Situation Specific Self-Esteem and Behavior:

Effects of Expert Feedback and Social Comparison

A Dissertation Submitted to the Faculty of Graduate Studies
in Partial Fulfillment of the Requirements for
the Degree of

Doctor of Philosophy

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To Pat, Ryan and Paul

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Abstract

Based on the previous literature, a viewpoint for conceptualizing self-esteem and its relationship to behavior was developed. According to this viewpoint, self-esteem is situationally specific. Low self-esteem occurs when the individual's behavior deviates in either a positive or negative direction from normative standards. When an individual experiences low self-esteem, he tries to alter his performance to match normative standards. Thus, a causal relationship exists between the antecedents of self-esteem and self-esteem-relevant behavior. Self-esteem has a mediational role between these antecedent conditions and behavior. Nine hypotheses, derived both from the conceptual framework and its supportive literature, were tested.

A final sample of 108 males, enrolled in introductory psychology, served as subjects. The method involved having subjects perform individually on a pursuit rotor. Following this they were provided with positive or negative expert feedback by a confederate and shown either valid or invalid social comparison norms. Comparison norms, presented by the experimenter, indicated to the subject that he had scored above, equal to, or below his peers. Following these manipulations, subjects completed a modified version of Rosenberg's (1965) self-esteem scale and estimated how they would perform if given another trial on the pursuit rotor. Then the subjects

were given such a post-trial and the experiment concluded with a post-experimental questionnaire and a debriefing session.

A 2x3x2 multivariate analysis of variance method was employed. The independent variables were expert feedback (positive and negative), social comparison (subjects received scores below, equal to, and above the norm), and validity of social comparison (norms were based on carefully or carelessly collected data). The dependent variables were situation-specific self-esteem, estimates of post-trial performance on the pursuit rotor, and actual pre-post difference scores. The data indicated that situation-specific self-esteem decreased as a result of both negative feedback and a self-norm discrepancy. These two hypothesized main effects were qualified by an unpredicted feedback by social comparison interaction. This interaction indicated that the difference in self-esteem due to expert feedback was significant when subjects scored below the norm, but not when they scored equal to, or above, the norm. Confirmation of the hypothesized social comparison by validity of social comparison interaction indicated that self-esteem was only affected by social comparison norms if the normative data had been carefully collected. Social comparison had no effect in the invalid norms condition.

The pre-post difference scores on the pursuit rotor were insensitive to the experimental manipulations. This resulted in an inadequate test of four predicted effects. Estimates of performance, while characterized by a high degree of error

variance, were significantly affected by the social comparison manipulation. As hypothesized, subjects who believed they scored lower than their peers estimated larger increments in their performance than subjects who believed they scored higher than their peers.

The role played by a self-perceived, self-normative behavioral discrepancy is discussed. Such a discrepancy functioned as an antecedent condition of low situation-specific self-esteem. High self-esteem was produced by the absence of a discrepancy. The results were interpreted as providing support for an approval explanation of the self-esteem - behavior relationship. Although self-esteem may be viewed as a situation-specific construct, there was no support for its role as a mediator of behavior. Further implications of this research are related to: (a) the successful induction of low self-esteem, and (b) the understanding of self-esteem - behavior relationships.

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CHAPTER ONE

INTRODUCTION

The present dissertation is concerned with the antecedents of self-esteem and the relationship between self-esteem and subsequent behavior. In the research conducted for this dissertation, the author manipulated persons' situation specific self-esteem, measured their self-esteem relative to the specific situation, and measured their subsequent actual and estimated performance on an esteem relevant task. The research did not deal with chronic (subject selected) levels of self-esteem but rather with manipulated or acute levels of self-esteem related to an individual's specific performance in a specific experimental situation. It is quite likely that many of the same processes involved in the development of acute levels of self-esteem are also involved in the development of chronic levels of self-esteem. The difference seems to be that in the latter case the processes occur over a much longer period of time and development (cf. Coopersmith, 1967) and are therefore likely to be more stable.

This introductory chapter consists of four major parts: first, a brief history of the development of self-referent constructs designed to help establish the broad context into which this research may be placed, second, a discussion of the conceptual viewpoint which underlies the research, third,

a review of relevant literature from which hypotheses were derived, and fourth, a summary of the hypotheses in this study.

Brief History of Self-Referent Constructs

Since the beginning of the twentieth century self-referent constructs have been part of many psychological theories. Sarbin (1952) notes that for men like James, Hall, Titchener, McDougall, and Baldwin, psychological theory would not have made sense without positing some conception of ego or self. The use of self-referent constructs facilitated any explanation or understanding of the relationship between sensation and behavior. The self was conceptualized as an organizer of information about experience. Thought and rational processes were best understood relative to the self since it seemed obvious that these highly personal and cognitive activities pertained uniquely to the individual himself.

The use of self-referent constructs coincided with the beginning of American functionalism. Self-referents provided a means of getting at the question 'why' as opposed to being content with only the question 'what' --- a question that occupied the attention of the earlier structuralists. Thus, any increase in theorizing about the self may appropriately be viewed as arising out of a functional tradition. A similar view was expressed by Boring (1950) who said that "Any conception of the conscious or behavioral capacities of the organism as a means for achieving success is part of a

functional psychology" (p. 552).

The first American functionalist, William James (1890), made extensive reference to the self. The view of the self as being a social phenomenon seems to have begun with James and has continued to the present (Ziller, 1973; Webster and Sobieszek, 1974). Current thinking about self-esteem has its roots with James. He believed that there were three sources of self-esteem. First, we come to value ourselves relative to our personal standards of what we want to do or be. He suggested that self-esteem could be conceived of as a ratio of success over pretensions. Second, we value ourselves relative to more objective standards which James felt were the same standards against which we judge others. Third, he believed that individuals value themselves according to the value that is placed on extensions of self such as property and belongings. James also referred to man having social selves corresponding to the view held of him by others. These social selves represented extensions of self into the minds of others.

Cooley (1902) was influenced by James' conception of the social selves. He elaborated this view into what is still known as the "looking-glass self". The "looking-glass self" arises when a person imagines how other people perceive him. Furthermore, Cooley believed that this "looking-glass self" was influenced by what we know of the other person. For instance, if a viewer of me is known to me as a courageous

and brave man I will come to judge my bravery and courage in a manner similar to how I imagine him to be judging me. Thus, Cooley believed that when we reflect upon and evaluate ourselves we do so by means of internalizing the orientation of others toward us. George H. Mead (1934) extended Cooley's "internalized" notion and spoke of the "generalized other". Mead was referring to the attitude of the community or social group which gives rise to the individual's sense of self.

The original views of James that were extended by Cooley and Mead have been developed further by Rosenberg (1965), Coopersmith (1967), Duval and Wicklund (1972), Ziller (1973), and Webster and Sobieszek (1974). Certainly there have been others who were influenced to some extent by the work of James, Cooley and Mead. However, since these more recent scholars have made a more concerted effort to experiment and provide empirical support for their views, their work is stressed more than that of earlier writers.

Wylie (1961, 1968, 1974) has probably been the single most important and most recent source of guidance to self theorists and researchers. In her first volume (1961) she reviewed the self-concept literature, pointed out serious theoretical and methodological weaknesses, and urged psychologists to proceed with caution. In 1974 she greeted self theorists with a note of pessimism. The methodological and theoretical weaknesses which she had identified in 1961 were still present.

To enhance the predictive power and conceptual sophistication of the self-concept theories, Wylie made several suggestions (1974, pp. 319, 321, 322, 329): (1) the use of more operationally precise and more molecular (e.g., self-esteem) constructs; (2) the inclusion of more variables in theoretical formulations. This suggestion may be accompanied by (3) the incorporation of findings and methods from other areas of psychology such as learning, motivation, and perception; and (4) construction of more elaborate nomological networks in self-concept theory and research in an effort to avoid internal inconsistencies. Finally, if these recommendations are followed, she believes they will provide greater theoretical guidance for stating multivariate hypotheses which predict interactions between construct variables and between these variables and situation variables.

The present research incorporates at least three of Wylie's recommendations. First, the construct of interest, situation-specific self-esteem, is more precise and molecular. Second, a variable is included in the formulation (presence or absence of valid comparison norms) which is expected to result in an interaction such that under conditions of valid social comparison norms self-esteem will be affected more by social comparison than by expert feedback. Third, the underlying conceptual viewpoint incorporates Festinger's (1954) social comparison theory and Bem's (1972) self-perception theory as processes involved in the determi-

nation of self-esteem. In addition, predictions concerning the relationship between self-esteem and behavior are supported by research on conformity.

Conceptual Viewpoint

The author's conceptual viewpoint is presented in Figure 1. According to this view, self-esteem relative to any behavior in a specific situation is a function of the self-perceived discrepancy between one's personal attributes and behavior and the normative standards for such attributes and behavior in the particular situation. The relationship between situation specific self-esteem and behavior is also specified by the model. That is, self-esteem is viewed as a mediating link between a perceived self-normative discrepancy and behavior designed to minimize that discrepancy. Thus, the same discrepancy between self-perceived behavior and normative standards that contributes to low self-esteem also serves as an antecedent condition for behavior which minimizes that discrepancy.

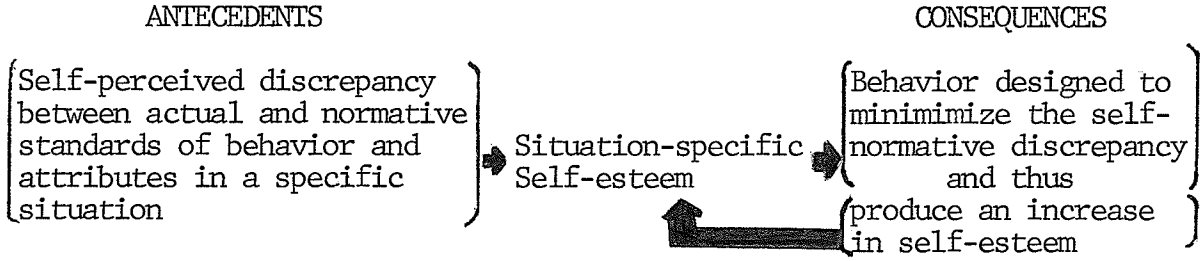


Figure 1. Conceptual viewpoint of the relationship between the antecedents and consequences of self-esteem.

