. It is a multidimensional test which provides a number of different types of scores. The Total Positive Score, which is said to reflect overall level of self-esteem, was the score used to determine level of self-esteem.

The manual states that the standardization group was "a broad sample of 626 people. (p. 13)." A table of reliability data based on test-retest with 60 college students over a 2-week period is provided by the manual. It cites a reliability of .92 for the total Scale, reliabilities in the .80s and .90s for the major subscales, and in the .60s and .70s for minor subscales.

The manual gives evidence for content validity. From the original pool of items, 100 were drawn. Ninety of these were agreed upon unanimously by the seven clinical psychologists employed as judges. The remaining 10 items, those comprising the Self-Criticism scale, were borrowed from the L scale of the MMPI. Two investigators (Vacchiano & Strauss, 1968) submitted the Scale to factor analysis and reached a favorable conclusion regarding its construct validity as well.
The manual also provides further support for the validity of this instrument. Numerous correlations between various TSCS subscales and other personality measures are provided. Several studies were also cited which found differences mostly at the .001 level between psychiatric patients and the standardization group.

**Hogan's Empathy Test.** Hogan (1969) asked four faculty and research psychologists to describe their conceptions of a highly empathic man. The five most characteristic items were: is socially perceptive of a wide-range of interpersonal cues; seems to be aware of the impression he makes on others; is skilled in social techniques of imaginative play, pretending and humor; has insight into his own motives and behavior; and evaluates the motivation of others in interpersonal situations. All of these items reflect insight, perceptiveness, and social acuity. This was his initial criterion for assigning ratings of empathy. A number of individuals from two different samples were given a composite empathy rating based on a Q-sort description and the empathy criterion. These subjects' empathy ratings were then correlated with their performance on a number of other measures. Hogan concluded that the use of the ratings as criterion measures seemed justified. The sample groups were then separated into high and low empathy groups. Their responses on the California Psychological Inventory (CPI), Minnesota Multiphasic Personality Inventory (MMPI), and the Institute of Personality Assessment and
Research (IPAR) items were analyzed. Finally, 64 items were selected which seemed most accurate in distinguishing the two groups. The final form consisted of 31 items from the CPI, 25 from the MMPI and 8 from the IPAR.

Hogan cited evidence to support the reliability of the Empathy Scale. With a sample of 50 college undergraduates, the test-retest reliability of the empathy scale estimated by a correlation between scores in the original administration and those obtained 2-months later was .84. Also, Hogan stated that the KR-21 formula applied to the scores of 100 military officers yielded a coefficient of .71.

Hogan also stated that the scale appears to have adequate concurrent validity. In the sample used in its development (N = 211), the average correlation between the scale and empathy ratings was .62. In an independent sample, medical school applicants (N = 70), the figure was .39. Further, five groups of subjects studied at the Institute of Personality Assessment and Research were rated by the assessment staff for "social acuity." The mean correlation between empathy scale scores and rated social acuity was .58. The figure is probably somewhat inflated because most of those who made social acuity ratings were also the subjects who provided Q-sorts used in developing the scale. An independent sample of 70 medical school applicants showed a correlation of .42 between the Empathy Scale and rated social acuity. In another study two teachers were asked to choose the five most and five
least socially acute boys in their classes. They did the same thing for the girls as well. When a t test was used to assess the differences between the most and least socially acute students, significance was found (boys: p < .01; girls: p = .05).

The Hogan Empathy Test does seem to be an adequate test to use in assessing empathy in studies with more than one measure of social intelligence.

**Six Factor Test of Social Intelligence.** The Six Factor Test of Social Intelligence (SFTSI) is based on Guilford's own understanding of human intelligence which utilizes his structure of intellect model. He postulates three necessary dimensions that constitute any intellectual act: the operation dimension which includes the categories of cognition, memory, divergent production, convergent production and evaluation; the content dimension with the categories of figural, symbolic, semantic, and behavioral; the product dimension with the categories of units, classes, relations systems, transformations and implications. By making all possible three-dimensional combinations of the categories, 120 abilities were derived. The domain of social intelligence comprises the 30 abilities specific to behavioral content. Behavioral content is combined with all the possible pairings of the five different operations and the six products. Guilford (1967) stated that behavioral content consists of "information, essentially non-verbal, involved in human interaction, where awareness of attention, perceptions, thoughts,
desires, feelings, moods, emotions, intentions and actions... is important (p. 77)."

The SFTSI focuses on the six cognitive behavioral abilities (O'Sullivan et al., 1965). It provides six subtests which have varying degrees of factor loading for one or more of the cognitive behavioral abilities. These subtests are Expression Grouping, Missing Pictures, Missing Cartoons, Picture Exchange, Cartoon Predictions, and Social Translations. Convincing reliability and construct validity estimates based on factor loadings have been demonstrated for the SFTSI (Hoepfner & O'Sullivan, 1968; O'Sullivan & Guilford, 1966; O'Sullivan et al., 1965). Further construct validity has been provided by Tenopyr (1967).

Some researchers have found a positive relationship with abstract intelligence, but the magnitude of these correlations have been .40 or less (Hendricks, Guilford, & Hoepfner, 1969; Hoepfner & O'Sullivan, 1968; Shanley et al., 1971; Suran, 1970; Tenopyr, 1967). Thus, the SFTSI is a relatively promising instrument, but until it is studied more thoroughly, researchers using it will have to consider the effects of abstract intelligence.

