1986

Self-enhancing attributions superior conformity of self comparisons and social desirability: A study of relationships

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SELF-ENHANCING ATTRIBUTIONS, SUPERIOR CONFORMITY OF SELF

COMPARISONS AND SOCIAL DESIRABILITY:

A STUDY OF RELATIONSHIPS

by

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Presented in Partial Fulfillment
of the Requirements for the Degree of
Master of Arts

UNIVERSITY OF MONTANA

1986

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Date June 25, 1986
Self-Enhancement Attributions, Superior Conformity of Self Comparison, and Social Desirability: A Study of Relationships

Director: Arthur Beaman

The relationship between self-enhancing attributions and superior comparison of self to others was examined and the effects of need for social approval on these behaviors investigated in a 2 X 4 factorial design. Additionally, all subjects provided scores on two measures of social desirability (Self Deception and Other Deception). Specific questions examined were: (1) Does varying the nature of audience (anonymous, self aware, aware of others, aware of observers) affect attribution of success/failure? (2) Is self-other comparison affected by change in audience awareness? (3) What relationship exists between self-serving attributions and tendency to see self more in conformity with norms than one sees others to be? (4) How are self-serving attributions and superior self comparisons related to needs for social approval? One hundred and ninety two subjects were assigned to one of eight conditions (audience level X success/failure feedback on task). Each subject was asked to make attributions regarding internal/external responsibility for one's own performance and to compare himself to others on ability to perform the task. Furthermore, each subject was requested to complete the Self Deception Questionnaire and the Other Deception Questionnaires. The present study failed to show self-enhancing attributions for performance, but did show some evidence of superior self comparison, and a trend to increase superiority of self comparison as ambiguity of comparison group increases. Nature of the audience was not found significant in influencing the degree to which self-serving biases and superior comparison of self are made. No relationship was established between the tendency to make self-enhancing attributions and tendency to make superior self comparisons. Results employing analyses of variance by median split of variables of social desirability were mostly inconclusive. However, an unexpected main effect for gender was found on the Self-Deception and Other-Deception Questionnaires.
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CHAPTER ONE

Introduction

Definitions of Self and Related Terms

The "self" is an aspect of humanity which has intrigued man for centuries. Baldwin (1889) claimed that St. Augustine (345-340 A.D.) was among the earliest to investigate the self. Important nineteenth and twentieth century investigators of self theory include James (1890), Cooley (1902) and Mead (1934). Raimy (1943) has been credited by many with first coining the term "self-concept", a term now common in books, texts, magazines articles and general conversation.

Currently, scores of theories and definitions of self are found in the literature. Between 1948 and 1968 over two thousand articles were written on various aspects of self-concept (Gergen, 1971). Moreover, self-concept is only one of the more popular self-prefixed terms employed to identify or describe some aspect of self. Other widely accepted terms include "self-esteem" (Maslow, 1954), "self-actualization" (Goldstein, 1940), "self-acceptance" (Allport, 1961) and "self-identity" (Erickson, 1959).

Many researchers have recognized that self terms are
nearly impossible to differentiate. Wylie (1974) pointed out that "The terms are so intertwined and overlapping in the literature that the constructs must be discussed as a group" (p. 40). "In fact," stated Rosenberg (1979), "in a scientific field generally undistinguished by the precision of its terminology, the 'self' stands as a concept foremost in the ranks of confusion" (p. 5). "Because of the lack of agreement about self terms, many educators and researchers use various self terms and [their] assessment instruments interchangeably" (Calhoun, 1977, p. 318). Therefore, as this paper proposes to deal with a number of self-related terms, a discussion must take place to define the meanings of those terms.

Self-concept. "Self concept," said Calhoun (1977), "refers to how an individual perceives himself in terms of ability, value, worth, limitations, etc. The self concept is the substantive description one employs to identify his nature, and is also used by individuals to compare themselves to others" (p. 319). The self-concept, as viewed by Rogers (1947) refers to "the sum total of all the characteristics a person attributes to himself and the positive and negative values he attaches to those characteristics" (p. 146). Self-concept as defined by Rogers requires a perception and interpretation of self characteristics, a viewing of self as object (Mead, 1934).

The self-concept is not present at birth but develops
over time. "When people are asked how they know that they possess certain characteristics, a typical answer is that they have learned them from other people" (Schrauger and Schoneman, 1979, p. 549). The works of Baldwin (1889), James (1890), Cooley (1902) and Mead (1934) also suggested that the responses of others have an influence in shaping self-concept definitions for self. Cooley's theory of the "looking glass self" (1902) asserts that one's self-concept is a reflection of one's perceptions of how one appears to others. In viewing the self as an object, the "individual experiences himself as such, not directly, but only indirectly, from the particular standpoints of other individuals of the same social group or from a generalized standpoint of the social group as a whole" (Mead, 1934, p. 138). This shaping of self-concept through the impressions of others begins early. It is thought by some authors (Perkins, 1975; Wylie, 1979) that the self-concept develops prior to age five and remains basically constant throughout life.

**Self-esteem.** Self-esteem involves an additional component not yet discussed. Where the self-concept is primarily descriptive in nature, self-esteem includes a strong evaluative element. Rosenberg (1965) stated: "Self esteem is a positive or negative attitude toward an object, namely the self" (p. 30). Elder (1961) described self-esteem further as "feelings of personal worth...influenced by the performances, abilities, appearance and judgments of
significant others" (p. 258). Lest the reader become confused, it must be explained that the "positive and negative values" referred to above by Rogers in describing self-concept differ from the self valuation process described here. One can say, for example, "I am a smoker. This is a habit which I see as a part of my self concept. I feel this habit is bad, harmful. This is a negative aspect of my character" (self-concept). Such a statement is not the same as saying, "I am a smoker. Smoking is bad, harmful. Other people do not like smokers. Therefore, because I smoke I am bad, harmful, of little worth" (low self-esteem).

Self-esteem appears to develop after the self-concept. "Once the individual has established a concept of himself, he is able to determine whether or not he is satisfied with what he sees about himself, thus self esteem can be judged" (Calhoun, 1977, p. 321).

As with self-concept, self-esteem seems to be strongly related to the attitudes and values others hold toward the individual. Elder (above) referred to these others in his definition of self-esteem, stressing their importance to the concept. Cooley (1902) also indicated the importance of others in the development of self-esteem: "In the presence of one whom we feel to be of importance, there is a tendency to enter into and adopt, by sympathy, his judgment of ourselves" (p. 175).

Unlike the self-concept, which is somewhat stable,
self-esteem is seen to fluctuate (Coopersmith, 1959; Gergen, 1971; Wylie, 1974) as individuals face self-defeating circumstances or negative evaluations from others. However, self-esteem is not as unstable as one might suppose, for global self-esteem

is based not solely on an assessment of...constituent qualities but on an assessment of qualities that count...Some disposition or social entity elements rank high in our hierarchy of values, stand at the center of our feelings of self worth—whereas others are relegated to the periphery (Rosenberg, 1979, pp. 18-19).

Hence, only those circumstances wherein critical self values are challenged appear to seriously affect one's level of self-esteem positively or negatively.

**Idealized self-concept.** The idealized self-concept is an imaginative construct created in the mind of every individual, against which he measures himself (Rosenberg, 1979). Such a construct includes all the ideally desired self attributes the individual wishes for himself. Such an image may be a social-cultural stereotype or may have resulted from exposure to role models, readings, etc. The idealized self-concept is not how the individual sees himself but how he would like himself actually to be, a goal toward which to strive.

**Self-enhancement.** The concept of self-enhancement (Rose, 1966), also labeled as egotism (Snyder, Stephan, & Rosenfeld, 1976), self-serving bias (Bradley, 1978) and egocentricism (Schlenker & Miller, 1977) is defined here as
follows: Self-enhancement is the tendency to make attributions regarding oneself and one's actions that put the self-concept in the best possible light, i.e. "by taking credit for good outcomes and denying responsibility for bad, the individual may be able to enhance or protect his self esteem" (Bradley, 1978, p. 56).

Baumeister (1982) saw self-enhancement as resulting from one or both of the following self-presentational motives: (a) the need to please a specific audience (impression management) and (b) the desire to be seen by self and others as congruent with or similar to one's idealized self-concept (self-construction). In his 1982 article, Baumeister cited nine areas of research in social psychology where self-enhancement concerns appear to affect the outcome of one's actions.

Two areas of self-enhancement research are of special importance to research proposed by the present author, i.e., attribution and social comparison research. There has been much work done related to self-enhancement in the area of attribution research. Good review articles of the work in the attribution area have been done by Miller and Ross (1978) and Bradley (1978). In these works, self-enhancement is discussed as demonstrated when individuals make internal attributions for own positive behavioral outcomes and external attributions for own negative behavioral outcomes.

Self-enhancement has been important also in the area of
social comparison. Rose (1966) stated that self-enhancement occurs when the self is represented as superior to others. Codol (1975) saw self-enhancement as a phenomenon which accounts at least partly for a tendency to compare oneself to others and find oneself as superior in comparison. Bowerman (1975) suggested that self-enhancement is a factor in two classes of behavior:

(a) comparison projection: Comparison projection is a phenomenon similar to that mentioned by Rose above in which self compares with others to find itself superior in some way to others.

(b) reference projection: Reference projection is a slightly different phenomenon wherein individuals show tendencies to assert, when forced to confront negative self-traits, that they are equal in this trait to others of their reference group, making them only "one of the crowd". Others have reported similar findings (Bramel, 1962; Friend & Gilbert, 1973).

As is seen, self-enhancement is a concept which has been used to describe a variety of behaviors. However, little research to date explains how such behaviors might relate to one another. The purpose of this paper is to investigate the relationships among some of these behaviors.

Self-serving bias. Self-serving bias is a term coined by Bradley (1978) to indicate self-enhancing causal attributions. This term will be used interchangeably in this
paper with the term self-enhancing attribution.

Superior conformity of self. Superior conformity of self is a construct denoting a type of social comparison where the self is represented as being superior to others, i.e., when individuals claim that one's own behaviors, traits, characteristics, etc. more closely resemble that of the idealized self-construct than do the behaviors, etc., demonstrated by others. As discussed above, this phenomenon can be viewed as a type of self-enhancement. Superior conformity of self can be differented from self-esteem in this way:

When we characterize a person as having high self esteem, we are not referring to feelings of superiority... we mean rather, that he has self respect, considers himself of worth...The person with high self esteem has philotimo, not hubris; he does not necessarily consider himself better than others, but neither does he consider himself as worse (Rosenberg, 1979, p. 4).

Self-enhancing Attributions: Theory and Research

Since one's ideas include what "ought to be" and "what one would like to be" as well as "what is," attributions and cognitions are influenced by the more subjective forces of needs and wishes as well as by the more objective evidence presented in the raw material (Heider, 1958, pp. 120-121).

One is inclined to attribute to oneself good things, but one suffers when one has to attribute to oneself something that is not so good (Heider, 1976, p. 16).

The central focus of attribution theory in general is the search to identify rules by which individuals attempt to infer causes of events which they observe around them.
Attribution theory arose from the study of person perception. Fritz Heider was an important early theorist in the area (1958). Heider's theory was concerned with the relationship between phenomenal causality—the underlying or antecedent conditions that give rise to a perceptual experience, and the perception of social objects and events. In Heider's thinking, a social occurrence (object or event) will not be perceived by an observer in factual or objective fashion but will be interpreted in consonance with the observer's past experiences and present needs.

These perceptual processes, Heider speculated, serve two functions: (1) to form a coherent understanding of the events around us, and (2) to predict and control events through this understanding. In the process of explaining events which are witnessed, the naive observer constructs and uses his/her own individual predictive theory of human behavior. Such "naive psychology" permits the formation of judgments about the extent to which the behavior of the observed individual is being guided by internal dispositional factors, external situational factors or a combination of both. Furthermore, according to Heider, an individual's selection of a causal attribution will be guided by his/her own needs and expectations as a person. The operation of a self-serving motive in attribution processes can be seen as a logical result of a preference to explain our behavior in the best possible light, given our need to maintain self-esteem and
control over our environment.

Others have noted the association between need of individuals to gain control over their environment and attributions. According to Kelley (1971), "The attribution to self of success and the attribution to external factors of failure provides for the continuation of control attempts" (p. 23). The social psychological theory of cognitive dissonance (Festinger, 1957) can also be viewed in terms of efforts to maintain cognitive control through attribution assignment. By resolving cognitive dissonance through strategies as discussed by Festinger (1957), individuals are able to explain past behavior and feel more confident about future behavior, therefore maintaining cognitive control.

A substantial body of literature has investigated the interdependence of cognition and motivation. This research has demonstrated a tendency for individuals to make self-attributions for own positive behavioral outcomes and external attributions for own negative behavioral outcomes (e.g., Arkin, Appleman, & Burger, 1980; Arkin, Gleason, & Johnston, 1976; Beckman, 1970; Federoff & Harvey, 1976; Forsythe & Schlenker, 1977; Harvey, Arkin, Gleason, & Johnston, 1974; Johnson, Feigenbaum, & Wieby, 1964; Luginbuhl, Crowne, & Kahan, 1975; Miller, 1976; Schlenker, 1975; Sicoly & Ross, 1977; Stevens & Jones, 1976; Streufert & Streufert, 1969; Weary, 1980; Weiner & Kukla, 1970; Wolosin, Sherman, & Till, 1973; Wortman, Constanzo, & Witt, 1973). The operation...
of self-esteem motives, or self-enhancing biases, as hypothesized by Heider (1958), and elaborated empirically by others has generally been used to explain these results. That is, as discussed in definitions above, "by taking credit for good acts and denying blame for bad outcomes, an individual may be able to enhance or protect his self esteem" (Bradley, 1978, p. 56).

Information processing model of attribution. Other interpretations of the research in this area have been made. Miller and Ross (1975), in their review of the research in this area, suggested that little evidence clearly supports a motivated attribution bias interpretation. These authors examined much of the research in the area and proposed an explanation of this phenomenon which stresses the expectancies of the subject. They discuss these findings as instances in which a subject strongly anticipates success. That is, when efforts of an individual produce an anticipated successful outcome, a perception of self control results, thus producing internal attributions for the performance. Alternatively, when a discrepancy between expected and actual outcomes is evident, the individual attributes his/her performance to external factors. In this interpretation of the data, expectancies would predict the assignment of internal/external attributions in the same manner as does self-enhancement.

Miller and Ross (1975) suggested that a logical
processing of information model rather than a self-enhancing model would better suit the results of studies cited in support of the self-enhancing bias. According to these theorists, the discrepant attributions for success and failure outcomes arise from three nonmotivated tendencies in information processing: (1) a tendency to expect success more than failure and to assign expected outcomes to internal causes, (2) a tendency to identify more covariation between behavior and outcomes in the case of increasing success than in constant failure, and (3) a tendency to erroneously base judgments of contingency between response and outcomes in terms of the occurrence of the desired outcome (i.e., success) rather than by any actual degree of contingency.