Self-Esteem as an Evaluative and Situationally Specific Construct

In the present conceptualization, self-esteem is broadly defined as the evaluative component of the self-concept. An examination of five definitions of self-esteem or self-evaluation constructs (Rosenberg, 1965, p. 31; Coopersmith, 1967, p. 4-5; Duval and Wicklund, 1972, p. 23; Ziller, 1973, p. 8; Webster and Sobieszek, 1974, p. 39) revealed that the notions of self-worth, self-regard, self-approval, and self-expectation are fairly common. In short, defining self-esteem as the evaluative component of the self-concept appears to be consistent with the norm.

This view of self-esteem differs from others in the sense that it refers solely to situation specific self-esteem, while most of the other definitions seem to refer to a more global conceptualization of self-esteem. For instance, Wylie (1968) noted that self-esteem has generally been conceived as a global trait that is characterized by trans-situational stability. However, several authors have objected to global definitions of self-esteem. For example, Webster and Sobieszek stated, "if we are interested in the individual's level of self-evaluation, it becomes necessary to assert that one individual has several different self-evaluations, dependent on what he is doing and with whom" (1974, pp. 12-13).

Gergen (1971) argued that the belief in a unified,

consistent self-concept is ill conceived and that "the more 'natural' state of the organism is one which includes numerous disparities and contradiction tendencies" (p. 307). Jones, Sensenig, and Haley (1974) analyzed self-descriptions of 300 college students and presented empirical support for Gergen's view. As mentioned earlier, James also believed that there were multiple self-components. Webster and Sobieszek (1974) cite empirical support for James' contentions (Haas and Maehr, 1965; Maehr, Mensing, and Nafzger, 1962). However, these studies indicated that one's self-evaluation relative to one task generalized to another task. Webster and Sobieszek suggested that, "this result would be expected from the conception of overall self-evaluation as being composed of specific task evaluations" (1974, p. 24). Although sensible, this conclusion must be viewed as tentative support for situationally specific self-esteem rather than a well documented fact. Probably the most explicit references to situation specific self-esteem comes from Greenhaus and Badin (1974) who, working from a theoretical framework proposed by Korman (1970), found that task specific self-esteem, derived from obtaining positive feedback regarding one's ability, predicted performance for all subjects.

A problem with Webster and Sobieszek's work and most of the data they reference is the inadequate and/or indirect assessment of subjects' self-evaluation of their performance. Webster and Sobieszek do not actually measure the subject's

self-evaluation, they merely make an inference that it is low or high on the basis of behavioral outcomes. While some other researchers do measure self-evaluation relative to performance on a task (e.g., Videbeck, 1960; Maehr, Mensing, and Nafzger, 1962; Haas and Maehr, 1965; Greenhaus and Badin, 1974), actual measures of self-esteem regarding that particular situation are rarely obtained. This seems to be problematic especially when one discusses these data in terms of situation-specific self-esteem.

The assumption of trans-situational stability of self-esteem appears unwarranted. The present emphasis on interactionism (Bowers, 1973; Ekehammer, 1974; Bem and Allen, 1974; Endler, 1975) in personality research indicates that manifestations of personality traits differ substantially from situation to situation. Essentially this view states that behavior is more readily understood and predicted given an analysis of both the person and the situation. That is, the most important determinant of behavior (i.e., the main source of behavioral variability) is neither personality traits nor specific situations (states) but rather the state by trait, or as it is currently viewed, the person by situation interaction. In short, current personality research as well as historical references to multiple self components provide support for the use of a specific rather than a global self-esteem construct.

Social Comparison and Self-Perception as Antecedents of Self-Esteem

Two theoretical positions play a dominant role in the conceptualization of the view illustrated in Figure 1. Both self-esteem and esteem-mediated behavior are derived directly from a comparison between self-perceived behavior and the social or normative standards for behavior. Thus, both Bem's (1972) self-perception theory and Festinger's (1954) social comparison theory appear potentially helpful in explaining the antecedents of self-esteem. Bem maintained that in the absence of internal cues people derive attitudes and judgements about themselves by observing their behavior. Working from a Skinnerian point of view Bem argues that the same combination of environmental cues and responses to those cues that observers use to make attributions about a person, the person may also use to make attributions about himself. For the determination of self-esteem, according to the present model, all that needs to be added to Bem's view is the process of comparing one's own behavior with the behavioral standards of some comparison group.

Bem maintains that inner constructs such as self-esteem are not useful. The major premise for this conclusion is that typically such constructs are hypothetical and cannot be anchored to behavior. It is this premise that the present research is attempting to dislodge. If self-esteem can be shown to differ due to a discrepancy between one's own behav-

ior and that prescribed by a norm then the most adequate explanation of that effect would stem from Bem's self-perception theory.

Social comparison is particularly relevant as an antecedent process of self-esteem in view of Wilson's (1973) data which indicated that social comparison involved (a) ability evaluation and (b) self-evaluation (i.e., how one ought to perform). For example, on a novel task one may first determine the position of his score relative to others (ability evaluation) and then determine how well he did, or the meaning behind that score (self-evaluation). If self-evaluation is an inherent part of social comparison then social comparison should be a factor in the determination of situation specific self-esteem.

Further support for the role of social comparison as a determinant of self-esteem is provided by Morse and Gergen (1970). As part of an application procedure they had subjects fill out a number of questionnaires, including a measure of self-esteem. The applicant completed these forms and a stooge, who appeared to be another job applicant, entered the room. The stooge was dressed in either a desirable or an undesirable fashion. Following exposure to the stooge the subject filled out a second measure of self-esteem. The results indicated that self-esteem is relative: people felt inadequate when they compared themselves to someone whom they considered impressive but confident when they compared

themselves to an unimpressive person. Similarly, Rosenberg and Simmons (1974), studying self-esteem in black and white children in public schools of Baltimore, reported that blacks' self-esteem decreased in the presence of whites. Secondary-school black children, especially those at predominantly white schools, tended to suffer the most in loss of self-esteem.

On the basis of the viewpoint represented in Figure 1 it is argued that situationally specific self-esteem is affected by any antecedent condition which enables a person to perceive the status of his behavior relative to some normative standard for behavior. Two antecedent conditions that influence self-esteem and therefore might also be expected to influence the person's perception of self-normative discrepancy are: (1) feedback from an expert, and (2) the availability of comparison data. Both of these factors served as independent variables in the present research. For example, positive feedback from an expert indicates to the person that his behavior is good relative to the expert's standards. Without knowledge of the expert's implicit standards the person is still able to infer very little discrepancy. On the other hand, availability of comparison data or norms provides more explicit standards with which a person can compare his own performance. Thus, both feedback from an expert and the availability of comparison data permit one to determine whether any discrepancy exists between his

behavior and the standard. The "feedback" method provides an implicit basis, while the "comparison" method provides an explicit basis for the perception of any discrepancy.

Self-Esteem as a Mediator of Behavior

This section deals with the relationship between self-esteem and subsequent behavior. According to Figure 1, self-esteem is a mediating construct. It is not an agent. That is, it does not cause behavior but rather mediates between the antecedent conditions and behavioral consequences. This view is consistent with the view held by Hebb (1960) who described the self-concept as a set of mediating processes arising out of experience. Ziller (1973) has also proposed that self-referents function as mediating constructs. He assumed that self-referents were crucial mediators of social stimuli and social behavior (1973, p. 143). Thus, according to the present conceptualization, the behavioral consequences which are mediated by self-esteem arise due to any discrepancy between self-perceived characteristics and normative standards such that changes in behavior occur to minimize the discrepancy between one's own behavior and the normative standard. This view is supported empirically by the conformity research (i.e., Sherif, 1935) where it has been demonstrated that people will behave in accordance with the majority norm even though such behavior may be highly contrary to reason, as in the Asch paradigm.

In summary, self-esteem is conceptualized as being based

on a comparison or assessment of one's actual behavior/characteristics relative to those behaviors/characteristics which the subject perceives to be normative in the situation. Normative standards are conceptualized here as those which are shared by other members of a group where it is likely that such standards are appropriate for the individual.

Relationship of the Conceptual Viewpoint to Some of the Self-Esteem Research

Several hypotheses are suggested by consideration of the literature dealing with self-esteem within the context of the present conceptual viewpoint. The hypotheses pertain to three aspects of the literature dealing with self-esteem: (1) the perception of a self-normative discrepancy as an antecedent of self-esteem; (2) the relationship between self-esteem and behavior; and (3) the effect of feedback from an expert versus social comparison on self-esteem.

Antecedents of Self-Esteem

The perception of self-normative discrepancy as an antecedent of self-esteem is common in the literature (Wylie, 1968). That is, self-esteem is thought to be low when the actual self-image is perceived to be less than the "ideal" self-image. As the discrepancy between the two decreases, self-esteem is presumed to increase. For instance, Rogers (1951) conceives of the individual striving for self-actualization with the consequent attainment of high self-regard. The Butler and Haigh (1954) self-ideal, Q-sort method of

determining self-esteem is based on an assumption that the actual will not exceed the ideal. Likewise, Horney's (1945) concepts of self-image and idealized self-image represent a view which is biased against the possibility of the former exceeding the latter in any evaluative sense. Adler's view (Ansbacher and Ansbacher, 1956) of the individual striving for superiority would also seem to legislate against this possibility. Thus, other views suggest that low self-evaluation is associated with a self-ideal discrepancy in the negative direction; that is, with actual self less than the idealized self. What is not common in the literature is that such a discrepancy in a positive direction (with "actual" exceeding the "ideal") should also be associated with low self-esteem.

It is not clear why the latter possibility (i.e., low self-esteem due to a positive discrepancy) has not been hypothesized by others. Initially, it may be tempting to explain this omission as simply due to terminology: other views refer to "ideal self-concept" or "ideal self" both of which seem to connote a type of asymptotic, unexceedable level, while the present view avoids the ideal connotation and simply refers to a socially determined normative standard for behavior. However, any such explanation is doubtful in view of Wylie's (1969) comment that, "most theorists seem to imply that acquiring an ideal self-concept is mostly or entirely a matter of reinforced social learning" (p. 747),

in which case the other views are very similar to the present social standard or "normative" view.