Only two of the subtests were administered in this research: Expression Grouping and Cartoon Predictions. In Expression Groupings each item consists of a group of three drawings which depict facial expressions, hand gestures or body postures. The task is to select one of four alternative drawings of expressions to show that the class of the original
three has been recognized. A factor loading of .59 for cognition of behavioral classes (CBC) is reported. CBC is the ability to see similarity of behavioral information in different expressional modes. Cartoon Prediction requires the subject to choose one of three alternative cartoons which shows what is most likely to follow a given interpersonal situation cartoon. It has a factor loading of .55 for cognition of behavioral implications (CBI). CBI is the ability to draw implications or make predictions about what will happen or follow a given social situation.

Interpersonal Competence Test. Three items were selected from the original Hogan's Empathy Test: #3, #8, and #62. Two new items were added which were not part of the scoring for Hogan's Empathy Test, but were added to the scores of the three selected items in order to come to a gross measure of reported interpersonal competence. Scores for these five items ranged from 5 (high) to 0 (low). See Appendix A for a list of the individual items and scoring.

O'Connor's Word Association Test. This was described in the review of the literature. This word association test contains the 100 items which composed the Personality Work-sample 35 Form AE by O'Connor (1945). He provides 52 significant common associates and 150 ordinary common associates to the stimulus words. It is scored by merely adding the number of significant common associates that were given by the subject. A sum can also be obtained for the ordinary common
associates in the same way. A total common associates score can be obtained by adding the two together.

Modified password. This measure was described in the review of the literature, along with a suggested adaptation. Briefly, it seemed to have some construct validity from both a decentering and communications approach. The adaptation used here consisted of the experimenter providing the verbal clues for the test words. These clues were obtained from female students from a separate, but very similar college.

Two lists of 20 different words were prepared. Each list consisted of the five nouns, five verbs, five adjectives, and five adverbs. The two lists of words are provided in Appendix B. These lists were distributed to volunteers. They were asked to take these home, and to write out 20 clues for each word in the order that they would give them if they were playing password. Written instructions concerning how password is played and the rules that govern the eligible clues accompanied each list. These instructions can also be found in Appendix B. They were asked to return these words with their clues when they next returned for that class.

From these lists, the experimenter selected five each of the most usable nouns, verbs, adjectives, and adverbs to make up a list of 20 test words to be used for password at the other college. She then tallied the clues given for each word, resulting in a frequency table which went from the most frequently given clue to the least for each word. This
table provided the standard order for the clues given for each test word. It can also be found in Appendix B.

Scoring for password consisted of the number of test words successfully guessed, the median time to do this, and the median number of clues given. The clue "different form" (explained in Appendix B) was scored as only 1/2 clue each time it was given. Often it was given several times in sequence as the subject sought the specific form needed.

It was hoped that this modified form of password would equalize the effects of the verbal clues and the sender since they were identical for everyone. Any success in a subject's performance over other subjects should reflect that subject's own sensitivity to the verbal clues given. Thus, it was a measure of the subject's social intelligence in dealing with the verbal aspects of communication. It also provided a method for assessing the hypothesis that subjects who give more objective or common associates are better at password, than those who give remote or subjective associates.

Procedure

Ninety-eight volunteers signed up for one of several testing times. Consequently, each subject was given the battery of paper and pencil tests in a group, but the group size varied. This battery consisted of the Information Sheet, Tennessee Self Concept Scale, Hogan's Empathy Test, Cartoon Predictions, and Expression Grouping. The experimenter read written instructions for each test. They accompany the test
forms for all but Hogan's Empathy Test. The experimenter provided written instructions with this test as well (Appendix C). A new test was not begun until all the subjects had completed the current one.

Each subject attended a second session individually. O'Connor's Word Association Test was then given orally. The instructions given each subject can be found in Appendix D. Then the experimenter asked each subject for her permission to tape record the password game. She indicated that she wanted a record of her own clues as well as the subject's guesses. Eventually she might use these to try to assess how people go about guessing passwords. No subject objected. The experimenter then played the modified form of password. The same 20 words were communicated to each subject. Also, each subject received the same clues in an identical order until the test word was guessed or until the 90-second time limit was reached. A stopwatch was used to determine when this time limit was reached and the time it took for the subject to guess each word. Written instructions were read at the beginning of the game to each subject (Appendix B).

The experimenter provided eye contact and appropriate facial expressions along with the verbal clue for half the subjects. This eye contact consisted of the experimenter looking into the subject's eyes whenever the subject looked at her. In order not to miss any eye contact encounters, she gazed at the subject continuously, except for occasional
glances at the clue lists and a stopwatch. These occasional glances frequently followed a period of eye contact that was terminated by the subject. For the other half of the subjects, the experimenter provided no eye contact, attended to the paper with the clue lists, and sat at a slight angle to the subject.

Finally, the experimenter obtained the verbal SAT scores from the subjects' files. Six subjects were eliminated because they had no verbal score, leaving a total of 92 subjects in the sample.
CHAPTER IV

RESULTS

Descriptive Statistics

The descriptive statistics for the subject variables of age, years of education, socio-economic level, and the verbal scores on the Scholastic Aptitude Test (SAT) are presented in Table 1. These are reported for the total sample and for the eye contact and no eye contact groups separately. These data indicated that the two groups were essentially the same. The ages ranged from 17 to 23 with a mean of 19.6 for the total sample. Since the subjects were drawn from an undergraduate college, the years of education ranged from 12 to 15.5 years with a total sample mean of 13.6 years. The individual indices of socio-economic level ranged from two to seven. A total mean of 4.7 indicated that, on the average, the subjects were drawn from the lower middle class. The mean score on the SAT did vary somewhat for the eye contact and no eye contact groups (484.82 vs. 458.85). Since the SAT is a control variable for each individual in the computations, this did not seem to be a difficulty. A t test ($t = 1.22, p = .22$) was done, however, which showed no significant difference between the two groups on the SAT.

