71-16,544

SIMON, William Edward, 1943-
INTERPERSONAL ATTRACTION AS A FUNCTION OF PERCEIVED SIMILARITY AND SELF-ESTEEM.

The City University of New York, Ph.D., 1971
Psychology, clinical

University Microfilms, A XEROX Company, Ann Arbor, Michigan

INTERPERSONAL ATTRACTION AS A FUNCTION OF PERCEIVED SIMILARITY AND SELF-ESTEEM

by

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A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1970

This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy

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ACKNOWLEDGMENTS

An expression of gratitude is due many individuals for cooperation and assistance which were so helpful to the author in completing this study. Special thanks are due to the members of the author's dissertation committee, Drs. Harold Webster, William Oakes and Norman Weissberg, for their encouragement, support and practical suggestions throughout the project. Their helpful suggestions and constructive criticism are largely responsible for whatever credit may be due this study. Thanks are also due a number of other individuals, too numerous to list, for either directly or indirectly contributing to the completion of this study.

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Perhaps the single most valuable bit of data that one can have in attempting to predict the quantity and quality of one person's interaction with a second person is the former's evaluation of the latter on what may be termed a like-dislike, favorable-unfavorable or attractive-unattractive continuum. For instance, other things being equal, one would predict that most people generally seek interaction with individuals whom they like and avoid interaction with individuals whom they dislike. This proposition would appear to be so obviously true as to be not worth stating. Not quite so obvious, however, are the determinants of attraction. Given the fact that interpersonal attraction is one of the most important aspects of human interaction, it is surprising that progress towards elucidating its antecedents has been so slow and tedious. Theodore Newcomb, writing in 1956, states that "I think it not much of an exaggeration to say that there is no very adequate theory of interpersonal attraction (p. 575)." Today, more than a decade later, one could argue in defense of the same statement.

Some of the confusion in the extensive literature on interpersonal attraction may emanate from the fact that the theoretical construct of attraction has been conceptualized and operationalized in a variety of ways. Pepitone (1964, v-vi) makes this point well as he writes that:

> For all its significance, however, there is no organized body of knowledge which can even pretend to cover the field of attraction and hostility. This partly owes to the enormous range and kind of human behavior encompassed by these terms. So great is the diversity of data that it is difficult to imagine a comprehensive taxonomy, much less an integrated theoretical structure.

It would thus appear that it is incumbent upon any study of interpersonal attraction to commence with a clear and specific statement of precisely what it is that is being studied.

The present study is primarily concerned with the determinants of the attractiveness (A) of the impression that one person (p) forms of another person (o). The theoretical construct of attractiveness is, in the present study, operationally defined in two ways. One of these operational definitions is the extent to which p perceives o as possessing socially desirable character traits as opposed to possessing socially undesirable character traits. Thus, for instance, if p forms an impression of o as being intelligent, strong, stable and creative, he is, by definition, forming a more attractive impression than if he forms an impression of o as being unintelligent, weak, unstable and uncreative. The second operational definition of attractiveness in the present study is the extent to which p believes he would like interacting with o in various social contexts.

Although one would expect these two operational indexes

of attractiveness to be highly correlated, one would also expect the correlation to be less than perfect. It is therefore possible that testing of the three research hypotheses (to be described below) may yield different results for the two operational indexes. This is not expected as the predictions of the three research hypotheses are the same for both of the operational indexes of attractiveness. If, however, different results for the two operational indexes are obtained, we shall use the term attractiveness to refer to the extent to which p perceives o as possessing socially desirable character traits as opposed to possessing socially undesirable character traits, and the term attraction to refer to the extent to which p believes he would like interacting with o in various social contexts. For now, however, the two terms, attraction and attractiveness, will be used interchangeably.

The method employed in the present study is a somewhat modified version of that used by Solomon Asch (1946) in his pioneering study of impression formation behavior. It is discussed in detail below in the method section. For now, however, it would seem appropriate to describe Asch's method and those of his findings relating to interpersonal attractiveness. Following this, attention will be turned to the research hypotheses of the present study.

Asch's 1946 study consisted of a series of distinct ex-

periments which shared a common method. His procedure was to read his subjects a list of character traits describing a hypothetical individual and to ask them for a written impression. Following this, Ss were presented with a check list consisting of pairs of traits, mostly opposites, and were requested to select from each such pair the trait which they felt to be the more compatible with the impression they had formulated. Finally, Ss were asked to rank order the given character traits in terms of the order of their importance for determining their impression. Subjects were not asked about their willingness to interact with the hypothetical individual. The basic dependent variable was the subjects' responses on the check list. The written impressions were not analyzed in any statistical manner but instead were only used to illustrate qualitative differences.

In his investigations Asch was primarily concerned with the influence of various stimulus factors upon the nature of the impression which p forms of o. The most obvious of these stimulus factors are the chosen traits. If p is told that o is sociable, unreliable, active and loud we would not be surprised to discover that he forms a somewhat different impression of o than he would have formed had he been told that o is unsociable, reliable, passive and quiet. In Asch's first experiment two groups were read one of the following two stimulus lists:

List A intelligent—skillful—industrious—warm—determined—practical—cautious

List B intelligent—skillful—industrious—cold—determined—practical—cautious

It can be seen that the two lists are identical except that List A subjects heard the stimulus person described as "warm" while List B subjects heard him described as "cold." Asch found that the impressions formed by List A subjects were generally far more positive or attractive than the impressions formed by List B subjects.

The importance of the character traits presented in determining the attractiveness of the impression formed was also shown in another experiment in which Asch used the following two stimulus trait lists:

List A kind—wise—honest—calm—strong

List B cruel—shrewd—unscrupulous—calm—strong

The subjects were requested to write down synonyms for the given character traits and the analysis focused on differences in the frequencies of the synonyms that were given for "calm" and "strong." In general, as one would expect, it was found that the character traits given as synonyms by List A subjects were more favorable or attractive than the character traits given as synonyms by List B subjects.

Another stimulus factor investigated by Asch in his 1946

study was that which he referred to as "the factor of direction (p. 270)", more commonly referred to as "temporality." Here the question is whether the temporal order of occurrence of p's cognitions of o's character traits has any effect upon the nature of the impression which he forms of o. In investigating this question, Asch employed the following two stimulus trait lists:

List A intelligent—industrious—impulsive—critical —stubborn—envious

List B envious—stubborn—critical—impulsive—industrious—intelligent

The two stimulus trait lists are identical in content and differ only in that the order of trait presentation is reversed. Here the general finding was that the impressions formed by List A subjects were more favorable than those formed by List B subjects.

Although Asch's method has been criticized by some (e.g., Luchins, 1948) for its artificiality or lack of external validity, studies using more "realistic" stimulus people have yielded results very similar to those which he obtained (e.g., Kelley, 1950; Veness & Brierly, 1963). Asch's method has become one of the classic paradigms in social psychology. The number of studies using it, or modified versions of it, is legion (e.g., Anderson & Hubert, 1963; Benedetti & Hill,

1960; Cohen, 1961; Haire & Grunes, 1950; Mensch & Wishner, 1947; Nidorf & Crockett, 1964; Zajonc, 1960; etc.).

As discussed above, Asch was primarily concerned with the influence of various stimulus factors upon the nature of the impression which p forms of o. Consequently, he manipulated such variables as the particular character traits given and their temporal order of presentation. One of the advantages of Asch's method is, however, that it also makes it possible to hold the stimulus constant. When this is done the question which arises is how to account for the differences among the impressions formulated. Why, for instance, when presented with the same o (i.e., the same stimulus trait list) do ps form impressions whose attractiveness varies. Such differences in the A of the impressions formulated presumably reflect certain personality factors in p and, by taking the latter into account, it should become possible to predict more accurately the former. Although Asch did not investigate the influence of such personality factors, he was aware of their importance. In his words, "We have not dealt in this investigation with the role of individual differences, of which the most obvious would be the effect of the subject's own personal qualities on the nature of his impression (p. 283)."

The present study investigates the influence of two personality variables, perceived similarity (PS) and self-esteem

(SE), upon the A of the impression which p forms of o within a modified Aschian context. Perceived similarity refers to the extent to which p perceives o as being similar to himself while self-esteem refers to p's personal evaluation of his own worthiness. These definitions require elaboration, which they will receive in the course of developing the research hypotheses. The hypotheses relating to the main effect of PS upon A (Hypothesis 1) and to the interactive effect of PS and SE upon A (Hypothesis 2) are derived from Fritz Heider's (1946, 1958) theory of cognitive balance. The hypothesis relating to the main effect of SE upon A (Hypothesis 3) is based upon a proposition contained within the theories of a number of prominent personality theorists. Let us consider the hypotheses in turn.

Hypothesis 1 and 2 are, as stated above, based upon Heider's theory of cognitive balance. This theory has served as the prototype for a large number of subsequent theories which all stress the importance of what may be called a "cognitive consistency" motive in explaining or predicting human behavior (Abelson & Rosenberg, 1958; Feather, 1964; Festinger, 1957; Newcomb, 1953; Osgood & Tannenbaum, 1955; Rokeach & Rothman, 1965). Heider's theory has also stimulated numerous experimental studies (e.g., Broxton, 1963; Burdick & Burnes, 1958; Jordan, 1953; Kogan & Tagiuri, 1958; Levison, 1963;

Morrissette, 1958; Morrissette & Jahnke, 1967; etc.). The results of most of these studies have supported the theory.

The basic concepts in Heider's theory are entities and relations. Entities may be people (symbolized by p if it is the person whose life space is being considered, or by o or q if somebody else) or objects (symbolized by x, y, and z). Relations between entities may be sentiment or unit relations. Sentiment relations are attitudinal relations which refer to the way in which p evaluates another entity. Positive sentiments are symbolized by L (like) and negative sentiments by DL (dislike). Thus p L o would mean that person p likes or has a positive attitude towards person o. Unit relations are relations of belongingness and may be based upon such things as causality, membership, ownership, proximity, familiarity and similarity. A positive unit relation (U) or unit formation means that two entities are somehow perceived as being associated, while a negative unit relation (notU) means that two entities are somehow perceived as being dissassociated. The unit relations with which the present study is concerned are based upon similarity. Thus p U o will, unless otherwise stated, henceforth mean that p perceives o as being similar to himself while p notU o will, unless otherwise stated, henceforth mean that p perceives o as being dissimilar to himself.

There is a point dealing with the conceptualization of the notU relation which is worthy of some clarification here.

Cartwright and Harary (1956) have pointed out, and Heider (1958) agrees, that theoretically one must distinguish between the absence of a unit formation and the opposite of a unit formation. The absence of a unit formation is termed the complementary relation and is analogous to indifference (neither L nor DL) in the sentiment dimension. It indicates that two entities are perceived as being not associated but not that they are perceived as being disassociated. The opposite of a unit formation is a negative relation and is analogous to disliking in the sentiment dimension. It indicates that two entities are perceived as being disassociated rather than just "not associated."

In seeking to clarify the distinction between the absence of a unit formation and the opposite of a unit formation, Heider (1958, p. 202) writes:

> Contrast, for example, the following situations: (1) p is unfamiliar with o who is seated next to him on the bus, and (2) p is unfamiliar with o whose ways and dress seem strangely different. In the first case, there is an absence of unit formation, the sign character of the relation being neutral rather than negative or positive—somewhat akin to that of indifference in the sentiment dimension. In the second case the relation may be thought of as a disunion; p and o are to some extent separated into two camps.

The importance of making the distinction between the absence of a unit formation and the opposite of a unit formation will

soon become apparent when the dynamics of Heider's theory are considered. For now, the important point is that in the present study p notU o will be operationalized to represent perceived dissimilarity rather than just perceived nonsimilarity.

Turning from the structure of Heider's theory to the dynamics, one finds him (1958, p. 201) writing that:

> By a balanced state is meant a situation in which the relations among the entities fit together harmoniously; there is no stress towards change. A basic assumption is that sentiment relations and unit relations tend toward a balanced state. This means that sentiments are not entirely independent of the perception of unit connections between entities and that the latter, in turn, are not entirely independent of sentiments. Sentiments and unit relations are mutually interdependent. It also means that if a balanced state does not exist, then forces towards this state will arise. If a change is not possible, the state of imbalance will produce tension.

A dyad is balanced if the relations between the two entities are either both positive (L and U) or both negative (DL and notU). It is unbalanced when one of the relations is positive and the other is negative. Thus, "I like the car" (p L x) and "I own the car" (p U x) would constitute a balanced state while "I don't like the car" (p DL x) and "I own the car" (p U x) would constitute an unbalanced state.

A triad is balanced if all three of the relations are pos-

itive or if two are negative and one is positive. It is unbalanced if all three relations are negative or if two are positive and one is negative. Thus, "I like Jim," "I like Paul" and "Jim likes Paul" (p L o, p L q, and o L q) is balanced. However, if Jim is perceived as hating Paul (p L o, p L q and o DL q) a state of cognitive imbalance results. Expressed algebraically, Heider's two and three entity systems are balanced if the product of the signs is positive and unbalanced if the product is negative. In Heider's theory it is p's perception of the relations between entities which is important for predicting p's subsequent cognitive behavior. These perceptions may or may not correspond with whatever is taken to be the reality of the given situation. For instance, in the above example o's actual feelings towards q are not important. What is important is p's perception of these feelings.

If p perceives o as being similar to himself (p U o) Heider's theory predicts that p will tend to like or be attracted to o (p L o). Conversely, if p perceives o as being dissimilar to himself (p notU o) Heider's theory predicts that p will tend to dislike or be repelled by o (p DL o). These predictions follow from the conditions of balance set forth above. Given p U o there will be a tendency towards p L o (two positive relations and hence a state of cognitive

balance) rather than towards p DL o (one positive and one negative relation and hence a state of cognitive imbalance). Given p notU o there will be a tendency towards p DL o (two negative relations and hence a state of cognitive balance) rather than towards p L o (one positive and one negative relation and hence a state of cognitive imbalance).

The importance of distinguishing between the absence of a unit formation (no relation) and the opposite of a unit formation (a negative relation) should now be apparent, as should the theoretical rationale for the first hypothesis of the present study. This hypothesis may be stated as follows:

> Hypothesis 1: the attractiveness (A) of the impression which p forms of o will generally tend to be greater when p perceives a high degree of similarity to exist between himself and o than when p perceives a high degree of dissimilarity to exist between himself and o.

In the present study Hypothesis 1 will be experimentally tested by manipulating PS at two levels (High and Low PS conditions). Perceived similarity will be defined in terms of values. Thus in the High PS condition o will represent a stimulus person (S.P.) having a value system relatively similar to p's value system while in the Low PS condition o will

represent a stimulus person having a value system relatively dissimilar to p's value system.

The decision to operationalize similarity-dissimilarity in terms of values is based upon the following consideration. Suppose p perceives o as being similar to himself in using ketchup on his salad but not on his steak (p U o). The theoretical prediction is that p will tend to evaluate o favorably (p L o) but one wonders how strong this tendency would be. The point at issue here is one which may be termed importance. There are similarities and similarities—some based upon cognitive elements exceedingly important to p, some based upon cognitive elements not particularly important to p. The strength of the tendency towards p L o would be expected to be a function of the importance of the cognitive elements forming the basis for p U o.

The decision to operationalize similarity-dissimilarity in terms of values is based upon the fact that values are cognitive elements that are typically of high importance. In making this point and in distinguishing between attitudes and values Hollander (1967, pp. 114-115) states:

> Both attitudes and values have properties which define what is expected and what is desired. They can both therefore be thought of as motivational-perceptual states which direct action....Values may be considered to be the core component of a clustering of attitudes which direct behavior on a long-

> range basis toward some goals in preference to others. In a motivational sense, therefore, values have a more central quality.

Empirically, values have been found to be related to such dependent variables as recognition thresholds of visually presented stimulus words (Postman, Bruner, & McGinnies, 1948), recognition thresholds of auditorily presented stimulus words (Vanderplas & Blake, 1949), response on word association tasks (Dunn, Bliss, & Siipola, 1958; McGinnies, 1950), recall (Postman & Schneider, 1951), concept span (Mayzner & Tresselt, 1955), occupational choice (Allport, Vernon, & Lindzey, 1960) and the strength of the tendency to resist conforming to group pressure (Vaughan & Mangan, 1963).

It is to be noted that Hypothesis 1 is one which Heider himself (1958, p. 184) puts forth. It is also one which is expressed in the age old saying, "Birds of a feather flock together." Support for the existence of a positive correlation between similarity and attraction, a finding which is at least consistent with Hypothesis 1, comes from numerous studies. For instance, attraction has been reported to be positively related to similarity of race (Criswell, 1939), religious affiliation (Goodnow & Tagiuri, 1952), ethnic group membership (Loomis, 1943), vocational career preference (Bonney, 1946), activity preference (Davitz, 1955), socio-

economic status (Hollingshead, 1949; Udry, 1960), and various personality traits (Fiedler, Blaisdell, & Warrington, 1952; Secord & Backman, 1964; and Tharp, 1963). Of more immediate interest to the present investigation are those studies which have found a positive relationship between attraction and similarity of values and attitudes (e.g., Broxton, 1963; Newcomb, 1961; Precker, 1952, 1953; Richardson, 1939; and Winslow, 1937).

However, one difficulty with these studies is that they are all of a correlational, non-experimental nature. Thus one cannot tell whether similarity causes attraction, attraction causes similarity, both are caused by some other unspecified variable(s) or there exists some combination of these possible causal relationships. In recent years a number of studies have experimentally manipulated perceived similarity and have, by and large, found that it does lead to increased interpersonal attraction. The most notable studies here are a series conducted by Byrne and his associates (Byrne, 1961a; Byrne, 1961b; Byrne, 1962; Byrne & McGraw, 1964; Byrne & Nelson, 1964; Byrne & Rhamey, 1965; Byrne & Wong, 1962). These studies all employed essentially the same method. It is a method somewhat different from that used in the present study and one which may be termed, for want of a better name, the similar-dissimilar questionnaire method.