One possible explanation of why low self-esteem has not been hypothesized to be a function of a positive discrepancy may be related to the zietgeist of twentieth century psychology. That is, it may have been inconceivable to hypothesize that low self-esteem could occur as a function of striving for an ideal and increasing one's competencies. That such "work ethic" behavior should somehow be detrimental to the self and contribute to low self-esteem is a view that appears to run counter to Western cultural norms.

When viewed from another context, however, there does appear to be support for hypothesizing that low self-esteem is a function of even a positive discrepancy. Viewed from the context of group dynamics, a person whose actual behavior is discrepant from the socially determined standard is a person who is viewed as a deviant by the rest of the group. Summarizing observations made in industrial work group settings Shaw (1971) noted that overproducers (people who exceeded the socially determined standards) were referred to as "rate busters" and were socially ridiculed. Similarly, disapproval and ridicule by peers is a consequence levied against the serious student who attempts to work harder than the social norm permits. As Schachter (1951) has demonstrated, deviants receive feedback from the group until such time as they conform to group standards or, failing conformity,

are rejected from the group. It is clear that people who exceed a socially prescribed norm often receive negative feedback from others. As a result of this negative feedback from others the individual may come to judge himself less favourably. Mead's notion of the "generalized other" would lead to belief that negative feedback from others contributes to low self-esteem. Similar predictions may be based on Ziller's view of the close relationship between self-esteem and reinforcement and on Rosenberg's (1965) and Coopersmith's (1967) documentation of the importance of positive family atmosphere for the development of self-esteem. Furthermore, the prediction that either a positive or negative discrepancy will be associated with low self-esteem is consistent with a cognitive consistency interpretation (Festinger, 1957). Thus, there are several good reasons for arguing that exceeding normative standards leads to low self-esteem.

A variety of other antecedents of self-esteem have been suggested but it is maintained here that all of them are interpretable within the framework of the model in Figure 1, (i.e., in terms of a self-normative discrepancy). Coopersmith (1967) and Ziller (1973) claim that high self-esteem arises from a history of positive reinforcement. Webster and Sobieszek (1974) argued that positive evaluation from a prestigious or knowledgeable source contributes to high self-evaluation. Similarly, high self-esteem is associated with praise of performance and praise of person (Bass and Baron,

Note 1) as well as with success or enhanced competence in physical activities (Koocher, 1971; Gary and Guthrie, 1972). High self-esteem has also been associated with degree of value congruence with group members (Lieberman, Yalom, and Miles, 1973), influence or power over group members (Lieberman et al, 1973; Archer, 1974), similarity to a competing other (Morse and Gergen, 1970), and agreement with a stranger (Johnson, Gormly, and Gormly, 1973). Duval and Wicklund (1972) cite some of their data which indicate a decrease in self-esteem when attention is focused on the self. As previously indicated Morse and Gergen (1970) and Rosenberg and Simmons (1974) have shown that social comparison affects self-esteem. When individuals compare themselves with those whom they feel are superior, their self-esteem decreases.

A common theme seems to run through all of these results: whenever a person's attributes or behavior attain a level which approximates a normative standard and therefore probably signals the availability of social approval and reinforcement, self-esteem increases. Even Duval and Wicklund's data is supportive of this. For example, Ickes, Wicklund, and Ferris (1973) found that when subjects filled out self-esteem measures while listening to a tape recording of their own voice, their self-esteem was lower than when subjects responded while listening to another's voice. From the present perspective there was a discrepancy between the normative standard (that with which the subject was familiar

---his untaped voice) and the taped version of his voice.

Thus, consistent with this view it is hypothesized that when self-perceived characteristics are discrepant from the normative standard in either a positive or negative direction, in a particular situation, one's self-esteem will be low. When self-perception reveals a match between one's own characteristics or behavior with the normative standard, self-esteem will be high.

Self-Esteem - Behavior Relationship

As discussed earlier, the same discrepancy that affects the level of self-esteem might also be expected to influence behavior. That is, when a person perceives their own behavior to be discrepant from the norm they tend to change their behavior in the direction dictated by social influence as the research on conformity and compliance (Kiesler and Kiesler, 1969) has shown. Obtaining measures of self-esteem and actual and estimated subsequent performance should provide a means of assessing the way in which self-esteem mediates any behavioral changes due to the discrepancy between actual behavior and normative standards for such behavior.

Wylie (1968) noted that the role of self-concept in influencing behavior has been a role of "paramount importance". The difficult question which she believes has not even been faced (pp. 750-751) is how other classes of behavioral determinants may be systematically articulated with

the determining role assigned to the self concept? By assigning self-esteem a mediational status (cf. Hebb, 1960; Ziller, 1973) it is possible to conceive of other determining factors as leading to the discrepancy between actual behavior and behavior that is normative or socially prescribed. That is, behavior is effected by other antecedent conditions (a self-normative behavioral discrepancy) and not self-esteem per se. Self esteem may serve to enhance, suppress, or in some way alter the relationship between behavior and it's determinants, but the cognitive concept of self may warrant only a mediational rather than a causal status.

Concerning the self-esteem - behavioral relationship, two specific relationships are of interest. The first concerns the effect of high self-esteem on behavior, the second concerns the effect of low self-esteem on behavior. In addition there are two theoretical positions that have been advanced in an attempt to explain these relationships (Archibald and Cohen, 1971, Shrauger, 1975): the consistency and the approval or self-enhancement explanation. The consistency explanation maintains that an individual behaves in a way that validates the view that he has of himself (e.g., Secord and Backman, 1961). Thus low self-esteem individuals would be expected to behave poorly while high self-esteem would be expected to lead to better performance. The approval explanation (e.g., Archibald and Cohen, 1971) is based on the assumption that virtually all people seek

approval from others. According to this view both low and high self-esteem people would be expected to strive for superior performance to enhance their self-esteem. Since consistency and approval explanations lead to the same prediction under conditions of high self-esteem, only data dealing with the low self-esteem - behavior relationship can provide the support necessary to confirm one explanation or the other.

Shrauger (1975) recently reviewed literature which dealt with the relationship of both high and low self-esteem to behavior. The studies he reviewed frequently examined the effects of positive or negative evaluation on the performance of high and low self-esteem subjects. Initial levels of self-esteem were varied either by manipulation or subject selection. Only those studies dealing with tasks requiring specific ability are relevant to this research.

In some of these studies the performance of low self-esteem subjects was usually detrimentally affected by negative evaluation while the performance of high self-esteem subjects was enhanced or unchanged by negative evaluation (Burnstein and Zajonc, 1965; Perez, 1973; Schalon, 1968; Solley and Stagner, 1956). Such results tend to support a consistency explanation of the self-esteem - behavior relationship, since subjects' behavior is consistent with their initial level of self-esteem. However, the results of other studies do not offer support for either the consistency

explanation or the approval explanation. Cottrell (1967) and Zajonc and Brickman (1969) found that initial self-expectancies did not differentially affect performance following feedback on a reaction time task. Shrauger and Rosenberg (1970) also reported data which indicated that subjects will not always behave consistently with initial levels of general self-esteem. When high self-esteem subjects received negative feedback on an unrelated test (a bogus social sensitivity test) their performance on a digit symbol task was unchanged. Similarly, no change in performance was obtained when low self-esteem subjects received positive feedback on the bogus test. The results of other studies tend to support an approval explanation. Ryckman and Rodda (1972) found that subjects who experienced initial success on the first five anagrams performed better on the last fifteen anagrams than those who experienced initial failure, regardless of the initial levels of self-esteem as measured by the Janis and Field (1959) scale. Maracek and Mettee (1972) provided positive feedback for a shape matching task to subjects who were certain or uncertain of their high or low self-esteem, and who believed that their performance was due to skill or luck. Only low self-esteem subjects in the skill condition who were certain of their self-esteem showed no improvement, thus behaving more in accordance with consistency theory predictions. All other subjects, particularly those in the low self-esteem, luck condition, improved

their performance, thus behaving in accordance with an approval or self-enhancement view.

Looking only at the high self-esteem - behavior relationship of course provides support for both the consistency and the approval explanation. For instance, Fitts (1972) cites several studies where high self-esteem as measured by the Tennessee Self Concept Scale was associated with continuation and positive results in a variety of training and rehabilitative programs. Similarly, Denmark and Guttentag (1967) reported that women with good self-concepts were more likely to engage in behavior designed to achieve college goals. They did find however that these women engaged in more positive behavior than women with poor self-concepts, a result which tends to confirm the consistency explanation.

These data on the self-esteem - behavior relationship are difficult to organize into any specific pattern. One possible explanation for these contradictory results is that initial self-esteem or self-expectancy was varied both by subject selection and manipulation. Greenhaus and Badin (1974) reported that chronic self-esteem (subject selection) correlated poorly with subsequent task performance (-.16), while task specific self-esteem correlated significantly (+.31) with subsequent performance. A second possible explanation is that the relationship between low self-esteem and behavior is contingent on other factors. Support for such a position stems from Ziller's formulation of the self-

esteem - behavior relationship. He maintains that self-esteem is a control mechanism "associated with the consistency of the organism's response to the environment" (Ziller, 1973, p. 6), and that high self-esteem is associated with consistent behavior while low self-esteem is associated with inconsistent behavior. He suggested that a reason for this was because high self-esteem people were field independent while low self-esteem people were more field dependent and thus subject to immediate environmental influences resulting in inconsistent behavior.

Overall, it is still not clear whether behavior may best be explained using consistency theories or self-enhancement theories. A similar view was expressed by Shrauger when he said, "The mechanisms accounting for the low self-esteem subjects' performance decrements and the conditions under which they occur are unexplained" (1975, p. 592).