Descriptive statistics for self-esteem (TSCS), social intelligence (Expression Grouping, Cartoon Predictions, Hogan's
TABLE 1

Descriptive Statistics for Age, Years of Education, Socio-Economic Class, and Verbal Intelligence

<table>
<thead>
<tr>
<th></th>
<th>Total*</th>
<th></th>
<th>Eye Contact**</th>
<th></th>
<th>No Eye Contact**</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Age</td>
<td>19.65</td>
<td>1.52</td>
<td>19.76</td>
<td>1.70</td>
<td>19.54</td>
<td>1.34</td>
</tr>
<tr>
<td>Education</td>
<td>13.62</td>
<td>1.23</td>
<td>13.61</td>
<td>1.18</td>
<td>13.63</td>
<td>1.29</td>
</tr>
<tr>
<td>Coleman Index</td>
<td>4.70</td>
<td>1.14</td>
<td>4.80</td>
<td>1.15</td>
<td>4.59</td>
<td>1.13</td>
</tr>
<tr>
<td>SAT-Verbal</td>
<td>471.84</td>
<td>102.19</td>
<td>484.82</td>
<td>110.87</td>
<td>458.85</td>
<td>92.09</td>
</tr>
</tbody>
</table>

*N = 92.

**N = 46.
Empathy Test, Interpersonal Competence Test, password clues, password successes, and password time), and word association measures (significant and total common associates) for the total sample and the eye contact and no eye contact groups separately can be found in Table 2. The eye contact and no eye contact groups differed only on the password measures (median number of clues, number of words guessed, and median time to guess each word).

It might be of interest to note that no subject guessed or missed all the passwords. Scores ranged from 5 to 18 words guessed correctly. Thus, the stimulus words and their clues seemed to be of sufficient difficulty, to yield a wide range of scores. Also, no subject exhausted the list of clues before the 90-second time limit was reached.

The sample used in this study was very similar to Fitts's (1965) norm group for the TSCS in terms of the means and standard deviations. No subject scored in the high range on the TSCS. This is defined in the manual (Fitts, 1965) as a score of 421 or higher. A subject scoring in the high range would fall in the 99th percentile, so it is not too unexpected that none were found for the sample of 92 subjects used in this study.

None of the demographic variables was significantly related to each other except for age and education (r = .67) which is to be expected for a college sample. A correlation matrix (Table 3) was obtained to determine whether any of
<table>
<thead>
<tr>
<th></th>
<th>Total* Mean</th>
<th>Total* SD</th>
<th>Eye Contact** Mean</th>
<th>Eye Contact** SD</th>
<th>No Eye Contact** Mean</th>
<th>No Eye Contact** SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCS</td>
<td>342.59</td>
<td>28.95</td>
<td>342.09</td>
<td>32.46</td>
<td>343.09</td>
<td>25.32</td>
</tr>
<tr>
<td>Hogan's Empathy Test</td>
<td>39.11</td>
<td>5.69</td>
<td>39.35</td>
<td>6.31</td>
<td>38.87</td>
<td>5.07</td>
</tr>
<tr>
<td>Interpersonal Competence</td>
<td>3.30</td>
<td>1.38</td>
<td>3.46</td>
<td>1.38</td>
<td>3.15</td>
<td>1.38</td>
</tr>
<tr>
<td>Expression Grouping</td>
<td>19.59</td>
<td>8.29</td>
<td>18.94</td>
<td>3.76</td>
<td>20.23</td>
<td>11.13</td>
</tr>
<tr>
<td>Cartoon Predictions</td>
<td>23.05</td>
<td>4.43</td>
<td>22.77</td>
<td>4.10</td>
<td>23.33</td>
<td>4.76</td>
</tr>
<tr>
<td>Password Clues</td>
<td>7.82</td>
<td>4.58</td>
<td>6.66</td>
<td>3.89</td>
<td>8.98</td>
<td>4.94</td>
</tr>
<tr>
<td>Successes</td>
<td>12.22</td>
<td>2.81</td>
<td>13.15</td>
<td>2.41</td>
<td>11.28</td>
<td>2.90</td>
</tr>
<tr>
<td>Time (Seconds)</td>
<td>45.36</td>
<td>27.53</td>
<td>35.72</td>
<td>22.14</td>
<td>55.01</td>
<td>29.20</td>
</tr>
<tr>
<td>Word Associations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common</td>
<td>39.63</td>
<td>8.31</td>
<td>39.39</td>
<td>8.66</td>
<td>39.87</td>
<td>8.03</td>
</tr>
</tbody>
</table>

*N = 92. **N = 46.
TABLE 3
Matrix of Pearson Correlations Between the Descriptive and Experimental Variables for the Total Sample*