A number of studies have been designed to examine this question of expectations and contingencies (Arkin et al., 1973; Feather, 1969; Feather & Simon, 1971a, 1971b; Federoff and Harvey, 1976; Fitch, 1970; Stevens & Jones, 1976; Weary, 1980; Weiner & Kukla, 1970). The earlier studies, on which Miller and Ross based their thinking (i.e., Feather & Simon, 1971a, 1971b, Fitch, 1970, and Weiner & Kukla, 1970,) did appear to show evidence that causal attribution follows an information processing model. However, subsequent research, controlling for covariations of success, expectations, etc., has indicated that subjects made self-serving attributions regardless of expected outcomes (Arkin et al., 1976; Federoff & Harvey, 1976; Sicoly & Ross,
The information processing explanation is difficult to rule out completely simply because people do seem to have some expectancy schemata regarding success and failure on tasks in general. However, this alternative explanation can be disputed when studies are designed to control for an expected outcome, i.e., by using novel tasks, altering expectations of success/failure with instructional sets, etc. (Arkin et al., 1976; Federoff & Harvey, 1976).

**Self-serving model of attribution.** In response to Miller and Ross's article of 1975, Bradley (1978) published a further review of the empirical evidence of the field. In this article she argued against Miller and Ross's model of assigning attributions and for a broadened reformulation of the self-enhancing model. Bradley suggested that situations are important determinants of self-serving bias and that people appear to assign responsibility for the outcomes of their actions with a view to their public self-presentation in mind. Others too have argued the importance of situational determinants in self-enhancing attribution (Forsyth & Schlenker, 1977; Rose, 1966; Schlenker, 1975). These researchers have found that several rules concerning situational variables generally hold true. It appears that the likelihood and magnitude of the self-enhancing effects are greater when:

1. concerns for self-esteem are likely to be aroused (when potential for embarrassment or negative evaluation might
exist), e.g., public performance, perceived wide allowance for choice, unexpected negative outcome, high importance of trait or skill for the individual (Arkin et al., 1976; Bradley, 1978; Hakmiller, 1966a; 1966b; Rose, 1966).

(2) subjective rather than objective measures of attributes are utilized (Rose, 1966).

(3) ambiguity or variance in evaluations of individuals by others exist (Sherwood, 1967).

(4) observer is unfamiliar with actor's history (Forsyth & Schlenker, 1977).

(5) future events are seen as unlikely to invalidate actors' claims about self (Forsyth & Schlenker, 1977; Schlenker, 1975).

(6) when subjects are objectively self-aware (Duval & Wicklund, 1972; Federoff & Harvey, 1976; Schlenker, 1980).

The advantage of Bradley's formulation, i.e., self-serving bias model rather than information processing model, is that it appears to explain the failures of previous research to demonstrate a self-enhancing effect (Arkin et al., 1976; Beckman, 1973; Harvey et al., 1974; Ross, Bierbauer, & Polly, 1974). In reviewing these research studies Bradley suggested that what actually occurred was a reversal of typical self-serving attributions, i.e., taking responsibility for failures and denying responsibility for
successes, in the service of appearing more modest to the subjects' perceived audience. In other words, she hypothesized that a self-presentation motive was still in place for subjects in these studies, but it operated by taking into account what presentation subjects perceived would be considered most acceptable by the specific audience present. Another important aspect of Bradley's theory is that it implies that one's public self-presentation may have implications for one's private perception of causal attribution. That is, if individuals are motivated to maintain a self-enhancing public presentation to establish and sustain the esteem of others, it seems possible that this motive is also related very closely to private self-esteem and one's perceptions of self-adequacy. Questions can begin to be asked about how public self-presentation and private self-evaluation processes are interrelated.

Information processing versus self-serving bias. Miller (1978) wrote a rebuttal to Bradley's attempt at reformulation of the self-enhancement model, in which he criticized both aspects of Bradley's formulation discussed above. First, he criticized as over-inclusive her endeavor to explain attribution reversal patterns as self-enhancing presentation strategies. Miller argued that a theory which could explain an actor's acceptance of either more or less responsibility for action as self-serving was not a useful explanatory device. Secondly he charged Bradley with confounding the two
Miller distinguished between a person's private perception of causality and the public description of such, judging these to be two separate aspects of the attribution process, the former of which Miller judged to be the more significant phenomenon.

Bradley, now married and publishing under the name of Weary (1979), responded to Miller's criticism by clarifying conditions under which causal attributions would be expected for self-presentation purposes. In defense of her treatment of public versus private causal attributions, Weary responded that there may be many points during the attribution process at which bias could occur. The evidence is minimal, she stated, to support the conclusion that private perceptions rather than public descriptions of causality are affected by self-enhancing motivation. On the other hand, the extent to which public presentations may later affect personal perceptions of causality is unknown. Her belief was that biased response strategies should be the central concern of current research.

The argument between Miller and Weary has been joined on both sides by theorists attempting to develop theoretical explanations of the self-enhancement phenomenon. Several authors have made efforts to develop theoretical explanations of the self-enhancement phenomenon which address these
issues. Such theoretical explanations can be divided generally into two opposing schools of thought. The first school subscribes to what is known as a theory of the "self esteem motive" (Rosenberg, 1979; Sherwood, 1967). A number of theorists agree that self-enhancement is a behavior engaged in to maintain or to increase individuals' amount of self-esteem. Jones and others (Gergen, 1971; Jones, 1973) are of the opinion that self-enhancement behaviors serve to confirm, maintain or increase individuals' feelings of personal satisfaction, self-worth and effectiveness. Such behaviors thereby maintain or increase self-esteem in providing an exemplary image of self to self. These behaviors may function to protect the self from acknowledging unpleasant self-truths (Secord & Backman, 1964; Snygg & Combs, 1949). As such, self-enhancement occurs primarily for private rewards, i.e., high self-esteem is in itself pleasurable and rewarding.

Other theorists see self-enhancement slightly differently. These theorists could be described as self-presentation theorists (Weary & Arkin, 1980). Schlenker (1975; 1980) describes self-enhancement as an impression management behavior designed to gain social approval or avoid social disapproval. Rose (1966) hypothesized that a demand for self-enhancement exists in social life. In other words, society requires a presentation of respectable selves and demands that an individual maintains such a self in social
interaction. As a result, individuals are forced to role play or "dramatize" a self-confident, competent self in order to achieve social approval and acceptance, and thus maintain or increase self-esteem. Self-enhancement then becomes a type of public presentation or act (Goffman, 1959). The argument between these two theoretical viewpoints has not been clearly resolved.

Recent research in self serving bias models of attribution. Since the Weary and Miller debates, a number of studies have been conducted to clarify aspects of self-serving bias. As was predicted by Weary, several studies have found that subjects are more likely to demonstrate self-enhancing behaviors under public than under private conditions (Arkin, Appleman, & Burger, 1980; Reiss, Rosenfeld, Milburg, & Tedeschi, 1981; Weary, 1980; Weary, Harvey, Perloff, Schweiger, & Olson, 1979). Other studies have confirmed that focus of self-awareness plays an important part in making self-serving attributions (Bergen & Rodman, 1983; Hull & Levy, 1979; Reiss et al., 1981). Another segment of research has looked at personality variables and the ways in which these affect self-enhancing phenomena (Arkin et al., 1980). A fourth area of study has investigated the relationship between making self-enhancing attributions and subsequent emotional states (Jones, Berglas, Rhodewalt & Skelton, 1981; Weary, 1980). The important unifying characteristics of all these studies are that the
findings support the predictions made previously by Rose, Schlenker and Weary above and the results of these studies seem to fit better with a self-enhancing rather than information processing model of causal attribution. Furthermore, some of these studies appear to show an interaction of self-esteem and self-presentation motives (Jones et al, 1981; Weary, 1980).

An Aspect of Social Comparison Theory: Superior Conformity of Self

As discussed above, aspects of self-enhancement phenomena have been studied not only in attribution research but in many other areas including the area of social comparison. Thus, it should not be surprising to see attribution and social comparison processes joined in a further investigation of self-enhancement phenomena:

A fundamental commonality between social comparison theory and attribution theory is that both discuss phenomena that grow out of a common human need. That is the need, discussed by Heider (1944), for the individual to order and predict his environment so that he can act effectively in it and maximize his outcomes. Whereas attribution theory discusses the general rules that the individual follows in order to make attributions of causality that facilitate the prediction of objects and persons, social comparison theory considers the interpersonal processes that are involved in the individual's efforts to evaluate his predictions about objects and persons (his opinions) and his predictions about his capacity to act effectively with respect to these entities (his abilities)...(Goethals & Darley, 1977; p. 262).

It should be intuitively obvious that self-enhancement phenomena, like self-esteem, derive from comparison with some
criteria. Without a standard with which to compare, no one can differentiate his characteristics or decide if his traits, etc., are greater, lesser, similar to or different from anyone else's. Goethals and Darley speak to this issue in their further discussion of the commonalities between attribution and social comparison theory:

In addition to their common basis in people's needs to order and predict their environment and their own behavior in that environment, both theories emphasize that one's perceptions of the adequacy of his opinions and abilities is determined by comparing himself with other people. This emphasis is explicit in social comparison theory. We evaluate our abilities by seeing how our performances compare with other people's performances. We evaluate our opinions by seeing whether others agree or disagree... (Geothals & Darley, 1977; pp. 262-263).

The present study addresses how these comparisons are made.

Research studies of self-enhancement are by no means new in social comparison literature. A review of this literature suggests an early interest in various aspects of self-other, self-ideal comparisons (Blake & Mouton, 1961; Fillenbaum, 1961; Hinckley & Rethingshafer, 1951; James, 1890: Marks, 1943; Reeder, Donohue, & Biblarz, 1960). Although not referred to in the literature as self-enhancement at that time, these studies show many similarities of variables investigated. More recent studies in this area include investigations by Bowerman (1975), Codol (1975), Friend and Gilbert (1973), Gruder (1971), Hakmiller (1966a, 1966b), Rose (1966), Singer (1966), and Thornton and Arrowwood (1966). A good review of the literature in this area, with particular
attention to how it relates to attribution theory in general appears in a book by Suls and Miller (1977), entitled *Social Comparison Processes*.

Leon Festinger has been the primary theorist in the area of social comparison and it is from his theory that most of the studies above derived. Festinger presented a formal theory of the workings of social comparisons (1954). According to him, "There exists, in the human organism, a drive to evaluate his opinions and abilities" (Hypothesis I, 1954, p. 117). Moreover, in evaluating these opinions and abilities, people seek objective criteria, what Festinger calls *physical reality*. However, in the absence of objective criteria against which to measure, individuals will seek out other people as sources of information, i.e., *social reality*. Additionally, in seeking out evaluations of abilities, people have a preference for what the examination should reveal (Suls, 1977). People not only want to know how well they have done in some area but that they did indeed do well. These two goals are explicit in the notion of a unidirectional drive upward for abilities postulated by Festinger (Hypothesis IV, 1954, p. 124, "There is a unidirectional drive upward in the case of abilities which is largely absent in opinions"). Thus it has been inferred that two motivations underlie the making of social comparisons. Thornton and Arrowwood (1966) refer to these as self-evaluation and self-enhancement.
Further, according to Festinger's theory (1954), "The existence of a discrepancy in a group with respect to opinions or abilities will lead to action on the part of [individual] members of that group to reduce the discrepancy" (Hypothesis III, Derivation D, p. 124). Therefore, according to Festinger, because individuals have a unidirectional upward drive to improve abilities, each member will be motivated to improve his or her abilities either behaviorally or perceptually. This can be seen as a problem of self-evaluation and self-enhancement. Festinger hypothesized that both needs could be fulfilled if the individual improved to the point that he was slightly better than other members of the group. But as is obvious, not everyone can be slightly better than everyone else. How this dilemma might be solved has been addressed in the writings of French psychologist, Jean Paul Codol (1975).

**Superior conformity of self.** Although not well known in the United States, Codol's work with the superior conformity of self concept has further contributed to our knowledge in the subarea of social comparison research traditionally known as self-enhancement. His conceptualization of the phenomenon is interesting and worthy of examination by those who wish to further understand the process of self-enhancement.

The superior conformity of self concept is defined by Codol as follows:

For a given set of individuals there is generally a
strong tendency for each one to assert that he conforms more closely to the norms prevailing in this set (as norms are perceived or experienced) in the whole than do other participants. The greater the degree of normativeness, the stronger will be this tendency (Codol, 1975, p. 463).

Codol also refers to this phenomenon as the primus inter pares—first among peers or equals or PIP effect for short. However, the term PIP (acronym) effect is a convenient linguistic distortion. The superior conformity of self phenomenon does not really consist of presenting oneself without exception as the first in the group. This would indicate a superlative description. It more accurately consists of presenting self as more than others which is a comparative not a superlative self-description.

In his writings, Codol (1975) discusses the two concepts, self-enhancement and superior conformity of self and explains how he sees them to differ:

In the light of results obtained in preliminary experiments, it was plausible to view the superior conformity of self phenomenon as a simple manifestation of the well known self-enhancement phenomenon. In our opinion, although [based on more research] self enhancement is a component of the PIP effect, it would be inaccurate to perceive the two phenomenon as identical. Strictly speaking, self enhancement refers only to the process whereby subjects attribute to themselves features that are positively valued. Hence, it does not imply, inherently, any comparison to others, or a fortiori, any denigration of others in comparison to self. (Many studies even tend to show, on the contrary, that self enhancement and enhancement of others goes hand in hand, cf. Wylie, 1961). However, the existence of a comparison process between oneself and others is a crucial feature of the superior conformity of self hypothesis. According to this hypothesis, by tending to present oneself as being more in conformity with social norms than others, each
individual enhances himself not only in terms of those norms, but also in terms of others (p. 481).

With these words, Codol created a new distinction not previously made, separating the self-presentational aspect (see Baumeister, above, p. 6) from the social comparison aspect in self-enhancement. Such a distinction implies that two processes may occur simultaneously:

a) a claiming of congruency to social norms or idealized self-concept for self (ego serving self-presentation seen in attribution research as described above)

b) a self-other comparison process in which individuals are biased to see themselves in a flattering way with regard to others (labeled as Superior Conformity of Self by Codol).

The advantage of Codol's distinction is that it gives a more complete conceptualization of the phenomenon known in attribution and social comparison theory as self-enhancement which takes into account both self-presentation and self-comparison processes. Codol's conceptualization of a difference between self-presentation behavior and self-other comparison leads one to speculate about how the two relate to one another. It is the purpose of this study to investigate this relationship.

A history of research of the superior conformity of self effect. A review of the history of Codol's work may help increase the reader's understanding of his viewpoint. The
PIP effect was accidentally discovered by Codol in 1969. At that time, Codol was performing an experiment designed to determine ways in which conception of task requirements affect actual task behavior in groups (cited in Codol, 1975).

During an experiment in group cooperation, each member demonstrated a notable tendency to consider himself or herself more cooperative than he/she saw the other members of the group to be (more cooperative in fact than external criteria showed individuals to be). In a later related experiment, Codol (1972) found similar results, i.e., where creativity or methodism was the operating norm, each group member tended to regard self as more creative or methodical than he/she saw other members of the group to be.