The research presented here is designed to help clarify the conditions under which either self-enhancement or consistency motivated behavior occurs. It is reasoned that clarification will be facilitated by the systematic variation of social comparison. Social comparison has been shown to be an antecedent of both self-esteem (e.g., Morse and Gergen, 1970) and behavior (Festinger, 1954), yet it had not been systematically included in studies investigating the self-esteem - behavior relationship. Within the context of the author's conceptual viewpoint, inclusion of social comparison

represents a view similar to that of Ziller (1973). The present author believes the behavior of low self-esteem individuals depends on whether their behavior is above or below the norm. This conceptualization leads to the prediction that low self-esteem will be associated with performance increments when the individual believes his performance is below the norm and decrements when he believes his performance is above the norm. If the inconsistency is due to field dependency as Ziller has suggested, then providing a clear basis for social comparison should signal to the field dependent person how to change his behavior. The behavior of high self-esteem individuals is consistent not only because high self-esteem people are field independent but also because high self-esteem is hypothesized to be due to a minimal self-normative discrepancy. These predicted relationships between self-esteem and behavior tend to support the approval explanation of the self-esteem - behavior relationship. Individuals would adjust their behavior so it was consistent with social norms and not necessarily consistent with their self-esteem.

The research reviewed by Shrauger did not provide an explicit basis for social comparison. The initial levels of self-esteem were determined by subject selection or manipulation and then the subjects received either positive or negative feedback. It was not clear why the subjects changed their performance. If, as is suggested here, they changed their performance to minimize the discrepancy between

their actual behavior and the normative or expected standards for behavior then it is possible that the subjects in the above studies altered their performance in accordance with what they believed was expected of them since no other normative data was presented. By providing subjects with specific comparison data that is either consistent with (matches) or discrepant from (exceeds or is less than) their own level of performance, and that is presented as either valid (data collected carefully) or invalid (data collected carelessly), such ambiguous interpretations may be avoided. Thus it is hypothesized that there will be a social comparison by validity of social comparison interaction. Performance will converge toward the norm when the norm is valid but not when it is invalid. Support for this hypothesis is provided by Festinger's (1954) social comparison theory and much of the conformity research (Kiesler & Kiesler, 1969). If this hypothesis is supported and if a discrepancy from the norm is also associated with low self-esteem (cf. Morse and Gergen, 1970; Rosenberg and Simmons, 1971; Gerard, 1961), then the approval explanation of the self-esteem behavior relationship will receive support.

An interaction between expert feedback and validity of social comparison is also hypothesized. When the social comparison norm is invalid, positive feedback will produce performance increments and negative feedback will produce decrements in performance. However, when the social com-

parison norm is valid the effect of expert feedback on performance will be attenuated due to the tendency of behavior to converge toward the norm.

Feedback and Social Comparison

The last aspect of the literature to be dealt with, that involving both feedback and social comparison as antecedents of self-esteem, has already been discussed in the context of the self-esteem--behavior relationship. The research reviewed here indicates clearly that both feedback from an expert and social comparison function as antecedents of self-esteem. Both of these processes indicate to the person either implicitly or explicitly, the degree of match or discrepancy between his behavior and the normative standards for behavior. The literature is not precise, however, about the effect, on self-esteem and behavior, of feedback from an expert for behavior which is valued differently in other social contexts. Presumably expert reinforcement leads to high self-esteem because it serves to inform the individual that his behavior is in accord with normative standards (i.e., the expert's evaluation is implicity based on social standards). If, however, such feedback led the individual to believe that his behavior was not in accord with other more explicit normative standards would he then experience high self-esteem due to the expert feedback or low self-esteem because of the behavioral discrepancy?

The main point here is that the effect of expert feed-

back on self-esteem and performance might be expected to vary depending on another antecedent condition--the people in the comparison group. Webster and Sobieszek (1974) make a similar point when they discuss the meaninglessness of claims that blacks have lower self-esteem than whites. They point out that "until the task and the referent others are specified, the claim has neither meaning nor empirical support" (p. 163). As the present review has indicated social comparison is a powerful antecedent of self-esteem that might well be expected to influence the effect of expert feedback on self-esteem. Berger, Zelditch, Anderson, and Cohen (Note 2) have maintained that while self-evaluation is produced by a high status source with the socially defined right to confer honor or dishonor, the level of such self-evaluation is stable only if peers endorse the conferred evaluation. Such influence exerted by peers is consistent with predicting a strong influence of social comparison on self-esteem.

A study by Jones (1966) provided subjects with either positive or negative feedback for test performance from either an expert (E) or peers. In the first phase of the experiment subjects took a written test consisting of 20 items. The test was scored by the experimenter and the score was given privately to each subject. The feedback was manipulated so that the subject received either 18 correct out of 20 (high self) or 8 out of 20 (low self). Each

subject was told that each of the other 3 members of their group had received scores of 18, 13, and 8 respectively. In the second phase of the experiment the subjects received feedback from the other subjects (actually manipulated by E) on similar items which was either consistent with the feedback received from E or inconsistent. Thus, there were two independent variables: high or low performance evaluation given by S by E, and high or low performance evaluation given S by other group members. The dependent variable of present interest was the subjects' evaluation of themselves. The self-evaluations went from high to low in the following order or conditions: (1) high evaluation by E, high evaluation by others; (2) high by E, low by others; (3) low by E, high by others; (4) low by E, low by others. These data indicate that evaluations by both the expert and others in the group will affect the self-evaluation, and furthermore the evaluations from the expert have a greater effect than those from others.

While Jones' design is similar to the present design there is an important difference which leads to results that are not predicted using the present variables. That is, knowledge of three others' scores is not equivalent to providing normative data against which subjects could meaningfully compare their own performance. The data are worth considering however since they do indicate that information from both experts and peers combine to influence one's self-

evaluation. In addition, they do offer support for an expert feedback by validity of social comparison interaction effect on self-esteem. That is, it is hypothesized that if the social comparison norms are invalid expert feedback will produce significant differences in self-esteem. If the social comparison norms are valid however the effect of feedback should be attenuated by the valid norms such that there is no difference in self-esteem. On the other hand, evidence on the effect of social comparison on self-esteem (e.g., Morse and Gergen, 1970; Rosenberg and Simmons, 1971), together with predictions derived from the previous conceptual viewpoint offer support for a social comparison by validity of social comparison interaction. Thus, it is also hypothesized that if social comparison norms are valid, the social comparison factor will produce differences in self-esteem which will not be produced if the social comparison norms are invalid.

In summary, this research is an attempt to clarify the role of feedback from an expert and social comparison in the determination of self-esteem and subsequent performance and performance estimates. The three independent variables are: (A) feedback from expert regarding performance (positive feedback, negative feedback), (B) social comparison (performance above the normative standard, below the normative standard, matching the standard), and (C) validity of comparison data (valid comparison norms, invalid comparison

norms).

There are three main dependent variables: Rosenberg's (1965) self-esteem scale which had been modified slightly to make it suitable for measuring situation specific self-esteem, subjects' estimate of motor performance, and subjects' actual performance (pre-post measure). The variables form a 2x3x2 factorial design.

Summary of Hypotheses

The hypotheses dealing with effects social comparison and expert feedback on self-esteem and estimated and actual behavior were derived from the author's conceptual viewpoint and a review of the relevant literature. The effects on estimated behavior are hypothesized to be the same as the effects on actual behavior.

Hypotheses Pertaining to the Self-Esteem Dependent Variable

1. There will be a main effect of feedback on self-esteem. Self-esteem will be low when Ss receive negative feedback and high when they receive positive feedback.

2. There will be a main effect of social comparison on self-esteem. Self-esteem will be low when either a positive or negative discrepancy exists between self-perceived behavior and normative standards for behavior, and self-esteem will be high when no discrepancy exists.

3. Validity of social comparison will interact with Expert Feedback such that feedback produces little difference in self-esteem when social comparison norms are valid but

will produce large differences in self-esteem when social comparison norms are invalid.

4. There will be a validity of social comparison by social comparison interaction (BxC) such that social comparison will produce differences in self-esteem when norms are valid but not when norms are invalid.

Hypotheses Pertaining to the Measures of Actual and Estimated Behavior

5. A main effect of expert feedback on behavior is hypothesized such that actual and estimated performance will be enhanced to a greater extent due to positive feedback from the expert as opposed to negative feedback from the expert.

6. A main effect of social comparison on behavior is hypothesized such that actual and estimated performance will increase due to a negative discrepancy between one's own performance and the social comparison norms and decrease due to a positive discrepancy.

7. Validity of social comparison will interact with expert feedback (AxC) such that positive feedback will produce enhanced actual and estimated performance and negative feedback will produce decreased performance only when the social comparison norms are invalid.

8. Validity of social comparison will interact with social comparison (BxC) such that actual and estimated behavior will remain stable when social comparison norms are invalid, while when social comparison norms are valid the

self-norm discrepancy will affect behavior to minimize the discrepancy.

Hypothesis Pertaining to the Self-Esteem--Behavior Relationship

Hypotheses 9 is not a separate hypothesis but rather represents a combination of Hypotheses 2 and 6 which pertain to the effect of social comparison on self-esteem and actual or estimated performance respectively. This hypothesis merely asserts the present author's slightly modified approval explanation of the self-esteem behavior relationship is expected.

9. When self-esteem is high and norms are valid behavior will show little change while when self-esteem is low and norms are valid behavior will either decrease or increase depending on the type of discrepancy between self and norms.

CHAPTER 2

METHOD

The experimental method required that subjects participate individually for a 30 minute session. Each subject was met at the laboratory by the experimenter and an "airline company personnel officer" (a male confederate). The subjects were told that their task would be to perform on a pursuit rotor (PRT) and complete several questionnaires. It was explained that the airline company was particularly interested in the PRT performance of University students since the task was similar to some of their pilot screening and training tasks. The experimenter's interest obstensibly involved the relationship between PRT performance and certain personality characteristics. During the first part of the session, conducted by the confederate, the subjects completed three one-minute practice trials on the PRT followed by test-trial 1 (pretest) on the PRT, at which time they were provided with the personnel officer's evaluation of their performance (i.e., expert feedback manipulation). The last part of the session was conducted by the experimenter. At this time subjects were shown the average PRT score of other University males (i.e., social comparison), the experimenter commented on how carefully the normative data had been collected (validity of social comparison manipulations), and the questionnaire data was collected. There were three question-

naires: a modified version of Rosenberg's (1965) self-esteem scale (RSE), the VIP self-esteem scale (Spencer, Note 3), and a questionnaire to obtain the subjects estimate of performance on a PRT post-trial (EOP). Following this each subject completed a final one-minute PRT trial (post-test), a post-experimental questionnaire (PEQ), and was debriefed. Thus, each subject received either positive or negative expert feedback; saw that he scored below, equal to, or above the social comparison norm; and was told that the data for the comparison norm had been collected carefully (valid social comparison) or carelessly (invalid social comparison). These variables yielded a 2x3x2 fixed model factorial design with self-esteem (RSE), estimated post performance, and actual PRT pre-post difference scores serving as the dependent variables.