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Education</th>
<th>Coleman Index</th>
<th>SAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCS</td>
<td>-.04</td>
<td>-.05</td>
<td>.08</td>
<td>-.22a</td>
</tr>
<tr>
<td>Hogan's Empathy Test</td>
<td>-.12</td>
<td>-.19</td>
<td>.05</td>
<td>-.10</td>
</tr>
<tr>
<td>Interpersonal Competence</td>
<td>.16</td>
<td>.00</td>
<td>.23a</td>
<td>-.15</td>
</tr>
<tr>
<td>Expression Grouping</td>
<td>-.05</td>
<td>.25a</td>
<td>-.11</td>
<td>.24a</td>
</tr>
<tr>
<td>Cartoon Predictions</td>
<td>-.01</td>
<td>.12</td>
<td>-.20</td>
<td>.27b</td>
</tr>
<tr>
<td>Password Clues</td>
<td>-.10</td>
<td>-.23a</td>
<td>-.02</td>
<td>-.23a</td>
</tr>
<tr>
<td>Successes</td>
<td>.10</td>
<td>.18</td>
<td>.05</td>
<td>.52c</td>
</tr>
<tr>
<td>Time (Seconds)</td>
<td>-.07</td>
<td>-.18</td>
<td>-.09</td>
<td>-.43c</td>
</tr>
<tr>
<td>Word Associations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significant</td>
<td>.06</td>
<td>.04</td>
<td>-.44c</td>
<td>.14</td>
</tr>
<tr>
<td>Common</td>
<td>.00</td>
<td>.05</td>
<td>-.33b</td>
<td>.17</td>
</tr>
</tbody>
</table>

*N = 92, df = 90 for all correlations. ap < .05  bp < .01  cp < .001.
these demographic variables was related significantly to the experimental variables. Years of education was correlated positively with Expression Grouping and negatively with password clues. The socio-economic level of the subjects was positively correlated with the Interpersonal Competence Test. Thus, subjects who reported having higher social skills also belonged to a higher social class. The Coleman Index was also negatively correlated with both common and significant associates.

Verbal intelligence as measured by the SAT was significantly correlated with all the social intelligence measures, except for the two self-report tests. This means that the greater an individual's verbal skills the more likely he was to score higher on the measures of social intelligence ability. It did not, however, affect how he evaluated his skills. Verbal intelligence was also significantly related to self-esteem but, unexpectedly, the direction was negative. Evidently, the better a person's verbal skills the less likely he is to evaluate himself positively.

**Statistics for Hypothesis 1: Eye Contact vs. No Eye Contact**

It was hypothesized that subjects who received eye contact would be more successful at password than those who did not receive eye contact. This hypothesis was confirmed for all the password measures (Table 4) when a simple analysis of covariance was done. Since social intelligence was affected by verbal intelligence and password is defined as a social
TABLE 4
Analysis of Covariance for the Eye Contact and No Eye Contact Groups on the Password Measures*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clues</td>
<td>1</td>
<td>98.17</td>
<td>5.13a</td>
</tr>
<tr>
<td>Error</td>
<td>89</td>
<td>19.13</td>
<td></td>
</tr>
<tr>
<td>Successes</td>
<td>1</td>
<td>52.39</td>
<td>9.88b</td>
</tr>
<tr>
<td>Error</td>
<td>89</td>
<td>5.30</td>
<td></td>
</tr>
<tr>
<td>Time (Seconds)</td>
<td>1</td>
<td>6179.23</td>
<td>11.04b</td>
</tr>
<tr>
<td>Error</td>
<td>89</td>
<td>559.59</td>
<td></td>
</tr>
</tbody>
</table>

*N = 46 for each group.

$a_p < .05 \quad b_p < .01.$
intelligence measure, the verbal SAT scores of the subjects served as the covariate. Thus, even when the effects of verbal intelligence were controlled, the eye contact subjects guessed more passwords successfully in less time and with fewer clues. Consequently, the eye contact and no eye contact groups were considered separately in all subsequent analyses involving the password measures.

Statistics for Hypothesis 2: Self-Esteem and Social Intelligence.

Since no subject scored in the high range on the TSCS, it was unlikely that a curvilinear relationship between self-esteem and social intelligence would be found. Nevertheless, a test for curvilinear correlation (Eta) was done to determine whether self-esteem was correlated with selected variables. No significant correlations were found.

Since a positive correlation was predicted for the range of scores obtained, the data were analyzed for linear correlations as well. Once again the effects of verbal intelligence had to be controlled, so partial correlations were done between all the social intelligence and self-esteem measures.

Neither of the cognitive measures of social intelligence was significantly correlated with self-esteem. Thus, hypothesis 2a which predicted a positive correlation for self-esteem with Cartoon Predictions and Expression Grouping was rejected. Hypothesis 2b predicted a positive correlation
between self-esteem (TSCS) and the self-report measures. Hogan's Empathy Test was not significantly correlated with self-esteem. The Interpersonal Competence Test, however, was correlated with self-esteem ($r = .33$) at the .001 level. In hypothesis 2c it was predicted that behavioral social intelligence and self-esteem would be positively correlated. Since the eye contact and no eye contact groups were found to be significantly different on the password measures, it was necessary to test this hypothesis separately for each group. There was no significant correlation for self-esteem with median password clues, words guessed, nor median time for either group.

In summary, only self-reported social intelligence as measured by the Interpersonal Competence Test had a significant positive correlation with self-esteem.

**Statistics for Hypothesis 3: Word Association Styles and Social Intelligence**

The SAT verbal score was also used as a control variable for the partial correlations between word association styles and social intelligence (Table 5).