In order to illustrate this method let us consider the first of the studies enumerated above in more detail. In this study (1961a) Byrne used a self-devised scale to measure the attitudes of college students towards a wide range of issues (e.g., integration, politics, God, premarital sex relations). Two weeks later the students were erroneously informed that the scale had been given as the first part of a study in interpersonal prediction. They were then given the exact same attitude scales presumably filled out by students in another class for the purpose of ascertaining what they could learn about them from this information alone. Their task was to rate the hypothetical stimulus person on six seven-point scales indicating (a) how well they would like this person, (b) whether they believed they would enjoy working with him (or her) as a partner in an experiment, (c) intelligence, (d) knowledge of current events, (e) morality, and (f) adjustment. One group received attitude scales filled out exactly the same as theirs had been, while a second group received scales expressing opinions directly opposite to their own. It was found that with respect to all six dependent variables the stimulus person was given significantly higher ratings when he was represented as having similar attitudes ($p < .001$ in all cases).

The method used in the study just described (Byrne, 1961a)

is pretty much the same as that used in the subsequent studies conducted by Byrne and his associates. It is also the same as that used earlier by Smith (1957) in what was perhaps one of the first studies to experimentally manipulate perceived similarity. Smith's study is especially relevant to the present study in that perceived similarity was based upon values. Students filled out the Allport-Vernon-Lindzey Study of Values (1951) and, on the basis of their responses, two types of experimental booklets were constructed. The similar test booklets contained responses identical to those of the subjects while the dissimilar test booklets contained responses derived in such a way as to yield a consistent degree of dissimilarity. In all booklets the responses to questions pertaining to that value on which the student had scored lowest were systematically excluded. The students were subsequently given the two types of booklets and told that each contained the responses of another person. They were instructed to answer the uncompleted questions as they believed each stimulus person had answered them and, following this, were requested to rate each of the two stimulus persons with respect to willingness to associate with them in (a) leisure time activities and (b) work activities. Smith found that there was a significant preference for the similar hypothetical stimulus person as both a leisure time ($p < .001$)

and work (p=.007) associate.

An interesting question is whether the relationship between perceived similarity and interpersonal attraction would also be found if perceived similarity were manipulated in a somewhat more subtle manner than through the use of similar or dissimilar responses on the exact same scales. In the "real" world it would never be the case that p believes o to be similar to himself because he happens to find a questionnaire which o has filled out in precisely the same manner as p had filled it out earlier. One of the purposes of the present study is to determine if the balance theory predicted relationship between perceived similarity and interpersonal attraction would hold within a modified Aschian methodological context. If p U o is found to induce p L o within an Aschian context, it would constitute strong additional support for Heider's theory. Taken together with the findings of studies using the similar-dissimilar questionnaire methodology, such a finding would, in some degree, demonstrate what has been called "convergent operationism" (Garner, Hake, & Eriksen, 1956) or "methodological triangulation" (Campbell, 1956).

Before turning our attention to Hypothesis 2, some mention should perhaps be made of Winch's (1954, 1958) theory of complementary needs. Winch, primarily interested in the determinants of mate selection, suggests that people may be at-

tracted to each other because their need structures are complementary or different rather than similar. His theory receives some support from studies such as that of Winch, Ktsanes, and Ktsanes (1955). In this study 25 married couples were subjected to: (a) a "need-interview" structured in such a way as to elicit information regarding a number of needs; (b) a case history interview; and (c) an eight card TAT. From this data each of the 50 subjects were rated on each of 44 personality variables. Subsequent correlations between spouses on these 44 variables yielded two major clusters, "receptiveness" (e.g., submissiveness, masochistic inferiority, passive dependency, etc.) and "assertiveness" (e.g., independent, controlling, hostile, etc.). Supporting the complementary hypothesis was the finding that subjects who fell in one of the two clusters tended to have spouses who fell in the other. Other studies indicating that married couples are more likely to have spouses with complementary rather than similar needs are those of Winch (1955) and Kerchoff and Davis (1962). It may be the case that in seeking to predict whether similarity or dissimilarity leads to attraction, one has to consider carefully the question of "similarity or dissimilarity of what." For example, if similarity rather than dissimilarity of physical sex were strongly correlated with attraction, the perpetuation of the species might

prove to be difficult.

There are two additional factors which should be mentioned in discussing the complementary needs hypothesis. First, a number of studies (Altrocchi, 1959; Hobart & Lindholm, 1963; Katz, Glucksberg, & Krauss, 1960; Murstein, 1961) have failed to support the complementarity hypothesis. Differences in the method and subject populations used in studies in this area make comparisons across studies difficult. It would seem, however, that the case for Winch's complementarity hypothesis is one which is far from having been convincingly proven. Secondly, even findings supporting the complementarity hypothesis are not necessarily inconsistent with Hypothesis 1 if, as Newcomb (1956) suggests, one shifts to an attitudinal level of analysis. Consider, for example, the above mentioned finding (Winch, Ktsanes, & Ktsanes, 1955) that "assertive" people tend to be married to "receptive" people. It may be the case that people in such marriages, although different in need structures, are similar in that they share the attitude that in a marriage relationship one partner should be "assertive" while the other should be "receptive."

Let us now turn our attention to the second hypothesis of the present study. In predicting that p U o tends to induce p L o, Heider's theory (and hence Hypothesis 1 above)

assumes that p evaluates himself in a favorable manner (p L p). Given the relations p L p and p U o, there will be a tendency to induce p L o rather than p DL o. Three positive relations constitute a balanced state, while two positive relations and one negative relation constitute an unbalanced state. Given the relations p L p and p notU o, there will be a tendency to induce p DL o rather than p L o. Two negative relations and one positive relation constitute a balanced state, while two positive relations and one negative relation constitute an unbalanced state. Support for the assumption that most people evaluate themselves in a favorable manner comes from (a) the literature on social desirability (Edwards, 1957), (b) studies showing that people are more likely to misperceive negative evaluations of themselves than positive evaluations of themselves (Harvey, 1962; Harvey, Kelley, & Shapiro, 1957), and (c) studies such as those cited above which show that attraction and similarity are in fact frequently related.

Although Heider was not unaware of the relevance of self-attitude for balance theory (1958, p. 210), he did not deal with the question in any detail. Let us consider what Heider's theory would predict concerning the effects of varying PS upon A if p has low SE (p DL p). Given the relations p DL p and p U o, balance theory would predict that there would be a tendency to induce p DL o rather than p L o. Two negative rela-

tions and one positive relation constitute a balanced state, while two positive relations and one negative relation constitute an unbalanced state. Thus, holding p U o constant, balance theory predicts that whether p L o or p DL o will tend to vary as a function of p's self-esteem—as a function of whether p L p or p DL p. In what is assumed to be the more usual case (Hypothesis 1) where p L p, there will be a tendency to induce p L o — or, people will tend to be attracted to people whom they perceive as being similar to themselves. There is an important point here that should be clarified. Although it is more convenient to think in terms of p L p (a positive relation) versus p DL p (a negative relation) in discussing the role of self-esteem in Heider's theory of cognitive balance, it is important to bear in mind that what one is really talking about is degrees of p L p. Consequently, although it is to be expected that (given p U o) p will like o more when p L p than when p DL p, a reversal in the direction of the effect (p L o versus p DL o) is not necessarily to be expected.

Now let us consider the case in which the relations p DL p and p notU o are given. Here p does not like himself and perceives o as being dissimilar to himself. Balance theory predicts that there will be a tendency to induce p L o rather than p DL o. Two negative relations and one positive relation constitute a balanced state, while three negative relations

constitute an unbalanced state. Thus the predicted sentiment outcome is opposite from that which is predicted given p L p and p notU o, in much the same manner as the predicted outcome of p DL p and p U o is opposite from that predicted for p L p and p U o. Hypothesis 2 follows:

> Hypothesis 2: the attractiveness (A) of the impression which p forms of o will generally tend to be a function of an interaction between the degree to which p perceives o as being similar to himself (PS) and p's self-esteem (SE). The predicted direction of the hypothesized interaction is that High PS minus Low PS will result in a greater positive difference in A under the High SE condition than under the Low SE condition.

As will be explained below, self-esteem will be both measured (i.e., treated as an organismic variable) and manipulated (i.e., treated as an experimental variable) in the present study. Measured self-esteem will henceforth be referred to as chronic or enduring self-esteem (ESE) while manipulated self-esteem will henceforth be referred to as acute or momentary self-esteem (MSE). Self-esteem (SE) will refer to ESE and MSE taken together.

Deutsch and Solomon (1959) were among the first to sug-

gest the potential importance of self-evaluation for both balance theory and for assisting in understanding many aspects of human behavior which might otherwise prove difficult to understand. They (1959, pp. 96-97) write:

> Many phenomena of everyday life, which, otherwise, appear to be puzzling seem more understandable if one assumes that the person involved evaluates himself or herself negatively rather than positively. Thus, it is difficult ordinarily to understand why a girl may reject men who are attracted to her and be attracted to men who reject her, or why a child may seek punishment, or why a man may feel a sense of comfort when he has been defeated in a competition or failed an important test and feel uncomfortable when he has been victorious or successful. However, if we assume that the girl, the child, or the man who act in such puzzling ways evaluate themselves negatively the bewildering quality of their actions disappears; their actions seem comprehensible. This is not to assert that such phenomena are completely explained by the assumption of a negative rather than a positive self-evaluation. Other factors, particularly the indirect expression of hostility toward others, may also be involved. Nevertheless, it seems likely that many behavioral phenomena which seem incomprehensible or "irrational" have at their roots a self-evaluation by the behaving individual which is counter to that which the observer assumes him to have.

In their study subjects were led to believe that they were a member of one of two competing teams. They were given two tasks and subsequently led to believe, through feedback provided by the experimenter, that their performance on these tasks had been either favorable or unfavorable. Following this, they were exposed to either a favorable or unfavorable

evaluation of their performance and desirability as a teammate by a note which was presumably from another member of their team. Thus there were four conditions in this part of the study: subject success followed by positive evaluation by teammate (S-P condition, abbreviations of conditions are the author's and not those of Deutsch and Solomon), subject success followed by negative evaluation by teammate (S-N condition), subject failure followed by positive evaluation by teammate (F-P condition), and subject failure followed by negative evaluation by teammate (F-N condition). Subjects were then asked to evaluate the teammate who had just presumably evaluated them.

Statistical analysis of the data thus obtained revealed a significant interaction between subject success or failure and positive or negative evaluation by their teammate. The teammate was evaluated most favorably in the S-P condition, somewhat less favorably in the F-P and F-N conditions (evaluations in these two conditions did not differ significantly) and rather unfavorably in the S-N condition. These results may readily be interpreted as lending some support to the contention that self-attitude is important for balance theory, at least when dealing with two sentiment relations of the kind employed in this study (the teammate's evaluation of the subject and the subject's evaluation of the teammate). Those

subjects receiving negative notes (o DL p) evaluated the teammate very unfavorably (p DL o) if they thought favorably of their own performance (p L p), but rather favorably (p L o) if they thought unfavorably of their own performance (p DL p). Subjects receiving positive notes (o L p) evaluated their teammate favorably (p L o), but more favorably if they thought favorably rather than unfavorably of their own performance.

Studies by Wiest (1965), Lundy (1956), and Lundy, Katkovsky, Cromwell, and Shoemaker (1955) also appear relevant to Hypothesis 2. Although these studies are all of a correlational nature, their results may be interpreted as suggesting that self-esteem is relevant in making predictions from balance theory. The 1955 study by Lundy, et al., takes as a starting point an earlier finding by Fiedler, Blaisdell, and Warrington (1952) that subjects perceive fellow group members they like best as more similar to themselves than group members they like least. Lundy, et al., comment (p.260) that:

> Pertaining to the findings of Fiedler, et al., it may be that the Ss used in their study described the group members they liked best as more similar to themselves than group members they liked least, because the Ss' general attitudes toward themselves were positive and accepting. Had the Ss been less accepting towards themselves, they might have been less likely to describe their best-liked fellow group members as more similar to themselves than their least-liked fellow group members.

In their study college students were asked to complete a multi-

ple choice personality description blank describing themselves, their ideal selves, their best-liked fellow student of the same sex (positive sociometric choice) and their least-liked fellow student of the same sex (negative sociometric choice). Self acceptability was operationally defined by agreements between the self and ideal self descriptions, while self unacceptability was defined by disagreements between the self and the ideal self descriptions. It was found that descriptions of the positive sociometric choices were more similar ($p < .001$) to the subjects' acceptable self descriptions than to their unacceptable self descriptions. Lundy, et al., conclude (p. 262) that: "In general Ss were found to describe persons they like best as more similar to themselves than persons they like least. However, the extent of this similarity appears to be determined by the individual's acceptance or unacceptance of himself." The findings of this study were replicated in a subsequent study by Lundy (1956) in which the only essential difference in procedure was that the Ss were asked for their opposite sex positive and negative sociometric choices rather than their same sex positive and negative sociometric choices.

Wiest (1965), using a sociometric technique, had 415 children drawn from grades 5, 6, and 7 rate their liking and disliking of their classmates and how they thought their class-

mates felt about themselves. In addition, each child filled out a questionnaire designed to measure self-esteem. Wiest found that the extent to which S believes his evaluations of others are reciprocated by them is a positive function of his self-esteem. This is a finding which, although again of a correlational nature, is at least consistent with balance theory. A person with low self-esteem would theoretically not be expected to be liked by someone he likes — p DL p, p L o and o L p constitute an unbalanced state, whereas p DL p, p L o and o DL p constitute a balanced state.

Confirmation of Hypothesis 2 would also proffer a possible explanation for the occasional finding of a lack of relationship between similarity of values and attraction (e.g., Ramuz-Nienhuis & Van Bergen, 1960). Also interesting to consider here is a finding reported by Newcomb (1956) who has put forth a cognitive balance theory (the "A-B-X theory") (1953, 1959) similar to Heider's theory.

Like Heider's theory, A-B-X theory predicts that interpersonal attraction will tend to vary as a function of perceived similarity. To investigate some aspects of his theory Newcomb offered a group of 17 men, unknown to one another, the opportunity to live rent-free in a student house for a full semester. In return, they were to devote a few hours each week to providing various kinds of experimental data

relevant to the developing patterns of interpersonal attraction and perceived attitudinal similarity. One of Newcomb's findings was that with the passage of time there was an increasing relationship between interpersonal attraction and similarity in assigning General Liking scores to other group members. The finding of particular interest for Hypothesis 2 was that this relationship did not hold for the three most rejected individuals. These three individuals agreed with each other about the remaining individuals (in assigning General Liking Scores) more than they agreed with the others and yet they were liked by each other even less than others liked them. If it is assumed that these three individuals had low self-esteem, this finding is consistent with Hypothesis 2 — p DL p and p U o tends to induce p DL o — although the causal relations would once again be difficult to distinguish.

As mentioned above, Heider's theory has served as the prototype for a number of subsequent theories which all emphasize the importance of a motive for cognitive consistency. In reviewing the empirical evidence for these theories it is interesting to note that there often appears to be an implicit assumption of a positive attitude towards self. For instance, consider one of the studies (Festinger & Carlsmith, 1959) frequently cited in support of Festinger's (1957) theory of cog-

nitive dissonance. The basic finding of this study was that a group of Ss who were persuaded to lie to a future group of Ss and say that some presumably dull tasks had been interesting, subsequently rated the tasks as actually being more interesting than did a non-lying control group — and that a group that was paid $1 for lying rated the tasks as more interesting than a group that was paid $20. Festinger's theory holds that the two experimental groups rated the tasks as being more interesting than the non-lying control group because Ss in the two experimental groups held the following two dissonant cognitive elements: (a) the tasks were dull and (b) I said the tasks were interesting. These two elements are dissonant because, "considering the two alone, the obverse of one element would follow from the other (1957, p. 13)." Dissonance is conceptualized as an uncomfortable state of psychological tension which organisms seek to reduce.

Now, ignoring a number of criticisms (e.g., Chapanis & Chapanis, 1964) that have been leveled at this and similar experiments, what is to be noted here is that it appears that one of the following two sets of assumptions is being made:

1.

A) that most subjects have a negative attitude towards lying or that, in Heider's terms, p DL x and

B) that most subjects have a positive attitude towards self (p L p)

2.

A) that most subjects have a positive attitude towards lying or that, in Heider's terms, p L x and

B) that most subjects have a negative attitude towards self (p DL p)

Given the more probable of these two sets of assumptions (p DL x and p L p) along with p's cognition that he has lied (p U x), there results an unbalanced (i.e., dissonant) state consisting of two positive relations and one negative relation. There will thus be a tendency towards change. One of the ways in which consonance (i.e., balance) can be restored is to tell oneself that the tasks were really interesting and that consequently one hasn't lied (p notU x). Now consider the theoretically predicted outcome in the case where p DL p. The cognitions of p DL p, p DL x and p U x do not constitute an unbalanced or dissonant state. One would predict that there should be no tendency to increase the interest ratings of the tasks.

It would thus appear that dissonance theory, like balance theory, should theoretically take self-attitude into account in order to predict behavior more accurately. A study by Gerard, Blevans, and Malcolm (1964), based upon a paradigm put forth by Brehm (1956), offers some support for this con-

tention. Brehm was interested in the postdecisional re-evaluation of alternatives. His basic procedure was to have subjects evaluate a number of objects, have them subsequently choose between two of these objects as to which of them they would like as a gift, and then have them re-evaluate the objects after having made their choice. He found, as have a number of subsequent studies (e.g., Brehm & Cohen, 1959; Davidson & Kiesler, 1964; Deutsch, Krauss, & Rosenau, 1962; etc.), that the chosen alternative generally rises in value relative to the nonchosen alternative. This finding is predictable from balance theory — the relation "I own this object which I have chosen" (p U x) should tend to induce "I like this object" (p L x) rather than "I don't like this object" (p DL x) — if one assumes that most subjects also have a positive self-attitude (p L p) in that they believe that "I generally make wise decisions and choose the most valuable alternative available."