Curious about these findings, Codol performed a series of studies to describe the nature of this effect. In preparing to investigate this area thoroughly, Codol mapped out three areas of focus for study (Codol, 1975):

(1) Effects on self-other comparisons by type of reference group employed (real groups or abstract, imaginary groups);

(2) Effects on self-other comparison by norms (type of norm, i.e., factual or desirable; applicability of norm, i.e., for concrete implementation or as a guideline; formulation of norm, i.e., formulated by subject or imposed by researcher); and

(3) Effects on self-other comparison by manner in which
comparison is conducted (number in sample to be compared; familiarity with others; direct or a posteriori comparison).

From this conceptualization, Codol proceeded to conduct his research in groups or topic sets. Before a review of the studies is presented, it seems important for the reader to become familiar with two terms: norms and reference groups. According to Codol (1975),

The manner in which each individual compares himself to others is a function of the social norms which prevail in the situation simultaneously involving himself and others (p. 458).

Further, a norm can express both:

(1) a factual situation that is customary (ordinary, regularly occurring in a majority of cases) in a social entity (group, society) or in a given situation. We shall designate this a 'factual' norm.

(2) An ideal situation that ought to prevail. Whether it serves as a goal or model, a norm in this sense has social value within the framework of a given culture. We shall call this a desirable norm (p. 459).

As conceptualized by Codol,

In both cases we are dealing with objects that have a social value from a certain point of view. It is perfectly obvious that this social valuation is derived from different sources and has a different meaning for factual and desirable norms. But this makes no difference here at all since our hypothesis established a relation between the way each compares himself to others and social norms irrespective of the type used (p. 460).

A reference group, referred to by Codol briefly as a "set of individuals sharing a type of common characteristic" (1975, p. 462), can be further elaborated as any group to which
the individual belongs or would like to belong, and which he or she uses as source of norms or behavioral standards (Baron & Byrne, 1984). Moreover, Codol (1975) states that:

These sets of individuals...may represent the outcome of a purely cognitive categorization process...which has only imaginary or symbolic reality or they may represent a concrete material reality (p. 460).

Let us return to Codol's research to see how these concepts are used by him. In the first set of studies, the nature of normative expectations was explored. Codol discovered that, regardless of reference group, type of norm or type of comparison used, the following statement holds true: The more normative a given item or trait is considered by the subject for the reference group, the more this subject tends to state that this item or trait characterizes himself/herself more than others (series of studies cited in Codol, 1975).

A second set of studies conducted by Codol in 1975 reviewed the effects of conflicting norms on subjects. In these studies, task instructions were subtly manipulated to switch task norms (cooperative to competitive or vice versa) midway through group problem solving tasks. This mid-task switch resulted in a conflict of task expectations for subjects (cited in Codol, 1975). The findings of these studies show that when conflicting norms are present in group tasks, subjects refer to the norms most relevant at any one time in adoption of PIP effects. An interesting side note to the research in conflicting norms--when a norm of competition
was established for group members, individuals were resistant to declaring themselves as more competitive than their fellows. Codol hypothesized that a general cultural value "condemning" competition influenced group members. He warns that studies of PIP effects should take into consideration cultural as well as situational norms (Codol, 1975). The research of Sigall, Aronson and Van Hoose (1970) yielded similar results. Their study indicated that subjects try to present themselves in the most socially acceptable light and manipulations which force a subject to choose between what is socially acceptable and what the experimenter wants them to demonstrate are likely to meet with failure.

A third series of studies by Codol examined the effects of generalized other versus specific other as a comparison standard. The studies give evidence that PIP increases when generalized rather than specific others are used for comparison (studies cited in Codol, 1975).

Theory behind the PIP effect. After reviewing the findings of such studies, Codol further explained the PIP effect as a conflict between two elements, i.e., the desire to please and the determination to preserve one's identity. That is, first, individuals are seen to assert their conformity to norms prevailing in their reference group in order to present a favorable image of themselves and thereby gain approval and maintain self-esteem. Second, and simultaneously, because of this need to display conformity to
the reference group in order to be accepted, reference groups might be experienced as a source of anxiety by everyone. Such groups may present a pressure to conform which makes them seem capable of violating personal identity and diminishing self autonomy. Superior conformity of self seems, according to Codol, the only way to preserve oneself as different from others without infringing on one's conformity to social norms or sacrificing self-esteem (Codol, 1975).

What is the significance of Codol's theory of social comparison? First of all, Codol's theory of superior conformity of self appears to explain what factors may cause Festinger's unidirectional drive upward to evaluate abilities (Festinger, 1954), or at least better explains how such a drive might work. Much research has been directed toward demonstrating this unidirectional drive, but no one has offered an explanation for its existence previously.

Second, Codol's theory emphasizes and clarifies the roles that social norms and self-other comparison play in helping the individual make causal attributions for success and failure in social situations. Internal or external causal attributions for success and failure may well depend at least in part on the type of social norm(s) in place at the time as well as the importance attached to the norm(s) by the individual involved.

Third, research findings stemming from Codol's
theoretical framework in social comparison show some interesting similarities to previously discussed findings in the self-enhancement attribution research area. Like Bradley (1978) and Schlenker (1980), Codol saw individuals as needing approval from others in order to maintain self-esteem. Also, Codol reported that by increasing self-esteem issues, i.e., importance of norm present, one can increase the extent to which the individual shows himself in a positive light. That is, the more anxious the individual is to be seen as socially accepted in some situation, the more likely he is to claim self-superiority over others regarding relevant norms, within certain limits. This parallels findings in attribution research where claiming of responsibility for success and denying of responsibility for failure seems to vary in predictable ways which depend on the social motives of the individual to maintain social approval and self-esteem. Similarly, Codol found that ambiguity in self-other comparisons increases the likelihood of superior conformity of self comparisons, just as ambiguity in the evaluations of individuals by others increases the likelihood of self-enhancing evaluations on success and failure tasks. Therefore, considering these similarities, it seems reasonable to hypothesize that PIP effects ought to covary in a predictable manner with self-enhancing attributions. No research has appeared in this area to date.

A disadvantage of Codol's theorizing is his failure to
address public versus private aspects of self-presentation as it affects his theory. In other words, if the PIP effect is due to a need to present a favorable image of self to others in order to gain social approval, as discussed above by Rose (1966), Schlenker (1975) and Weary-Bradley (1978) above, then in anonymous conditions this effect should be reduced or eliminated, just as it is predicted that internal/external attributions for success/failure will be less self-enhancing in conditions of anonymity.

In regard to the variable of social approval, Codol did report findings from one study. In a study of 90 college students, comparing measures of PIP and MMPI scores, he found a strong tendency for superior conformity of self to be associated with a drive to present self in a favorable light. He also found a tendency for inferior self-comparison which appeared to be associated with an absence of desire to present self in a positive social light (cited in Codol, 1975). He does not discuss this finding, however, either in terms of trait qualities such as need for social approval or in self-presentational terms.

**Need for Social Approval**

As previously discussed, it is possible that self-enhancement and superior conformity of self phenomena are public self-presentations aimed at gaining social approval from others (Bradley, 1978; Codol, 1975; Forsyth and Schlenker, 1977; Rose, 1966). Other theorists appear to
see these behaviors to be a more private self-presentation, aimed at maintaining one's own positive view of self, rather than at seeking approval from others, although approval seeking might be a secondary motive (Gergen, 1971; Heider, 1958; Secord & Backman, 1961; 1964). To understand self-enhancement attributions and superior conformity of self comparisons fully, one must come to understand what conscious or unconscious motives cause the behaviors. The present study proposes to answer the question "Are self-enhancement phenomena and PIP effects the result of public self-presentation, private esteem maintainance, or a combination of both processes?" In order to answer this question a review of the developments in the study of need for approval is needed.

Early research in the area of social desirability. The concept of social desirability has been a topic of study since 1953, when Edwards (1953) first reported a correlation of .87 between scaled social desirability of an item's content and the frequency with which the item is endorsed. Early in this research, the concept of a need for social approval was a rather vague and general one, characterized by the term social desirability. An early definition by Marlowe and Crowne, 1961 states:

Social desirability [is a concept which] refers to a need for social approval and acceptance and the belief that this can be attained by culturally acceptable and appropriate behaviors. In a psychometric situation, a high need for social approval would be inferred from a
person's attributions of culturally approved statements about himself and the denial of culturally unacceptable traits (p. 109).

The person less motivated by a need for social approval might, in a testing situation, acknowledge certain symptoms, reject them as personally irrelevant, or present other test responses, depending on such factors as the strength of his present needs, the kind of responses required and the nature of test stimuli (pp. 109-110).

Social desirability, as a term, became the label for the measurement of need for social approval, based on the idea that the given social desirability or attractiveness of a word or trait is that which causes individuals to endorse or disclaim it. Therefore, studies purporting to measure need for approval were referred to as social desirability or need for approval studies. Instruments designed to measure such constructs have been known as social desirability inventories.

The early research in this area viewed social desirability as a response set, or "a conscious or unconscious desire on the part of a respondent to answer in such a way as to produce a certain picture of himself" (Rorer, 1965, p. 133). Such studies related social desirability "set" to performance on psychological inventories (Bendig, 1959; Edwards, 1953; Edwards, Diers, & Walker, 1963; Messick & Jackson, 1962) and to various aspects of clinical populations (Wahler, 1958). A weakness in this early research was the lack of adequate measures to determine the actual presence or absence of traits, characteristics, or
symptoms that are denied by the individual. Clearly, a need for social approval would not necessarily be implied by the failure to attribute socially disapproved characteristics to self when these characteristics are not actually descriptive of the individual.

Later research in the area began to conceptualize social desirability as not merely a test taking behavior but as a pervasive personality characteristic (Crowne & Marlowe, 1961, 1964; Crowne & Strickland, 1961; Dixon, 1970; Mosher, 1965; Strickland & Crowne, 1962). The concept of social desirability was studied in terms of motivation of subjects to dissemble on personality inventories and the relevance of this motivation to behavior in other nontest situations (Allison & Hunt, 1959; Crowne & Marlowe, 1964; Mosher, 1965; Strickland & Crowne, 1961; 1962). New scales were developed to measure need for approval. These instruments were designed in such a way that endorsement of a socially desirable item was at the same time the endorsement of an item highly unlikely to occur in a normal population distribution (Crowne & Marlowe, 1960; Dickens, 1963). Therefore, a high score in one of these scales served to indicate a need to seek approval rather than an endorsement of real traits or behaviors. Two excellent reviews of the literature in this area are Brannigan (1977) and McGee (1962).

The studies in the area of social desirability have
shown need for approval to be associated with the following behavioral dimensions as discussed by Brannigan (1977):

(1) **Sensitivity**—Subjects high in need for social approval are highly responsive to positive and negative social reinforcers in conditioning paradigms (Crowne & Strickland, 1961; Dixon, 1970; Marlowe, 1962).

(2) **Conformity**—Subjects high in need for social approval show greater conformity to situation and peer expectations (Horton, Marlowe, & Crowne, 1963; Klein, 1967; Strickland & Crowne, 1962).

(3) **Defensiveness**—Subjects high in need for social approval tend to repress or deny information presented to them, when such information contains unfavorable evaluations or creates a situation in which the subject must engage in self-denigrating behaviors (Allison & Hunt, 1959; Barthel & Crowne, 1962; Block, 1962; Feder, 1963; Mosher, 1965; Strickland & Crowne, 1963; Taylor, 1970).

**Changes in the direction of need for approval research.** More recently, studies in this area have tried to differentiate more adequately what need for social approval actually entails. One approach has focused on attribution and denial responses to self-report items (Millham, 1974; Millham & Jacobsen, 1974). Attribution responses involve claiming socially desirable characteristics for self; denial responses involve denying that undesirable characteristics
apply to self. Several factor analytic studies of the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) were conducted to determine if subscales of attribution and denial items tapped different constructs (Millham, 1974; Millham & Jacobsen, 1974; Jacobsen et al., 1977). The findings indicated that attribution and denial components are equivalent measures of the same construct (Spearman Brown correlations showed .85, .89; Kuder Richardson 20 was .90 for the entire test; Ramanaiah & Martin, 1980; Paulhus, 1984). The case for separate attribution and denial components in social desirability ratings appears weak.

Another approach to analyzing socially desirable responding focusses on distinguishing self-deception, where the respondent actually believes his/her own positive self-report, from impression management, where the respondent consciously seeks to represent him/herself in a favorable light. This distinction was discussed in early articles by Frenkel-Brunswik (1939) and Meehl and Hathaway (1946). More recently Sackheim and Gur (1975; 1978) have referred to this distinction as self deception and other deception.

This two factor model of socially desirable responding has been linked to a number of factor analytic studies showing that social desirability scales tend to cluster around two distinct factors: Alpha, a factor representing an unconscious bias in self reports, and Gamma a factor showing deliberate falsification of self reports (Block, 1965;

Self report instruments designed specifically for measuring self and other deception have recently been developed by Sackheim and Gur (1975; 1978). The Self-Deception Questionnaire (SDQ) and the Other-Deception Questionnaire (ODQ) are rationally developed scales, each containing 20 Likert scale items. The SDQ items are statements judged to be universally true but psychologically threatening. The ODQ items are questions about socially desirable but statistically infrequent behaviors. Convergent and divergent validity of the scales have been demonstrated in a series of experimental and correlational studies (Gur & Sackheim, 1979; Paulhus, 1982; Sackheim and Gur, 1978; 1979). Reliability is about .81 (Sackheim & Gur, 1979). Studies conducted by Paulhus (1984) show that the items on these scales are much better represented by the two factor model of self-other deception than by the attribution denial model. When SDQ and ODQ were factor analyzed with other measures of social desirability, i.e., Edwards SD scale and the Marlowe-Crowne scale, the self-deception/impression management model more accurately represented the factors of the SDQ and ODQ than did the attribution/denial model. Moreover, of the six scales investigated in the third part of Paulhus's study, the ODQ was the best marker of impression management in the exploratory factor analysis conducted, and
the SDQ was the best marker of self deception. Furthermore, many individual items from the SDQ and ODQ were the highest loading items on their respective factors (Paulhus, 1984).

Further research was conducted on the ODQ and SDQ by Paulhus (1984). He found that the ODQ, constructed to measure impression management behaviors, was highly sensitive to changes across public versus private disclosure conditions. The ODQ showed significantly higher scores in public than in anonymous conditions. The SDQ or self deception measure was not found to show much difference across public or anonymous conditions. Paulhus concluded that by using the ODQ and SDQ scales, separate reliable, valid measures of impression management and self deception can be obtained for each subject.

Returning to the Marlowe-Crowne Social Desirability Scale (1960) for a moment, Paulhus found in his factor analytic studies that this scale loaded strongly on both self deception and impression management factors. This dual loadings pattern has been found in prior studies of factor analyses of the Marlowe-Crowne Scale (Edwards & Walsh, 1964; Liberty, Lunneberg, & Atkinson, 1964; Wiggins, 1964) and confirms that this scale taps both aspects of social desirability responding.