Hypothesis 3a cannot be rejected or confirmed as a whole. It predicted a positive correlation between each of the word association scores and cognitive social intelligence. There was a positive correlation between both total and significant word association scores with Cartoon Predictions, but the correlations between word association styles and Expression
TABLE 5
Partial Correlations for Word Association Styles
with Self-Esteem and Cognitive and Behavioral
Social Intelligence*

<table>
<thead>
<tr>
<th></th>
<th>Significant Associates</th>
<th>Common Associates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hogan's Test</td>
<td>-.16</td>
<td>-.18&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Interpersonal Competence</td>
<td>-.10</td>
<td>-.09</td>
</tr>
<tr>
<td>Expression Grouping</td>
<td>.05</td>
<td>.02</td>
</tr>
<tr>
<td>Cartoon Predictions</td>
<td>.26&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.27&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>TSCS</td>
<td>-.21&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.13</td>
</tr>
</tbody>
</table>

<sup>*N = 92, df = 90 for all correlations.</sup>

<sup><sup>a</sup>p < .05</sup>  <sup>b</sup>p < .01.</sup>
Grouping were not significant.

A positive correlation between word association styles and self-reported social intelligence was predicted in hypothesis 3b. No significant correlation was found between the total or significant associates with the Interpersonal Competence Test. A negative correlation was found with Hogan's Empathy Test, but only for the common associates.

The hypothesis (3c) that behavioral social intelligence and word association styles are positively correlated was confirmed for the eye contact group only (Table 6). Those who gave a high frequency of total of significant common responses were more successful at password. They get more words right, in less time, and with fewer clues. For the no eye contact group, word association styles and password success not only did not have a significant positive correlation, but they were actually negatively correlated. This negative correlation was not, however, significant. When t tests were done, a significant difference was found between the correlations for the eye contact and no eye contact groups on these two variables (Table 7). This means that the absence of eye contact actually altered the functioning of those subjects during password, so that a tendency to give common associates (total or significant) was actually more of a hindrance than an aid. Significant associates was a slightly more accurate indicator of median number of password clues. Thus, both total and significant common associates were positively correlated with social intelligence for the eye
### TABLE 6
Partial Correlations for Word Association Styles and Password Success*

<table>
<thead>
<tr>
<th></th>
<th>Eye Contact</th>
<th>No Eye Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clues</td>
<td>-.51&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-.34&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Successes</td>
<td>.35&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.46&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Time (Seconds)</td>
<td>-.38&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-.51&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

*<sup>N = 46</sup> for each group, <sup>df = 43</sup> for all correlations.

<sup>a</sup><sub>p < .05</sub>  <sup>b</sup><sub>p < .01</sub>  <sup>c</sup><sub>p < .001</sub>.
TABLE 7

_t Test Scores Between the Correlations on Word Association Style and Password Success for the Eye Contact and No Groups*

<table>
<thead>
<tr>
<th></th>
<th>Significant Associates t</th>
<th>Common Associates t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Password</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clues</td>
<td>4.00^b</td>
<td>2.92^a</td>
</tr>
<tr>
<td>Successes</td>
<td>4.44^b</td>
<td>3.57^b</td>
</tr>
<tr>
<td>Time (Seconds)</td>
<td>3.11^b</td>
<td>4.15^b</td>
</tr>
</tbody>
</table>

*N = 46 in each group.

_a_p < .01  b_p < .001.
Statistics for Hypothesis 4: Word Association Styles and Self-Esteem

Since self-esteem, as measured by the TSCS was also found to be correlated with the verbal SAT scores, verbal intelligence was used once again as a control variable for the partial correlations.

The null hypothesis that there was no significant correlation between self-esteem and word associations styles was rejected at the .05 level. (Table 5). The data revealed that the two variables were actually negatively correlated. The correlation was significant for the significant associates score ($r = -.21$). It was not significant for associates score ($r = -.13$).

Intercorrelations Between the Social Intelligence Measures

Since some of the social intelligence measures were related to self-esteem and word association styles and others were not, it was considered useful to determine whether the various measures were correlated with each other. Partial correlations were also done here in order to determine whether the correlations would remain after the effects of verbal intelligence were removed.

All of the social intelligence measures within the same category were significantly correlated with each other. Thus, correlations were found between Expression Grouping and Cartoon Predictions, between Hogan's Empathy Test and the Interpersonal Competence Test (Table 8), and between the
## TABLE 8
Matrix of Partial Correlations for the Cognitive and Self-Report Social Intelligence Measures*

<table>
<thead>
<tr>
<th></th>
<th>Hogan's Test</th>
<th>Self-Report</th>
<th>Expression Grouping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal Competence</td>
<td>.46&lt;sup&gt;b&lt;/sup&gt;</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Expression Grouping</td>
<td>-.01</td>
<td>-.05</td>
<td>--</td>
</tr>
<tr>
<td>Cartoon Predictions</td>
<td>-.19&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.23&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.54&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

*<sup>N</sup> = 92, <sup>df</sup> = 89 for all correlations.

<sup>a</sup><sub>p</sub> < .05  
<sup>b</sup><sub>p</sub> < .001.
three password measures (Table 9). The cognitive measures were negatively correlated with the self-report measures, but this was significant only for Cartoon Predictions. The behavioral measures were not significantly correlated with cognitive or self-reported social intelligence for the no eye contact group. A significant correlation was found between the behavioral measures and Cartoon Predictions for the eye contact group. This was positive for the number of words guessed and negative for the median time. The median number of clues was not significantly correlated with Cartoon Predictions. Password success was not correlated with Expression Grouping nor the self-report measures.