In the Gerard, Blevans and Malcolm study (1964) subjects were given a choice between two paintings which they had previously evaluated. Earlier the subjects had been informed that they had done well, poorly, or about average on an art judgment test. Gerard, et al., found that the only group which increased the value of the chosen alternative relative to the nonchosen alternative was the group which had been told

that they had done well on the art judgment test. Moreover, the group which had been told that they had done poorly manifested a converse pattern and increased the value of the nonchosen alternative relative to the chosen alternative. Explained in terms of balance theory, the relations "I am a terrible judge of art" (p DL p) and "I own this painting which I have chosen" (p U x) should tend to induce "I don't like this painting" (p DL x) rather than "I like this painting" (p L x). Two negative relations and one positive relation constitute a balanced state, while two positive relations and one negative relation constitute an unbalanced state.

The first hypothesis of the present study (Hypothesis 1) deals with the main effect of perceived similarity upon the attractiveness of the impression which p forms of o. The second hypothesis (Hypothesis 2) deals with the interactive effect of perceived similarity and self-esteem. The third hypothesis (Hypothesis 3), to which we will now turn our attention, deals with the main effect of self-esteem. A number of prominent personality theorists have suggested that there is a strong positive relationship between attitudes towards self and attitudes towards others. Sullivan states that, "one can find in others only that which is in the self...if the self dynamism...be chiefly derogatory (then) it will facilitate hostile, disparaging appraisals of other people (1947,

p. 10)." Similarly, Frieda Fromm-Reichmann remarks that"... one can respect others only to the extent that one respects oneself. Or to put it differently, one can love others only to the extent that one loves oneself" and that "where there is low self-esteem there is...low esteem of others and fear of low appreciation by other people (1949, p. 167)." Other theorists who have put forth essentially the same proposition include Adler (1926), Fromm (1947), Horney (1939), Murphy (1947) and Rogers (1951).

Empirical support for this proposition comes from a number of studies. Stock (1949) and Sheerer (1949) had judges rate the positive and negative self and other references made by clients undergoing nondirective counseling. Both studies found a significant correlation between attitudes of acceptance of and respect for self and attitudes of acceptance of and respect for others. A number of other studies (Berger, 1952; Omwake, 1954; Phillips, 1951), seeking to determine if this relationship maintains for larger and more normal populations, have employed self-devised questionnaires to measure acceptance of self and acceptance of others. These studies have all found a significant positive correlation between the two variables.

In the present investigation the relationship between self-esteem and the attractiveness of the impression which one

forms of others will be investigated within a modified Aschian context. As indicated above and explained in greater detail below, the main and interactive effects of both ESE and MSE will be studied. A specific SE hypothesis, Hypothesis 3, may be stated as follows:

> Hypothesis 3: the attractiveness (A) of the impression which p forms of o will generally tend to be an increasing function of p's self-esteem (SE).

Studies seeking to investigate the influence of a personality trait such as self-esteem upon any particular type of response usually choose between what are commonly known as the correlational and manipulational approaches. The following discussion of these two approaches is largely based upon McGuire's (1968) analysis.

In the correlational approach the strength of the personality variable under investigation is assessed and the strength of the relationship between it and the dependent variable is then measured. If experimental groups are formed, they are formed on the basis of the subjects' natural levels of the personality variable under investigation. In the experimental approach subjects are randomly assigned to different experimental treatments designed to induce various levels of the personality variable under investigation. The effect of these

different treatments upon the dependent variable is then measured. In comparing the two approaches, each is found to have advantages and disadvantages. For instance, the correlational approach frequently permits the introduction of more levels of the personality trait in question than can be experimentally induced within the confines of the laboratory. On the other hand, the correlational approach does not permit one to establish cause and effect relationships with the same degree of confidence permitted by the manipulational approach. If, for instance, A is found to vary directly with ESE, it may be that Ss have self-selected themselves into the various levels of ESE on the basis of some other variable which is actually what is influencing A.

In discussing the correlational and manipulational approaches, McGuire (1968, p. 1158) states that, "...the implication of the confounding principle under discussion here is that each approach has its uses and the outcome of each of them, as well as the difference between their outcomes, offers theory-relevant information. Each in isolation has its uses, and both together provide more information than the sum of their yields in isolation."

It appears that no study has simultaneously employed both the correlational and manipulational approaches in investigating the effects of self-esteem upon interpersonal attraction.

This would be a worthwhile endeavor to judge from the results of those relatively few studies in which self-esteem has been both measured and manipulated in order to determine its effects upon certain other types of responses (i.e., other than interpersonal attraction). For example, Gelfand (1962) measured and manipulated self-esteem in order to determine their effects upon social suggestibility in children. Two measures of social suggestibility were used. One measure was amount of social matching behavior in which the extent to which S imitated the behavior of a confederate in a picture preference task was assessed. The second measure was rate of verbal conditioning in which responsivity to the experimenter's verbal reinforcement was the dependent variable. Gelfand found that social matching behavior was negatively related ($p < .001$) to manipulated self-esteem, whereas it was not related to measured self-esteem. With respect to rate of verbal conditioning, the results were more interesting. Gelfand found that there was a strong interaction ($p < .001$) between acute and chronic self-esteem such that initially high self-esteem Ss who were exposed to the low self-esteem treatment and initially low self-esteem Ss who were exposed to the high self-esteem treatment both showed significantly more verbal conditioning than subjects in the other two groups. A significant interaction between measured and manipulated self-

esteem on influenceability has also been reported by Lesser and Abelson (1959).

A more recent study by Faucheux and Moscovici (1968) also demonstrates the potential value of employing both the correlational and manipulational approaches within the same experimental design. Faucheux and Moscovici were interested in the relationship between self-esteem and exploitative self-rewarding play in a game situation. Their study consisted of two experiments (using different Ss)which were identical except that in one self-esteem was measured while in the other it was manipulated. Faucheux and Moscovici found that there was a significant ($p < .05$) positive relationship between experimentally induced self-esteem and exploitative self-rewarding play. However, with respect to measured self-esteem the trend, though it did not reach statistical significance, was in the opposite direction with the low self-esteem Ss playing the more exploitative choices. Because different Ss were used in the two experiments it was not possible to assess the interaction between measured and manipulated self-esteem.

Studies such as those cited above illustrate the potential value of incorporating both the correlational and manipulational approaches within any study of the effects of a personality variable such as self-esteem. It is likely that

ESE and MSE do not always have the same effects and that they sometimes interact. For these reasons, it was decided to both measure and manipulate self-esteem in the present study.

In summary, the present study proposes to test experimentally, within a modified Aschian context, the following three hypotheses:

> Hypothesis 1: the attractiveness (A) of the impression which p forms of o will generally tend to be greater when p perceives a high degree of similarity to exist between himself and o than when p perceives a high degree of dissimilarity to exist between himself and o.
>
> Hypothesis 2: the attractiveness (A) of the impression which p forms of o will generally tend to be a function of an interaction between the degree to which p perceives o as being similar to himself (PS) and p's self-esteem (SE). The predicted direction of the hypothesized interaction is that High PS minus Low PS will result in a greater positive difference in A under the High SE condition than under the Low SE condition.
>
> Hypothesis 3: the attractiveness (A) of the

impression which p forms of o will generally tend to be an increasing function of p's self-esteem (SE).

METHOD

Subjects

The Ss were 90 undergraduate students selected, in a manner to be described below, from a number of classes at Southampton College. The latter is a 4 year institution located in the Northeast. There were 59 males and 31 females.

Overview of Study

The study consisted of three sessions. The first two sessions were group sessions in which a number of classes were requested to fill out the following: (a) the Allport-Vernon-Lindzey Study of Values (1960) and (b) a questionnaire incorporating a measure of enduring self-esteem (the Self-Esteem Inventory, SEI) and six scales from the California Personality Inventory (CPI, Gough, 1957). On the basis of their scores on the SEI three ESE groups were formed: a High ESE group consisting of 30 Ss randomly sampled from those subjects scoring in the upper third of the SEI distribution, a Low ESE group consisting of 30 Ss randomly sampled from those subjects scoring in the lower third of the SEI distribution and a Middle ESE group consisting of 30 Ss randomly sampled from those subjects scoring in the middle third of the SEI distribution.

In the third session the 90 Ss were first exposed to one

of three MSE conditions. In the High MSE condition Ss were led to believe that they were doing extremely well on a test which presumably measured certain socially desirable character traits (e.g., intelligence, creativity, leadership, personal maturity, etc.), while in the Low MSE condition Ss were led to believe that they were doing extremely poorly. The Ss in the Middle MSE condition were led to believe that they were doing about average.

Following exposure to one of the three MSE conditions, Ss were presented with a modified Aschian impression formation task. For half of the Ss in each of the three MSE conditions the stimulus person (S.P.) was one having values quite similar to their own (High PS condition),while for the other half of the Ss in each of the three MSE conditions the S.P. was one having values quite dissimilar to their own (Low PS condition). Table 1 shows the two relations presumed to be induced by each of the six treatment conditions. The third session terminated with a post-experimental inquiry and a debriefing.

The 30 Ss from each of the three ESE groups were randomly assigned to the six treatment conditions so that each of these conditions contained 5 High ESE subjects, 5 Middle ESE subjects and 5 Low ESE subjects. The study thus employed a 3 x 3 x 2 factorial design with two experimental variables and one organismic variable. This design is outlined in Table 2.

TABLE 1

THE TWO RELATIONS PRESUMED TO BE INDUCED BY EACH OF THE SIX TREATMENT CONDITIONS

MOMENTARY SELF-ESTEEM

PERCEIVED SIMILARITY (PS)	HIGH	MIDDLE	LOW
HIGH	1) p LL p 2) p U o	1) p L p 2) p U o	1) p DL p 2) p U o
LOW	1) p LL p 2) p notU o	1) p L p 2) p notU o	1) p DL p 2) p notU o

Abbreviations are as follows:

p LL p	p likes himself very much (The adjective "very" is used to distinguish this sentiment relation from the one presumed to exist in the Middle MSE condition)
p L p	p likes himself
p DL p	p dislikes himself
p U o	p perceives o as being similar to himself
p notU o	p perceives o as being dissimilar to himself

TABLE 2

GENERAL DESIGN OF THE PRESENT STUDY (SEE TEXT FOR MEANINGS OF ABBREVIATIONS)

MSE

PS	HIGH	MIDDLE	LOW
HIGH	HIGH ESE	HIGH ESE	HIGH ESE
	MIDDLE ESE	MIDDLE ESE	MIDDLE ESE
	LOW ESE	LOW ESE	LOW ESE
LOW	HIGH ESE	HIGH ESE	HIGH ESE
	MIDDLE ESE	MIDDLE ESE	MIDDLE ESE
	LOW ESE	LOW ESE	LOW ESE

In summary, the present study investigates the effects of enduring self-esteem (ESE), momentary self-esteem (MSE) and perceived similarity (PS) upon the attractiveness (A) of one person (o) to a second person (p). Enduring self-esteem refers to p's natural level of self-esteem prior to experimental manipulation. Momentary self-esteem refers to p's experimentally induced level of self-esteem. Perceived similarity refers to the extent to which p perceives o's value system as being similar or dissimilar to his own. Attractiveness (A) is defined in terms of: (1) the extent to which p perceives o as possessing socially desirable character traits as opposed to possessing socially undesirable character traits and (2) the extent to which p believes he would like interacting with o in various social contexts.

Measure of Values

At the beginning of the semester a number of classes were informed by their instructor that:

> Throughout the academic semester many of you will be randomly selected to participate in on-going social scientific research here at Southampton College. Some of this research may possibly be run here in class, while some of the research may involve individual sessions. Those of you who are asked to participate in individual sessions will be selected in a random fashion — if you have had a course in statistics you probably know the importance of random sampling.

> Although participation is not compulsory, it will be deeply appreciated. Besides helping us in our research, your participation will, I think, also constitute an interesting learning experience and will aid in giving you some idea of the kinds of research social scientists undertake.

Approximately a week later these same classes were informed by their instructor that:

> A number of us here in the social science division at Southampton College are involved in a study which is attempting to find out how college students feel about certain questions. Consequently, we would like each of you to fill out one of these (holds up questionnaire). This is not any kind of test and, as you will see, there are no right or wrong answers. Please give each item careful consideration and respond in accordance with how you actually feel. It is of the utmost importance that we obtain as accurate an index as possible of how college students feel about these questions.
>
> We are also interested in correlating responses on this measure with responses on a number of other measures. Consequently, later in the semester I'll probably give you three or four other measures to fill out. Later in the semester, for your own interest, we will also give you more specific information about these measures. Any questions? (distributes questionnaires).

The purposes of the two sentences next to the last one in the above statement were (a) to prepare the Ss for the SEI and CPI and (b) to provide the Ss with a rationale for requesting them to put their names on the questionnaire.

The questionnaire distributed in the first session was the Allport-Vernon-Lindzey Study of Values (1960) with the first, eleventh and twelfth pages deleted. The first page of

the Study of Values is the title page, while the eleventh and twelfth pages deal with scoring and interpretation. The test itself is contained in pages two through ten and it is these pages which made up the questionnaire distributed in the first session.

The Study of Values is probably the most widely used measure of personal values. It is self-administering and is suitable for both men and women. Although there is no time limit, testing time is typically around 20 minutes. Based upon Spranger's (1928) theory of six "ideal" types of men, the Study of Values measures the prominence of six basic interests or values in personality: Theoretical, Economic, Aesthetic, Social, Political and Religious. The test is constructed in such a way that it measures these values on an ipsative or relative rather than an absolute basis. Thus as an examinee's score on one value increases, his score on at least one of the other five values must necessarily decrease.

The first part of the Study of Values consists of a series of 15 statements or questions to each of which the examinee is requested to make one of two alternative responses. Two examples are:

> The main object of scientific research should be the discovery of truth rather than its practical application. (a) Yes; (b) No.

> When witnessing a gorgeous ceremony (ecclesiastical or academic, induction into office, etc.), are you impressed: (a) by the color and pageantry of the occasion itself; (b) by the influence and strength of the group?

The selection of response alternative (a) in the first example would add a point to one's score on theoretical values, while the selection of response alternative (b) would add a point to one's score on economic values. In the second example the selection of response alternative (a) would add a point to one's score on aesthetic values, while the selection of response alternative (b) would add a point to one's score on political values.

The second part of the Study of Values consists of 15 questions, each of which is followed by four alternative answers. The examinee is requested to rank order the four alternative answers in the order of his agreement with them. An example is:

> Do you think that a good government should aim chiefly at —
>
> a. more aid for the poor, sick and old
> b. the development of manufacturing and trade
> c. introducing the highest ethical principles into its policies and diplomacy
> d. establishing a position of prestige and respect among nations.

In this item the values represented by the four answers are, respectively, the following: social, economic, religious and political.

The Study of Values was standardized on a college population. Reliability appears to be satisfactory. Using the split half method the reliabilities of the six scales were found to range from .84 to .95 with the mean reliability coefficient equal to .90. Internal consistency has also been measured through an item analysis carried out on a group of 780 subjects of both sexes from six different colleges. The test-retest reliabilities of the six scales have been found to range from .77 to .92 after a one month interval and from .84 to .93 after a two month interval. The mean coefficient of stability, using the z transformation, was found to be .89 in the one month study and .88 in the two month study.

The validity of the Study of Values has been demonstrated most directly by its ability to differentiate between groups whose characteristics are known. For example, art and design students are found to score highest on the aesthetic value, theological students and clergymen are found to score highest on the religious value, medical students are found to score highest on the theoretical value, personnel and guidance workers are found to score highest on the social value, and so forth. Evidence for the validity of the Study of Values also is provided by a plethora of studies demonstrating that the measure is related to recognition thresholds of visually presented stimulus words (Postman, Bruner, & McGinnies, 1948),

recognition thresholds of auditorily presented stimulus words (Vanderplas & Blake, 1949), performance on word associate tasks (Dunn, Bliss, & Siipola, 1958; McGinnies, 1950), recall (Postman & Schneider, 1951), concept span (Mayzner & Tresselt, 1955), occupational choice (Allport, Vernon, & Lindzey, 1960) and degree of resistance to conforming to group pressure (Vaughan & Mangan, 1963).

Measure of ESE

Approximately one week after the first session a second questionnaire was administered. This measure was introduced by the following statement:

> A number of us in the social science division here at Southampton College are participating in a nation wide study attempting to determine if the type of person who is likely to attend college differs in various parts of the country.
>
> Consequently, we would like each of you to fill out one of these questionnaires (distributes questionnaires).

The questionnaire administered in the second session consisted of two parts. The first part was the SEI which requires the examinee to rate himself on 50 bipolar-adjective, 7 - point scales. Eighteen of the 50 scales are the same as those used in the Person Perception Sensitivity Test (see below). Each of the 50 scales consists of a presumably attractive or socially desirable characteristic and its presumably unattractive or socially undesirable antonym (e.g., intelligent — unintel-

ligent, mature — immature, leader — follower, creative — uncreative, etc.). The order of presentation of these scales was randomly determined. The left-right position of the two characteristics composing each of the 50 bipolar—adjective scales was likewise randomly determined with the one stipulation that the attractive characteristic be at the left half of the time and at the right the other half of the time. The last measure was taken for the purpose of preventing bias that might possibly have resulted from position preferences. Measures of self-esteem similar in structure to the SEI have been employed in numerous studies (e.g., Bramel, 1962; Faucheux & Moscovici, 1968; Glass, 1964; Kipnis, 1961 Pepitone, 1964).

The 50 scales making up the SEI, their order of presentation, and the left-right position of the two character traits making up each of the scales are shown below in Table 3.

Eighty-seven introductory psychology students were given the SEI twice with a two month interval between administrations. The test-retest reliability was found to be .868 ($p < .005$).