As discussed by Paulhus and others (Brannigan, 1977; Paulhus, 1982; 1984), the Marlowe-Crowne Scale has demonstrated behavioral correlates more clearly than any of
the other social desirability scales previously developed (Crowne & Marlowe, 1964; Millham and Jacobsen, 1978; Strickland, 1977). It is possible that both impression management and self-deception tendencies are necessary to demonstrate need for social approval behaviors and the Marlowe-Crowne Scale has shown that it taps both tendencies. Paulhus discussed the usefulness of having two separate scales (as the SDQ and ODQ) which index the two components separately but which can be combined to provide a single index of social desirability responding (Paulhus, 1984). Because these two scales lend themselves to this possibility, they were chosen for use in the present study.

How are the factors of self-deception and other-deception related to the present study? First, if self-enhancement attributions and superior conformity of self comparisons are manifestations of impression management phenomena, designed to gain social approval, direct positive relationships should be found to exist between ODQ scale scores and each of these behaviors engaged in by subjects in the study. Second, if self-enhancement attributions and superior conformity of self comparisons are manifestations of a private need to maintain positive self-esteem, then strong positive relationships should be found to exist between SDQ scale scores and each of these behaviors engaged in by subjects, and, in addition, little change should be seen in these behaviors in varying public and anonymous
conditions. Third, if as Paulhus has speculated, SDQ and ODQ measures can be combined to measure need for approval, examinations of the correlations between the two scale scores taken together and the other behaviors of interest may lead to further knowledge about the relationships between these variables. Such information may allow conclusions to be drawn about subjects' other characteristics, based on what is currently known regarding those who show high need for social approval.

Self-Awareness: Research and Methodology

In the discussion of self-enhancing attribution research above, several references were made to findings which suggested that focus of self-awareness affects the manner in which self-enhancing attributions are made. Research has indicated that individuals' behaviors depend on which of two states of self-awareness predominates at a particular moment in time (See Arkin et al., 1980; Bergen & Rodman, 1983; Duval & Wicklund, 1972; Federoff & Harvey, 1976; Hull & Levy, 1979; Wicklund, 1975). Duval and Wicklund (1972) proposed that two states of self-awareness exist: objective and subjective. **Objective self-awareness** corresponds to the me state: "When attention is directed inward and the individual's consciousness is focussed on himself, he is the object of his own awareness—hence 'objective' self-awareness" (Duval and Wicklund, 1972, p. 2). **Subjective self-awareness** corresponds to the I state: "When attention is directed away from himself
he is the 'subject' of the consciousness that is directed toward external objects, thus the term 'subjective' self awareness" (p. 2). Duval and Wicklund proposed that a person can be in only one of these states at any moment, although one's awareness can change rapidly back and forth between states.

According to Duval and Wicklund, self-focus produces comparisons within the individual of self versus ideal self behaviors and states, because the individual's focus is on self. Such comparisons lead to positive or negative affective states, depending on the individual's perception of the self versus ideal self comparison. Such states result in motivation to maximize pleasant and minimize unpleasant feelings, therefore resulting in self-enhancing causal attributions in cases where individuals are faced with positive or negative feedback regarding own performance.

Hull and Levy (1979) have an alternative explanation of how objective self-awareness operates. According to Hull and Levy, when people are in a state of objective self-awareness, they are more sensitive to self-relevant aspects of their environment, including the evaluative aspects of their behavior. They focus on how their actions will look to others and show concern for their appearance before real or imagined audiences. It appears in Hull and Levy's formulation of the problem that objective self-awareness produces a noticeable social perspective to
categorize and evaluate self. As might be predicted from either explanation of the phenomenon, research devoted to study of self-enhancing attributions has found that by inducing an objective state of self-awareness, subjects tend to increase their tendencies to take responsibility for positive outcomes and deny responsibility for negative outcomes. Such an effect has been found to be more pronounced under public than private conditions (Arkin et al., 1979; Federoff & Harvey, 1976).

As discussed above, Duval and Wicklund disagree with Hull and Levy about the nature and operation of the effects of focussed self-awareness. Duval and Wicklund (1981) suggest that objective self-awareness generates self-evaluation that is motivated to evaluate self in regard to the ideal self and results in a motivation to present self in the most positive light across situations. Hull and Levy (1979) suggest that focussed self-awareness is simply an altered cognitive set where people organize and interpret information from the standpoint of its self-relevance and in the context of the occurrence of the behavior. Therefore, a public context should involve more impression management behaviors by a subject than a private context because the environmental constraints of others' impressions are absent in private contexts.

If on the one hand, Duval and Wicklund's explanations of objective self-awareness are accurate, self-enhancing
attributions under objective self-awareness/anonymous conditions should be nearly equal to that of public conditions, for people should be concerned with self-ideal discrepancies equally under anonymous or public conditions. On the other hand, if Levy and Hull's explanations are more adequate, people ought to engage in self-enhancing attributions to a lesser degree in anonymous (private) versus public conditions, approaching if not equaling subjective self-awareness/anonymous conditions. Furthermore, an examination of subjects' SDQ and ODQ scores should be very interesting, for such an examination may show that attributions made in a state of objective self-awareness are associated more strongly with impression management, self-deception, or some combination of the two.

Self-awareness has been induced by the presence of mirrors (Wicklund & Duval, 1972), tape recordings (Sackheim & Gur, 1978), and video recording cameras (Federoff & Harvey, 1976). It was decided to use mirrors in the present study because of their ease in fitting into the experimental situation without modification of the experimental setting and their ability to induce self-focus without sacrificing subjects' perceived anonymity.
CHAPTER 2

Rationale for Present Study

Attribution for Performance Outcomes

Since one's ideas include what "ought to be" and "what one would like to be" as well as "what is," attributions and cognitions are influenced by the more subjective forces of needs and wishes as well as by the more objective evidence presented in the raw material (Heider, 1958, pp. 120-121).

One is inclined to attribute to oneself good things, but one suffers when one has to attribute to oneself something that is not so good (Heider, 1976, p. 16).

The central focus of attribution theory in general is the search to identify rules which individuals use to infer causes of events that they observe around them. Attribution theory arose from the study of person perception, particularly from the work of Fritz Heider. Heider's theory was concerned with the relationship between phenomenal causality—the underlying or antecedent conditions that give rise to a perceptual experience, and the perception of social objects and events. In Heider's thinking, a social occurrence (object of event) will not be perceived by an observer in factual or objective fashion but will be interpreted in consonance with the observers' past experiences and present needs.

These perceptual processes, Heider speculated, serve two
functions: (1) to form a coherent understanding of the events around us, and (2) to predict and control events through this understanding. In the process of explaining events which are witnessed, the naive observer constructs and uses his/her own individual predictive theory of human behavior. Such "naive psychology" permits the formation of judgments about the extent to which the behavior of the observed individual is being guided by internal dispositional factors, external situational factors or a combination of both. Furthermore, according to Heider, an individual's selection of a causal attribution will be guided by his/her own needs and expectations as a person. The operation of a self-serving motive in attribution processes can be seen as a logical result of a preference to explain our behavior in the best possible light, given our need to maintain self-esteem and control over our environment.

A substantial number of research studies have investigated the interdependence of cognition and motivation. This research has demonstrated a tendency for individuals to make self-attributions for own positive behavioral outcomes and external attributions for own negative behavioral outcomes (e.g., Arkin, Appleman, & Burger, 1980; Arkin, Gleason, & Johnston, 1976; Federoff & Harvey, 1976; Forsyth & Schlenker, 1977; Weary, 1980; etc.).

As research has proliferated, differing viewpoints regarding the process have arisen. One viewpoint (Miller &
Ross, 1975) stresses a nonmotivational, information processing attributional analysis. Their approach suggests that divergent attributions following success and failure outcomes stem from the attributer's initial mistaken conceptions regarding the nature of contingency. It is argued that one expects that persons generally intend to succeed when they attempt a task. A successful outcome therefore suggests a high degree of personal effectiveness and results in an internal attribution of causation. On the other hand, the same assumption regarding expected success leads to external attribution for failure outcomes. If an individual intends to succeed, but fails, the inference is drawn that the outcome has been caused by some outside influence. Thus, a logical error in information processing is in fact at the base of the self-enhancing attribution.

An opposing viewpoint advocated by Weary (Bradley's married name) and others (Forsyth & Schlenker, 1977; Rose, 1966; Schlenker, 1975; Weary, 1978; 1980) considers the attribution process to be motivationally determined. According to this model, attributions for performance serve to protect and/or enhance self-esteem for the attributer and thus are subject to motivational biases rather than strict rational determination. Research findings in this area have found that self-enhancing attributions are made by subjects regardless of expectation about their own likelihood of success or failure on a task (Arkin, et al., 1976; Federoff &
Harvey, 1976; Sicoly & Ross, 1977; Weary, 1980). Thus it seems as though Weary's model of self-enhancing attributions is the more accurate in conceptualizing this phenomenon.

Theorists who subscribe to the motivational view of causal attribution are divided in making explanations of the self-enhancement phenomenon. One camp can be said to ascribe to the theory of the "self-esteem motive" (Rosenberg, 1979; Sherwood, 1967). Jones and others (Gergen, 1971; Jones, 1973) hypothesized that self-enhancement behaviors maintain or increase self-esteem by providing an exemplary image of self to one's self. Such behaviors may be useful in protecting the self from unpleasant self truths. In this view, high self-esteem is intrinsically rewarding to the self.

A second camp of theorists might be labeled "self-presentation" theorists (Weary & Arkin, 1980). In this conceptualization, self-enhancement is viewed as an impression management behavior designed to gain social approval or avoid social disapproval (Rose, 1966; Schlenker, 1975; 1980; Weary, 1979; 1980). Self-enhancement then is viewed as a type of public presentation (Goffman, 1959).

Recent research has tended to support the view that self-enhancement is a behavior designed to manage a public presentation of self (Arkin, et al., 1980; Reiss, Rosenfeld, Melberg, & Tedeschi 1979; Weary, Harvey, Perloff, Schweiger, & Olson, 1979). If self-presentation theory accounts for
self-enhancement phenomena, then it would follow that self-enhancement should be associated with the need to show public impression management. A positive relationship should be shown between tendency to self-enhance and tendency to present oneself in a positive light to others. On the other hand, if the self-esteem motive theorists are correct, a relationship should be found between self-enhancing behavior and tendency to defend self from certain unpleasant truths about self, i.e., self-deceive, independent from awareness of audience presence. In the latter case, the presence or absence of audience ought to have little or no effect. It could of course be that self-enhancing behaviors result from a function of both motives. In this circumstance, a more complicated relationship should result.

Social Comparison Theory: Codol's Superior Conformity of Self Theory

Concurrent with the research in self-enhancing attribution in the U. S., Codol in France was conducting somewhat parallel research in the area of social comparison theory (Codol, 1975). The subject of his study was designated by Codol as the superior conformity of self phenomenon (abbreviated by Codol as PIP, from primus inter pares, first among equals). Superior conformity of self, according to Codol, is the tendency for an individual to assert that he/she conforms more closely to the set of norms prevailing in a given situation than do other participants in
the same reference group. In other words, Codol reported a type of social comparison phenomenon which seems similar to certain aspects of self-enhancing attribution research.

Through an extensive series of studies, Codol was able to establish the conditions under which such claiming of self superiority could be demonstrated. Similar to conditions needed to produce self-enhancing attributions, Codol found that tendency to present self as superior could be increased by raising concerns for self-esteem. Codol found that by increasing importance of norm or reference group for individual, by producing ambiguity in the comparison group (by using generalized rather than specific other for comparison standard), by using more subjective rather than objective measures of attributes, and by varying the amount of familiarity between actor and observer in the experiment tendencies to increase superior self comparisons increased (Codol, 1975).

Codol made some interesting speculations about the need for individuals to make superior conformity of self comparisons in order both to conform to the requirements of a reference group and yet to maintain a separate identity. Furthermore, and more importantly to the topic at hand, Codol suggested that superior conformity of self behaviors are related to need for social approval, i.e., the more important it is to be socially accepted in some situation, the more likely the individual is to claim superior self comparisons
in that situation, given certain conditions. Moreover, Codol reported findings that suggest that need for social approval covaries positively with tendency to engage in superior self comparisons.

Codol did not discuss in his work whether superior self comparisons could be expected to vary with audience conditions. He gave no indication whether self comparisons could be expected to be equal or to vary in some way across private versus public conditions.

If, as it appears, self-enhancing attributions and superior conformity of self comparisons are parallel features of the same phenomenon, i.e., desire to appear good to self and/or others, then it can be predicted that a strong positive correlation should be seen between such behaviors. Secondly, as in the case of self-enhancing phenomena, if superior conformity of self is a behavior designed for self-presentation motives, then it would follow that superior self comparisons should be positively correlated with need to manage public impressions. On the other hand, if superior self comparisons are behaviors engaged in to increase self-esteem without consideration of audience demands, then there should be little relationship between self comparison behaviors and presence or absence of audience. Finally, if the latter case is true, then it seems likely that a strong positive correlation should exist between tendency to engage in superior self comparisons and tendency to self-deceive in
order to improve self-esteem.

Audience Conditions

Review of the self-enhancing attribution literature indicates that subjects' awareness of audience has been manipulated in a number of ways. Early studies included an observer subject who watched as subjects performed a task (Beckman, 1970). Groups of subjects have been used as observers of their own and other group members' performance (Wortman, Constanzo, & Witt, 1973; Wolosin, Sherman, & Till, 1973). Research has shown that varying levels of objective self-awareness can affect the manner in which self-enhancing attribution are made (Bergen & Rodman, 1983; Hull & Levy, 1979; Reiss, Rosenfeld, Melberg, & Tedeschi, 1979). Several studies have provided anonymous conditions, wherein the subjects could be assured of anonymous participation in the study (Arkin, Appleman, & Burger, 1980; Weary, 1980; Weary, Harvey, Schweiger, & Olson, 1979). Weary-Bradley (1979) emphasized the importance of making certain that the experimenter is not viewed by subjects as a possible observer of behavior in anonymous conditions, for this may have the same effect on subjects as placing them before a group or designated observer. Great care must be taken to insure the subjects anonymity in a manner that they can confirm for themselves.

Given the findings in the research on audience conditions as cited above, the following four
audience conditions were chosen: (1) anonymous, (2) anonymous with induced self-awareness through the presence of mirrors, (3) subjects as direct observers of their own and others' performance in a public format, (4) subjects as in condition three but with the addition of a formal observer. The last condition was designed to examine whether an official observer of performance would have any additional effect on attributions and self-comparisons that mere observing by other members of the group would not. This condition was put in place to try to determine "experimenter" effects, i.e., to try to identify any effect that might be experienced by subjects who know that in addition to their peers, they are also being observed by the experimenter. In other words, can an additional or increased audience effect be demonstrated if one's behavior is being observed not only by peers but by "experts" who are specifically watching subjects' ability to perform a task?

Goals of the Present Study

The present research had six purposes: (1) to examine effect of the type of audience (no audience-anonymous, self as audience, other subjects as audience, other subjects plus official observer as audience) on the attribution of success and failure; (2) to determine the effects of type of audience on self-other comparison (no audience-anonymous, self as audience, other subjects as audience, other subjects plus official observer as audience); (3) to determine the
effect of negative feedback on tendency to engage in superior
self comparisons; (4) to determine the relationship between
tendency to engage in self-enhancing behaviors and tendency
to make superior self comparisons; (5) to determine the
relationship between self-enhancing behaviors and need to
manage audience impressions and/or self-deceive to maintain
self-esteem; (6) to determine the relationship between
tendency to make superior self comparisons and need to manage
audience impression and/or self-deceive to maintain
self-esteem.