Subjects

Subject participation booklets entitled, "Series III, Experiment for Males Only", were circulated in 29 introductory psychology classes. These students must fulfill a research participation requirement, but they have considerable freedom in selecting which particular experiments they will participate. Of the original 183 males who signed up for the experiment only 125 were actually tested. The other students did not come to the laboratory in spite of efforts to re-schedule them. Data from 17 subjects were discarded: 9 because of experimenter or equipment error, 7 because they

indicated an awareness of one or more of the hypothesized relationships, and 1 because of an eye defect which was sufficiently serious to warrant termination of his session. The 108 remaining subjects were randomly assigned to each of 12 treatment conditions. Each subject received one experimental credit for his participation.

Procedure

When the subjects reported to the laboratory they were met by the present author who introduced himself by name and explained that he was the experimenter. They were told that the experiment consisted of two parts. The first part of the experiment was to be conducted by Mr. Burgoyne (the confederate), "an airline company personnel officer", and the second part of the experiment was to be conducted by the experimenter. This procedure separated and distinguished between the source of the expert feedback (Mr. Burgoyne) and the source of the social comparison norms (experimenter). This distinction was necessary since in some experimental conditions the feedback a subject received was contradicted by the social comparison norms with which he was presented.

The use of a confederate was an integral part of the procedure in this experiment. The credibility of the cover story and thus the success of the experiment was heavily dependent on the appropriate appearance and manner of the confederate. Mr. Burgoyne, a 42 year old man of medium height and build, proved to be a good confederate. Attired

in dress pants and a sport jacket and having a calm, sincere style of interaction, he credibly adopted the desired role.

After being introduced to Mr. Burgoyne the subject was seated at a table and given the following taped instructions:

> Thank you for agreeing to participate in this research. This research is intended to provide information of an applied nature and as such has been influenced by growing emphasis on applied research. Such an applied emphasis has resulted in cooperation between the personnel office of a Canadian airline company and the University of Manitoba Psychology Department. The research for which you have volunteered will be of value to the airline company and to academic research interests.
>
> The experiment in which you are about to participate will require you to perform on a perceptual-motor task called the PRT, a task used often in psychological research. Your performance on the PRT is a matter of interest to the management staff of one of Canada's major airline companies. Your performance on the PRT is also a matter of psychological interest. It is only the first part of this experiment that interests Mr. Burgoyne, and I will let him explain that to you.

The taped instructions then continued with Mr. Burgoyne saying:

> I represent one of the major airlines which are federally registered in Canada. You are about to perform on only one of the tests that our pilot recruitment and training division uses in our selection of air crew trainees. As you may know most passenger and freight carrying airlines do not obtain pilot recruits directly from universities or colleges. Instead it has been our practice to employ former military air personnel or other air personnel registered with the federal department of transport or as it is now called, Transport Canada. Recently, however, a variety of different considerations have led us to believe that it may be possible to do some of our hiring directly from universities and colleges. The record of your performance on the PRT is one type of information that is required in order to come to a decision concerning our pilot recruitment practices. Other studies will be conducted at other centers in Canada and the results of all of these studies will enter into the final decision.
>
> You will be allowed three practice trials on the PRT. Between each trial you will be given 1 minute to rest. Following these practice trials will be a fourth trial

that is our primary interest. I will be in the adjoining room monitoring your performance on the recording apparatus.

The subject was then seated in front of the PRT and shown how it operated. He was told that his task was to, keep the metal point of the stylus in contact with the small metal disc on the turntable. Two Hunter interval timers (Model 111C) were used to time the seconds of contact between the stylus and the disc and the rest period. The contact time was displayed on two Sloelting clocks.

Feedback Manipulation

Following the three practice trials Mr. Burgoyne re-entered the room and told the subject that his practice trials were over and that the next trial would be his last one and that when it was completed he would provide the subject with some feedback on his performance. Following the fourth trial Mr. Burgoyne provided either positive or negative feedback to the subject. Whether the feedback was positive or negative had been randomly determined previously and recorded as part of the schedule of experimental conditions. All of the subjects received the same score (65) but Mr. Burgoyne's expert evaluation of the score differed depending on the experimental conditions. Mr. Burgoyne then said the following:

Well, the University's recording instruments give

you an overall score of 65. We use a different scoring device for selecting airline recruits, so I'll have to transform your score later. But, based on my experience watching people perform on the PRT, that is a (good, poor) score given the amount of practice you had. You must have been doing things (right, wrong).

Having watched you from the other room I would say that one reason your performance was (good, poor) was that you (seemed to, didn't seem to) profit much from the practice trials. Another thing I noticed was that you were (quick, slow) to get back on target. Your reflexes seemed (fast, slow).

Mr. Burgoyne then thanked the subject for his help, excused himself, and summoned the experimenter from the other room saying, "I'm finished with my part. I'll be back in time for the next appointment."

The experimenter then seated the subject at a table and the second part of the experiment was introduced as follows:

The next part of this experiment is far more psychological in nature than that which you just completed. I am much more interested in the relationship between certain personality characteristics and performance on the PRT. Studies which were conducted here last

year using the PRT indicated that a person's performance on the PRT could be used to predict certain personality characteristics. This part of the experiment is a follow-up of our earlier research. It is designed to provide more information concerning relationships between PRT performance and personality.

Since you have already performed on the PRT as part of Mr. Burgoyne's procedure we can go straight to the questionnaire part of the experiment. The questionnaires require only short answers and should not take long to complete.

Social Comparison and Validity of Comparison Manipulation

As he handed out the questionnaire booklet (see Appendix I), the experimenter said:

Mr. Burgoyne has seen a lot of people perform the PRT task. I don't really know what he said about your performance, but I thought you might be interested in how other students like yourself have scored in these PRT experiments last year.

The experimenter then asked the subject "How many trials did you have altogether?" The experimenter then said, "Yes, four", went to a table in an adjoining room, brought back a Xeroxed data sheet and continued saying, "This is how university students like yourself scored on their fourth trial on

the studies we ran last year". The sheet was folded and placed before the subject so that only trial 4 scores were shown. Depending upon his experimental condition the subject saw that the average score for university students on trial 4 was either 40, 65, or 90. This procedure provided the social comparison norm, indicating to the subject that his score was greater than, equal to, or less than, the normative score of a comparable group.

To provide the validity of social comparison manipulation the experimenter then said:

> Personally, I regard these norms as quite accurate (or inaccurate), since I know how the data was collected. It was collected very carefully (or carelessly) by a team of 3 well-trained researchers (or untrained research assistants). In addition, the previous work employed relatively large (or small) numbers of subjects since they were large, well-funded studies (or only pilot studies). Another factor associated with the previous research was that it employed (or did not employ) the same recording equipment as we have here. That is, all the recording of the PRT performance was done automatically (or manually) so there would be no room (or plenty of room) for error. I think (or don't think) you can count on these particular norms as being accurate.

Self-Esteem and Estimate of Performance

Following these manipulations the subject was asked to, read all the instructions carefully and answer the questions as honestly as possible. The two self-esteem measures and the set of questions pertaining to the PRT were collated in the booklet in random order for each subject to control for any interaction between tests and the dependent measures (Campbell & Stanley, 1966).

Rosenberg's (1965) self-esteem scale is comprised of 10 items which have been contrived to make 7 items which form a Guttman scale. The coefficient of reproducibility is .92 (Rosenberg, 1965). The scores range from 0 to 6, indicative of high and low self-esteem respectively. The 0 to 6 Guttman type of scoring was used in this research. Silber and Tippett (1965) obtained a 2-week test-retest reliability coefficient of .85 for the RSE for 28 college subjects. Also as part of a multitrait-multimethod matrix they obtained convergent validity indices by correlating the RSE with three other self-esteem measures: Kelly Repertory Test (r = .67), Heath Self-Image Questionnaire (r = .83), and interviewers' ratings of self-esteem (r = .63). Rosenberg (1965) reports substantial evidence for the predictive validity of the RSE. The scale items were modified in the present experiment by the addition of a qualifying clause to obtain a more valid measure of situation-specific self-esteem. For example scale item 4, "I am able to do things as well as most other people", was

modified to become, "In this experiment I am able to do things as well as most other people."

The VIP self-esteem scale (Spencer, Note 3) is comprised of 27 self-descriptive adjectives each of which are rated from 1 (extremely dissatisfied with) to 5 (extremely satisfied with). This scale was included only to collect scale validation data. It was not intended as a dependent measure of this research and it will not be mentioned further.

The estimate of performance questionnaire (EOP) consisted of 9 questions pertaining to the PRT which were designed to enhance the credibility of the cover story. One of these questions asked subjects to indicate on a 10 cm. line, "If you had to repeat one trial on the pursuit rotor right now what do you think you would score on that trial." The ends of the line were anchored with scores of 0 and 100. In addition, the last question on the EOP asked subjects to rate on a 5-point scale, "How satisfied are you with your performance." This was included to provide a check on the validity of the Rosenberg self-esteem scale.

Post-Test on the Pursuit Rotor

When the subject had completed each of the questionnaires the experimenter said:

> In order for this experiment to provide the clearest possible results, it is important that I be certain of your level of performance on the PRT. I would

like you to take one more trial on the PRT. It is quite common for a person's score to vary slightly from trial to trial. So, if you don't mind you can take one more trial on the PRT and then I'll average that score with the score that Mr. Burgoyne has for you. For the present purposes that will provide a more accurate indication of your performance.

Post-Experimental Questionnaire and Debriefing

When the subjects completed their post-test on the PRT they were asked to complete the post-experimental questionnaire (PEQ). It consisted of 10-items with one on each page (See Appendix II). The purpose of the PEQ was to provide information on whether the subjects were aware of any hypothesis and to determine if they were suspicious of any part of the experiment. The first question, "What do you believe the experimenter was trying to prove in this experiment", was used as a basis for detecting subject awareness. Subjects were classified as aware if their response to this question indicated that they knew an hypothesized relationship between one of the manipulations and a dependent variable. Subject suspiciousness was determined on the basis of their response to the fifth question, "Was there any part of the experiment that made you suspicious? If so, what part?"