The SEI was also given to three introductory psychology classes, a total of 86 students, with the instructions (see Appendix A) to indicate, for each of the 50 pairs of traits, the degree to which they believed that it is more attractive or desirable for a person to possess one of the traits as

TABLE 3

THE 50 SCALES MAKING UP THE SEI, THEIR ORDER OF PRESENTATION, AND THE LEFT-RIGHT POSITION OF THE TWO CHARACTER TRAITS MAKING UP EACH OF THE SCALES

1.	productive—unproductive	26.	creative—uncreative
2.	unperceptive—perceptive	27.	rude—polite
3.	skillful—clumsy	28.	self-centered—altruistic
4.	follower—leader	29.	sociable—unsociable
5.	flexible—rigid	30.	pessimistic—optomistic
6.	dependent—independent	31.	competent—incompetent
7.	submissive—assertive	32.	unrealistic—realistic
8.	honest—dishonest	33.	unstable—stable
9.	mature—immature	34.	interesting—uninteresting
10.	cold—warm	35.	confident—unconfident
11.	adequate—inadequate	36.	dirty—clean
12.	unobservant—observant	37.	imaginative—unimaginative
13.	careful—careless	38.	unhappy—happy
14.	reliable—unreliable	39.	unpopular—popular
15.	decisive—indecisive	40.	narrow-minded—broad-minded
16.	modest—conceited	41.	intelligent—unintelligent
17.	timid—bold	42.	insecure—secure
18.	effective—ineffective	43.	slow—fast
19.	unambitious—ambitious	44.	generous—ungenerous
20.	inaccurate—accurate	45.	weak—strong
21.	unimportant—important	46.	insincere—sincere
22.	dependable—undependable	47.	humorless—humorous
23.	serious—frivolous	48.	relaxed—tense
24.	good-natured—irritable	49.	mal-adjusted—well-adjusted
25.	humane—ruthless	50.	considerate—inconsiderate

opposed to the other. Table 4 shows the presumably attractive character trait in each of the 50 pairs of character traits making up the Self-Esteem Inventory and its mean attractiveness rating. A high score (i.e., one above the neutral point of four) indicates that it, rather than its mate, was judged as being the more attractive. From Table 4 it can readily be seen that each of the fifty character traits which was defined a priori as being the more attractive in each of the pairs, was perceived by the Ss as being the more attractive. Forty-six of the fifty character traits achieved a mean attractiveness rating of greater than five. The mean attractiveness rating across all 50 character traits was equal to 5.87.

The second part of the questionnaire administered in the second session consisted of six scales from the CPI. The CPI was developed primarily for use with "normal" individuals and is one of the most widely used measures of personality. It consists of 18 scales which are grouped together into four broad classes, bringing together scales having similar implications. The scales most closely related to self-esteem are the six scales of Class I. These six scales and their abbreviations are as follows:

1 Do Dominance
2 Cs Capacity for Status
3 Sy Sociability

TABLE 4

THE PRESUMABLY ATTRACTIVE CHARACTER TRAIT IN EACH OF THE 50 PAIRS OF CHARACTER TRAITS MAKING UP THE SELF-ESTEEM INVENTORY AND ITS MEAN ATTRACTIVENESS RATING

CHARACTER TRAIT	$\bar{X}$	CHARACTER TRAIT	$\bar{X}$
1. productive	6.17	26. creative	5.59
2. perceptive	6.22	27. polite	6.17
3. skillful	6.04	28. altruistic	5.13
4. leader	5.30	29. sociable	5.88
5. flexible	5.31	30. optomistic	5.37
6. independent	5.88	31. competent	6.55
7. assertive	4.58	32. realistic	6.23
8. honest	6.47	33. stable	6.18
9. mature	6.33	34. interesting	6.25
10. warm	6.12	35. confident	5.91
11. adequate	6.22	36. clean	6.37
12. observant	6.29	37. imaginative	5.24
13. careful	5.87	38. happy	6.37
14. reliable	6.41	39. popular	5.94
15. decisive	5.66	40. broad-minded	6.22
16. modest	5.25	41. intelligent	6.00
17. bold	4.45	42. secure	5.90
18. effective	6.08	43. fast	4.84
19. ambitious	5.26	44. generous	5.89
20. accurate	5.93	45. strong	5.55
21. important	5.77	46. sincere	6.63
22. dependable	6.20	47. humorous	6.01
23. serious	4.52	48. relaxed	6.02
24. good-natured	5.91	49. well-adjusted	6.38
25. humane	6.33	50. considerate	6.53

4 Sp Social Presence
5 Sa Self-Acceptance
6 Wb Sense of Well-Being

It is these six scales which made up the second part of the questionnaire administered in the second session. The whole CPI consists of 480 statements to each of which the examinee is instructed to answer "true" if he agrees with it or feels that it is true about himself and "false" if he disagrees with it or feels that it is not true about himself. The six scales enumerated above include 201 of the 480 items.

Person Perception Task and MSE Manipulation

There were a total of 258 Ss for whom data on both questionnaires was available. On the basis of their scores on the SEI these Ss were ranked from highest to lowest. As explained above, three ESE groups were then formed on the basis of these SEI scores: a High ESE group which consisted of 30 Ss randomly sampled from those Ss scoring in the upper third of the SEI distribution (ranks 1—86), a Middle ESE group which consisted of 30 Ss randomly sampled from those Ss scoring in the middle third of the SEI distribution (ranks 87—172) and a Low ESE group which consisted of 30 Ss randomly sampled from those Ss scoring in the lower third of the SEI distribution (ranks 173—258).

These 90 Ss were informed that they had been randomly selected to participate in some research being conducted by

the psychology department. They were further told that if they had a free hour in the upcoming week their participation would be most appreciated as it is of the utmost importance that a completely random sample be used in the research. However, participation was ultimately on a voluntary basis as there was no penalty for declining to participate. A total of nine subjects (three in the High ESE group, two in the Middle ESE group, and four in the Low ESE group) did decline to participate. They were replaced by subjects randomly sampled from the appropriate thirds of the SEI distribution. One of the nine subjects (from the Middle ESE group) thus selected also declined to participate and he too was replaced. As explained above, the 30 Ss composing each of the three ESE groups were randomly assigned to each of the six treatment conditions so that each of these conditions contained 5 High ESE subjects, 5 Middle ESE subjects and 5 Low ESE subjects.

The third session commenced with S's arrival at the designated room where he was greeted by E and asked to take a seat. Subjects were then told by E that:

> You are participating in a study whose purpose it is to establish norms for East Coast College students on a relatively new, and potentially very significant, test of personality. Before I give you the test, I'd like to give you some background information regarding this study (hands S two pages). Look this over, tell me when you are done and then I'll give you the test.

After handing S the two pages E took a seat with his back to S and began to do some paper work. The two pages of background information (see Appendix B) began by giving a name to the test

just mentioned by E, the Person Perception Sensitivity Test (PPST), and went on to describe the importance of the PPST in some detail. For instance, Ss were informed that the PPST correlates very highly with the best available measures of intelligence, leadership and personal maturity. Subjects were also informed that since in the future the PPST would be used with people who would be very highly motivated, the validity of the norms that were being established depended upon their doing as well as they possibly could. This was allegedly the purpose of providing the Ss with the background information: to point out to them that they must do as well as they possibly can so that the norms would be valid. The real purpose was to impress upon the Ss the importance of the PPST and, by so doing, to prepare them for the experimental induction of MSE (to be described below).

After being informed by S that he had finished reading the background information, E got up from his seat, walked over to S and handed him a ten page booklet while saying that:

> That should give you some background information on this study and the importance of trying to do as well as you possibly can. As the background information indicated, you are part of our standardization group and if you don't do as well as you possibly can then the norms we establish won't be valid for subsequent use with examinees who will be very highly motivated to do as well as they possibly can. This is the Person Perception Sensitivity Test.

> The instructions are on the first page and they are pretty much self-explanatory.

After handing S the PPST (see Appendix C), E once more took his seat across the room (with his back to S) and resumed his paper work.

The first page of the PPST consisted of an instruction page. It informed the subject that the test contained two problems which were both of the same form. In each problem the subject was given six descriptive character statements about an individual (individual X) and his task was to form as accurate an impression as possible of individual X. More specifically, the subject was asked to do five things: 1) to write his impression of individual X 2) to rate individual X on a series of 18 seven-point bipolar adjective personality scales 3) to list any other character traits that he felt individual X possesses 4) to rank order,from most to least, the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS in terms of their importance in the forming of his impression and 5) to answer several questions concerning his feelings towards individual X. The instruction page further informed the subject that:

> The Person Perception Sensitivity Test is designed in such a way that the only examinees who are asked to go beyond PROBLEM I are those who have done either very well or very poorly on Part 2 of PROBLEM I or who have gotten certain patterns of correct and incorrect responses

> on Part 2. Consequently, please inform the investigator when you have finished PROBLEM I and do not go on until he has scored Part 2 of this problem.

As indicated above, Part 2 of each of the two problems requested S to rate individual X on a series of 18 seven-point bipolar adjective scales. Each of these 18 scales consisted of an attractive or socially desirable characteristic and its unattractive or socially undesirable antonym. Their order of presentation was randomly determined. The left-right position of the two characteristics composing each of the 18 bipolar adjective scales was also randomly determined with the one stipulation that the attractive characteristic be at the left half of the time and at the right the other half of the time. The last measure was taken for the purpose of preventing bias that might possibly have resulted from position preferences.

After having been informed that an S had completed PROBLEM I, E left his seat across the room, walked over to S, and placed a data sheet on the table in S's sight. What E then said was dependent upon whether S was in the High, Middle, or Low MSE condition. The three statements are as follows:

> HIGH MSE CONDITION—well, let's see how you've done. Would you please read me your responses to Part 2 of PROBLEM I (stands holding an official looking manual—in all three MSE conditions S was instructed to read off his answer to each of the 18 personality scales, in each

case giving a 1 to a checkmark placed in the space at the extreme left, a 7 to a checkmark placed in the space at the extreme right, and a 2, 3, 4, 5, or 6 to a checkmark placed in any of the spaces between the two end spaces.). Hmmm—you got a 16, that's a very high score, about the 94th or 95th percentile (records score and percentile on the data sheet in S's sight). Tell me, have you ever considered yourself to be an especially accurate perceiver of other people?

Gee, (glancing at watch) it's _____ already, I've got to make an important phone call. I'll be back in a moment. Would you please fill in these remaining columns (indicates the eight columns on the data sheet which have not been filled in) and then just wait until I return. I'll only be a minute.

MIDDLE MSE CONDITION—well, let's see how you've done. Would you please read me your responses to Part 2 of PROBLEM I (stands holding an official looking manual). Hmmm—you got a 10, that's an average score, about the 50th percentile (records score and percentile on the data sheet in S's sight).

Gee, (glancing at watch) it's _____ already, I've got to make an important phone call. I'll be back in a moment. Would you please fill in these remaining columns (indicates the eight columns on the data sheet which have not been filled in) and then just wait until I return. I'll only be a minute.

LOW MSE CONDITION—well, let's see how you've done. Would you please read me your responses to Part 2 of PROBLEM I (stands holding an official looking manual). Hmmm—you only got a 5, that's a very low score, about the eighth or ninth percentile (records score and percentile on the data sheet in S's sight). Tell me, have you ever considered yourself to be an especially inaccurate perceiver of other people?

Gee, (glancing at watch) it's _____

> already, I've got to make an important phone call. I'll be back in a moment. Would you please fill in these remaining columns (indicates the eight columns on the data sheet which have not been filled in) and then just wait until I return. I'll only be a minute.

The format of the data sheet used in the MSE manipulation is worth considering in some detail. The first column, entitled "SUBJECT NUMBER AND SEX," consisted of the numbers 1 to 25 (with either "male" or "female" written next to each) plus the just written in S's number (26) and sex. The second column, entitled "SCORE ON PART II," consisted of the following 25 numbers ($\bar{X}$=10): 10, 8, 13, 10, 6, 5, 10, 7, 11, 12, 9, 9, 16, 11, 9, 10, 8, 15, 5, 9, 10, 10, 16, 11, 10, and the just written in S's score (16 in the High MSE condition, 10 in the Middle MSE condition, and 5 in the Low MSE condition). Thus Ss in the High MSE condition were able to see that only 2 out of the previous 25 Ss had done as well as they did while none had done better. Conversely, Ss in the Low MSE condition were able to see that only 2 out of the previous 25 Ss had done as poorly as they did while none had done worse. Subjects in the Middle MSE condition were able to see that their performance was, as indicated by E, about average. The third column, the last one filled in by E before he remembered the "important phone call," was entitled "APPROXIMATE PERCENTILE" and consisted of the following ranges:

45-55, 29-36, 71-78, 45-55, 13-20, 5-12, 45-55, 21-28, 56-63, 64-70, 37-44, 37-44, 92-97, 56-63, 37-44, 45-55, 29-36, 85-92, 5-12, 37-44, 45-55, 45-55, 92-97, 56-63, 45-55, and the just written in S's range (92-97 in the High MSE condition, 45-55 in the Middle MSE condition, and 5-12 in the Low MSE condition).

The remaining eight columns, left by E for S to fill in, were entitled (from left to right) as follows: "COLLEGE CUM AVERAGE", "SAT VERBAL SCORE", "SAT MATH SCORE", " H. S. AVERAGE", "AGE", "MAJOR", "DID ONE OR BOTH PARENTS GRADUATE FROM COLLEGE" and "NUMBER OF BROTHERS AND SISTERS ATTENDING COLLEGE". The data sheet indicated substantial positive correlations between score on the Person Perception Sensitivity Test and such things as cumulative college average, high school average, and SAT scores.

In the experimenter's temporary absence S had an opportunity to look over the data sheet and have the following two points reinforced: 1) that he had done very well, average, or very poorly on the Person Perception Sensitivity Test and that, 2) this test appears to be related to a number of important personal qualities. Four minutes later E returned, asked S if he had finished filling out the data sheet, and requested that he proceed to PROBLEM II.

In summary, Ss in the High MSE condition were led to be-

lieve that they were doing extremely well on a test highly correlated with such important personal qualities as intelligence, leadership, and maturity, Ss in the Middle MSE condition were led to believe that they were doing about average, and Ss in the Low MSE condition were led to believe that they were doing extremely poorly.

PS Manipulation

Perceived similarity was manipulated in a manner which will now be described. Four of the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS in PROBLEM II were the same for Ss in both the High and Low PS conditions and occupied the second, fourth, fifth and sixth positions on the descriptive character statement list. These four descriptive character statements were as follows:

> At times X has had serious doubts as to having made the right decision or done the right thing.
>
> X has a tendency to be self-critical.
>
> X has found that it is unwise to be too frank in revealing oneself to others.
>
> X prefers a certain amount of change and variety and becomes dissatisfied when hemmed in by restrictions and limitations.

These statements are among those found by Forer (1949) and Stagner (1958) to be endorsed by most people as true of themselves.

The remaining two GIVEN DESCRIPTIVE CHARACTER STATEMENTS in PROBLEM II varied from S to S depending upon: (a) whether

he was in the High or Low PS condition and (b) his particular profile of values obtained from the Study of Values administered in the first session. More specifically, for Ss in the High PS condition the descriptive character statement occupying the first position on the descriptive character statement list was one describing that value on which they had scored highest as being "much stronger than" that value on which they had scored lowest. The descriptive character statement occupying the third position on the descriptive character statement list was one describing that value on which they had scored second highest as being "somewhat stronger than" that value on which they had scored second lowest.

For Ss in the Low PS condition the descriptive character statement occupying the first position on the descriptive character statement list was one describing that value on which they had scored lowest as being "much stronger than" that value on which they had scored highest. The descriptive character statement occupying the third position on the descriptive character statement list was one describing that value on which they had scored second lowest as being "somewhat stronger than" that value on which they had scored second highest.

In order to illustrate this experimental manipulation of

perceived similarity and the specific statements which were employed, let us consider two examples. In the first example, it is assumed that an S's profile indicated that his values, in descending order of importance, are as follows: theoretical, economic, aesthetic, social, political and religious. If this S had been assigned to the High PS condition the first and third descriptive character statements on the descriptive character statement list would have been as follows:

> X's theoretical values (interests in such things as science, truth, the ordering and systematizing of knowledge, etc.) are much stronger than X's religious values (interests in such things as theology, spiritual experiences, the meaning of life, etc.).
>
> X's economic values (interests in such things as business, industry, real estate, the stock market, practical achievement and financial reward, etc.) are somewhat stronger than X's political values (interests in such things as power, influence, positions of leadership, etc.).

If this same S had been assigned to the Low PS condition the first and third descriptive character statements on the desciptive character statement list would have been as follows:

> X's religious values (interests in such things as theology, spiritual experiences, the meaning of life, etc.) are much stronger than X's theoretical values (interests in such things as science, truth, the ordering and systematizing of knowledge, etc.).
>
> X's political values (interests in such things

> as power, influence, positions of leadership, etc.) are somewhat stronger than X's economic values (interests in such things as business, industry, real estate, the stock market, practical achievement and financial reward, etc.).

A second example will further elucidate the nature of the PS manipulation and will also introduce the two descriptive character statements (related to aesthetic and social values) not contained within the first example. Suppose that an S's profile indicated that his values, in descending order of importance, are as follows: social, theoretical, religious, economic, political and aesthetic. If this S had been assigned to the High PS condition the first and third descriptive character statements on the descriptive character statement list would have been as follows:

> X's social values (interests in such things as helping other people, solving social problems, etc.) are much stronger than X's aesthetic values (interests in such things as literature, painting, music, poetry, beauty, form and harmony, etc.).
>
> X's theoretical values (interests in such things as science, truth, the ordering and systematizing of knowledge, etc.) are somewhat stronger than X's political values (interests in such things as power, influence, positions of leadership, etc.).