After reviewing the literature of both attribution and
social comparison research, it seemed that the dot judging
task developed by Fitch (1970) would work well for a
performance task as it provided a task where success or
failure feedback could easily be given. Dot judging also
appeared to meet the qualifications for absence of prior
experience and therefore it was possible to easily control
subjects' expectation of the difficulty of the task. In
order to assure self-esteem involvement, subjects were
informed that performance on this task reflected a measure of
nonverbal intelligence. It was assumed that this would
involve subjects' self-esteem as intelligence is considered
highly valued in our culture. Performance on the task seemed
to lend itself to attributional explanations and task
structure appeared to invite comparisons on performance.

As discussed above, levels of audience
conditions were selected. It was decided to induce self-awareness by use of mirrors, a methodology developed by Wicklund and Duval (1972). Other audience conditions included in the study were anonymous (no audience), public (subjects could see each other), and public observer (subjects could see both each other and an official observer watching them).

Attribution were measured in a way similar to that used by Elig and Frieze (1979). Separate measures of internal and external attributions were combined into a single index. Self-other comparison measures were developed based on Codol's described model (1975).

Paulhus (1984) presented psychometric data concerning measures of social desirability. He concluded that Gur and Sackheim's measures (1979; Self-Deception Questionnaire, SDQ; Other-Deception Questionnaire, ODQ) showed the best ability to discriminate need to self-deceive and need to manage public impression of self. These measures were completed by subjects in the present study.
CHAPTER THREE

Method

Participants

Subjects were 96 male and 96 female introductory psychology students who participated in order to earn research credit toward a class requirement. Subjects were run in groups. Each person was randomly assigned to one of eight possible conditions. A confederate participated in each group. There were five participants per group and six groups per condition. Subjects were run in same sex groups to eliminate possible gender pressure effects.

Procedure

The subjects and confederate were greeted by an experimental assistant in a waiting room and escorted individually to seats in a laboratory room. The confederate was instructed to appear in the waiting room approximately five minutes prior to the beginning of the experiment to avoid possible suspiciousness by subjects. In anonymous conditions, subjects were seated in partitioned booths facing forward with front openings for viewing. Such booths insured anonymity of subjects. In public conditions, subjects were seated in the open room behind a barrier; they
were able to see each other and the experimenter, but the experimenter was not be able to see them. Each subject received an identifying experimental number corresponding to his/her seat position with which she/he was to identify all written materials. Subjects were assured by the experimental assistant that this number and seating position had been randomly assigned to them and was only to be used for the purpose of keeping all experimental materials for each subject together. Confederates' answer cards were marked to clearly identify them to the experimenter only.

When all subjects were seated, the experimenter entered and moved to the back of the room. She thanked the participants for coming. The experimenter then explained that the experiment was designed to investigate a perceptual acuity task which has been found useful in predicting intelligence with nonverbal tasks from the Leiter International Performance Scale. She further explained that this task had been shown to be affected by group format administration and that it would be this aspect which was to be investigated in this study. In order to create a normative expectation of accuracy and to maximize consideration of subjects' self-esteem in doing the task, the subjects were told that this test has been validated several times by psychologists and used in the past with nonverbal populations as part of an intelligence assessment instrument. Furthermore, they were told that it was a very accurate and
reliable measure of perceptual acuity and gave a good measure on nonverbal intelligence when administered individually. Moreover, they were told that it had been found that accuracy on this test increases with social facilitation effects, so that ordinary performance had been seen to improve when performance had taken place in groups. Subjects were told to expect feedback about their performance following the testing. No information was given at this time regarding test score norms. (See Appendix A for task instructions.)

Next it was explained to the subjects that they were to examine a series of slides and make judgments about those slides. Each slide would show a square with a number of dots scattered randomly over it. The subjects were told that they were to judge the number of dots on the slides (dot density estimation task). Subjects were asked to look at the slide for three seconds and make their most accurate estimate as to the number of dots contained in the square. After the estimate was made and written on an identity coded slip, the subjects were instructed to place the slip in a pocket beside his or her seat where it could be collected by the experimenter (See Appendix B). The experimenter then collected these estimates and recorded them on an overhead projector in an ordered fashion, so each individual knew which estimate had come from each seat position in both anonymous and public conditions. Those subjects in the anonymous conditions did not know the identity of any
individual who made a judgment, only that the judgment was made by a person in a particular seat position. Subjects in public conditions were able to identify the estimates of each group member as well as the individual making the estimate.

Subjects repeated the judging sequence for the two other practice slides. At the end of each judging trial the experimenter posted the actual number of dots in the square for all to see. Three practice squares and six actual test slides were presented. During the practice squares, an effort was made to create ambiguity for the subjects regarding expectations of succeeding or failing on the task by presenting three levels of difficulty of slides, easy, difficult and moderate. Confederates' score cards were actually blank and the experimenter recorded their score as either the same as the most accurate subject estimate or two dots closer to the correct answer. This determination was made by random assignment prior to the beginning of the experimental session. Subjects were asked to rate their expectation of success following the three practice trials to provide a check on subjects' expectancy of success. (See Appendix C.)

Next, the six test trials were conducted. At the end of six trials, subjects were told that the answers would be scored by assistants in another room. While the scores purportedly were being calculated, subjects were asked to fill out the Self-Deception Questionnaire (SDQ) and Other-
Deception Questionnaire (ODQ). Subjects were told that this task was part of a different study by another graduate student who had asked to have subjects fill them out during their waiting period to save time in collecting data.

After approximately 10 minutes, the assistant brought in the test results. The experimenter had no knowledge of the participants' success or failure feedback. Before the envelopes were passed to subjects, the experimenter explained that a score between 100 and 200 was possible on the test and that persons of average perceptual skill score approximately 150 points. A bell curve was drawn showing where possible test results might fall. All participants in each group received feedback indicating their score fell either very much above the average or very much below. (See Appendix F for feedback form.)

Following feedback, a questionnaire measuring all dependent variables was handed out to subjects. After these were completed and collected, the manipulation check questionnaire was handed out. Subjects were told that this questionnaire was designed to get their impressions about the test and that such information was considered in further administration of the study. (See Appendix G for dependent variable questionnaire, H for manipulation check.)

After the manipulation check was completed, subjects were informed of the real purpose of the experiment and the importance of deception in the experiment was explained to
them. Subjects were asked to maintain secrecy regarding the purpose of the study. (See Appendix I for debriefing instructions.)

Independent Variables

The design was a two (Success/Failure) by four (Levels of Audience Awareness) factorial, resulting in eight conditions. All subjects across conditions received the same instruction concerning the dot estimation task. Four levels of audience awareness were created by manipulation of the physical setting. In the anonymous only condition, each subject was seated individually in an enclosed cubicle. In the anonymous self-aware condition, seating was similar to the anonymous condition, but a hand held mirror reflected the subject's image during the experiment. In the public only condition, the subjects were able to see each other during the experiment, but were separated from the experimenter by a barrier so the subjects could not be seen by the experimenter. In the public-observer condition, the subjects were able to see each other and a person who was assigned as an observer, but were again separated from the experimenter by a barrier. The observer carried a clipboard and affected a professional appearance.

Subjects received individual copies of their bogus test score results. They were told that their scores fell either into the upper fifth of percentile scores (83rd percentile)
or the lower third of scores (23rd percentile) for the
ability being measured, based on norms for past group
performances. (See Appendix F for feedback form.)

Dependent Measures

Self-enhancing attributions can be manifested in
numerous ways that may be used more or less interchangeably,
for example, by taking or denying personal responsibility, by
blaming other group members and by blaming environmental
factors (Mynatt & Sherman, 1975; Schlenker, 1975). To
provide an adequate measure assessing such variables, several
measures were used: Subjects were asked to rate the
extent to which each of four factors (a) ability, (b) effort,
(c) difficult of task and (d) luck play in the outcome of the
individual's performance on a -3 to +3 scale with endpoints
anchored with the words strongly agree, strongly disagree.
An index of internal-external locus of attribution was
computed by subtracting sum of attributions made to the
external factors, i.e., task difficulty and luck, from the
sum of attribution made to internal factors. Thus, more
positive values corresponded to more internal attributions
whereas more negative values indicated more external
attributions. This independent scales method has been
suggested by Elig and Frieze (1979) as the technique of
choice, at least for college students making causal
attributions for tasks.

In order to measure superior conformity of self
comparsions, several index measures were constructed. First, a measure of actual accuracy on the task was needed (Rank ordered from 1 to 5, with 1 being most accurate on each trial. Ties, i.e., when two subjects performed equally well, were assigned half integer scores, e.g., if both subjects actually scored a 2 in accuracy, both received scores of 2.5. This could be obtained from the actual accuracy scores earned by subjects. These scores were collected and a mean accuracy rating over trials was compiled for each subject. Next subjects were asked to rank order each of the members of their group for accuracy from the most accurate to the least, using the subjects seating position to identify subjects (a rank of 1 was most accurate, 5 least). This yielded a perceived self accuracy rating. The difference between perceived accuracy ranking and actual accuracy rating was calculated for each subject. This gave an index of what can be called the PIP difference, ranging from -4 to +4 (Positive numbers indicated presence of PIP effect, that is, a tendency to rate oneself better than one's actual performance). An index of "confederate devaluation" was calculated by subtracting the subjects' ratings of the confederate from their self rating. This index was included as Codol reported that many of his subjects devalued the confederates ranking even though the confederate was the most accurate throughout trials. The subjects were asked to rate their ability on this task compared to the "average group member", the
"average college student" and the "average person in the population" on a 9-point Likert-scale ranging from much less ability to much more ability on this task and with anchor points at -2 and +2. (See Appendix G.)

The ODQ and SDQ were in 7-item Likert-format with 20 items each. A score for each person was obtained for each scale. (See Appendixes D and E.)

A manipulation check included questions about the nature of task, understanding of the origination of the task, purpose for including group format, etc. (See Appendix H for the manipulation check questionnaire.)
CHAPTER FOUR

Results

Expectancy Checks

To assess level of expectation of success on the dot judging tasks, subjects were asked to rate on 9-point Likert-type scales (-4—very difficult to +4—very easy) how difficult each of the sample items was found to be, how difficult the dot judging sample tasks were found to be overall, and how well they expected to do on the actual task. The results indicate that subjects found a significant difference in difficulty between the first, second, and third sample judging tasks in a one (Judging Difficulty) by three (Sample 1, Sample 2, Sample 3) split plot analysis of variance (ANOVA), $F(2,352) = 4.28, p = .01$. Pairwise comparison of means using the Neuman-Keuls procedures showed Sample 1 ($M = .29$) and Sample 3 ($M = 1.02$) means differing significantly from one another, as do the Sample 1 and Sample 2 ($M = .82$) means, $p = .01$, suggesting a possible practice effect over trials.

As desired, there were no significant differences found between groups in the dependent variable of rated overall difficulty of dot judging when examined in a
two (Male/Female) by two (Success/Failure) by four (Public, Public-Observer, Anonymous, Self-Aware) ANOVA. As a group, subjects appeared to have no clear expectation of difficulty or ease of the judging task, with the general $t$ statistic based on pooled estimate of error, $t(184) = 1.05$, $p \approx .30$, indicating expectations did not deviate significantly from the midpoint of the scale, i.e., zero (Edwards, 1985). This was further confirmed in examination of the 16 cell means, none of which significantly differed from zero (Dunnett's test for comparison with a control of standard value, 1955).

Finally, a significant two way interaction of sex and audience condition was noted for the dependent variable of predicted future difficulty of dot judging in a two (Male/Female) by two (Success/Failure) by four (Public, Public-Observer, Anonymous, Self-Aware) ANOVA, $F(3, 175) = 2.62$, $p = .05$. Pairwise comparison using the Neuman-Keuls procedure yielded no significant differences between means, $p > .05$. When examined as one group, subjects appeared to have expectations of success on the task $t(191) = 6.58$, $p < .0001$ (general $t$ statistic based on pooled estimate of error, Edwards, 1985). However, an examination of cell means showed no group to have significant expectations above that of a particular other group regarding future success or failure on the dot judging task (See Table 1; Dunnett's test for comparison with a control of standard value, 1955).

It should be noted here that when subjects were dropped
from the analysis as a result of manipulation check difficulties (see below), all significant findings on expectancy checks disappeared.

**Manipulation Checks**

Checks on the independent variable manipulations were conducted by asking subjects to indicate whether they had been observed during the task, where they perceived their task judging score being in relationship to the norms given by the experimenter, and their perception of the purposes of the judging task and group situation in terms of needs for accuracy. Checks on manipulation indicate that 92 subjects (47%) incorrectly identified their audience condition. Four subjects (2%) incorrectly identified their feedback scores on the dot estimation task. Forty-seven individuals (24%) were unable to correctly identify reasons given by the experimenter for providing a group format in administration. No subjects were removed from the sample due to suspiciousness regarding the experimental hypotheses.

Fifty-eight subjects (30%) failed to see the task as a valid measure of intelligence. Twenty-two subjects (11%) apparently disagreed that accuracy was an important factor in succeeding at the task.

Because of the large number of subjects who may have perceived their assigned audience conditions inaccurately or failed to attend to the instructions, all statistical analyses were conducted twice, once with all subjects
included and once with the 92 incorrectly reporting subjects dropped from analyses. With the exception of two analyses cited below, the two sets of analyses yielded similar significant findings.

**Deriving and Calculating Subjects' Scores**

The attributions of subjects for the task performance on the judging task included responses on four specific dimensions: ability, effort, task difficulty and luck. Each subject's responses on the first two were summed to provide a measure to internal factors; responses to the last two were summed to produce a measure of attribution to external factors. The external sum score was subtracted from the internal sum score to reveal an index of internal/external attributions (ATTRIB score). A more positive score indicated internal attributions, a more negative score indicated external attributions.

Self comparison index scores were calculated by rank ordering subjects within group for accuracy on each trial, averaging the rankings over trials for every subject and then subtracting the subjects' actual accuracy (SLFACC) ranking from that s/he assigned to him/herself when asked to rank the members of his group (PIP score, -3 to +4). More positive scores indicated that the subject engaged in superior self comparisons, more negative scores indicated that he/she did not. Subjects' ranking of the confederate was subtracted from self-ranking score, to obtain a confederate devaluation
score. Subjects were also asked to rate themselves compared to other members of his group (AVEGROUP score), other college students (AVECOLLG score), and general others (AVEPERS score) on 7-point Likert-type scales, wherein a negative score indicated less ability and a positive score indicated more ability. Three indices were then calculated for subjects in the following manner: Subjects' SLFACC score was converted to a -2 to +2 scale by subtracting 3 from the score and multiplying by -1. After this was done, subjects' scores were obtained by subtracting the converted SLFACC score from AVEGROUP, AVECOLLG, and AVEPERS to yield indices of superior self comparisons across these variables, now identified as PIPGROUP, PIPCOLLG, and PIPPERS.