Thus, there is some overlap between some of the measures while others seem distinctly different. Although the tests are all purported to be measures of social intelligence, many of them seem to be tapping into different specific social skills.

Summary

The following hypotheses were confirmed:

1. In the password situation, subjects who received eye contact did significantly better than those in the no eye contact condition.

2. Self-esteem and self-reported social intelligence as measured by the Interpersonal Competence Test were positively correlated (Hogan's Empathy Test was not).
<table>
<thead>
<tr>
<th></th>
<th>Eye Contact</th>
<th>No Eye Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clues</td>
<td>Successes</td>
</tr>
<tr>
<td>Hogan's Test</td>
<td>.28</td>
<td>-.05</td>
</tr>
<tr>
<td>Interpersonal Competence</td>
<td>.15</td>
<td>-.22</td>
</tr>
<tr>
<td>Expression Grouping</td>
<td>-.05</td>
<td>.09</td>
</tr>
<tr>
<td>Cartoon Predictions</td>
<td>-.17</td>
<td>.36(^a)</td>
</tr>
<tr>
<td>Password</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successes</td>
<td>-.46(^b)</td>
<td>--</td>
</tr>
<tr>
<td>Time (Seconds)</td>
<td>.56(^b)</td>
<td>-.77(^b)</td>
</tr>
</tbody>
</table>

* \(N = 46\) for each group, \(df = 43\) for all correlations.

\(^a\) \(p < .05\) \hspace{1cm} \(^b\) \(p < .001\).
3. Word association styles and cognitive social intelligence as measured by Cartoon Predictions were positively correlated (Expression Grouping was not).

4. Both total and significant common associates were correlated positively with behavioral social intelligence for the eye contact group. These correlations for the eye contact groups and no eye contact groups were significantly different from one another.

5. Total common word associates and self-esteem were not correlated.

The following hypotheses were not supported:

1. Self-esteem and cognitive social intelligence are correlated.

2. Self-esteem and behavioral social intelligence are positively correlated.

3. Both total and significant common associates correlated with self-reported social intelligence.

4. Significant common associates are not correlated with self-esteem. The data revealed that they were negatively correlated.
Despite the literature suggesting that self-esteem and social intelligence should be correlated positively, this relationship was not supported in the present study. How a person evaluated his own social skills on the Interpersonal Competence Test proved to be more critical, rather than what his actual skills were. Since the same person was doing the evaluating, one might expect that an individual who evaluates himself positively in general is likely to be positive about his social skills as well.

Since there was no correlation between self-esteem and Hogan's Empathy Test, which is also a self-report measure, one might suspect that these two tests are not measuring the same thing. Perhaps a subject may report having good social skills when questioned directly, but may not answer more indirect questions in the same way as people who are high in empathy do. Either empathy and social skills are not thought to be the same thing or the subject is unaware that many of the items are aimed at assessing his attitude toward his empathy. Empathy is actually one type of social skill. Some of the items on Hogan's Empathy Test do not seem to be related to empathy on initial inspection. Consequently, the latter hypothesis seems more likely. The relationship between self-esteem and self-reported social intel-
Self-reported social intelligence, an attitude, did not seem to be tapping into the same thing as the measures of social intelligence abilities. In fact, the Interpersonal Competence Test was negatively correlated with Cartoon Predictions, a cognitive measure. Cartoon Predictions seemed to be the most general and, perhaps, the most useful test. It is correlated with Expression Grouping, total and significant associates, password time and password successes, which are all thought to measure some aspect of social intelligence. It is also easy to give and takes little time. Each test, however, seems to have its purpose, since they do not necessarily measure the same aspects.

The behavioral measure of social intelligence, password, proved to be very workable in its modified form. Obtaining clues from one group of subjects to use with another group worked fairly well. In future use, after the frequency lists are obtained, the experimenter might reorder the lists slightly so that the clues follow more logically. This is not necessary, though, since in regular password the best clue is not always given first. It is also important to remember to select possible passwords that fit the verbal skills of the subjects.

The technique of having experimenter act as the sender was also quite useful. This allowed for a standard-
ization of the sender's role, as well as for systematic variations in this role. The variation of giving no eye contact to half the subjects significantly altered performance on the password task. There was a positive correlation between Cartoon Predictions and password success for the eye contact group, but not for the no eye contact group. There was also a positive correlation between both total and significant common associates for the eye contact group only. There was a negative, but nonsignificant correlation for the no eye contact group. The difference between these correlations for word association styles and password success for the eye contact and no eye contact groups were, however, highly significant. The absence of eye contact significantly altered the functioning of the subjects during password, so that the correlations between these two variables were reversed. Thus, a tendency to give common associates was actually a slight hindrance rather than an aid. In the no eye contact condition password success was significantly correlated only with the subjects' SAT verbal scores. Thus, verbal intelligence seemed to be the main variable which contributed to password success when the nonverbal cue of eye contact was lacking.