If this same S had been assigned to the Low PS condition the first and third descriptive character statements on the des-

criptive character statement list would have been as follows:

> X's aesthetic values (interests in such things as literature, painting, music, poetry, beauty, form and harmony, etc.) are much stronger than X's social values (interests in such things as helping other people, solving social problems, etc.).
>
> X's political values (interests in such things as power, influence, positions of leadership, etc.) are somewhat stronger than X's theoretical values (interests in such things as science, truth, the ordering and systematizing of knowledge, etc.).

In order to minimize the possibility of any contamination from the phenomenon which Rosenthal (1956; 1963) has termed "unconscious experimenter bias", two precautionary measures were taken. First, E was blind with regard to whether an S was in the High or Low PS condition. Random assignment of Ss to these two conditions and the insertion of the appropriate descriptive character statements in PROBLEM II was made independently of E's knowledge. Secondly, E had visual contact with Ss only when such contact was patently required for the administration of the PPST and the MSE treatment described in the immediately preceeding section. At all other times, including the time during which S was forming his impression of the similar or dissimilar stimulus person in PROBLEM 2, E sat with his back to S's back and "immersed" himself in some paper work.

Post Experimental Inquiry and Debriefing

A post-experimental inquiry was undertaken in order to check on the Ss' awareness of the actual purposes of the study. After having handed in the PPST each S was given a sheet of paper by E and asked to "Please fill this out." At the top of this sheet of paper was the following statement:

> One other thing that we are interested in is the question of what goes through the mind of a subject during an experiment like this. Consequently, in the space below would you please write down any thoughts or feelings you may have had while participating in the study. We are particularly interested in the question of whether or not you felt that you were being lied to or deceived in any manner.

After handing in their post experimental inquiry, Ss were debriefed. At this time E also answered any questions that Ss had. Following this, just prior to the termination of the session, E thanked S for his cooperation, impressed upon S the importance of not saying anything to anyone about the study, obtained S's word in this regard, and thanked S once again for his cooperation. The session was then terminated.

Independent Assessment of the Experimental Manipulations

Pilot work was undertaken for the purposes of: (a) testing the effectiveness of the experimental operations in manipulating PS and MSE and (b) illuminating any unforeseen difficulties in the experimental procedure as outlined above.

Quite obviously the experimental procedure constitutes a valid test of the research hypotheses if and only if the proposed experimental operations are successful in manipulating PS and MSE.

The effectiveness of the PS manipulation was evaluated in the following manner. Three introductory psychology classes, a total of 79 Ss, were given the Allport-Vernon-Lindzey Study of Values. Four weeks later the three classes were asked to participate in some research being conducted by the psychology department whose primary purpose it was to determine if the type of person who is likely to attend college differs in various parts of the country. At this time 10 page booklets were distributed. The first page, the instruction page (see Appendix D), informed the subjects that on each of the nine pages that followed they would find 6 descriptive character statements about nine different individuals (these nine individuals being labeled INDIVIDUALS A through I) and that their task was to rank order these nine individuals on a "most like me" to "least like me" continuum.

The six descriptive character statements for all individuals except D were the same for all Ss. For half of the Ss (n=40), randomly selected, Individual D was described as he would have been had said Ss been used in the High PS condition of the experiment proper. For the other half of the Ss (n=39) individual D was described as he would have been had said Ss been used in the Low PS condition of the experiment proper.

The rationale given the Ss for distributing the booklets on an individual basis was that the study employed a number of different conditions to which they had been randomly assigned.

A rating of Individual D to be "most like me" was given a score of 9, while a rating of D to be "least like me" was given a score of 1. Ratings in between these two extremes were scored accordingly. In the High PS condition 26 of the Ss gave D ratings between six and nine while 9 of the Ss gave D ratings between one and four. In the Low PS condition the number of Ss falling into these categories was 5 and 26 respectively. Application of a chi square test found this difference to be statistically significant ($p < .001$). Two Ss in the High PS condition gave D a rating of 5, while three Ss in this condition were unavailable for the second session. Three Ss in the Low PS condition gave D a rating of 5, while five Ss in this condition were unavailable for the second session. The mean score for the 37 Ss available in the High PS condition was 6.59 while the mean score for the 34 Ss available in the Low PS condition was 2.85. A t test found that this difference was also statistically significant ($p < .01$). Subsequent analysis revealed that males and females did not differ with respect to the difference between High and Low PS conditions ($p > .05$).

The data thus indicated that the PS manipulation was effective. In a post-experimental inquiry none of the subjects either called any attention to the experimental manipulation (Individual D) or hypothesized any possible connection between the two sessions of the study.

The MSE manipulation underwent a number of revisions designed to strengthen it. The effectiveness of the final MSE manipulation, described in detail on pages 56-63, was evaluated in two separate pilot studies in a manner to be described below.

In the first pilot study testing the effectiveness of the final MSE manipulation, 40 introductory psychology students were informed by their instructor that they had been randomly selected to participate in some research being conducted by the psychology department. Half of the Ss were randomly assigned to the High MSE condition while the other half were randomly assigned to the Low MSE condition. Upon arriving at the designated room, Ss received the appropriate MSE treatment. These MSE treatments were identical to the High and Low MSE treatments described above (pages 55-63) except that: (a) on the first page of the PPST the first sentence of the fourth paragraph (see Appendix C) was changed to read "The Person Perception Sensitivity Test is designed in such a way that examinees who do either very well or very

poorly on Part 2 of PROBLEM I do not have to go beyond PROBLEM I." and (b) the statement following the fifth and last part of PROBLEM I was changed to read that examinees should not go on until the investigator has scored Part 2 of PROBLEM I since examinees who have done either very well or very poorly on Part 2 of PROBLEM I do not have to go beyond PROBLEM I. These changes were made because in the pilot work there was no reason for the Ss to continue on to PROBLEM II and, more importantly, because they allowed the Ss to fill out a measure of self-esteem right after receiving feedback regarding their performance on PROBLEM I.

The measure of self-esteem was introduced in the following manner. After returning from having made the "important telephone call" and after telling S that he did not have to go on to PROBLEM II, E told S the following:

> We are also interested in the relationship between a person's perception of himself and the types of impressions which he forms of others. Consequently, would you please fill this out (hands S the SEI).

The SEI was followed by a post-experimental inquiry and debriefing.

For each of the 50 personality scales on the SEI a checkmark placed all the way towards the unfavorable characteristic was given a score of one, while a checkmark placed all the way towards the favorable characteristic was given a score of

seven. The range of possible SEI scores was consequently from 50 (lowest possible SEI score) to 350 (highest possible SEI score). The mean of the High MSE group was found to be 274.6 while the mean of the Low MSE group was found to be 243.25. A *t* test found this difference to be statistically significant ($p < .01$).

At the time when the first study to test the effectiveness of the MSE manipulation was undertaken, the tentative research plan was that the Middle MSE group would be one in which: (a) the impression formation task would be presented to subjects in groups rather than individually, (b) the impression formation task would be presented as a study of the kinds of impressions people form of other people rather than as a test measuring a number of very important personal qualities and (c) subjects would not receive any feedback regarding their performance. Subsequently, it was decided that in order to keep the groups as comparable as possible, the Middle MSE group should be one in which the impression formation task was presented as a test (as in the High and Low MSE groups) and one in which *Ss* were told that their performance had been about average. As a result, it was felt that a second pilot study would be useful.

In the second study, 60 *Ss* were randomly assigned to the High, Middle and Low MSE conditions. These MSE conditions

were the same as those described above (pages 55-63) except that: (a) on the first page of the PPST the first sentence of the fourth paragraph (see Appendix C) was changed to read that the Person Perception Sensitivity Test is designed in such a way that examinees who do either very well or very poorly on Part 2 of PROBLEM I or who get certain patterns of correct and incorrect responses on Part 2 do not have to go beyond PROBLEM I and (b) the statement following the fifth and last part of PROBLEM I was changed to read that examinees should not go on until the investigator has scored Part 2 of PROBLEM I since examinees who have done either very well or very poorly on Part 2 of PROBLEM I or who have gotten certain patterns of correct and incorrect responses on Part 2 do not have to go beyond PROBLEM I. The reasons for these two changes were the same as those put forth above in discussing the first pilot study.

The measure of self-esteem was administered and scored in precisely the same manner as in the first pilot study. The mean score for the Low, Middle and High MSE groups was found to be 252.1, 260.65, and 278.4 respectively. A one way analysis of variance, summarized in Table 5, found that these means differed significantly ($p < .01$). Subsequent analysis using Tukey's procedure (Edwards, 1954) revealed that the mean of the High MSE group was significantly greater than both

TABLE 5

ANALYSIS OF VARIANCE OF DATA OBTAINED IN PILOT TESTING OF MSE MANIPULATION

Source of Variation	SS	df	MS	F
Between Groups	7,199.03	2	3,599.52	5.865*
Within Groups	34,979.15	57	613.67	
TOTAL	42,178.18	59		

*$p < .01$

the mean of the Low MSE ($p < .01$) and the mean of the Middle MSE group ($p < .05$). The means of the Middle and Low MSE groups did not differ significantly ($p > .05$), although the observed difference was in the expected direction.

A post-experimental inquiry revealed that most of the subjects in the two studies believed the studies to be precisely what they purported to be. Six Ss (three in the High MSE condition, one in the Middle MSE condition, and two in the Low MSE condition) did make comments to the effect that it was somewhat difficult to understand how the PPST could measure all of the qualities that it was purported to be able to measure. However, none of these six Ss stated that they simply did not believe that the PPST could measure what it was allegedly capable of measuring. Moreover, the scores of these six Ss on the SEI following the MSE manipulation were not significantly different from the means of their groups. None of the Ss in the pilot work made any suggestions to the effect that they felt that possibly some attempt had been made to manipulate their self-esteem.

RESULTS

As was stated above, there were a total of 258 subjects for whom scores on both the Allport-Vernon-Lindzey Study of Values and the Self-Esteem Inventory were available. The mean, standard deviation and range of the distribution of scores on the Self-Esteem Inventory were found to be as follows: $\bar{X}$ = 263.81, s = 25.98 and R = 187-350. The scores of 187 and 350 represented relatively extreme scores. There was only one score of 187 and the next lowest score was 202, while there was only one score of 350 and the next highest score was 326. The means, standard deviations and ranges of the upper (ranks 1-86), middle (ranks 87-172) and lower (ranks 173-258) thirds of the SEI distribution are shown in Table 6.

As explained above, the High, Middle and Low ESE groups were formed by randomly sampling 30 subjects from each of these thirds of the SEI distribution. The means, standard deviations and ranges of the High, Middle and Low ESE groups used in the study are shown in Table 7. The large differences among the means of the three ESE groups and the non-overlapping ranges are obviously not surprising in view of the manner in which the groups were formed. A one way analysis of variance, summarized in Table 8, found these means to differ significantly ($p < .001$). Subsequent analysis revealed that the mean of the High ESE group was significantly greater than the means

TABLE 6

MEANS, STANDARD DEVIATIONS AND RANGES OF THE UPPER, MIDDLE AND LOWER THIRDS OF THE SEI DISTRIBUTION

THIRD OF SEI DISTRIBUTION	$\bar{X}$	s	R
UPPER	291.97	11.76	279-350
MIDDLE	265.31	7.13	253-278
LOWER	234.14	12.71	187-253

TABLE 7

MEANS, STANDARD DEVIATIONS AND RANGES OF THE HIGH, MIDDLE AND LOW ESE GROUPS USED IN THE STUDY

ESE GROUP	$\bar{X}$	s	R
HIGH	294.17	10.58	280-326
MIDDLE	266.37	7.14	253-278
LOW	233.13	12.12	202-250

TABLE 8

ANALYSIS OF VARIANCE OF THE MEANS OF THE THREE ESE GROUPS USED IN THE STUDY

Source of Variation	SS	df	MS	F
Between Groups	56,023.62	2	28,011.81	263.27*
Within Groups	9,256.6	87	106.40	
TOTAL	65,280.22	89		

*$p < .001$

of the Middle and Low ESE groups ($p < .001$ in both cases) and that the mean of the Middle ESE group was significantly greater than the mean of the Low ESE group ($p < .001$).

Attention was first turned to the data obtained in the postexperimental inquiry. These data revealed that the subjects were apparently unaware of the actual purposes of the study. None of the subjects hypothesized any possible connection between the third session of the study and either of the two earlier sessions, nor did any of them call any attention to the stimulus individual in PROBLEM II as having values either quite similar or quite dissimilar to their own. Similarly, none of the subjects made any suggestions to the effect that they felt that possibly some attempt to manipulate their self-esteem (self-concept, feelings about themselves, etc.) had been made.

For each of the 90 Ss an attractiveness score (A score) was computed from his ratings of individual X on the 18 personality scales making up Part 2 of PROBLEM II. For each of the 18 personality scales a checkmark placed all the way towards the unfavorable characteristic was given a score of one, while a checkmark placed all the way towards the favorable characteristic was given a score of seven. The range of possible A scores was consequently from 18 (lowest possible A score) to 126 (highest possible A score).

The mean A score for each of the 18 groups is shown in Table 9. Table 10 shows the mean A score for each of the levels of PS, MSE and ESE. After applying Cochran's procedure (Winer, 1962) and finding that the variances were homogeneous ($p > .05$), an anslysis of variance was undertaken. The results of this analysis of variance are summarized in Table 11. From Table 11 it can be seen that the main effect of PS was significant beyond the .10 level, while the main effect of MSE was significant beyond the .05 level. Both these main effects were in the predicted direction. Subjects in the High PS condition formed somewhat more attractive impressions ($\bar{A} = 82.89$) than subjects in the Low PS condition ($\bar{A} = 78.44$). Subsequent analysis of the three MSE groups revealed that the High MSE group formed more attractive impressions than the Low MSE group ($p < .01$). The other two comparisons (High MSE group versus Middle MSE group and Middle MSE group versus Low MSE group) did not yield significant values ($p > .10$). The third main effect, that of ESE, was not found to be significant ($p > .10$).

Turning our attention to the interactions, the PS X MSE interaction was found to be significant beyond the .10 level. Table 12 shows the A score means for the PS X MSE interaction. From Table 12 it can be seen that the interaction was in the predicted direction as subjects in the High MSE condition formed

TABLE 9

MEAN A SCORE FOR EACH OF THE EIGHTEEN GROUPS

	HIGH MSE			MIDDLE MSE			LOW MSE		
	ESE			ESE			ESE		
PS	HIGH	MIDDLE	LOW	HIGH	MIDDLE	LOW	HIGH	MIDDLE	LOW
HIGH	87.4	90.4	89.8	86.2	83.4	84.2	73.8	77.4	73.4
LOW	79.0	81.4	78.6	80.6	76.8	74.2	79.6	77.8	78.0

Note.—n=5 in all groups

TABLE 10

MEAN A SCORE FOR EACH OF THE LEVELS OF PS, MSE AND ESE

	HIGH	MIDDLE	LOW
PS	82.89	—	78.44
MSE	84.43	80.90	76.67
ESE	81.10	81.20	79.70

Note.—n=45 for each of the PS groups and 30 for each of the MSE and ESE groups.

TABLE 11

SUMMARY OF ANALYSIS OF VARIANCE OF A SCORES OF ALL SUBJECTS ON THREE VARIABLES: PS, PERCEIVED SIMILARITY; MSE, MOMENTARY SELF-ESTEEM; AND ESE, ENDURING SELF-ESTEEM

Source of Variation	SS	df	MS	F
PS	444.45	1	444.45	3.67*
MSE	907.26	2	453.63	3.74**
ESE	42.20	2	21.10	.17
PS X MSE	745.10	2	372.55	3.08*
PS X ESE	33.77	2	16.89	.14
MSE X ESE	110.94	4	27.74	.23
PS X MSE X ESE	43.88	4	10.97	.09
Error (within)	8,722.40	72	121.14	

*$p < .10$
**$p < .05$

TABLE 12

A SCORE MEANS FOR THE PS X MSE INTERACTION

	HIGH MSE	MIDDLE MSE	LOW MSE	TOTAL
HIGH PS	89.20	84.60	74.87	82.89
LOW PS	79.67	77.20	78.47	78.44
TOTAL	84.43	80.90	76.67	80.67

relatively more attractive impressions under the High PS condition than under the Low PS condition, while subjects in the Low MSE condition formed relatively more attractive impressions under the Low PS condition than under the High PS condition. The PS X ESE, MSE X ESE and PS X MSE X ESE interactions all failed to reach significance ($p > .10$).

The data obtained in Part 5 of PROBLEM II were analyzed in a similar fashion. The subjects' task in Part 5, it will be recalled, was to indicate on a 20—point scale (from -10 = Extremely Dislike to +10 = Extremely Like) how much they thought they would like having individual X as a work associate, as a personal friend and as a member of their family. This scale, for purposes of analysis, was converted into a 1 — 20 scale where 1 = Extremely Dislike and 20 = Extremely Like. For each of the 90 subjects, an overall desire to interact score (I score) was computed by summing the three ratings of individual X as a potential work associate, personal friend, and family member. The range of possible I scores was consequently from 3 (lowest possible I score) to 60 (highest possible I score).