The Self Deception Questionnaire is a 20-item instrument in the 7-point Likert-scale format. A 1 or 2 response circled on an item is considered a self-deceiving response (scores as 1 point in the direction of self-deception; Sackheim & Gur, 1979). Subject's individual item scoring was tallied and an overall score was designated for each individual.

Similarly, the Other Deception Questionnaire is a 20-item Likert-type scale and it is scored in a manner similar to the above.

Analysis of Variance on the Variable of ATTRIB

A two (Male/Female) by two (Success/Failure) by four (Public, Public-Observer, Anonymous, Self-Aware) ANOVA was
carried out on the dependent variable of ATTRIB. No significant differences were found. In examining the mean for the entire sample for ATTRIB, it appeared that there was a significant tendency for subjects to make internal attributions for their results, $t(191) = 4.19, p < .01$ (General $t$ statistic based on pooled estimate of error, Edwards, 1985). However, in examining individual cell means, such a tendency did not appear significant for any cell, $p > .05$ (See Table 2; Dunnett's test for comparison with a control of standard value, 1955).

**Analysis of Variance of Measures of Superior Conformity of Self**

Because only three of the subjects devalued the confederate's score (found the confederate to rank below themselves in performance), this index was dropped from the analyses.

A split-plot analysis of variance conducted to examine differences between means on variables of PIPGROUP, PIPCOLLG, and PIPPERS showed that scores increased as comparison groups became more general in nature ($M = .354; M = .567; M = .875$), $F(1,352) = 37.03, p = .0001$, indicating greater PIP. The dependent variable PIP could not be included in this analysis as it was computed on a different range of values.

Total sample means for PIP, PIPGROUP, PIPCOLLG and PIPPERS were examined and found to show significant superior self comparison effects with the exception of PIP and
PIPGROUP (t(191) = .24, p > .05, t(191) = 1.34, p > .05, t(191) = 2.15, p = .05, t(191) = 3.26, p = .01, respectively; General t statistic based on pooled estimate of error; Edwards, 1985).

Although analysis of variance showed significant differences between groups, and although trends in the direction of expectation were seen, pairwise comparisons of PIPGROUP, PIPCOLLG and PIPPER using Neuman-Keuls procedures yielded no significant differences between means, p > .05. No significant differences were found across audience conditions (Public, Public-Observer, Anonymous, Self-Aware), p = .13.

Analysis of Variance on Self-Deception and Other-Deception Questionnaires

Scores on the SDQ and ODQ were examined in separate two (Male/Female) by four (Public, Public-Observer, Anonymous, Self-Aware) ANOVAs, looking at the effects of sex and audience condition. Main effects for sex were found to be significant in both cases: SDQ, F(1, 183) = 4.15, p = .04, and ODQ, F(1, 183) = 6.77, p = .01. Females scored consistently higher than males across conditions (See Table 3) indicating more self and other deception for females.

Because of the gender differences discovered in this analysis, it was determined that further analyses should be conducted using median splits based on high and low scores on the SDQ and ODQ. Such analyses follow below.
Analysis of Variance by Median Split on the Variable of Self-Deception

A median split was performed on the Self-Deception scores, such that median scores for males and females were established separately, and high scorers of both sexes placed in one category and low scorers in the other. The median split procedure resulted in a two (High/Low Self-Deception Score) by two (Male/Female) by two (Success/Failure) by four (Public, Public-Observer, Anonymous, Self-Aware) ANOVA across dependent variables of ATTRIB, PIP, PIPGROUP, PIPCOLLG, AND PIPPERS.

Analysis of variance of the variable ATTRIB

No significant differences were found on the dependent variable ATTRIB.

Analysis of variance on the variable PIP

A significant main effect was found for feedback (Success/Failure), $F(1,142) = 13.87$, $p = .0001$. Pairwise comparisons using the Neuman-Keuls procedure showed significance ($\bar{M} = .49$, $\bar{M} = -.26$), $p < .01$.

Analysis of variance on the variable PIPGROUP

A significant two way interaction (Success/Failure Feedback) by (High/Low SDQ) was found, $F(1, 14) = 6.51$, $p = .01$. Pairwise comparison using the Neuman-Keuls procedure failed to show significance, $p > .05$.

No other significant results were found in the median split analysis on variables PIPCOLLG or PIPPERS.
Analysis of Variance by Median Split on the Variable of Other-Deception

A median split was performed on the Other-Deception Scale scores, such that median scores for males and females were established separately, and high scorers of both sexes placed in one category and low scores in the other. The median split procedure resulted in a two (High/Low Other-Deception Score) by two (Male/Female) by two (Success/Failure) by four (Public, Public-Observer, Anonymous, Self-Aware) ANOVA across dependent variables of ATTRIB, PIP, PIPGROUP, PIPCOLLG, and PIPPERS.

Analysis of variance on variable ATTRIB

No significant results were shown in this analysis.

Analysis of Variance on Variable PIP

A significant main effect was found for feedback (Success/Failure), $F(1,141) = 18.74, p = .001$. Pairwise comparisons using the Neuman-Keuls procedure failed to show significance, $p > .05$.

No other significant results were found on variables PIPGROUP, PIPCOLLG or PIPPERS.

Correlational Analyses

Attribution and self comparison measures

The relationship between tendency to make self-serving attributions (ATTRIB) and tendency to make superior self comparisons (PIP, PIPGROUP, PIPCOLLG, PIPPERS) was examined using the Pearson product-moment correlation coefficient ($r$)
for each of the 16 cells formed by a two (Male/Female) by two (Success/Failure) by four (Public, Public-Observer, Anonymous, Self-Aware) design. The pattern of correlations and their significance levels are presented in Table 4. Fifty-seven of 112 correlations reached levels that were significant (six expected by chance alone). There appeared to be no clearly distinguishable pattern present, between variables of ATTRIB and variables of superior self comparison. However, while not always statistically significant, there appears to be a negative relationship between the PIP variable and other variables measuring superior self comparison in more general comparison groups (PIPGRP, PIPCOLLG, PIPPERS). Moreover, variables based on generalized group comparisons (PIPGROUP, PIPCOLLG, and PIPPERS) generally showed high correlation with one another.

**Self-deception and other-deception measures**

Scores on the SDQ and ODQ were examined using the correlation coefficient ($r$) to determine the degree of possible relationship between them, $r(189) = .26$, $p = .001$.

**Self-deception and variables ATTRIB, PIP, PIPGROUP, PIPCOLLG and PIPPERS**

The relationships between scores on the SDQ and variables ATTRIB, PIP, PIPGROUP, PIPCOLLG, and PIPPERS were examined across the four audience conditions (Public, Public-Observer, Anonymous, Self-Aware) using the Pearson
correlation coefficient \((r)\) to determine the possible degree of relationship (See Table 5). When the 92 subjects who failed to complete condition checks correctly were dropped from the sample, size and significance of correlations increased (See Table 6).

**Other-deception and variables ATTRIB, PIP, PIPGROUP, PIPCOLLG and PIPPERS**

The relationships between scores on the ODQ and variables ATTRIB, PIP, PIPGROUP, PIPCOLLG, and PIPPERS were also examined using the Pearsonian correlation coefficient \((r)\) to determine the possible degree of relationship (See Table 7). As above, dropping the 92 subjects changed results rather markedly (See Table 8), both increasing size and significance of correlation coefficients and changing the pattern of correlations.
CHAPTER FIVE

Discussion

The results of the present study are in some ways perplexing. Information resulting from statistical analyses of expectancy and manipulation checks suggests on the one hand that when all subjects are included, there exists a sex by conditions interaction effect on expectancy of task difficulty, despite efforts to hold expectancy constant across conditions and at a level where subjects would be uncertain as to what difficulty level to expect. On the other hand, when 92 subjects were dropped from the study because of their reported incorrect perceptions of the audience conditions, all significant effects on variables of expectancy disappear while the remaining analyses for the most part do not change markedly. It seems possible to conclude as have others (Arkin, et al., 1976; Federoff & Harvey, 1976; Sicoly & Ross, 1977; Weary, 1980) that subjects' expectations about task difficulty do not radically affect attribution and self comparison variables, but this conclusion cannot be offered with certainty, given the unexpected nature of some further results in this study.

Unlike the many studies cited in the literature (See)
Bradley, 1978; Miller & Ross, 1975; Schlenker, 1975), results of the present study demonstrate no significant differences in making causal attributions for success and failure on tasks. Because no self-enhancing bias was shown, no conclusions could be drawn regarding motivational aspects of the phenomenon, i.e., do self-enhancing attributions serve self-esteem (Gergen, 1971; Jones, 1973; Rosenberg, 1979; Sherwood, 1967) or self-presentational motives (Rose, 1966; Schlenker, 1975, 1980; Weary & Arkin, 1980). Nor could a relationship be determined between self-enhancement and superior self comparison. More research is needed to understand the relationship between these variables.

On the other hand, as predicted by Codol (1975), superior self comparisons were found in this study. Subjects showed a significant tendency to rate selves as superior to others and showed significant differences in rating themselves based on the ambiguity of the comparison group employed. While not significant, a trend was seen in that subjects increased the inflation of their self comparisons with the increased ambiguity (generality) of the comparison group.

No differences were found across audience conditions on any of the superior self comparison variables. This initial evidence appears to suggest that superior self comparisons may be in service of increasing self-esteem rather than managing audience impression since one might expect a change
across conditions if the latter was true.

The findings regarding the relationship between superior self comparisons and social approval measures is difficult to interpret. Median split analysis based on SDQ and ODQ scores failed to show significant results (See below).

One of the puzzling findings of the present study concerns subjects' attributions of responsibility for outcomes on the task. The fact that no differences in internal/external attributions were found across conditions is surprising, given the many studies which have demonstrated the phenomenon (See reviews by Bradley, 1978; Miller and Ross, 1975). In view of the copious findings of self-enhancing attributions in the literature, it seems likely that such effects do exist. It therefore appears more helpful to look for possible circumstances which may have precluded establishing such effects in the present case. One possibility might be, of course, that this particular sample of subjects was in some way unusual in making attributions of responsibility for success/failure. A second possibility could be that cell sample sizes of 12 are simply too small to allow the small effects to be considered significant, although an examination of the results did not appear to demonstrate clear trends in the expected directions. Another possibility to consider is that some aspect of the experimental situation prevented subjects from making more usual attributions. Perhaps the task, i.e., judging dots to
determine nonverbal intelligence was simply not compelling or convincing enough to involve subjects' self esteem and participation. Perhaps for some reason performance feedback was not sufficiently convincing. Whatever the reason, lack of clear internal/external attributions makes the explanation of further experimental findings problematic.

In view of results examining self-enhancing attributions, it is encouraging that most measures of superior conformity of self were shown to be significant at the .05 or .01 level. This suggests that superior conformity of self may be a fairly robust construct. Furthermore, although nonsignificant, the strong tendency for superior conformity of self measures to increase in size with increased generality of comparison groups helps confirm Codol's findings (1975).

An unexpected but interesting finding was that of the main effect for gender on measures of both SDQ and ODQ. According to the analyses of results, females scored higher than males across conditions on both of these measures. Previous studies using these instruments have either failed to report gender effects (Sackheim & Gur, 1978; 1979) or have reported no differences for sex (Paulhus, 1984). Gender differences may suggest that females have higher needs to self-deceive and impression manage, may actually have different base rates of behaviors designated on the SDQ and ODQ as statistically infrequent, or may simply respond in
more socially "appropriate" ways for some reason, e.g., may be more socially "in tune" with expectations than their male counterparts. Attempted replication of the findings appears worthwhile.

Although in some ways disappointing, the median split analyses resulted in some thought provoking findings. In looking at the median split results for SDQ and ODQ, a finding of a main effect for feedback on the primary self comparison variable should not be surprising. After all, if one tells a subject that s/he has done well or poorly at a task in comparison to others, it is not surprising that the subject rates him or herself as having performed much better or worse than those others. What is more surprising is that main effects disappeared as the comparison group became more general (i.e., PIPCOLLG, PIPPERS). Indirectly, this tends to support Codol's theory of superior self comparison in that subjects could move away from or in effect disguise or improve their performance by moving to a larger group for comparison. Thus the main effect for feedback disappears.

In examining the PIPGROUP variable (how do you rate yourself in relationship to the average group member), a significant interaction of feedback (Success/Failure) and level of SDQ (High/Low) was seen. Those showing low SDQ rated themselves higher than high SDQ subjects when subjects were given success feedback. This tendency reversed itself when subjects were given failure feedback. If such findings
could be replicated, it would further suggest that those subjects low in need to self-deceive can actually report and perhaps perceive their performance more accurately than do those high on SDQ. If women tend to score higher than men on this factor, such findings may lead to some important revelations about perceptual differences between men and women.

It is seems clear that median split analyses did not lead to much helpful information regarding the relationships among variables in this study. This may be further explained by looking at the correlational analyses between variables (See below).

Contrary to early predictions, correlational analyses showed no clear pattern of correlations between attributions and superior self comparisons. Because of various factors, i.e., manipulation problems, failure to find attribution effects, etc., it cannot be concluded that no relationship exists, only that one was not found in this study. More investigation is needed to determine what the relationship might be between these two variables. An inverse relationship appears to exist between PIP and other measures of superior self comparison, indicating that the less one engaged in superor self comparison in an actual group, the more one tended to show in more general comparisons. It was also found that superior self comparisons correlated positively across the more general comparisons, indicating a
consistent tendency on parts of subjects to engage in PIP. Examination of the correlational analyses on the SDQ and ODQ measures yields results that might help explain why median split analyses failed to find significant results. First, as expected, performance on SDQ and ODQ are somewhat but not highly related ($r = .26, p = .000$). Such findings merely confirm what has been found by other researchers (Paulhus, 1984). Second, examination of correlational matrices for SDQ and ODQ and other dependent variables of interest suggests that SDQ is more highly correlated with variables PIP, PIPGROUP, PIPCOLLG, and PIPPERS in Public-Observer and Anonymous audience conditions. The relationship of ODQ to these variables is less clear, as the size of the correlations change markedly when the 92 subjects are dropped from the study. When the full sample is included, ODQ correlates negatively with these measures in the Self-Aware condition; when partial sample is analyzed, ODQ correlates positively with the measures in the Anonymous condition. It is unclear what such findings mean other than that median split analyses on SDQ and ODQ were not likely to yield much in the way of significant findings, particularly if measures of superior self comparison are not affected by audience conditions. These measures of social desirability might be more useful in understanding the function of self-enhancing attributions. On the other hand, it might somehow be that there is some relationship between these variables that has
not yet been understood fully. The evidence is too inconclusive to say at present. Further research needs to be done before these findings can be understood.

In conclusion, the present study has failed to show self-enhancing attributions for performance, but has shown some evidence of superior self comparison. No relationship has been established between variables of attribution and superior self comparison. Sex effects were shown to be present for measures of self-deception and impression management. Results involving analyses of variance by median split for variables of self-deception and impression management were mostly inconclusive. Further studies in this area might consider simplifying the audience conditions to include only public/anonymous conditions and increase cell size to help maximize likelihood of showing self-enhancing attributions. Furthermore, design considerations in this study have shown a need for a more adequate format so that subjects cannot as easily mistake their audience condition. Perhaps a videotaped presentation with a digital readout board for subjects' estimates would be a better plan, in order to eliminate mistaken impressions of subjects about their real audience condition. Finally, perhaps it would be better to administer need for social approval measures separately, under uniform conditions, to see if "base rates" of responding on such measures would be more useful in predicting subjects' responses than "manipulated rates."
REFERENCES


Weiner, B. (1972). Theories of motivation, from mechanism to cognition. Chicago: Markham.