On the basis of PEQ data 42.5% of the subjects were not suspicious and were also classified as completely unaware of

any hypothesis. Of the remaining subjects, 11.25% were suspicious of either the feedback or social comparison manipulation; 7.5% were generally suspicious of all psychology experiments; and 37.5% were suspicious of specific but irrelevant aspects of the experiment such as the one-way glass, two experimenters, and the number of practice trials on the pursuit rotor. Seven subjects who were classified as aware and whose data were not analyzed were included in the 11.25% of the subjects classified as suspicious of either the feedback or social comparison manipulation. Suspiciousness was not systematically associated with any treatment condition.

When the subjects had completed the PEQ they were debriefed (see Appendix III) and urged not to talk about the experiment with others. During the debriefing the experimenter also had an opportunity to question the subjects further concerning their possible awareness or suspicions. Once the subject had been thoroughly debriefed he was thanked for this participation and excused.

CHAPTER 3

RESULTS

The effects of the three independent variables (expert feedback, social comparison, and validity of comparison norms) on the three dependent variables (situation-specific self-esteem, performance estimate, and pre-post differences on the pursuit rotor) were analyzed using a multivariate analysis of variance (Finn, Note 4). Finn's procedure controls the experiment wise error rate and provides a test of all main effects and interactions on each of the dependent measures. A feature of Finn's procedure is that it permits two tests of effects on each dependent variable. The first is a simple univariate F-test. The second is a "step down F" test which is a test of each variable when the variance accounted for in that variable by all previous dependent variables has been removed. The "step down F" essentially holds the previous dependent variable(s) constant while looking at effects on the next dependent variable. A probability level of .05 was set for the tests of all hypotheses.

Self-Esteem

A summary of the analysis of variance of the self-esteem data is presented in Table 1. Hypothesis 1 for a main effect of expert feedback on self-esteem was supported, F (1,96) = 20.10, $p < .0001$. Positive expert feedback produced increases in self-esteem and negative expert feedback resulted in lower

Table 1

Summary of Multivariate Analysis of Variance of Self-Esteem Scores

Source	df	MS	Univariate F	Step Down F
Feedback (A)	1	37.92	20.10***	20.10***
Social Comparison (B)	2	9.53	5.05**	5.05**
Validity of Social Comparison (C)	1	.03	.02	.02
A x B	2	8.39	4.45*	4.45*
B x C	2	7.12	3.77*	3.77*
A x C	1	.15	.07	.07
A x B x C	2	3.17	1.68	1.68
Error	96	1.88		

* $p < .03$

** $p < .01$

*** $p < .001$

self-esteem. The self-esteem cell means are presented in Table 2.

Hypothesis 2 which stated that social comparison would affect self-esteem was also supported, F (2,96) = 5.05, $p < .008$. Since differences in self-esteem due to social comparison were hypothesized in advance of data collection, Dunn's multiple comparison procedure (Kirk, 1968, p. 79) for a priori, non-orthogonal comparisons was employed. The conceptual unit for error rate was the error rate per hypothesis (Kirk, 1968, p. 83). This conceptual unit for error rate means that α is the level of protection against making a Type I when making multiple comparisons concerning each hypothesis. Since three comparisons were made in relation to this hypothesis, the error rate per comparison was .05/3 = .016. The self-esteem scores were collapsed across levels of feedback and validity of social comparison. As predicted, the self-esteem of those subjects who believed their performance score was lower than the norm (negative discrepancy) was significantly lower than those subjects who believed their performance was the same as the norm, d (3,96) = .79, $p < .05$. The self-esteem of subjects who believed their performance exceeded the norm was approximately mid-way between the self-esteem of those in the negative discrepancy and no discrepancy conditions. Their self-esteem score did not differ significantly from either of the other groups.

The feedback by validity of social comparison interaction

Table 2

Self-Esteem Cell Means

Feedback	Social Comparison		
	Negative Discrepancy	No Discrepancy	Positive Discrepancy
	Valid Social Comparison		
Positive	1.11	.55	.66
Negative	3.77	1.44	.88
	Invalid Social Comparison		
Positive	.55	1.00	.88
Negative	2.44	1.00	2.33

Note - Low self-esteem scores indicate high self-esteem.

(Hypothesis 3) did not reach significance in the overall F-test ($F < 1$). Specifically, it had been hypothesized that positive feedback would produce increments and negative feedback decrements in self-esteem when the social comparison norms were invalid but not when they were valid. Dunn's multiple comparison procedure also indicated that there were no such differences, d (2,96) = .73, $p > .05$.

The multivariate analysis revealed a significant social comparison by validity of social comparison interaction, F (2,96) = 3.77, $p < .03$. It had been hypothesized (Hypothesis 4) that social comparison would produce differences in self-esteem when social comparison norms were valid but not when they were invalid. Self-esteem means, collapsed across levels of feedback, were compared between each social comparison level for each level of the validity factor. When the social comparison norms were valid self-esteem was significantly lower in the negative discrepancy condition than it was in either the no discrepancy or positive discrepancy condition, d (6,96) = 1.233, $p < .05$.

Social comparison did not have any significant effect on self-esteem when the norms were invalid. Thus, the results of Dunn's multiple comparison procedure confirmed the predicted social comparison by validity of social comparison interaction.

Performance

Performance on the pursuit rotor was unaffected by any

of the experimental manipulations. Neither expert feedback (Hypothesis 5) nor social comparison (Hypothesis 6) produced any systematic main effects on the pre-post difference scores. Similarly, validity of social comparison did not interact with expert feedback (Hypothesis 7) or social comparison (Hypothesis 8) to affect subjects' performance on the pursuit rotor.

With one exception the experimental manipulations similarly produced no significant effects on the subjects' estimates of their post-trial performance. The one significant effect was a main effect of social comparison (Hypothesis 6) on estimated performance, $\underline{F}$ (2,96) = 6.91, $\underline{p} < .002$. Examination of the performance estimate cell means (see Table 3) shows that when estimates are collapsed across levels of expert feedback and validity of social comparison, they range from highest to lowest in the predicted direction. Subjects who believed they scored lower than the norm (negative discrepancy) estimated a score of 72.94; those in the no discrepancy condition, 67.88; and those who believed they scored above the norm (positive discrepancy) estimated a slight decrement, 64.86. The only significant difference among these means occurred between subjects in the negative and positive discrepancy conditions, $\underline{d}$ (3,96) = 5.67, $\underline{p} < .05$. Thus, Hypothesis 6 which stated that social comparison would influence performance and estimated performance was partially supported. A summary of the analysis of variance of actual

Table 3

Performance Estimate Cell Means

Feedback	Social Comparison		
	Negative Discrepancy	No Discrepancy	Positive Discrepancy
	Valid Social Comparison		
Positive	75.11	73.33	66.00
Negative	72.55	67.55	62.77
	Invalid Social Comparison		
Positive	74.77	65.55	64.66
Negative	69.33	65.11	66.00

and estimated performance scores is presented in Appendix IV, Table A.

Self-Esteem - Behavior Relationship

Hypothesis 9 represented a combination of Hypotheses 4 and 8. That is when social comparison norms were valid and self-esteem was low due to a negative discrepancy, performance was expected to increase (negative correlation). When self-esteem was low due to a positive discrepancy, performance was expected to decrease (positive correlation). There was no correlational support for this hypothesis. The three dependent measures were independent of each other (see Table 4). The strongest relationship, between self-esteem and performance estimate, was not significant, r (106) = -.12, $p > .05$. The correlation coefficients between self-esteem and performance estimate in each cell (see Appendix IV, Table B) did not differ significantly from each other, $V \sim \chi^2$ (11), $p > .05$, and none were significantly greater than zero.

Expert Feedback by Social Comparison Interaction

One unexpected finding was the significant interaction effect of expert feedback and social comparison on self-esteem, F (2,96) = 4.45, $p < .02$ (see Table 5). Social comparison only affected self-esteem scores when negative expert feedback had been provided; it did not affect self-esteem when positive expert feedback had been provided. A post-hoc comparison indicated that those subjects in the negative

Table 4

Intercorrelations Among the Dependent Variables

	Self-Esteem	Performance Estimate
Performance Estimate	-.123	1.00
Difference Score	.077	-.004

Note - Correlation coefficients were calculated from raw data where high self-esteem scores indicated low self-esteem.

Table 5

Mean Self-Esteem Scores Due to Expert Feedback and Social Comparison Collapsed Across Levels of Validity of Social Comparison

Feedback	Social Comparison		
	Negative Discrepancy	No Discrepancy	Positive Discrepancy
Positive	.833	.778	.778
Negative	3.111	1.222	1.611

discrepancy condition who received negative feedback had lower self-esteem than those who received positive feedback, Tukey's HSD (12,96) = 2.17, $p < .05$.

CHAPTER 4

DISCUSSION

The discussion consists of four sections which deal respectively with the self-esteem data, the performance data, the self-esteem - behavior relationship, and a brief summary.

Self-Esteem Data

The Effect of Expert Feedback on Self-Esteem

Hypothesis 1 stated that positive expert feedback would be associated with high self-esteem and negative feedback with low self-esteem. This hypothesis was confirmed and thus offers further support for Coopersmith (1967), Ziller (1973) and Bass and Baron (Note 1) who maintained that high self-esteem is associated with a history of positive reinforcement. This result is also consistent with Webster and Sobieszek's (1975) research which indicated that positive evaluation from a prestigious other increased self-evaluation.