The mean I score for each of the 18 groups is shown in Table 13. Table 14 shows the mean I score for each of the levels of PS, MSE and ESE. The use of Cochran's procedure revealed that the variances were homogeneous ($p > .05$). An analysis of variance, the results of which are summarized in

TABLE 13

MEAN I SCORE FOR EACH OF THE EIGHTEEN GROUPS

	HIGH MSE			MIDDLE MSE			LOW MSE		
	ESE			ESE			ESE		
PS	HIGH	MIDDLE	LOW	HIGH	MIDDLE	LOW	HIGH	MIDDLE	LOW
HIGH	31.6	39.8	35.6	25.8	35.6	35.8	33.6	38.6	38.8
LOW	30.8	30.6	27.6	32.4	33.0	29.8	29.6	29.8	29.4

TABLE 14

MEAN I SCORE FOR EACH OF THE LEVELS OF PS, MSE AND ESE

	HIGH	MIDDLE	LOW
PS	35.02	—	30.33
MSE	32.67	32.07	33.30
ESE	30.63	34.57	32.83

Table 15, was then undertaken. From Table 15 it can be seen that the main effect of PS was significant beyond the .01 level. It was in the predicted direction as subjects in the High PS condition expressed a greater desire to interact ($\bar{I}$ = 35.02) than subjects in the Low PS condition ($\bar{I}$ = 30.33). The main effects of MSE and ESE were not found to be significant ($p > .10$). The interaction between PS and ESE, the means for which are shown in Table 16, was found to be significant at beyond the .10 level. However, the interaction was in the opposite direction from that which was predicted. From Table 16 it can be seen that the High ESE subjects expressed a relatively greater desire to interact under the Low PS condition than under the High PS condition, while Low ESE subjects expressed a relatively greater desire to interact under the High PS condition than under the Low PS condition. The PS X MSE, MSE X ESE and PS X MSE X ESE interactions all failed to reach significance ($p > .10$).

Table 17 shows the means and standard deviations of the scores on each of the six scales of the CPI. The mean total CPI score (i.e., the score based upon all six scales taken together) was found to be 154.29. The correlation coefficient between total CPI scores and scores on the SEI (.457) was found to be statistically significant ($p < .001$). The total score on the CPI and the individual score on each of the six scales were correlated with A scores and I scores. The correlation coefficients thus obtained are shown in Table 18. None of

TABLE 15

SUMMARY OF ANALYSIS OF VARIANCE OF I SCORES OF ALL SUBJECTS ON THREE VARIABLES: PS, PERCEIVED SIMILARITY; MSE, MOMENTARY SELF-ESTEEM; AND ESE, ENDURING SELF-ESTEEM

Source of Variation	SS	df	MS	F
PS	494.68	1	494.68	8.75**
MSE	22.82	2	11.41	.20
ESE	233.15	2	116.58	2.06
PS X MSE	189.37	2	94.69	1.68
PS X ESE	317.98	2	158.99	2.81*
MSE X ESE	50.59	4	12.65	.22
PS X MSE X ESE	41.47	4	10.37	.18
Error (within)	4,069.60	72	56.52	

*$p < .10$
**$p < .01$

TABLE 16

I SCORE MEANS FOR THE PS X ESE INTERACTION

	HIGH ESE	MIDDLE ESE	LOW ESE	TOTAL
HIGH PS	30.33	38.00	36.73	35.02
LOW PS	30.93	31.13	28.93	30.33
TOTAL	30.63	34.57	32.83	32.68

TABLE 1

MEANS AND STANDARD DEVIATIONS OF THE SCORES ON EACH OF THE SIX SCALES OF THE CPI[a]

CPI SCALE	$\bar{X}$	s
Do	25.91	6.14
Cs	17.88	3.31
Sy	22.66	4.46
Sp	35.24	5.68
Sa	21.43	3.81
Wb	31.17	6.64
Total	154.29	20.71

[a] Kuder-Richardson formula 21 reliability coefficient for this sample was .921.

TABLE 18

CORRELATION COEFFICIENTS OBTAINED BY CORRELATING A SCORES AND I SCORES WITH CPI SCORES

CPI SCALE	A	I
Do	-.00	-.01
Cs	-.03	.03
Sy	.05	.12
Sp	-.10	-.05
Sa	-.04	-.00
Wb	-.00	-.04
Total	-.03	-.00

these correlation coefficients were found to be statistically significant ($p > .10$).

The correlation coefficient between A scores and total CPI scores for the 45 subjects in the High PS condition (.053) was not found to differ significantly ($p > .10$) from the correlation coefficient between A scores and total CPI scores for the 45 subjects in the Low PS condition (-.202). Similarly, the correlation coefficient between I scores and total CPI scores for the 45 subjects in the High PS condition (.022) was not found to differ significantly ($p > .10$) from the correlation coefficient between I scores and total CPI scores for the 45 subjects in the Low PS condition (-.053). It might be pointed out that these two differences, though not significant, were in the direction predicted by Hypothesis 2.

DISCUSSION

Before discussing the results individually and relating them to the hypotheses, there are two general points which should be made. First, it will be recalled (p. 2) that in the present study attractiveness was operationally defined in two ways: (1) the extent to which p perceives o as possessing socially desirable character traits as opposed to possessing socially undesirable character traits and (2) the extent to which p believes he would like interacting with o in various social contexts. The extent to which p perceives o as possessing socially desirable character traits as opposed to possessing socially undesirable character traits was measured by the A score based upon p's ratings on Part 2 of PROBLEM II of the PPST. The extent to which p believes he would like interacting with o in various social contexts was measured by the I score based upon p's ratings on Part 5 of PROBLEM II of the PPST.

The correlation coefficient between A scores and I scores (.613) was found to be highly significant ($p < .001$). However, better than 62% of the variance is unaccounted for by the correlation between A scores and I scores. Moreover, in comparing the effects of PS, MSE, and ESE on A scores with their effects upon I scores (Tables 11 and 15) it can be seen that they are not identical. Thus, for instance, MSE has an effect upon A scores ($p < .05$) but not upon I scores ($p > .10$). Perceived simi-

larity affects both A scores and I scores similarly, but its effect upon the latter is significant at the .01 level while its effect upon the former is significant at only the .10 level.

One important aspect of the present discussion is that of proffering possible theoretical reasons for differences in the pattern of results for A scores and I scores. Up until now the constructs of attractiveness and attraction have been used interchangeably. For the sake of discussion, the term attractiveness will henceforth refer to the extent to which p perceives o as possessing socially desirable character traits as opposed to possessing socially undesirable character traits (i.e., to the A scores of the results section) while the term attraction will henceforth refer to the extent to which p believes he would like interacting with o in various social contexts (i.e., to the I scores of the results section). The distinction that is being made here between attractiveness and attraction is one which is implicit in Katz and Stotland's (1959) conceptualization of an attitude as consisting of a cognitive component, an evaluative component and an action component. Attractiveness (the A score based upon the ratings of the stimulus individual on the bipolar-adjective scales in Part 2) would represent the cognitive and evaluative components, while attraction (the I score based upon the ratings in Part 5 of the subject's desire to interact with the stimulus individual) would

represent the action component.

The second general point which should be made before turning our attention to a detailed discussion of the individual results has to do with the effects of self-esteem. From Tables 11 and 15 it can be seen that for both A scores and I scores there were differences between the effects of momentary and enduring self-esteem. Momentary and enduring self-esteem, it will be recalled, have been found to have differential effects on social suggestibility (Gelfand, 1962) and exploitative self-rewarding play in a game situation (Faucheux and Moscovici, 1968). It appears that they also have differential effects in the impression formation context that was employed in the present study. A second important aspect of the present discussion is that of offering some sort of theoretical explanation for the differences that were found between the effects of MSE and ESE upon both A and I scores. Why, for example, did MSE have a significant effect upon p's evaluation of o whereas ESE did not have a significant effect?

Let us now turn our attention to a discussion of the individual results and their relationship to the hypotheses put forth in the introduction. Hypothesis I, based upon Heider's (1958) theory of cognitive balance, predicted that A scores and I scores should be higher when p perceives a high degree of similarity to exist between himself and o than when p perceives

a high degree of dissimilarity to exist between himself and o. From Tables 10 and 11 it can be seen that the mean A score for subjects in the High PS condition (82.89) was somewhat greater ($p < .10$) than the mean A score for subjects in the Low PS condition (78.44). Thus subjects presented with stimulus people having value systems relatively similar to their own did tend to form somewhat more attractive impressions than subjects presented with stimulus people having value systems relatively dissimilar to their own. Looking at Tables 14 and 15 it can be seen that the same difference existed, and in fact was even stronger, for the I scores. Subjects expressed a greater willingness ($p < .01$) to interact with stimulus people having value systems relatively similar to their own ($\bar{I} = 35.02$) than with stimulus people having value systems relatively dissimilar to their own ($\bar{I} = 30.33$). Both these findings are consistent with Hypothesis I. Given two positive relations, perceived similarity and favorable self-concept, there should be a tendency for the third relation, attractiveness or attraction, to be relatively positive. Given one negative and one positive relation, perceived dissimilarity and favorable self-concept, there should be a tendency for the third relation to be relatively negative. Again, the assumption here, as in Hypothesis I, is that most people have a generally favorable self-concept.

Why is it that perceived similarity or dissimilarity of

values apparently exerted a stronger effect upon attraction than upon attractiveness? Heider's (1958) theory of cognitive balance does not allow us to make differential predictions for A scores and I scores. However, responses to the impression formation task presented to the subjects in this study, as well as the responses of people to more "real life" impression formation tasks, are obviously determined by variables other than the need for cognitive balance. Since in the present study similarity-dissimilarity was based upon values, one such other variable which might have been operative, and which might be expected to exert a stronger effect upon attraction (I scores) than upon attractiveness (A scores), is that which Sullivan (1947) has termed the need for consensual validation. The need for consensual validation essentially means that people quite often attempt to validate their attitudes and values through seeking agreement with other people.

Festinger (1950; 1954) has elaborated upon this concept in his social comparison theory. He postulates that human beings possess a basic drive to evaluate their abilities, beliefs and attitudes. Moreover, Festinger's theory also proposes that as the availability of an objective, non-social basis for self-evaluation decreased, the probability that a person will evaluate his abilities, beliefs and attitudes by comparison with other people increases. Festinger (1950, p. 272) writes that:

> It would thus seem that where there is a

> high degree of dependence upon physical reality for the subjective validity of one's beliefs or opinions the dependence upon other people for the confidence one has in these opinions or beliefs is very low.
>
> At the other end of the continuum where the dependence upon physical reality is low or zero, we might have an example such as this: A person looking at the results of a national election feels that if the loser had won, things would be in some ways much better than they are. Upon what does the subjective validity of this belief depend? It depends to a large degree on whether or not other people share his opinion and feel the same way as he does. If there are other people around him who believe the same thing, then his opinion is, to him, valid. If there are not others who believe the same thing, then his opinion is, in the same sense, not valid. Thus where the dependence upon physical reality is low the dependence upon social reality is correspondingly high.

Statements having to do with value systems, such as those used in the manipulation of perceived similarity in the present study, would appear to be very difficult to check against physical reality. Consequently, according to Festinger's theory, one would expect them to be relatively dependent upon social reality.

The mean I score of subjects presented with a stimulus individual having a value system relatively similar to their own may have been higher than the mean I score of subjects presented with a stimulus individual having a value system relatively dissimilar to their own, not only because of a need for cognitive balance, but also because of a need for consensual validation.

One could argue that it is pleasant and rewarding to interact with those people who agree with our values since such interaction has a relatively high probability of helping us to believe that our view of the world is essentially correct. Conversely, one could argue that it is unpleasant and punishing to interact with those people who disagree with our values since such interaction has a relatively high probability of suggesting that our view of the world is not as accurate as we would like it to be. Byrne (1966, pp. 47-48) makes this point well as he writes that:

> ...we continually strive to make sense out of our physical and social world. Especially difficult is the social world of attitudes, beliefs, opinions, and values concerning politics, religion, race relations, and the like. About such topics there is simply no way to determine whether we are correct in making sense out of the stimulus data. When another person agrees with us and hence offers consensual validation concerning the correctness of our position, our "correctness" is supported. Frustration of this motive to be logical and correct takes place when others disagree with our views, when they offer consensual invalidation.

It would seem reasonable to suggest that the need for consensual validation would not affect p's personal evaluation of o (A scores) as directly as it would affect p's willingness to interact with o (I scores). From past experience most individuals have probably learned that people who have values dissimilar to their own may still be mature, reliable, competent,

intelligent, etc. However, even if p perceives o as possessing predominantly socially desirable characteristics, he may, because of the need for consensual validation, choose not to interact with o if he perceives a basic dissimilarity in value systems. It should be pointed out that since consensual validation is being introduced for the first time here in the discussion section in order to help to account for the pattern of results that was obtained, further research is especially needed to assess its validity.

In discussing the apparently stronger effect of perceived similarity-dissimilarity of values upon attraction than upon attractiveness, there is one additional variable that should be discussed. In everyday life many individuals may well manifest a tendency to attribute socially undesirable characteristics to a person whose value system is dissimilar to their own. However, the success of one's adaptation to life is, in large part, dependent upon his ability to predict accurately the responses of other people with whom he interacts. The prediction of many responses typically involves making inferences about personality traits such as those on which p was asked to rate o in the present study. The behavior of a happy, mature, stable, intelligent individual would, for instance, probably be expected to differ in certain important and systematic ways from the behavior of an unhappy, immature, unstable, unintel-

ligent individual.

Now, the importance to p of forming an accurate impression of o will patently vary from situation to situation as a function of a number of variables. It would seem reasonable to suggest that the greater the importance of forming an accurate impression of o, the greater the effort p will exert in striving to be objective and to transcend any tendency to attribute desirable or undesirable characteristics solely on the basis of something as frangible as the statements used in the PS manipulation. Perhaps in situations in which it is exceedingly important to p to form an accurate impression of o he may have learned to compensate for any such tendency because it often results in inaccuracy and increases the probability of punishment in his interaction with o.

It is true that in the present study p presumably had no expectation of interacting with o. However, the impression formation task was, because of the MSE manipulation, presented in such a way that it was probably important to p that he form as accurate an impression of o as possible. The subjects were informed, both directly and indirectly, that accuracy on the impression formation task was directly related to a number of highly desirable characteristics such as intelligence, creativity, maturity, etc. They may have made a special effort to be as objective as possible in evaluating o on the bipolar-adjec-

tive scales of Part 2.

Hypothesis 2 predicted that A scores and I scores would generally tend to be a function of an interaction between the degree to which p perceives o as being similar to himself and p's self-esteem. The predicted direction of the hypothesized interaction was that High PS minus Low PS would result in a greater positive difference in attractiveness and attraction when p has a positive attitude toward himself than when p has a negative attitude toward himself.

Considering first the interaction effect of perceived similarity and momentary self-esteem (as opposed to enduring self-esteem) upon p's evaluation of o (i.e., upon attractiveness as opposed to attraction), from Table 11 it can be seen that this interaction was significant at beyond the .10 level. The F value for the PS X MSE interaction (3.08) was only slightly less than that needed for significance at the .05 level (3.13). Nevertheless, without replication it must be interpreted cautiously. From Table 12 it can be seen that the interaction was also in the predicted direction. Subjects with high momentary self-esteem evaluated a similar o more favorably ($\bar{A}$ score = 89.20) than a dissimilar o ($\bar{A}$ score = 79.67), while subjects with low momentary self-esteem evaluated a similar o less favorably ($\bar{A}$ score = 74.87) than a dissimilar o ($\bar{A}$ score = 78.47).

This finding is consistent with Heider's (1958) conditions

for cognitive balance in a three element system. If p evaluates himself very favorably and believes that o is similar to himself vis à vis some important personality dimension, there should be a tendency to evaluate o favorably since three positive relations constitute a state of cognitive balance, while two positive relations and one negative relation constitute a state of cognitive imbalance. If, on the other hand, p believes o is dissimilar to himself vis à vis some important personality dimension, there should be a tendency to evaluate o unfavorably since two negative relations and one positive relation constitute a state of cognitive balance, while two positive relations and one negative relation constitute a state of cognitive imbalance. When p evaluates himself unfavorably (i.e., Low MSE condition) Heider's proposed conditions for cognitive balance predict that the relationship between perceived similarity and p's evaluation of o should be reversed.

From Table 11 it can be seen that although the PS X MSE interaction did exert an effect upon p's evaluation of o in the direction predicted by Hypothesis 2, the PS X ESE interaction did not ($p > .10$). This was surprising in view of the fact that the self-evaluation relations in the High and Low ESE groups were presumably stronger than the self-evaluation relations in the High and Low MSE groups. It will be recalled that the differences in the means of the three ESE groups (shown in Table 7)

were much greater than the differences in the means of the three MSE groups (see p. 75) of the pilot study. Perhaps this is to be expected as it is probably impossible to experimentally induce differences in an organismic variable such as self-esteem equal to naturally occurring differences based upon numerous experiences. It should be noted that Heider did not deal with the question of relations of varying strength. However, as a number of individuals have pointed out (e.g., Insko, 1967; Morrissette, 1958), his theory of cognitive balance should logically be extended so as to deal with this question. One would expect that as the strength of any one of the relations in a three entity system increases, the tendency toward cognitive balance would also increase.

The fact that the PS X ESE interaction did not exert any significant effect upon p's evaluation of o even though the self-evaluation relations in the High and Low ESE groups were considerably stronger than the self-evaluation relations in the High and Low MSE groups, may be interpreted as suggesting that the effect of the PS X MSE interaction was due to chance rather than to a need for cognitive balance. That is, it may be the case that, at least under the conditions of the present study, perceived similarity and self-esteem simply do not interact to affect p's evaluation of o in the direction predicted by balance theory. This explanation is especially tempting since

the PS X MSE interaction was not significant at an impressive level. On the basis of this one study, there is no means of eliminating this possibility. However, it may also be the case that, under the conditions of the present study, momentary and enduring self-esteem actually interact differentially with perceived similarity to affect p's evaluation of o. If so, the question that must be dealt with is the following: What is (are) the difference(s) between enduring and momentary self-esteem, as operationally defined in the present study, which results in their interacting differentially with perceived similarity? Two variables which would appear to be worthy of some consideration here are those which one might term awareness and adaptability. Let us consider each of these variables.