EXPERIMENT INSTRUCTIONS

The assistant greets subjects and records names for credit. The assistant then takes the subjects to the room and seats them one at a time. As they are seated, the assistant asks the subjects to do no talking and points out their seat position to them. Assistant places barrier between subjects and experimenter's position in place and then experimenter enters from the rear of the room and takes her position. Experimenter reads instructions.

Hello. I would like to thank you for coming. My name is Jane Harris. I am a clinical psychology student. Today you are participating in a psychology experiment which I am conducting for my master's thesis research project.

I am interested in studying the effects of group participation on performance, particularly as it relates to intelligence. You will be participating in a task which measures perceptual acuity. Perceptual acuity is the ability to notice fine detail and make quick but accurate judgments about aspects of a stimulus in a short period of time. This ability is related to nonverbal intelligence. In fact, the task on which you will be working today has been taken from the Leiter International Performance Scale, a test which measures nonverbal I. Q. This task has been validated in a number of ways by psychologists and is used as a quick
measure to obtain an accurate and reliable index of nonverbal intelligence.

Perceptual acuity is one of a number of intellectual abilities which appear to be affected by group participation. It appears that the presence of other people improves our performance on many tasks. Such an effect is known as social facilitation. I will be looking at the effects of social facilitation on your performance.

It is important that you give your best effort on this task for the results of this study could have important implications for the manner in which we measure intelligence. Please give this experiment your best effort.

Let's continue. The perceptual acuity task on which you will be working is dot density estimation. You will be shown some slides on which there will be a single large square with a number of dots scattered across it. You will be shown each slide for 3 seconds. After viewing the slide, you will estimate the number of dots appearing on the slide and write that estimate down on one of the white forms in front of you. After you have completed your estimate, please place it on the box on the table behind the second row of chairs so that I may collect it. [In the private conditions, subjects were asked to place slip through slot in back of the experimental booth.]

I'd like to direct your attention to the materials in
your packet. Each packet should contain a pencil, a red sheet and a packet of 12 forms, 3 of which are blanks. The blanks you will find at the back of your form packet. Please check now for these materials.

It is important that there is absolutely no talking during this experiment. If you have a question, please hold up your red sheet [place it in slot at back of booth] so I can see it, then write down your question on the blank paper provided for this purpose. Are there any questions at this time?

XXXPAUSE FOR QUESTIONS

[For the self aware condition the following addition was made: It has been shown in past research that individuals' ability to perform the dot density estimation task is affected by looking into a mirror briefly before estimating the dots. Therefore, I would like you to locate the mirror placed in a holder at the side of your experimental booth. Please place it in your hand. What I would like you to do is to place the mirror at eye level when the projector comes on for the first time. Please look into the mirror for the full three seconds that the projector is on. Then the projector will go off and come on again, this time showing dots. Please look at the dots for the full three seconds. When the projector light goes off, write down your estimate on the slip of paper for the trial. The sequence again is projector on, mirror three seconds, projector off, on, dots three]
seconds, projector off, write. Are there any questions?]

Let's continue. Please look in front of you and find the form marked SAMPLE I.

XXXPAUSE.

Place it in front of you. I will now show you the first sample slide. Please look at the slide for the full 3 seconds and try to estimate as accurately as possible the number of dots appearing in the square. Are there any questions?

XXXPAUSE FOR QUESTIONS

If there are no questions, we will begin. I will now show you sample slide 1.

XXXTURN ON PROJECTOR FOR 3 SECONDS

Please write down your estimate of the number of dots appearing on the slide. When you have finished, place your form on the box behind you.

XXXPAUSE WHILE ESTIMATE IS MADE; PICK UP ESTIMATE, PLACE IN ESTIMATE HOLDER, QUICKLY COMPARE ESTIMATE TO ACTUAL NUMBER OF DOTS AND CORRECT CONFEDERATE'S TO PROPER NUMBER; RECORD ON OVERHEAD PROJECTOR IN COLUMNS DESIGNATED FROM SEAT POSITION; TURN ON PROJECTOR

I am placing the estimates on the overhead projector so that you can see how you have done on this first sample square. Please notice that your score appears in the same place as your seat position, so if you are in seat position A, your score will appear under A on the overhead. The actual number
of dots on this slide are ___. Please examine your estimate to see how well you did on this judging.

XXXPAUSE FOR A MOMENT, THEN TURN OFF PROJECTOR

We will now move to the judging of SAMPLE SQUARE 2. Please locate the card that is numbered, sample square 2 and place it in front of you.

XXXPAUSE, PLACE SLIDE 2 IN PROJECTOR

I will now show you sample square 2. Please examine it again carefully for the full three seconds.

XXXREPEAT FOR PROCESS FOR SAMPLE SQUARE 2

******************************************************************************

XXXREPEAT FOR SAMPLE SQUARE 3

******************************************************************************

You have now concluded the three sample squares. The actual trials will be identical to these. If you have questions to this point, please raise your red sheet, write down your question on a piece of paper and I will answer it for you if I can.

XXXPAUSE FOR QUESTIONS

******************************************************************************

Good. How a person feels can influence how they do on this task. Therefore, before you start the actual task, I would like you to fill out a brief questionnaire which indicates how you are currently feeling. I will now be passing out the questionnaire. When everyone has one, I will read the instructions with you.
XXXPASS OUT QUESTIONNAIRE TO BOX, THEN READ INSTRUCTIONS AT TOP.

Are there any questions? Remember to use the red sheet if you have any.

XXXPAUSE, PICK UP QUESTIONNAIRES

**************************************************************************************************************************************

We will now proceed to the dot density estimation trials. I will show you each square once, just as in the sample trials. After each trial I will ask you to estimate the number of dots and mark your estimate down on the appropriate trial form. Please place the form on the box behind you as soon as you are done estimating the dots. Do not fill out the card until the projector light goes out. Make sure to use the card which indicates which trial we are on presently. At the end of each trial I will pick up your estimates and record them on the overhead projector. Then I will tell you how many dots actually appeared on each slide. Are there any questions?

XXXPAUSE FOR QUESTIONS

Let's begin. This is trial ___. Please locate your rating card. I will now show you slide ____.

XXXTURN ON PROJECTOR FOR 3 SECONDS

Please mark your estimate on the card and place it in the box in front of you.

XXXPAUSE, PICK UP ESTIMATES, CALCULATE CONFEDERATE SCORE, WRITE ON OVERHEARD PROJECTOR AND TURN ON.
These are your estimates on trial ____.

XXXPAUSE, THEN TURN OFF OVERHEAD PROJECTOR

Please locate card for trial ___. I will now show you slide ___.

*****************************************************************************

XXXREPEAT FOR 6 TRIALS

*****************************************************************************

You have now finished dot judging trials. Your score will be calculated by an assistant in the next room. It will take about 10 minutes to score your responses. While you are waiting for your scores to be computed, I am asking you to fill out questionnaire which is part of another study here at the University. This will save some time and provide you with something to do for the next few minutes. The questionnaire you will be given to fill out is being validated at this university. Bonnie Nussbaum, another graduate student here at the University of Montana, is interested in looking at the frequency with which certain types of items are endorsed on personality measures.

XXXPAUSE TO PASS OUT SDQ-ODQ

Please read the instructions at the top of the questionnaire while I read them to you.

XXXREAD INSTRUCTIONS

Are there any questions? Please check to see that you have four pages. Please fill out every item. When you are through, place the questionnaire face down and pass it to the
back. Please continue to use the red sheet if you have questions.

XXXPAUSE FOR QUESTIONS

XXXPAUSE, THEN COLLECT SDQ-ODQ

ENTER ASSISTANT WITH SCORE SHEETS

Before I give you your scores, let me explain the scoring procedures.

XXXDRAW BELL CURVE ON THE OVERHEAD PROJECTOR

A score on the perceptual acuity, i.e., dot density estimation task, could range from 100 to 200 points. Persons of average ability score about 150 points or at the 50th percentile—about here. A person with a score of 199 points would score at the 99th percentile, or would do better than 99 percent of the people doing this task, and would fall about here on the bell curve. You will find your score in the envelopes. Please do not discuss your score at this time.

XXXPAUSE, PASS OUT SCORES

You may examine your score at this time.

Please place your feedback sheet back in the envelop and place it behind you on the box.

I will now be passing out a questionnaire. Please read the instructions at the top. Are there any questions?

XXXPAUSE TO PASS OUT QUESTIONNAIRE, WAIT FOR QUESTIONS

READ THE INSTRUCTIONS ON THE QUESTIONNAIRE ALOUD
Please fill out the questionnaire and place it in the box behind you.

**PAUSE, THEN PICK UP QUESTIONNAIRE**

I will now be passing out a questionnaire designed to get some information about the procedures used in this study. Please read the instructions and answer as carefully as you can. Place it in the box when you finish.

**PAUSE TO PASS OUT MANIPULATION CHECK, READ INSTRUCTIONS ALOUD, THEN PICK UP THE MANIPULATION CHECK**
APPENDIX B

DOT JUDGING RATINGS CARDS
The following rating form will be provided to subjects for each trial of dot judging.

SUBJECT NO.

*Trial Number _____

What is your estimate of the number of dots on this slide?

_____
APPENDIX C

EXPECTANCY QUESTIONNAIRE
The following questions relate to the three sample squares which you just finished judging. Information gained from these questions is used to improve my procedures. Please answer these questions as thoughtfully and accurately as possible. Your answers are anonymous. Do not put your name on this questionnaire. Please circle the number of the answer which most agrees with your opinion.

1. How difficult was judging the first sample square for you?

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2. How difficult was judging the second sample square for you?

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3. How difficult was judging the third sample square for you?

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4. How difficult overall does dot judging appear to be to you at this time?

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<th>Rating</th>
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4. If all subsequent dot judging examples were similar in difficulty to the sample squares, how well do you think you might do on this task, based on your experience so far?

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5. In your opinion, what role does accuracy play in succeeding at this task?

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6. How important do you think level of intelligence is considered in our society?

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<td></td>
<td></td>
</tr>
<tr>
<td>very</td>
<td>somewhat</td>
<td>uncertain</td>
<td>somewhat</td>
<td>very</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>unimportant</td>
<td>unimportant</td>
<td>important</td>
<td>important</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

7. If an individual could choose to have any level of intelligence he/she desired, how much do you think most people would choose to have?

<table>
<thead>
<tr>
<th>-4</th>
<th>-3</th>
<th>-2</th>
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<td></td>
</tr>
<tr>
<td>very</td>
<td>somewhat</td>
<td>average</td>
<td>somewhat</td>
<td>very</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>low</td>
<td>low</td>
<td>high</td>
<td>high</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. If as above, you could choose any level of intelligence for yourself, how much would you choose to have?

<table>
<thead>
<tr>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
<th>+3</th>
<th>+4</th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>very</td>
<td>somewhat</td>
<td>average</td>
<td>very</td>
<td>very</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>low</td>
<td>low</td>
<td>high</td>
<td>high</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Nonverbal I. Q. is an important concept in psychology. It must be measured in some manner without using words as part of the task. Dot judging is one way to measure such I. Q. What is your opinion of using dot judging to measure nonverbal I. Q.?

<table>
<thead>
<tr>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
<th>+3</th>
<th>+4</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>very</td>
<td>somewhat</td>
<td>average</td>
<td>somewhat</td>
<td>very</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>low</td>
<td>low</td>
<td>high</td>
<td>high</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D

SELF DECEPTION QUESTIONNAIRE
Read each question briefly. Please circle the number of the answer which most generally applies to you.

<table>
<thead>
<tr>
<th></th>
<th>Not at All</th>
<th>Somewhat</th>
<th>Very Much So</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Have you ever felt hatred toward any of your parents?
2. Do you ever feel guilty?
3. Does every attractive person of the opposite sex turn you on?
4. Have you ever felt like you want to kill somebody?
5. Do you ever get angry?
6. Do you have thoughts that you don't want other people to know that you have?
7. Do you ever feel attracted to people of the same sex?
8. Have you ever made a fool of yourself?
9. Are there any things in your life which make you unhappy?
10. Is it important to you that other people think highly of you?
11. Would you like to know what other people think about you?
12. Were your parents ever mean to you?
13. Do you have any bad memories?
<table>
<thead>
<tr>
<th>Not at all</th>
<th>Somewhat</th>
<th>Very Much</th>
<th>So</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>14. Have you ever thought that your parents hated you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>15. Do you have sexual fantasies?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>16. Have you ever been uncertain as to whether or not you are homosexual?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>17. Have you ever doubted your sexual adequacy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>18. Have you ever enjoyed your bowel movements?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>19. Have you ever wanted to rape or be raped by someone?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>20. Have you ever thought of committing suicide in order to get back at somebody?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E

OTHER DECEPTION QUESTIONNAIRE
Read each question briefly. Please circle the number of the answer which most generally applies to you.

ODQ

<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Do you apologize to others for your mistakes?
2. Are you knowledgable about things you talk about?
3. When you hear people gossiping do you try not to listen?
4. Do you always throw your litter into waste baskets on the street?
5. Are you honest?
6. If you say you will do something, do you keep your promises, no matter how inconvenient it might be to do so?
7. When you take a sick-leave from work or school, are you as sick as you say you are?
8. Do you show respect for older people?
9. Are you in control of your temper?
10. Are you loyal to your friends?
11. Do you like all the people you know?
12. Would you declare everything at customs, even if you knew that you could never be found out?
<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

13. Have all your habits been good and desirable ones?

14. Do you tell the truth?

15. Are you on time for appointments or work?

16. Do you obey traffic regulations (including jay-walking)?

17. When you were a child did you obey your parents?

18. Are you fair in your judgments of others?

19. Are you polite and understanding toward other people?

20. Are you willing to let people know about all your thoughts and ideas?
APPENDIX F

FEEDBACK INFORMATION FORM
Your score is ______.

According to the group norms developed in conjunction with the Leiter International Performance Scale of nonverbal intelligence, you have scored in the _____ percentile of performance. This score means that you have shown better ability on this task than _____ of individuals who have performed this task. The average individual scores at about 150 points or at the 50th percentile when performing this task individually. It has been found that this task is importantly related to nonverbal I. Q.
APPENDIX G

DEPENDENT VARIABLE QUESTIONNAIRE
You have now completed the dot density estimation task. The following questions are questions concerning the task. The information collected from these questionnaires will be published, so any errors in this information may cause others to draw incorrect conclusions about important factors. Please be thoughtful and accurate in answering. Remember that your answers are anonymous. Do not put your name on this questionnaire.

Below are four scales. Please read each one and then circle the answer that best agrees with your opinion.