The Effect of Social Comparison on Self-Esteem

Hypothesis 2 stated that there would be a main effect for social comparison on self-esteem. Specifically, it was predicted that self-esteem would be low when either a negative or a positive self-normative discrepancy existed and that the absence of such a discrepancy would be associated with high self-esteem. Two of these three predictions were supported. A negative discrepancy (self lower than the norm) produced low self-esteem and no discrepancy produced the highest self-

esteem, while the mean level of self-esteem in the positive discrepancy condition was lower than that in the no discrepancy condition, the difference was not significant. One possible explanation for this failure centers around the socialization experience of the subjects in relation to motor tasks. Males in particular have probably received substantial reinforcement for excellent motor performance. From the present view such a history signals to the subject that his motor behavior is in accord with social standards for males on tasks involving motor skills. That is, he has been socialized to believe that a discrepancy does not exist between his own motor ability and the norm for males. While an attempt was made to control the influence of past history of reinforcement by selecting a novel task, there was probably sufficient generalization from other types of tasks involving motor performance to result in an increment in self-esteem. Such generalization of self-esteem from one task to another has been demonstrated previously by Haas and Maehr (1965) and Maehr, Mensing, and Nafzger (1962). Even with a built in bias toward high self-esteem it is conceptually significant that self-esteem in the positive discrepancy condition was lower than that in the no discrepancy condition. Concepts such as Adler's, of striving for superiority, and the self ideal concepts of self-esteem (Horney, 1945; Rogers, 1951) would have led to the prediction that self-esteem would be highest in the positive discrepancy condition. This line

of reasoning suggests that if the task had been even more unique Hypothesis 2 may have received complete support.

Confirmation of this hypothesis provided additional support for the author's earlier interpretation of the results found by Morse and Gergen (1970) and Rosenberg and Simmons (1974). They found that self-esteem was adversely affected when job applicants or black children, respectively, compared themselves with other impressive job applicants or white children. From the present perspective the subjects in these studies experienced a negative self norm discrepancy. The notion of such a discrepancy leading to low self-esteem and no discrepancy leading to high self-esteem may be used to explain the results obtained by Lieberman, Yalom and Miles (1973), Johnson, Gormly and Gormly (1973), and even those of Ickes, Wicklund, and Ferris (1973). For example, Ickes et al found that subjects' self-esteem was lower when they listened to a tape recording of their own voice than when they listened to another's voice. Anyone who has listened to their own voice played back on a tape recorder is immediately struck by the discrepancy between the way they believe they sound and the way they actually sound. Their subjects perceived a self-normative discrepancy. The norm for them was the sound of their own voice as they were accustomed to hearing it, that is, untaped and simultaneous with their speech. The mechanism which accounts for the low self-esteem in this case may not simply involve the focusing of attention

on the self-as-an-object as Duval and Wicklund (1972) and Ickes, Wicklund and Ferris (1973) have argued. Rather, it is possible that a more accurate explanation may be in terms of a self-perceived, self-normative discrepancy.

A contribution of this research to the area of self-esteem stems from the confirmation of Hypothesis 2. As the original conceptual viewpoint suggested (see Figure 1), a self-normative discrepancy is an antecedent condition of low self-esteem. Application of this view to other studies provides a general and common explanation of their results: low and high self-esteem respectively are associated with the presence or absence of a self-normative discrepancy.

The Interactive Effect of Expert Feedback and Validity of Social Comparison on Self-Esteem

Hypothesis 3, which stated that expert feedback would interact with validity of social comparison to affect self-esteem, was not confirmed. Examination of the self-esteem cell means collapsed across levels of social comparison, revealed that there was no tendency toward such an interaction. The effect of expert feedback on self-esteem was not influenced by the validity or the invalidity of the social comparison norm.

One possible explanation of this failure is that social comparison and expert feedback do not combine in an additive fashion to produce high or low self-esteem. This was demonstrated by the unexpected significant interaction effect of

these two variables on self-esteem. Given the assumption that they would combine additively, it was reasonable to hypothesize that feedback and valid comparison would affect self-esteem differently than feedback and invalid social comparison. However, since this additive or "main effect" relationship did not exist the validity manipulation was not simply analogous to the presence or absence of a social comparison norm.

A second possible explanation for the failure to confirm the expert feedback by validity of social comparison interaction takes into account the fact that the source of the expert feedback (the airline personnel officer) was different than the source of the validity information (the experimenter). The non-significant finding may mean that the validity or invalidity of the comparison norm was, from the subjects' view, phenomenologically remote from the expert's face-to-face evaluation. In either case there was clearly no tendency toward an interaction between expert feedback and the validity of the social comparison norm.

The Interactive Effect of Social Comparison and Validity of Social Comparison on Self-Esteem

Hypothesis 4 which called for a social comparison by validity of social comparison interaction was confirmed. There were no significant differences in self-esteem among the three levels of social comparison when the social comparison norms were invalid. However, when the norms were

valid self-esteem was significantly lower in the negative discrepancy than in the positive discrepancy condition. This hypothesis will be discussed further in the section which deals with the self-esteem - behavior relationship.

The Interactive Effect of Feedback and Social Comparison on Self-Esteem

Although not predicted, the feedback by social comparison interaction was statistically significant. Social comparison affected self-esteem scores when negative expert feedback had been given, but not when positive expert feedback had been given. Perhaps this finding should have been anticipated. Berger, Zelditch, Anderson and Cohen (Note 2) had previously found that while the evaluation of a high status source influences self-evaluation, it was only stable if peers endorsed the conferred evaluation. While in the present experiment peers did not actually endorse the expert's evaluation, the results are consistent with the Berger et al results. That is, negative expert evaluation produced low self-esteem only when the subjects believed their performance was below that of their peers.

The feedback by social comparison interaction carries with it implications for those intending to research the effects of manipulated self-esteem. In this experiment negative expert feedback was a necessary but not a sufficient condition to produce maximal decrements in self-esteem. To successfully induce low self-esteem using negative feedback

these data indicated that the individual must also be led to believe that his esteem relevant performance is substandard in comparison to his peers.

Situation-Specific Self-Esteem

The data provided support for the general notion of situation specific self-esteem. Although the value of such a concept was not in serious contention (cf., Greenhaus and Badin, 1974; Korman, 1970; Webster and Sobieszek, 1974), the experiment did succeed in adding self-normative discrepancy as a parameter of situationally-specific self-esteem. The experimental manipulations produced differences in self-esteem assessed with reference to a specific situation and measured on a previously validated measure of self-esteem (Rosenberg, 1965). The primary concern regarding the Rosenberg scale has been whether it would retain its validity in its modified form. As a check on this, question nine of the Estimate of Performance questionnaire (see Appendix I) asked, "How satisfied are you with your performance?" The correlation, r (106) = .70, $p < .01$, between the subjects' responses to this question and their self-esteem, as measured by the modified scale, indicated that the modification did not weaken the validity of the scale.

Performance Data

The pre-post difference score on the pursuit rotor was insensitive to the experimental manipulations. Therefore, the discussion of the following hypotheses will pertain to

subjects' estimates of post-trial performance. The actual scores, as well as the estimated performance scores, are discussed separately at the end of this section.

The Effect of Expert Feedback on Estimated Performance

Hypothesis 5 which stated that there would be a main effect of expert feedback on actual and estimated performance was not supported. However, performance estimates varied in the predicted direction due to expert feedback. The failure to confirm this hypothesis was probably due to insufficient power of the analysis. The power to reject this null hypothesis if it was truly false was .30. The reason for the low power did not appear to be related to sample size since even with n = 25 per cell the power of this test was only .64. Rather, in this case, the failure to confirm this hypothesis was most directly due to the large error variance. The magnitude of the error variance may have been due to the type of scale used, a point discussed more fully at the end of this section.

The Effect of Social Comparison on Estimated Performance

Hypothesis 6 which stated that social comparison would have an effect on actual and estimated performance was confirmed.

Specifically, it was predicted that a negative discrepancy would produce performance increments; a positive discrepancy, performance decrements; and no discrepancy would produce no change in estimated performance (i.e., they would

remain near 65). Only one of these predictions received support. Subjects in the negative discrepancy condition (i.e., self below norm) estimated significantly higher post test scores than subjects in the positive discrepancy conditions. Performance estimates of the subjects in the no discrepancy and positive discrepancy conditions showed very little change. The performance estimates of the positive discrepancy subjects, while being significantly lower than those of the negative discrepancy subjects, were not significantly lower than the estimates of the subjects in the no discrepancy condition. However, the estimates of the positive discrepancy subjects were in the predicted direction. The subjects' overall mean estimate of their score on a hypothetical fifth (post) trial was actually less (64.86) than the score of 65 which they believed they obtained on their fourth and last trial.

These data are consistent with the conformity research finding that an individual's behavior changes in the direction of the majority norm. In view of the relative novelty of the pursuit rotor task it is likely that the type of process taking place corresponded to informational rather than normative conformity (cf., Deutsch and Gerard, 1955). Briefly, normative conformity is a function of pressure to be like others. Informational conformity, however, is not characterized by the same degree of blind followership. Informational conformity is a more adaptive process occurring in response to a need for direction. In the present case,

because of the relative novelty of the task, subjects were probably uncertain about what constituted an acceptable performance. None of the subjects had performed on a pursuit rotor before and thus this was an ambiguous situation for them. As Shaw had pointed out, "In general, the more ambiguous the stimulus situation, the greater will be the conformity behavior" (1971, p. 250).

The Interactive Effect of Expert Feedback and Validity of Social Comparison on Estimated Performance

The failure to confirm the interaction effect of expert feedback and validity of social comparison on estimated performance (Hypothesis 7) did not appear to be due to methodological problem. Rather, as with the failure to find this effect on self-esteem, there simply was no indication of such an effect. Plotting the performance estimate cell means, collapsed across levels of social comparison, indicated that the effect of expert feedback on the subjects' performance estimates was not influenced by the validity manipulation. Positive feedback tended to enhance performance estimate and negative feedback tended to reduce performance estimates regardless of the validity of the social comparison norm.

The Interactive Effect of Social Comparison and Validity of Social Comparison on Estimated Performance

The lack of support for the interaction effect of social comparison by validity of social comparison on performance estimates (Hypothesis 8) was attributed to insufficient power.

The power to detect a true difference due to this interaction was .25. A power analysis was calculated in this case since examination of the cell means indicated that they differed in the predicted direction. That is, the mean estimated performance increment of subjects in the negative discrepancy condition was larger when they believed the social comparison norms were valid as opposed to invalid. In the positive discrepancy condition the difference was reversed; when the social comparison norms were valid subjects estimated a lower performance than they did when they believed the social comparison norms were invalid.