Eye contact is definitely an important non-verbal cue in a communications task of this sort. Many subjects complained that it was difficult to know how they were doing and if they were on the right track. One subject said, "I felt like I was playing the game by myself." Eye contact with
the experimenter seemed to be an important source for feedback and motivation. The subjects indicated that it was an important cue for their use of empathy in determining how the experimenter felt about them. Eye contact seemed to be very significant for the actual utilization of social intelligence. Since in this task the clues were predetermined, it did not allow for decentering, the dovetailing of responses, that was thought to be critical by Feffer and Suchotliff (1966). This might suggest that their subjects did poorly in the silent condition, not because the situation did not allow for decentering, but because the subjects had no eye contact. Whether only one or both variables affect password success still needs to be determined.

Previous research indicated that success at password would be correlated with the frequency of significant common associations. This also proved to be true, here, but it was true for total common associates as well. In fact, the total common associates seemed to be a slightly better measure. Perhaps it is merely the giving of common associates, which O'Connor's (1945) significant ones are, that is indicative of role-taking ability. It is possible that significant common associates reveal leadership potential, but that they do not provide necessary distinction for password success. It may be that the effective communicator is one who can put his thoughts into language that is understood and familiar to most people. A tendency to give common associates may be
a measure of this ability. The total and significant associates were also correlated with Cartoon Predictions. Word association styles do seem to be positively related to behavioral and cognitive social intelligence. No correlation was found for self-esteem and the self-report tests. Once again self-reported social intelligence was found to be related differently to another variable than were the tests of actual social intelligence ability.

The tendency to give significant common associates was found to be correlated negatively with self-esteem. This means that subjects who were found to have leadership potential, as measured by O'Connor's significant associates score, were more likely to feel negatively about themselves. Why this would be true is not clear and could be studied in future research.

A few interesting points from the analysis of the demographic variables also need to be noted. Socio-economic level was negatively correlated with the frequency of common associates. This supports the conclusion of Heider (1971) that people in different social classes have different ways of encoding and decoding messages which affect their interpersonal communications. Socio-economic level was also related to the Interpersonal Competence Test. The higher a person's social class, the more likely he is to feel positively about his social skills. This does not, however, carry over to his overall self-esteem. Perhaps belonging
to a higher social class brings with it the feeling that he is more socially acceptable, and, thus, has better social skills. This is merely a tentative guess.

Verbal intelligence was significantly correlated with many of the social intelligence measures. It must still be taken in consideration when evaluating the results for the cognitive and behavioral measures. It did not, however, influence how the subjects' reported their social skills. More importantly, it does not affect the tendency to give common associates. Since the word association test seemed to be indicative of behavioral and cognitive social intelligence, it might be a useful tool for indirectly determining social intelligence without having to control for verbal intelligence.

Finally, verbal intelligence was negatively correlated with self-esteem. Despite the stress on academic achievement in the American culture, this no longer seemed to be influential in favorably affecting how a person evaluates himself. One might wonder if being successful in academics has become negatively evaluated as a personal goal.

Besides the suggestions already given, researchers might be able to devise a method for allowing the experimenter to be the receiver in password. He might then discover how different types of responses or behaviors affect the type of clues that the sender gives. Researchers might also try to use videotapes as well as face to face situations in
order to vary other non-verbal variables when the experimenter is the sender. Perhaps other behavioral measures could be developed. An analysis of the subjects' wrong password guesses could be made and related to the common associates dimension. A great deal still needs to be done before a good understanding of social intelligence will emerge.
SUMMARY

The purpose of this study was to assess the interrelationships between self-esteem, social intelligence, and word association styles for female college students. The measures were the Tennessee Self Concept Scale (TSCS) for self-esteem, Guilford's Cartoon Predictions and Expression Grouping for cognitive social intelligence, Hogan's Empathy Test and a derivative Interpersonal Competence Test for self-reported social intelligence, and a modification of the password game for the behavioral social intelligence measure.

The password modification allowed the experimenter to act as the sender, giving preset clues in a preset order to all 20 stimulus words. These clues were obtained from volunteers at a college similar to the one from which the subjects were drawn. They reported the clues they would give if they were trying to communicate that word in a password game. A frequency table was made for each stimulus word of all the clues. This list of clues, from most to least frequently given, was used as the clue list for each of the passwords.

There were two treatment conditions for the actual playing of password: eye contact and no eye contact. In the eye contact condition the experimenter looked into the subject's eyes as often as the subject would allow it. In the no eye contact condition the experimenter looked at the clue list and sat at a slight angle to the subject.
was done in order to assess the effects of the nonverbal cue of eye contact on the password situation.

It was predicted that those subjects in the eye contact condition would be more successful at password than those in the no eye contact group. A curvilinear correlation was hypothesized between self-esteem and social intelligence. Specifically it was predicted that there would be a positive correlation between the two variables up to the point where the scores fell into the high range as defined in the TSCS manual. Then the relationship would reverse, resulting in a negative correlation between social intelligence and optimal self-esteem. It was further hypothesized that there would be a positive correlation between social intelligence and the frequency of significant and total common associates. Finally, it was hypothesized that there would be no significant correlation between self-esteem and word association styles.

The effects of verbal intelligence, as measured by the subjects' SAT verbal scores, were controlled for all the analyses involving social intelligence and self-esteem. These scores were found to be correlated with verbal intelligence.