Although Heider does not discuss the issue, it would seem reasonable to suggest that in predicting cognitive behavior the strength of a relation and the awareness of a relation are two dimensions which should be considered independently. Consider a simple example. Assume that one person (p) is very much in favor of both integration (p L x) and an isolationist foreign policy (p L y), while a second person (o) is very much in favor of an isolationist foreign policy (o L y) but very much opposed to integration (o DL x). Assume also that the p L x relation is considerably stronger than the p L y relation and that the o DL x relation is considerably stronger than the

o L y relation. Thus both p and o have feelings about integration that are much stronger than their feelings about foreign policy. At a party p and o meet and the conversation turns to foreign policy. It quickly becomes apparent to p that o agrees with him regarding the desirability of an isolationist foreign policy. The prediction is that p will tend to like o since p L y and o L y should tend to induce p L o. Since p is unaware of the existence of the o DL x relation at this point in time, it seems obvious that even though the o DL x and p L x relations are considerably stronger than, respectively, the o L y and p L y relations (in much the same manner as the self-evaluation relations in the High and Low ESE groups were considerably stronger than the self-evaluation relations in the High and Low MSE groups), it (the o DL x relation) will not be able to influence p's feelings towards o.

Let us go on to assume that p eventually learns that: (1) o DL x and that (2) the relation o DL x is considerably stronger than the relation o L y. The prediction now would be that p would tend to dislike o. Even though p and o agree on one issue about which both feel strongly (foreign policy), they disagree on another issue about which both feel even more strongly (integration). However, one must still consider the question of awareness. If, for example, p meets o right after hearing a radio show discussing foreign policy, he may be much more

aware of the p L y and o L y relations than of the p L x and o DL x relations even though the latter set of relations is stronger than the former set of relations. Consequently, one would predict an increased tendency for p to like o. The important point here is that even though the p L x and o DL x set of relations is stronger than the p L y and o L y set of relations, one would not expect the former set of relations to affect p's cognitive behavior unless he was in some way stimulated to think about it. It is probably true that the stronger a relation is to p, the more easily he can be stimulated to think about it (i.e., the more easily he can be made aware of it).

Let us now relate the preceding discussion of the strength of a relation versus the awareness of a relation to the finding that even though the self-evaluation relations in the High and Low ESE groups were considerably stronger than the self-evaluation relations in the High and Low MSE groups, the PS X MSE interaction affected p's evaluation of o in the manner predicted by the theory of cognitive balance, while the PS X ESE interaction did not. It may be the case that even though the self-evaluation relations in the High and Low ESE groups were considerably stronger than the self-evaluation relations in the High and Low MSE groups, the subjects were more aware of their momentary self-evaluation relation than they were of their endur-

ing self-evaluation relation. It will be recalled that in this study the basis for the momentary self-evaluation relation (feedback concerning performance on the PPST) was introduced shortly before the subject was asked to evaluate o. Consequently, it seems reasonable to assume that the subjects were probably very much aware of their momentary self-evaluation relation at that point in time when they were asked to evaluate o. If at the time of their evaluation of o subjects were more aware of their momentary self-evaluation relation than they were of their enduring self-evaluation relation, the former relation, though not as strong as the latter relation, could have exerted a more powerful effect upon the subjects' cognitive behavior.

There is a second variable, besides awareness, that might possibly help to account for the differential effects of the PS X MSE and PS X ESE interactions upon p's evaluation of o. People have considerably more experience in dealing with their enduring self-evaluation relation than in dealing with a momentary self-evaluation relation such as that which was experimentally induced in the present study. Their enduring self-evaluation relation is one which develops slowly and one which is based upon a lifetime of experience. It is also one which is present during their everyday impression formation behavior. This being the case, it may be that there is an adaptation effect in the sense that, to some degree, people learn to prevent

their enduring self-evaluation relation from influencing the impression formation process, particularly in those instances where accuracy is very important. The motivation for this learning was mentioned earlier. In everyday life, one's success is largely dependent upon one's ability to predict accurately the responses of other people which, in turn, is largely dependent upon forming accurate impressions of them. The motivation for manifesting this learning in the present study was also mentioned earlier. The impression formation task was presented in such a way that it was important to p that he form as accurate an impression of o as possible.

What is being suggested here is that perhaps the relationship between distorting lenses and physical perception found by Stratton (1897) also exists between the self-evaluation relation and the evaluation of others. In his classic experiment, Stratton wore distorting lenses that inverted the visual world from left to right and from top to bottom. For a number of days he found it exceedingly difficult to carry on his daily activities. However, Stratton gradually became able to function more and more effectively and after about a week had adapted quite well to his new environment. Perhaps the experimentally induced momentary self-evaluation relations in the present study were analogous to just putting on the distorting lenses, while the enduring self-evaluation relations were analogous to

having had them on for some time. The momentary self-evaluation relation may exert more of an effect upon p's evaluation of o simply because p has not had the time to learn to adapt to it.

Thus far we have considered the interaction effects of self-esteem (both momentary and enduring) and perceived similarity upon p's evaluation of o (i.e., upon attractiveness as opposed to attraction). Turning our attention to the interaction effects of self-esteem and perceived similarity upon the extent to which p believes he would like to interact with o (i.e., upon attraction as opposed to attractiveness), Table 15 shows that they are different. Whereas the PS X MSE interaction did have somewhat of an effect upon A scores ($p < .10$) in the direction predicted by balance theory, it did not have an effect upon I scores ($p > .10$). Similarly, whereas the PS X ESE interaction did not have an effect upon A scores ($p > .10$), it did have an effect upon I scores ($p < .10$). However, the effect of the PS X ESE interaction upon I scores was in the direction opposite from that which was predicted by balance theory. Subjects with low enduring self-esteem expressed a greater willingness to interact with a similar o ($\bar{I}$ score = 36.73) than with a dissimilar o ($\bar{I}$ score = 28.93), while subjects with high enduring self-esteem expressed a greater willingness to interact with a dissimilar o ($\bar{I}$ score = 30.93) than with a similar o

($\bar{I}$ score = 30.33).

In summary, attraction (I scores) was affected by neither the PS X MSE nor the PS X ESE interactions in the manner predicted by Hypothesis 2. This might be because either the principles of cognitive balance upon which Hypothesis 2 is based are not applicable in predicting attraction, or because in the present study conditions were such as to result in other variables being more important in determining attraction.

The need for consensual validation , which was considered above in discussing the apparently stronger effect of perceived similarity-dissimilarity of values upon I scores than upon A scores, may be relevant here in answering the following two questions: (1) why did the PS X MSE interaction not affect I scores in the manner predicted by balance theory even though it did affect A scores in such a manner, and (2) why did the PS X ESE interaction affect I scores in the opposite direction from that which was predicted by balance theory?

Turning our attention to the first of these two questions, Table 19 shows the mean A score and mean I score for the following four conditions: High PS High MSE, High PS Low MSE, Low PS High MSE, and Low PS Low MSE. From Table 19 it can be seen that the finding of the PS X MSE interaction to have no significant effect upon p's willingness to interact with o (i.e., upon I scores), even though it did have an effect upon

TABLE 19

MEAN A SCORE AND MEAN I SCORE FOR THE FOLLOWING FOUR CONDITIONS: HIGH PS HIGH MSE, HIGH PS LOW MSE, LOW PS HIGH MSE AND LOW PS LOW MSE

	MSE	
PS	HIGH	LOW
HIGH	A = 89.2 I = 35.7	A = 74.9 I = 37.0
LOW	A = 79.7 I = 29.7	A = 78.5 I = 29.6

p's evaluation of o (i.e., upon A scores), was largely attributable to the subjects in the Low MSE condition. Although these subjects did evaluate a dissimilar o more favorably than a similar o (78.5 versus 74.9), they expressed a greater willingness to interact with a similar o than with a dissimilar o (37.0 versus 29.6).

Why did the Low MSE subjects express a greater willingness to interact with a similar o than with a dissimilar o even though they evaluated the latter more favorably? The suggestion here is that since perceived similarity-dissimilarity was based upon values, it may be that the need for consensual validation was more important than the need for cognitive balance in determining p's willingness to interact with o. Consider the case of the p in the High PS Low MSE condition who presumably holds the following two cognitions: (1) I am an undesirable person and (2) o is very similar to me. Even though the need for cognitive balance may tend to make him both evaluate o unfavorably and to express a desire to avoid interaction with o, any tendency towards the latter may be washed out by the anticipated rewards of interacting with someone who has a very similar value system. That is to say, although p may evaluate o unfavorably, p may still seek to interact with o if he believes that o may provide consensual validation for his value system. Similarly, consider the case of the p in the Low PS

Low MSE condition who presumably holds the following two cognitions: (1) I am an undesirable person and (2) o is very dissimilar to me. Although the need for cognitive balance may tend to make p both evaluate o favorably and to express a desire to interact with o, any tendency towards the latter may be washed out by the threat p might perceive o as posing to the validity of his value system.

The need for consensual validation also offers a possible explanation for the finding that the PS X ESE interaction had an effect upon I scores that was in the opposite direction from that which was predicted by balance theory. Table 20 shows the mean A score and mean I score for the following four conditions: High PS High ESE, High PS Low ESE, Low PS High ESE, and Low PS Low ESE. An inspection of Table 20 reveals that Low ESE subjects, like Low MSE subjects, expressed a greater willingness to interact with a similar o than with a dissimilar o (36.7 versus 28.9). However, while High MSE subjects also expressed a greater willingness to interact with a similar o than with a dissimilar o (35.7 versus 29.7), High ESE subjects did not manifest any such preference (30.3 versus 30.9). The difference in the effects of the PS X MSE and PS X ESE interactions upon p's willingness to interact with o was largely attributable to this fact.

Why did the High ESE subjects not express a greater desire

TABLE 20

MEAN A SCORE AND MEAN I SCORE FOR THE FOLLOWING FOUR CONDITIONS: HIGH PS HIGH ESE, HIGH PS LOW ESE, LOW PS HIGH ESE AND LOW PS LOW ESE

	ESE	
PS	HIGH	LOW
HIGH	A = 82.5 I = 30.3	A = 82.5 I = 36.7
LOW	A = 79.7 I = 30.9	A = 76.9 I = 28.9

to interact with a similar o than with a dissimilar o? The hypothesis put forth here is that people with high enduring self-esteem are more confident about their beliefs, attitudes and values than are people with either low enduring self-esteem or high momentary self-esteem. High ESE people have probably had generally positive reinforcement histories and have come to believe that they are usually correct in their perception of the world. The greater confidence of people with high enduring self-esteem may well result in their having less of a need for consensual validation which, in turn, results in their being less attracted to someone who fulfills this need.

Support for the hypothesis that people with high enduring self-esteem are more confident about their beliefs, attitudes and values comes from a number of studies (e.g., Cohen, 1959; Janis & Field, 1956; Janis & Rife, 1959; Linton & Graham, 1959; etc.) which, using a number of different populations and measuring methods, have found that people with high enduring self-esteem tend to be less susceptible to persuasion than people with low enduring self-esteem. Also relevant here are those studies (Gerard & Greenbaum, 1962; Worchel & McCormick, 1963; Worchel & Schuster, 1966) which have found that people show greater liking for a person who agreed with them when they were uncertain rather than certain about their own point

of view. For instance, in the Worchel and Schuster study each subject was led to believe that he was a member of a five man group in which each of the five group members was working privately on a problem in human relations. After the subject had reached his decision and had passed it on to his four imaginary fellow group members, he received each of their decisions. Subsequently, the subject was asked to rate the imaginary group members in terms of how much he would like to work with each of them on a problem solving task in the near future. Worchel and Schuster found that an agreeing fourth man was liked significantly more when the first three men had disagreed with the subject's opinion than when the first three men had agreed with the subject's opinion.

Measuring enduring self-esteem by the California Personality Inventory rather than by the SEI, the PS X ESE interaction was found to affect neither A scores nor I scores. If perceived similarity and enduring self-esteem (as measured by the CPI) had interacted to affect A scores and I scores in the manner predicted by Hypothesis 2, one would have expected to find a significantly greater positive correlation between ESE and A scores (or I scores) for the 45 Ss in the High PS condition than for the 45 Ss in the Low PS condition. As was pointed out in the results section the correlation coefficient between A scores and total CPI scores for the 45 subjects in the High

PS condition (.053) was not found to differ significantly ($p > .10$) from the correlation coefficient between A scores and total CPI scores for the 45 subjects in the Low PS condition (-.202). Similarly, the correlation coefficient between I scores and total CPI scores for the 45 subjects in the High PS condition (.022) was not found to differ significantly ($p > .10$) from the correlation coefficient between I scores and total CPI scores for the 45 subjects in the Low PS condition (-.053).

Turning our attention to the main effect of self-esteem, observation of Table 11 indicates that its effect upon p's evaluation of o depends upon whether one is talking about enduring or momentary self-esteem. Just as the interaction of each with perceived similarity affected A scores somewhat differently (the PS X ESE interaction having no effect, the PS X MSE interaction having an effect which was significant beyond the .10 level), each of them also had a different main effect upon A scores. Momentary self-esteem was found to affect p's evaluation of o in the direction predicted by Hypothesis 3 ($p < .05$). Subjects in the High MSE condition formed more attractive impressions than subjects in the Middle MSE condition who, in turn, formed more attractive impressions than subjects in the Low MSE condition. In contrast, enduring self-esteem, whether measured by the SEI or the CPI, was not found to have

the predicted effect upon A scores.

How can one account for these differential effects of momentary and enduring self-esteem? One possible explanation is in terms of the adaptation effect which was suggested earlier as a possible causal factor for the differential effects of the PS X MSE and PS X ESE interactions upon p's evaluation of o. It will be recalled that it was suggested that perhaps people learn to prevent their enduring self-esteem from influencing the impression formation process, particularly where accuracy is important. In the present study subjects had to be led to believe, for purposes of manipulating momentary self-esteem, that the accuracy of the impression which they formed of o was directly related to a number of highly desirable characteristics such as intelligence, creativity, maturity, etc. Consequently, the accuracy of the impression which they formed of o was probably important to them.

Although p's momentary self-esteem did have an effect upon his evaluation of o, it did not have any effect upon his willingness to interact with o. One possible explanation for the differential effects of momentary self-esteem upon A scores and I scores is that the higher an individual's self-esteem, the more he expects of those people with whom he interacts. Perhaps individuals with high self-esteem are likely to believe that they have a great deal to offer to other people and that they,

in turn, are worthy of receiving a great deal from other people. This appears to be the point Goffman (1958, p. 456) is making as he writes that: "A proposal of marriage in our society tends to be a way in which a man sums up his social attributes and suggests to a woman that hers are not so much better as to preclude a merger or partnership in these matters." In the present study, it may be the case that even though subjects in the High MSE condition formed more attractive impressions of o than subjects in the Low MSE condition (84.43 versus 76.67), they did not manifest any greater willingness to interact with o (32.67 versus 33.30) because the experimental induction of high momentary self-esteem led them to adopt a more demanding standard for accepting someone as a work associate, personal friend, or family member.

Another factor which may be operating here is the need to affiliate. Schachter (1959) has found that, at least under some conditions, increased anxiety results in an increase in the need to affiliate. In Schachter's studies anxiety was operationally defined as the severity of a series of electrical shocks which subjects were led to believe they would be receiving in an experiment, while the need to affiliate was operationally defined as whether subjects chose to be alone or with others while waiting for the experiment to begin. Perhaps the subjects in the Low MSE condition experienced greater anxiety

than the subjects in the other two conditions, even though the post-experimental inquiry did not reveal this to be the case. Greater anxiety in subjects in the Low MSE condition may have resulted in an increased need to affiliate which, in turn, may have increased the I scores. This may have been one of the causal factors underlying the finding that even though Low MSE subjects did form impressions of o that were significantly less attractive than those formed by High MSE subjects, there was no significant difference between High and Low MSE subjects in their willingness to interact with o.

In summing up the present discussion, it should be pointed out that the findings of this study should be regarded as suggestive rather than as conclusive. Those effects that were found to be significant at only the .10 level are, quite obviously, in need of replication for they may have been due to chance. The three research hypotheses (p.41) received differing degrees of support. The degree of support for each of the three hypotheses was found to be partly a function of whether one is talking about p's evaluation of o or p's desire to interact with o. The degree of support for the two hypotheses concerned with the effects of self-esteem (Hypotheses 2 and 3) was found to be partly a function of whether one is talking about momentary self-esteem or enduring self-esteem. This is an interesting finding which further demonstrates the importance of

simultaneously employing both the correlational and manipulational approaches whenever possible. It is probably dangerous to assume that manipulated self-esteem, based upon a one-hour experimental session, is essentially identical to organismic self-esteem, based upon a lifetime of experience.

The discussion above has focused on some possible theoretical explanations for the pattern of results which was obtained. The degree of validity of these explanations is a question for future research. For instance, it would be interesting to investigate the relationship between p's enduring self-esteem and the attractiveness of the impression which he forms of o in a study in which the importance of accuracy is not mentioned. It will be recalled that one possible explanation which was advanced above for the finding that MSE affected A scores whereas ESE did not, is that perhaps people adapt to their enduring self-esteem and learn to prevent it from influencing the impression formation process, particularly in instances where accuracy seems important.

The relationship between p's enduring self-esteem and the attractiveness of the impression which he forms of o when accuracy is not mentioned could be investigated rather easily by replicating the present study and omitting the MSE manipulation. Instead of being presented as a Person Perception Sensitivity Test, capable of measuring various important personality traits,

the impression formation task could be presented in a much more innocuous form. It could, for instance, be presented simply as "a study dealing with the types of impressions that people form of other people." If the above explanation for the lack of relationship between p's ESE and his evaluation of o has any validity, one would expect that in a study such as this, where the importance of accuracy is not even mentioned, there would be a stronger relationship between these two variables.

A comparison of the effects of PS and the PS X ESE interaction in such a study with their effects in the present study, where accuracy was stressed, would also be of some interest. It will be recalled that it was suggested that in the present study their effects upon A scores may also have been diminished by the fact that the accuracy of the impression p forms of o was stressed.