1. In my opinion, performance on the dot judging task **required ability**.

   
   | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
   | strongly disagree | uncertain | strongly agree |

2. In my opinion, performance on the dot judging task **requires effort**.

   
   | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
   | strongly disagree | uncertain | strongly agree |

3. In my opinion, performance on the dot judging task **depended on task difficulty**.

   
   | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
   | strongly disagree | uncertain | strongly agree |

4. In my opinion, performance on the dot judging task **depended on luck**.

   
   | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
   | strongly disagree | uncertain | strongly agree |
5. During the dot density estimation task you were able to see the answers of each participant. On the scale below, please rank in order the members of your group on accuracy to perform the task, as you noticed it. Please use each person's seat position (A, B, C, D, E) to identify them. Include yourself in the ranking.

EXAMPLE: if your seat position was D

5 most accurate A
4 __ C __
3 ___ D ___ <you would rank yourself here in this case if you
2 ___ B ___ were sitting in seat D and you consider your-
1 least accurate E ___ self worse than two people and better than two people.

5 most accurate ___
4 ___
3 ___
2 ___
1 least accurate ___

6. Please circle the number which best represents you in comparison with "the average group member".

   -2   -1   0   +1   +2
much less somewhat same somewhat much more
ability less ability more ability ability

7. Please circle the number which best represents you in comparison to the "average college student."

   -2   -1   0   +1   +2
much less somewhat same somewhat much more
ability less ability more ability ability
8. Please circle the number which best represents you in comparison to the "average person in the population."

<table>
<thead>
<tr>
<th></th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>much less ability</td>
<td>somewhat less ability</td>
<td>same ability</td>
<td>somewhat more ability</td>
<td>much more ability</td>
</tr>
<tr>
<td></td>
<td>ability</td>
<td>ability</td>
<td>ability</td>
<td>ability</td>
<td>ability</td>
</tr>
</tbody>
</table>

9. Please indicate whether you are

Male    Female   (Circle 1)

10. Please indicate your age__________.

11. Please indicate year in school

(Circle one) Freshman
Sophomore
Junior
Senior
Other____________
APPENDIX H
MANIPULATION CHECK
The following questions relate to the study in which you have just participated. Information gained from these questions will also be used to improve my procedures. Again, I would like to ask you to answer these question as thoughtfully and accurately as possible. Please circle the answer which best agrees with your opinion.

Some conditions in this study are different than others. Please answer these questions about the situation in which you participated.

1. Did you think that you were able to participate unobserved by the other participants in this study?
   YES  NO

2. Did you think that you were able to be directly observed by other subjects while participating in this study, i.e., could they see you while you were working on the task?
   YES  NO

3. Did it seem to you that the experimenter could see you during the experiment?
   YES  NO

4. Was there an observer standing in the room during the study?
   YES  NO

5. During the study, you were given feedback as to how well you performed on a dot judging task, including a percentile score. Please place a small X above your percentile score on the following scale:

   0  10  20  30  40  50  60  70  80  90  100 percentiles
6. Why is group performance important on the dot density estimation task, according to social facilitation theory, i.e., group performance, as explained by the experimenter?
   a. It increases ability and improves accuracy.
   b. It decreases ability and interferes with performance.
   c. It has no effect on ability or accuracy.

7. Students read that subjects in experimental studies are often subject to deception. Did you at any time feel that the experimenter was trying to deceive you? Yes No If so, in what way?

8. Subjects in experimental studies sometimes develop their own hypotheses about what the experimenter is testing. If you have done so, please briefly describe what you feel the experimenter might have been testing.
APPENDIX I

DEBRIEFING INSTRUCTIONS
You have finished with your task for today. Before you go, I would like to provide you with some information about the research I am conducting so that you might learn from your experience here. This research is part of a study being done for my master's thesis in psychology.

This area of research is called person perception. It is concerned with how humans process information about themselves and other people. The central focus of my study is to identify rules we use to order and predict our environment. Such environmental events include our own behavior as well as interpersonal processes in which we become engaged. The study in which you participated today was designed to examine what kind of interpersonal comparison processes take place with us when we are given certain types of feedback about our performances. Some studies have shown that people respond differently in making explanations of their own behavior and in comparing the behavior of other people depending on whether they feel they have been successful or failed at a task.

In the last part of the study you were asked to indicate if you felt that deception was involved in this experiment. It is very important that you realize that while the task in which you participated, i.e., dot density estimation is similar to nonverbal I.Q. tasks, that was not the purpose of using this task in our study. Furthermore, the feedback you received about your performance was not accurate but
arbitrarily assigned to you. The test is bogus. It reflects nothing about your intellectual abilities. The feedback you received was prearranged and had no relationship to your abilities or performance. It can be very uncomfortable to realize that you have been mislead in an experiment by the experimenter. Unfortunately there seems to be no other way to get at this kind of information. If you think about it for a moment, you can probably see that in order to get individuals to respond realistically to a task in an experiment, you have to make them believe that the situation is realistic. Please realize that being mislead in an experiment is no reflection on your abilities or characteristics. Once again, I would like to repeat that your performance feedback on this test bears no relationship to your intellectual abilities.

Past research in psychology tells us that even though subjects are told that their behaviors really do not reflect on their abilities, subjects still leave the experiment room thinking that they have performed well or poorly on the task. You need to know this might happen to you and should guard against such occurrences by consciously reminding yourself that this experiment does not measure or represent any real ability. Your results were predetermined and randomly assigned to you. Remember that they do not indicate anything about your real abilities.

Since I am running more subjects in the same experiment,
it is very important that you do not talk to others about your experience here today. If others come knowing what I am planning to do, they won't respond naturally and the data collected won't show an accurate picture. Much time and effort has already been expended in this project and I ask for your cooperation in this matter. Do you agree not to talk to others about this research?

**XXXHAVE THEM NOD THEIR HEADS OR VERBALLY RESPOND.**

If you would like more details about this study I would be happy to discuss it with you after this meeting, or I can usually be found in my office, Room 213 in this building during the day. I would be happy to provide you with further information. Do you have any brief questions before you leave?

I would like to thank all of you very much for participating today. I really value your help.
APPENDIX J

INSTITUTIONAL REVIEW BOARD PROPOSAL
To: Chairman, Institutional Review Board, for the Use of Human Subjects in Research

From: Jane L. Harris, Graduate Student in Clinical Psychology, and Dr. Arthur L. Beaman, Ph.d. (Faculty Supervisor)

RE: Request of approval involving human subjects. Title of project: Self Enhancement Attributions, Superior Conformity of Self Comparisons and Social Desirability: A Study of Relations

Date:

1. The overall objective of this research is to examine the area of self-serving bias and how it relates to the comparison of self to others. It is the further objective of this study to understand how self-serving attributions and comparison of self to others is affected by a need for social approval. Specific questions to be examined are: 1) How does varying the nature of audience (anonymous, self-aware, aware of others, aware of observers) affect attribution of success and failure? 2) How is self-other comparison affected by changes in audience? 3) What is the relationship between self-serving attributions and the tendency to see oneself as more in conformity with the norms than one sees others to be? 4) How are self-serving attributions and superior conformity of self comparisons related to needs for social approval? To achieve these ends, one hundred and ninety six introductory psychology students will be randomly assigned to one of eight experimental conditions. Subjects will be tested in groups of four with one confederate included in each group. Independents variables to be manipulated are level of audience awareness and information feedback about success or failure on a perceptual task related to intelligence. All groups will be asked to fill out questionnaires asking them to assess internal/external attributions for success/failure, make self-other comparisons, and fill out inventories designed to assess need for social approval. Deception will be used to disguise the nature of experimental focus. Debriefing will be done immediately following data collection. Information gained from subjects will be used to further understanding in social psychology, particularly in the area of attribution and social comparison.
2. The subjects in the present study will benefit from this research in that it will result in an educational experience, both by providing the student with direct experience with a social psychology experiment and by providing the student with additional information about the area of person perception. The results of this study will allow a better understanding of the manner in which individuals attribute own success/failure and how they compare themselves to others on important variables. Such findings are important not only because they relate two parallel areas of social psychology previously considered separate but because understanding of the manner in which self attributions and self comparisons are made will help psychologists to further understand how self esteem and social functioning are related. In this respect, it will benefit scientific knowledge in the area significantly.

3. Subjects will be asked to perform a dot judging task under various public/private conditions. They then will be given bogus feedback about their performance (success/failure). Following feedback, subjects will be asked to fill out several paper and pencil measures of the impressions of own and others' performance. Subjects will then be debriefed.

4. Subjects will be 192 undergraduate students enrolled in Psychology 110 and should range in age from 18-24, approximately. As such, they should fall within the normal ranges of the population and would not likely to be considered vulnerable in the accepted sense of the word.

5. The subjects may be exposed to some brief discomfort, in that a deception regarding the nature of the task and false feedback are proposed. Subjects will be told that they will be engaging in a task which demonstrates a type of nonverbal intelligence. They will then receive feedback about their success or failure on the task. It is possible that some subjects could find this slightly uncomfortable. Past studies in this area have successfully used deception frequently. No deleterious effects on the part of subjects have been reported in the literature of this area. Attempts to locate such results have met with little success, thus it is difficult to say for certain what effects might be on subjects.

6. As soon as is possible, subjects will be debriefed, therefore limiting the period of deception to as brief a period as possible. Thorough measures will be taken to insure that subjects understand that their performance on the task has no relationship to their level of intelligence, that deception was necessary to elicit the behaviors in question, and that being deceived in an experimental study in no way reflects on competency or personality characteristics of
subjects participating in the study.

7. Subjects' responses will be anonymous not only for purposes of confidentiality but because the nature of the study requires it. An experimental assistant will take names of subjects at the beginning of the experiment for bookkeeping purposes, then subjects will be randomly assigned to an experimental code number. After this is done, even the experimenter will not be able to identify responses of a particular individual.

8. N/A

9. A waiver of consent is applied for, because this study does not appear to involve risk to the subject. Previous studies appearing in the literature of this area, of which there are many, have reported no risk with this type of experimental paradigm.

10. The results of this study will be made available to the students who are interested.
<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
</table>

134
Table 1

**Table 1**

**Variable: Predicted Difficulty of Future Dot Judging:**

**T Values for Dunnett's Tests for Comparing Treatments with a Control of Standard Value**

<table>
<thead>
<tr>
<th></th>
<th>Public</th>
<th>Public-Observer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Success</td>
<td>Failure</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1.35 NS**</td>
<td>-.36 NS</td>
</tr>
<tr>
<td>Female</td>
<td>.98 NS</td>
<td>1.58 NS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Anonymous</th>
<th>Self-Aware</th>
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</thead>
<tbody>
<tr>
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<td>Success</td>
<td>Failure</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>.61 NS</td>
<td>1.95 NS</td>
</tr>
<tr>
<td>Female</td>
<td>.98 NS</td>
<td>1.91 NS</td>
</tr>
</tbody>
</table>

**Formula:** \[ t = \frac{\text{cell mean} - \mu}{\sqrt{\frac{(2) \text{(MSE)}}{\text{cell n}}}} \]

\[ t > 3.28 = \text{significance} \]

**NS (nonsignificant)**
Table 2

 Variable: ATTRIB:T Values for Dunnett’s Tests for Comparing Treatments with a Control of Standard Value*

<table>
<thead>
<tr>
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<th>Public</th>
<th>Public-Observer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Success</td>
<td>Failure</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1.38 NS**</td>
<td>-.20 NS</td>
</tr>
<tr>
<td>Female</td>
<td>1.63 NS</td>
<td>.74 NS</td>
</tr>
</tbody>
</table>

|                  | Anonymous            | Self-Aware                |
|                  | Success | Failure | Success | Failure |
| **Sex**          |         |         |         |         |
| Male             | .54 NS  | .74 NS  | Male    | 1.56 NS | .00 NS  |
| Female           | 1.08 NS | .13 NS  | Female  | .54 NS  | .95 NS  |

*Formula: $t = \frac{\text{cell mean} - 0}{\sqrt{\frac{2}{\text{MSE}} \frac{1}{\text{cell} n}}}$

**NS (nonsignificant)
TABLE 3
Table 3A
Variable SDQ: Cell Means for a Two (Male/Female) by Four (Public, Public-Observer, Anonymous, Self-Aware) ANOVA

<table>
<thead>
<tr>
<th>Condition</th>
<th>Public</th>
<th>Public-Observer</th>
<th>Anonymous</th>
<th>Self-Aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>7.70</td>
<td>7.79</td>
<td>6.79</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>8.88</td>
<td>7.96</td>
<td>8.67</td>
</tr>
</tbody>
</table>

Main effect Sum of Squares  DF  Mean Square  F  Sign. of F
Sex 34.953  1  34.953  4.152  .043

Table 3B
Variable ODQ: Cell Means for a Two (Male/Female) by Four (Public, Public-Observer, Anonymous, Self-Aware) ANOVA

<table>
<thead>
<tr>
<th>Condition</th>
<th>Public</th>
<th>Public-Observer</th>
<th>Anonymous</th>
<th>Self-Aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>7.67</td>
<td>7.75</td>
<td>6.79</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>8.71</td>
<td>9.46</td>
<td>8.33</td>
</tr>
</tbody>
</table>

Main effect Sum of Squares  DF  Mean Square  F  Sign. of F
Sex 85.333  1  85.333  6.771  .010
Table 4

Pearson Product Moment Correlations on Variables ATTRIB, PIP, PIPGROUP, PIPCOLLG, and PIPPERS

<table>
<thead>
<tr>
<th></th>
<th>Success</th>
<th>Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Public-Observer</td>
</tr>
<tr>
<td></td>
<td>Condition</td>
<td>Public</td>
</tr>
<tr>
<td>Male</td>
<td>Success</td>
<td>Failure</td>
</tr>
<tr>
<td>ATT</td>
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<td>0.66</td>
</tr>
<tr>
<td></td>
<td>(0.23)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>PIP</td>
<td>-0.24</td>
<td>-0.59</td>
</tr>
<tr>
<td></td>
<td>(0.22)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>PIPGRP</td>
<td>0.72</td>
<td>0.74</td>
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(Table 4 continues)
Table 4 (continued)

**Pearson Product Moment Correlations on Variables ATTRIB, PIP, PIPGROUP, PIPCOLLG, and PIPPERS**

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**Male**

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Table 4 (continued)

Pearson Product Moment Correlations on Variables ATTRIB, PIP, PIPGROUP, PIPCOLLG, and PIPPERS

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(Table 4 continues)
Table 4 (continued)

Pearson Product Moment Correlations on Variables ATTRIB, PIP, PIPGROUP, PIPCOLLG, and PIPPERS

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*Indicates significance level
TABLE 5
Table 5

Pearson Product Moment Correlations: SDQ with ATTRIB, PIP, PIPGROUP, PIPCOLLG and PIPPERS, Full Sample

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* significance level of the correlation coefficient
TABLE 6
Table 6

Pearson Product Moment Correlations: SDQ with ATTRIB, PIP, PIPGROUP, PIPCOLLG and PIPPERS, Partial Sample

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* significance level of the correlation coefficient
TABLE 7
Table 7

Pearson Product Moment Correlations: ODQ with ATTRIB, PIP, PIPGROUP, PIPCOLLG and PIPPERS, Full Sample

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* significance level of the correlation coefficient
TABLE 8
Table 8

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* significance level of the correlation coefficient