No subjects scored in the high range on the TSCS. Consequently, more attention was given to the possible linear correlations between the variables. It was found that how a person evaluated his social skills, as measured by the Interpersonal Competence Test, affected self-esteem, rather than
his actual ability. Both total and significant common associates correlated positively with behavioral and cognitive (Cartoon Predictions only) social intelligence. Total associates correlated negatively with Hogan's Empathy Test (self-report). Significant associates were negatively associated with self-esteem. Common associates were not. Further, it was found that the no eye contact condition lowered performance on password, resulting in the eye contact group guessing more passwords, in less time, and with fewer clues. Finally, intercorrelations were presented for the social intelligence measures.

Suggestions for further research were provided.
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APPENDIX A

Social Intelligence Self-Report Items

3. As a rule I have little difficulty in "putting myself into other's shoes." True
8. I am a good mixer. True
37. I find it easy to make friends. (new item) True
65. I have a natural talent for influencing people. True
66. I have good social skills. (new item) True
I. Instructions for Obtaining Password Clues

I am going to use a modified version of password for some research. The usual directions for this game are as follows:

Perhaps you have watched the game on T.V. or played it yourself. The object of the task is to attempt to communicate to your partner the words on the cards in front of you. The words are to be communicated by the use of one word clues. For example, if the mystery word were "chair," your clue might be "table;" if your partner guessed "dinner" you could give "sit" as your next clue; maybe she would guess "chair." After the sender gives a clue, you must wait until your partner responds before giving the next clue. All clues and answers must be of one word. To each clue given only one guess is permitted. In order to guess again, the person must await a new clue. If the recipient can not think of a word, he can say "pass," and this allows the sender to give a new clue. Always continue until your partner, here, gets the word or until you run out of time. There is a 90 second time limit for each word. The exact form of the word must be gotten. For example, "mud" for "muddy" is not correct. Play must continue until "muddy" is gotten.

In the modified version the sender preselects a list of clues to be given for each test word. I would like you to help me design such a list. Pretend you are the sender in a password game being played in the usual way. The following pages contain the 20 words that you would be attempting to communicate. I would like you to give the 20 clues (400 in all) for each word that you would give if you were playing password. List them in the order that you would give them. This may be difficult, since 20 clues may seem like a lot for
one word, and since you do not know what the other person
would actually be guessing. Just do the best you can.

There are some rules governing the type of clues that
can be given. Please follow these rules in making up your
lists.

Rules

1. The clue is always a single word, not hyphenated and not
a proper noun. For example, if the word to be gotten
were "president," you could not give Nixon as a clue.

2. Foreign words may not be used as clues either. For
example, if the password is "hat," the French word for
"hat," "chapeau," may not be given.

3. No part or form of the password may be used as a clue.
For example, "Chemist" could not be used for "chemistry;"
"steal" could not be used for "stolen;" "monk" could not
be used for "monkey."

4. No spelling of the password is allowed.

5. You can not give the part of speech that it is, like noun
or verb, as a clue.
### II. Word Lists for Obtaining Password Clues

<table>
<thead>
<tr>
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<tr>
<td>ridiculously</td>
<td>recklessly</td>
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<tr>
<td>naturally</td>
<td>normally</td>
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</table>
III. Instructions for Password

Today we are going to play a game similar to password. You may have watched it on T.V. or played it yourself. The object of the game is for you to correctly guess the word I am trying to communicate to you. I will attempt to do this by giving you one word clues. For example, if the mystery word were "chair," I might give the clue "table." If you guessed "dinner," I might then give the clue of "sit." Then you might guess that the word is "chair." After I give you a clue, I will wait until you give a one word response before giving the next clue. Only one guess is permitted for each clue. In order to guess again, you must wait until I give another clue word. If you cannot think of a response, say "pass." This will allow me to give you another clue word. We will continue until you have guessed the mystery word or until you run out of time. You will have 90 seconds to guess each mystery word. The exact form of the word must be gotten. For example, "mud" for "muddy" is not correct. Play will continue until "muddy" is gotten. I will, however, say "different form" when you are in this position to let you know that you have the basic word. Any questions?
### IV. List of Password Stimulus Words and Their Clues

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importantly
needy
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APPENDIX C

Instructions for Hogan's Empathy Test

Here are some questions regarding the way you think feel and act. After each question is a space for answering whether it is true or false with regard to yourself. Try to decide whether true or false represents your usual way of feeling and acting. Place an X under true or false depending on which fits you best. **BE SURE NOT TO OMIT ANY ITEMS**, even though it may occasionally seem quite difficult to decide. Do not mark both true and false for any item. Just pick the one that seems closest to your usual behavior. Work quickly, and don't spend too much time over any one item. I want your first reaction, not a long drawn-out thought process. The whole questionnaire shouldn't take more than a few minutes. There are no right or wrong answers, and this isn't a test of intelligence or ability, but simply a measure of the way you behave. Any questions? Now turn the page and begin. Work quickly, and remember to answer every question.
APPENDIX D
APPENDIX D

Instructions for O'Connor's Word Association Test

I am going to be saying some words. After each word I want you to give me the first word that comes to your mind. I will wait only a few seconds between each word. If you can't think of something right away, we'll skip it and come back to it later. Any questions?
The dissertation submitted by Carolyn Kowatsch has been read and approved by the following Committee:

Dr. Ronald E. Walker, Chairman
Professor, Psychology and
Dean, College of Arts and Sciences, Loyola

Dr. Jeanne E. Foley
Associate Professor, Psychology and
Assistant Dean, Graduate School, Loyola

Dr. Robert C. Nicolay
Professor, Psychology, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

[Signature]
Director's Signature

[Date]