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APPENDIXES

APPENDIX A

INSTRUCTIONS GIVEN TO THE SUBJECTS IN THE STUDY OF THE ATTRACTIVENESS OF THE CHARACTER TRAITS MAKING UP THE SELF-ESTEEM INVENTORY

We are involved in a study which is attempting to determine how people evaluate a number of character traits that are often used to describe people. Below you will find a series of pairs of character traits. For each of these pairs of character traits what we would like you to do is to make a checkmark (✓) indicating the degree to which you believe that it is better (i.e., more attractive, more desirable, etc.) for a person to possess one of the traits as opposed to the other.

For example, in the first example below, if you believe that it is <u>equally</u> attractive or desirable for a person to be productive, as opposed to being unproductive, then you should place your checkmark in the middle space. If you believe that it is <u>slightly</u> better for a person to be productive, then you should place your checkmark in the space just to the left of the middle space. If you believe that it is <u>much</u> better for a person to be productive, then you should place your checkmark in the space at the far left.

APPENDIX B

BACKGROUND INFORMATION GIVEN TO THE SUBJECTS ABOUT THE STUDY IN WHICH THEY WERE PARTICIPATING

BACKGROUND INFORMATION FOR PPST STANDARDIZATION STUDY

(Norms for East Coast college students)

ISP Grant number 34372
1969-1970

In 1961 a group of psychologists at the University of California developed what has come to be known as the Person Perception Sensitivity Test (PPST). This test measures the ability to form an accurate impression of an individual from a minimal amount of information. Research during the last seven years has strongly indicated that this test is among the most significant measures of personality yet devised. For instance, it correlates very highly with our best measures of such important personal qualities as intelligence, leadership, emotional stability, personal maturity, overall adjustment, etc. — it takes less time to give than any one of these other measures and yet seems to yield as much information as all of them put together.

The PPST also appears to be able to measure a personality characteristic which has long eluded measurement — a characteristic known as basic creative potential. Too many intelligence tests are devoid of requirements for the use of imagination. They present problems which have rather unequivocal answers which the individual either does or does not know. However, most real-life problems are not like that. They are not clear-cut but full of ambiguity — like the problem of trying to form an accurate impression of a person from only a limited amount of information.

The value of the PPST has been dramatically demonstrated by the fact that within the last four years the Armed Services has used it to select potential officers and a constantly increasing number of medical schools, law schools, and graduate schools are using it to screen candidates for admission. In all these cases it has been found to be extremely useful.

The possibility of using the PPST as a means of evaluat-

ing applicants for admission to college was raised in 1966. At that time, the test was given to students at a number of colleges on the West Coast for the purpose of establishing norms for a college population — by norms, we mean average performances. A number of these West Coast colleges have since incorporated the PPST into their selection procedures and have found that the test is very useful in predicting college success.

Recently the question has arisen as to whether the norms for West Coast college students might possibly be different from those for students in other parts of the country. To answer this question, a nation-wide study, supported by the Institute for the Study of Psychometrics, was undertaken in 1969 in order to see if performance on the PPST differs from one part of the country to another. The study you are participating in today is concerned with the establishment of norms for East Coast college students.

This background information has been given to you so that you will understand the importance of trying to do as well as you possibly can on this test. <u>You are part of our standardization group for East Coast college students and, unless you do as well as you possibly can, the norms which are established will not be valid for future use when the people taking the PPST (applicants to colleges in the North-East) will be very highly motivated to do as well as they possibly can</u>.

APPENDIX C

THE PERSON PERCEPTION SENSITIVITY TEST

NAME_____ SCHOOL_____

PERSON PERCEPTION SENSITIVITY TEST

Northeastern Distribution Center: New York
Study: Establishment of Norms for East Coast College Students
ISP Grant Number 34372
1969-1970

This test contains two problems and has no time limit. Both problems are of the same form. At the beginning of each, next to GIVEN DESCRIPTIVE CHARACTER STATEMENTS, you are given six descriptive character statements about an individual (individual X). These six statements are based upon such things as intensive interviews by a team of psychiatrists, inquiries made of personal friends, and the results of a battery of psychological tests.

Your task is to form as accurate an impression as possible of individual X, based upon the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS. Specifically, you are asked to do five things:

1) to write your impression of individual X.
2) to rate individual X on a series of 18 personality scales.
3) to list any other character traits that you feel individual X possesses.
4) to rank order, from most to least, the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS in terms of their importance in the forming of your impression, and,
5) to answer several questions concerning your feelings towards individual X.

On pages 2-4 there is a completed SAMPLE PROBLEM. Its purpose is merely to give you an idea of what a completed problem looks like. It should be noted that both the problem and answers are completely fictitious, so one cannot say whether the answers are right or wrong.

The Person Perception Sensitivity Test is designed in such a way that the only examinees who are asked to go beyond Problem 1 are those who have done either very well or very

poorly on Part 2 of PROBLEM I or who have gotten certain patterns of correct and incorrect responses on Part 2. Consequently, please inform the investigator when you have finished PROBLEM I and do not go on until he has scored Part 2 of this problem.

If there are any questions, please ask the investigator. Then turn to the SAMPLE PROBLEM (pages 2-4) and then to PROBLEM I (pages 5-7) and begin work.*

*Note.— Whereas the actual PERSON PERCEPTION SENSITIVITY TEST was presented in a 10 page booklet, the PERSON PERCEPTION SENSITIVITY TEST presented in this Appendix is spread over 15 pages. The extra pages were necessitated by margin requirements.

SAMPLE PROBLEM

GIVEN DESCRIPTIVE CHARACTER STATEMENTS

X often stops to analyze his thoughts and feelings. 4

X prides himself as an independent thinker and does not accept others' statements without satisfactory proof. 6

X sometimes feels lonesome, even when he is with other people. 1

X is a very patient person. 5

X is very persistent in any task undertaken. 2

X does not accept constructive criticism as well as he would like to be able to do so. 3

STOP — It may seem that there is very little information on which to form an impression, but many times in life we are called upon to form impressions of other people in the absence of complete information. This being the case, you are asked to carefully consider the GIVEN DESCRIPTIVE CHARACTER STATEMENTS and to draw upon your personal experience to try to form as accurate and complete an impression as you possibly can.

Spend a few minutes looking over the GIVEN DESCRIPTIVE CHARACTER STATEMENTS and try to form a mental picture of just what kind of person you believe individual X to be. What kinds of personality traits would you expect him to have? What kinds of personality traits would you expect him not to have? After spending a few minutes forming your impression of individual X, go on to answer the questions on the next two pages.

Part 1. Your written impression of individual X (use back of this sheet if more room is needed). Please write legibly. X impresses me as a rather intelligent person who takes a great deal of pride in whatever he does. He is probably one of those individuals who won't do anything unless he does it extremely well. I get the feeling that he is a rather cautious individual, seldom taking any chances, and always doing a lot of thinking before acting. He is stubborn and quick to take offense when somebody disagrees with him. Although he may pretend to be otherwise, I get the feeling that deep down he is insecure and has a great deal of hostility for most people. However, he is extremely loyal to his friends and will go out of his way to help them. As a friend, he is probably quite demanding.

Part 2. Rating of individual X on 18 personality scales--these are 7 point scales and thus the midpoint is to be used when you don't feel that there is any grounds for making a choice between the adjectives of any given pair. The degree to which you feel individual X possesses one characteristic in a pair as opposed to the other is to be indicated by how far towards the former you place your checkmark.

popular	___	___	___	___	✓	___	___	unpopular
unintelligent	___	___	___	___	___	___	✓	intelligent
reliable	___	✓	___	___	___	___	___	unreliable
clumsy	___	___	___	___	___	✓	___	skillful
unhappy	___	✓	___	___	___	___	___	happy
mature	___	___	___	___	✓	___	___	immature
uncreative	___	___	___	___	___	✓	___	creative
tense	___	___	✓	___	___	___	___	relaxed
competent	___	___	✓	___	___	___	___	incompetent
dependent	___	___	___	✓	___	___	___	independent
stable	___	___	✓	___	___	___	___	unstable
important	___	✓	___	___	___	___	___	unimportant
weak	___	___	___	___	___	✓	___	strong

sociable	___	✓	___	___	___	___	___	unsociable
mal-adjusted	___	✓	___	___	___	___	___	well-adjusted
effective	___	✓	___	___	___	___	___	ineffective
leader	___	___	___	___	✓	___	___	follower
careless	___	___	___	___	___	___	✓	careful

Part 3. List any other characteristics, besides those contained within the checklist, which you feel that individual X possesses.

cautious realistic
loyal conceited
stubborn
hostile

Part 4. Rank order, from most to least, the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS in terms of their importance in the forming of your impression (this may be done by numbering the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS, placing the appropriate numbers in the spaces provided at the ends of the statements -- the most influential GIVEN DESCRIPTIVE CHARACTER STATEMENT should be given a rank of 1, the next most influential statement should be given a rank of 2, etc.).

Part 5. Based upon the scale shown below, will you please indicate how much you think you would like having individual X as a work associate +6, as a personal friend +2, and as a member of your family -3, (fill in numbers from the scale in these three blanks and please be sure to include plus or minus sign).

Extremely Dislike	Moderately Dislike	Mildly Dislike	Mildly Like	Moderately Like	Extremely Like

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

PROBLEM I

GIVEN DESCRIPTIVE CHARACTER STATEMENTS

X is rather ambitious and enterprising but some of his aspirations are a little unrealistic. ____

X,whenever possible, tries to help other people, especially when they are friends. ___

X appreciates art, painting and music, but believes that he will never be a success as an artist or as a creator or composer of music. ___

X has sometimes wondered why human life exists and what its future is. ___

X sometimes daydreams, but not to excess. ___

X,once he has made up his mind, doesn't usually change it. ___

STOP-- It may seem that there is very little information on which to form an impression, but many times in life we are called upon to form impressions of other people in the absence of complete information. This being the case, you are asked to carefully consider the GIVEN DESCRIPTIVE CHARACTER STATEMENTS and to draw upon your personal experience to try to form as accurate and complete an impression as you possibly can.

Spend a few minutes looking over the GIVEN DESCRIPTIVE CHARACTER STATEMENTS and try to form a mental picture of just what kind of person you believe individual X to be. What kinds of personality traits would you expect him to have? What kinds of personality traits would you expect him not to have? After spending a few minutes forming your impression of individual X, go on to answer the questions on the next two pages.

Part 1. Your written impression of individual X (use back of this sheet if more room is needed). Please write legibly.

Part 2. Rating of Individual X on 18 personality scales -- these are 7 point scales and thus the midpoint is to be used when you don't feel that there is any grounds for making a choice between the adjectives of any given pair. The degree to which you feel individual X possesses one characteristic in a pair as opposed to the other is to be indicated by how far towards the former you place your checkmark.

popular	___	___	___	___	___	___	___	unpopular
unintelligent	___	___	___	___	___	___	___	intelligent
reliable	___	___	___	___	___	___	___	unreliable
clumsy	___	___	___	___	___	___	___	skillful
unhappy	___	___	___	___	___	___	___	happy
mature	___	___	___	___	___	___	___	immature
uncreative	___	___	___	___	___	___	___	creative
tense	___	___	___	___	___	___	___	relaxed
competent	___	___	___	___	___	___	___	incompetent
dependent	___	___	___	___	___	___	___	independent
stable	___	___	___	___	___	___	___	unstable
important	___	___	___	___	___	___	___	unimportant
weak	___	___	___	___	___	___	___	strong

sociable	___	___	___	___	___	___	___	unsociable
mal-adjusted	___	___	___	___	___	___	___	well-adjusted
effective	___	___	___	___	___	___	___	ineffective
leader	___	___	___	___	___	___	___	follower
careless	___	___	___	___	___	___	___	careful

Part 3. List any other characteristics, besides those contained within the checklist, whieh you feel that individual X possesses.

Part 4. Rank order, from most to least, the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS in terms of their importance in the forming of your impression (this may be done by numbering the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS, placing the appropriate numbers in the spaces provided at the ends of the statements -- the most influential GIVEN DESCRIPTIVE CHARACTER STATEMENT should be given a rank of 1, the next most influential statement should be given a rank of 2, etc.).

Part 5. Based upon the scale shown below, will you please indicate how much you think you would like having individual X as a work associate ____, as a personal friend ____, and as a member of your family ____, (fill in numbers from the scale in these three blanks and please be sure to include plus or minus sign).

Extremely Dislike	Moderately Dislike	Mildly Dislike	Mildly Like	Moderately Like	Extremely Like
-10 -9 -8	-7 -6 -5 -4	-3 -2 -1	+1 +2 +3 +4	+5 +6 +7	+8 +9 +10

STOP -- The Person Perception Sensitivity Test is designed in such a way that the only examinees who are asked to go beyond PROBLEM I are those who have done either very well or very poorly on Part 2 of PROBLEM I or who have gotten certain patterns of correct and incorrect responses on Part 2. Consequently, please inform the

investigator that you have finished PROBLEM I. DO NOT GO ON UNTIL HE HAS SCORED PART 2 OF THIS PROBLEM.

PROBLEM II

GIVEN DESCRIPTIVE CHARACTER STATEMENTS

This character statement varied from subject to subject depending upon: (a) whether he was in the High or Low PS condition, and (b) his particular profile of values. See Pages 64-68 of text for explanation.

X, at times, has had serious doubts as to having made the right decision or done the right thing. _____

This character statement varied from subject to subject depending upon: (a) whether he was in the High or Low PS condition, and (b) his particular profile of values. See pages 64-68 of text for explanation.

X has a tendency to be self-critical. _____

X has found it unwise to be too frank in revealing oneself to others. _____

X prefers a certain amount of change and variety and becomes dissatisfied when hemmed in by restrictions and limitations.

_____

STOP--It may seem that there is very little information on which to form an impression, but many times in life we are called upon to form impressions of other people in the absence of complete information. This being the case, you are asked to carefully consider the GIVEN DESCRIPTIVE CHARACTER STATEMENTS and to draw upon your personal experience to try to form as accurate and complete an impression as you possibly can.

Spend a few minutes looking over the GIVEN DESCRIPTIVE CHARACTER STATEMENTS and try to form a mental picture of just what kind of person you believe individual X to be. What kinds of personality traits would you expect him to have? What kinds of personality traits would you expect him not to have? After spending a few minutes forming your impression of individual X, go on to answer the questions on the next two pages.

Part 1. Your written impression of individual X (use back of this sheet if more room is needed). Please write legibly.

Part 2. Rating of individual X on 18 personality scales--these are 7 point scales and thus the midpoint is to be used when you don't feel that there is any grounds for making a choice between the adjectives of any given pair. The degree to which you feel individual X possesses one characteristic in a pair as opposed to the other is to be indicated by how far towards the former you place your checkmark.

popular	___	___	___	___	___	___	___	unpopular
unintelligent	___	___	___	___	___	___	___	intelligent
reliable	___	___	___	___	___	___	___	unreliable
clumsy	___	___	___	___	___	___	___	skillful
unhappy	___	___	___	___	___	___	___	happy
mature	___	___	___	___	___	___	___	immature
uncreative	___	___	___	___	___	___	___	creative
tense	___	___	___	___	___	___	___	relaxed
competent	___	___	___	___	___	___	___	incompetent
dependent	___	___	___	___	___	___	___	independent
stable	___	___	___	___	___	___	___	unstable
important	___	___	___	___	___	___	___	unimportant
weak	___	___	___	___	___	___	___	strong

sociable	___	___	___	___	___	___	___	unsociable
mal-adjusted	___	___	___	___	___	___	___	well-adjusted
effective	___	___	___	___	___	___	___	ineffective
leader	___	___	___	___	___	___	___	follower
careless	___	___	___	___	___	___	___	careful

Part 3. List any other characteristics, besides those contained within the checklist, which you feel that individual X possesses.

Part 4. Rank order, from most to least, the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS in terms of their importance in the forming of your impression (this may be done by numbering the six GIVEN DESCRIPTIVE CHARACTER STATEMENTS, placing the appropriate numbers in the spaces provided at the ends of the statements -- the most influential GIVEN DESCRIPTIVE CHARACTER STATEMENT should be given a rank of 1, the next most influential statement should be given a rank of 2, etc.).

Part 5. Based upon the scale shown below, will you please indicate how much you think you would like having individual X as a work associate ____, as a personal friend ____, and as a member of your family ____, (fill in numbers from the scale in these three blanks and please be sure to include plus or minus sign).

Extremely Dislike	Moderately Dislike	Mildly Dislike	Mildly Like	Moderately Like	Extremely Like
-10 -9 -8	-7 -6 -5 -4	-3 -2 -1	+1 +2 +3	+4 +5 +6 +7	+8 +9 +10

APPENDIX D

INSTRUCTIONS GIVEN TO SUBJECTS IN PILOT WORK TESTING THE EFFECTIVENESS OF THE PS MANIPULATION

A number of us in the psychology department here at Nassau Community College are participating in a nation wide study whose primary purpose is to attempt to determine if the type of person who is likely to attend college differs in various parts of the country. Below you will see 9 blanks — the top most of which is labeled "Most Like Me" and the bottom most of which is labeled "Least Like Me." On each of the nine sheets that follow, you will find 6 descriptive character statements about an individual (these nine individuals being labeled INDIVIDUALS A through I). Your task is to carefully consider the 6 descriptive character statements given for each of the nine individuals and to decide which of the nine individuals is most similar to you. You should place this individual's letter in the top space labeled "Most Like Me". The letter of the individual who is next most similar to you should be placed in the second space right below the one labeled "Most Like Me," and so on. The letter of the individual who is least similar to you should be placed in the last space at the bottom which is labeled "Least Like Me."

In short, your task is to rank order the nine individuals in terms of how similar to yourself you perceive them as being. This is not any type of test and there are no right or wrong answers. In order that we get as valid an answer as possible to the question we are investigating, we ask you to please undertake this task carefully and honestly and to make these rank order decisions even when you find it difficult to do so. The investigator cannot answer any questions about the meaning of any of the descriptive character statements — you must handle the task as best you can. In handling this task you may remove the paper clip and mark the sheets in any way that you find helpful.

_____ Most Like Me

_____

_____

_____

_____

_____

_____

_____

_____ Least Like Me