Self-Esteem as a Mediator of Performance

Self-esteem as a mediator of performance is one aspect of the original conceptualization (Figure 1) that did not receive experimental support. Self-esteem was viewed here as a mediator of behavior. To confirm the mediational view it had to be shown that low self-esteem was a necessary but not a sufficient condition for behavior change. It was hoped that this would be made possible, by a comparison of the univariate and "step-down" F values obtained on either of the performance measures. If self-esteem was playing a mediating role, then the univariate F values should have been larger than the step-down values. For example, a significant univariate F (6.188) was obtained for the effect of social comparison on estimated performance (Hypothesis 6). The corresponding "step-down" F (6.91) was slightly larger. The

latter value indicates that performance estimate is significantly affected by social comparison and that the effect of self-esteem had been inhibitory (i.e., tending to suppress the differences due to social comparison). These differences between the two F values were neither sufficiently large nor systematic (see Appendix D, Table I) to provide any clear support for the mediational role of self-esteem.

The Actual and Estimated Performance Scores

As mentioned previously, the pre-post difference score on the pursuit rotor was insensitive to the experimental manipulations. While the cell means of the difference scores ranged from .04 to 5.29 seconds, the standard error of the difference scores (6.04 seconds) was greater than the largest mean difference. The data indicated that subjects' estimates of performance were sensitive to the experimental manipulations. Power calculations indicated that a high degree of variability associated with performance estimates contributed to the failure to confirm two hypothesized effects. This variability may have been due to the methodological procedure. Subjects were asked to estimate their performance on an ungraduated 10 cm line marked only by the number 0 at the left and 100 at the right. All the subjects had been told that their fourth trial score on the PRT was 65. If the 10 cm line had been divided evenly into 10 equal units it may have enabled subjects to identify more precisely where their score of 65 fell on the line. Assuming that subjects used this knowledge of

their score as a basis for estimation, such a 10-point rating scale would possibly have reduced the variability due to error.

Self-Esteem - Behavior Relationship

Support for the Approval Explanation

Three types of evidence were hypothesized in support of an approval explanation of the self-esteem - behavior relationship (Hypothesis 9). First, it was hypothesized that the correlation between self-esteem and performance would be negative in the negative discrepancy condition and positive in the positive discrepancy condition. Second, it was hypothesized that support for an approval explanation would stem from confirmation of two hypotheses (nos. 4 and 8) which stated that social comparison would interact with the validity of social comparison to affect both the self-esteem and performance. Third, it was suggested that a main effect of social comparison on self-esteem and performance (Hypotheses 2 and 6) could provide support for this relationship.

The correlational support was not obtained. This may have been due to the relatively high variability in the performance measures plus the fact that the distribution of self-esteem scores was negatively skewed. Both of these factors contribute to reduction in the magnitude of correlations (Carroll, 1961). The self-esteem grand mean was 1.38 with a standard deviation of 1.37 indicating that 66% of the subjects received relatively high self-esteem scores (0 to 2.75) on a scale which ranges from 0 to 6.

Concerning the second basis of support the only significant social comparison by validity of social comparison interaction occurred on the self-esteem variable (Hypothesis 4). The effect of the social comparison by validity interaction on estimated performance was not significant but in the predicted direction. Thus, these two interaction effects provided only weak support for an approval explanation.

The main effect of social comparison on performance estimates and self-esteem, did provide stronger support for the approval explanation of the self-esteem - behavior relationship. For example, looking only at the negative discrepancy condition, it was found that the mean level of self-esteem was lowest and the average estimated performance was highest. In the no discrepancy condition the average level of self-esteem was highest and the average estimated increase in performance was low (2.88). In the positive discrepancy condition the average self-esteem score tended in the direction of low self-esteem and the average performance estimate was lowest. These results did not confirm that an approval relationship existed but indicated some conceptual support for that relationship. It is unlikely that these results would have been obtained if the relationship between self-esteem and behavior had been governed by a consistency principle.

In summary, neither the correlational data, the social comparison by validity interaction, nor the main effects of

social comparison provided unequivocal support for the approval explanation of the self-esteem behavior relationship. However, the trends in these data support an approval rather than a consistency explanation. Perhaps the most that can be said is that the results of this experiment offered tentative support for the approval explanation.

Implications for Organizing Research Findings

Another consideration regarding the self-esteem-behavior relationship has been the inability to organize the pertinent research (cf., Shrauger, 1975). The unexpected feedback by social comparison interaction provides a further possible explanation for Shrauger's failure to find any consistent relationship between self-esteem and behavior. The experiments which were reviewed (e.g., Burstein and Zajonc, 1965; Cottrell, 1967; Maracek and Mettee, 1972; Perez, 1973; Ryckman and Rodda, 1972; Schalon, 1968; Shrauger and Rosenberg, 1970; Solley and Stagner, 1956; Zajonc and Brickman, 1969) did not provide an explicit basis for social comparison.

The results of the present study suggest one might have expected a variety of outcomes in previous research. For example, subjects who received negative feedback and inferred their behavior was substandard, should have experienced low self-esteem. But, subjects who received negative feedback yet inferred their behavior was comparable to that of others should have experienced relatively high levels of self-esteem. Unfortunately, it is not easy to categorize previous studies

using this framework, since previous researchers have not given the information needed to classify subjects on the basis of any perceived self-norm discrepancy.

Summary

The data provided support for the conceptual view that situation-specific self-esteem is a function of the degree of discrepancy an individual perceives between his own behavior and normative standards for behavior. It was suggested that this discrepancy, whether implicitly indicated by the expert's evaluation or explicitly indicated by comparison norms, provided a basis to account for other research results (e.g., Ickes, Wicklund and Ferris, 1973; Johnson, Gormly and Gormly, 1973; Lieberman, Yalom and Miles, 1973). While a negative self-normative discrepancy was clearly associated with low self-esteem, more research is required to provide unequivocal evidence concerning the affect of a positive discrepancy on self-esteem.

Tentative support was provided for the approval explanation of the self-esteem - behavior relationship. When self-esteem was low, subjects tended to estimate a shift in their behavior in the direction of the norm. Because of the inclusion of a positive discrepancy condition, these results suggested that the approval explanation may also be accounting for decrements in performance and not only increments as suggested by Shrauger (1975).

The unpredicted interactive effect of expert feedback

and social comparison on self-esteem carried with it: (a) implications for the successful induction of low self-esteem, and (b) implications for the possible organization of the literature dealing with the self-esteem - behavior relationship. That is, to successfully induce low self-esteem by providing negative expert evaluation the individual must also believe that his performance is discrepant from that of his comparison group. With respect to approval versus consistency explanations, knowledge of where the subject believes he stands in relation to others should facilitate the organization of studies dealing with the self-esteem - behavior relationship.

Reference Notes

1. Bass, A. R., & Baron, R. M. The role of social reinforcement parameters in facilitating trainee motivation, learning and job performance. Supplementary Progress Report, U.S. Department of Labor, Wayne State University, December, 1966.

2. Berger, J., Zelditch, M., Anderson, B., & Cohen, B. P. Status conditions of self-evaluation. Technical Report No. 27, Laboratory for Social Research, Stanford University, Stanford, California.

3. Spencer, C. D. VIP: A three factor self-esteem scale. Unpublished manuscript, 1976. (Available from the Department of Psychology, University of Manitoba.)

4. Finn, J. D. Multivariance, Version 4. Faculty of Educational Studies, State University of New York, Buffalo, 1968.

References

Ansbacher, H. L., & Ansbacher, R. R. (Eds.), The individual psychology of Alfred Adler. New York: Basic Books, 1956.

Archer, D. Power in groups: Self-concept changes of powerful and powerless group members. Journal of Applied Behavioral Science, 1974, 10, 208-220.

Archibald, W. P., & Cohen, R. L. Self-presentation, embarrassment, and facework as a function of self-evaluation, conditions of self-presentation, and feedback from others. Journal of Personality and Social Psychology, 1971, 20, 287-297.

Bass, A. R., & Baron, R. M. The role of social reinforcement parameters in facilitating trainee motivation, learning and job performance. Supplementary Progress Report, US Department of Labor, Wayne State University, December, 1966.

Bem, D. J. Self-perception theory. In L. Berkowitz (Ed.), Advances in experimental social psychology. Vol.6. New York: Academic Press, 1972.

Bem, D. J., & Allen, A. On predicting some of the people some of the time: The search for cross-situational consistencies in behavior. Psychological Review, 1974, 81, 506-520.

Berger, J., Zelditch, M., Anderson, B., & Cohen, B. P. Status conditions of self-evaluation. Technical Report No. 27,

Laboratory for Social Research, Stanford University, Stanford, California.

Boring, E. G. A history of experimental psychology. (2nd. ed.). New York: Appleton-Century-Crofts, 1950.

Bowers, K. S. Situationism in psychology: An analysis and a critique. Psychological Review, 1973, 80, 307-336.

Burnstein, E., & Zajonc, R. B. Individual task performance in a changing social structure. Sociometry, 1965, 28, 16-19.

Butler, J. M., & Haigh, G. V. Changes in the relationship between self-concepts and ideal concepts consequent upon client-centered counselling. In C. R. Rogers & R. F. Dymond (Eds.), Psychotherapy and personality change. Chicago: University of Chicago Press, 1954. Pp. 55-75.

Campbell, D. T., & Stanley, J. C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally, 1966.

Carroll, J. B. The nature of data, or how to choose a correlation coefficient. Psychometrika 26, 1961, 347-372.

Cooley, G. H. Human nature and social order. New York: Scribner, 1902.

Coopersmith, S. The antecedents of self-esteem. San Francisco: W. H. Freeman, 1967.

Cottrell, N. B. The effect of dissonance between expected and obtained performance upon task proficiency and self-estimates of task proficiency. Journal of Social Psychology,

1967, 72, 275-284.

Denmark, F., & Guttentag, M. Dissonance in the self-concepts and educational concepts and noncollege oriented women. Journal of Counselling Psychology, 1967, 14, 113-115.

Deutsch, M., & Gerard, H. B. A study of normative and informational social influence upon individual judgment. Journal of Abnormal and Social Psychology, 1955, 51, 629-636.

Duval, S., & Wicklund, R. A. A theory of objective self-awareness. New York: Academic Press, 1972.

Ekehammer, B. Interactionism in personality from a historical perspective. Psychological Bulletin, 1974, 81, 1026-1048.

Endler, N. S. The case for person-situation interactions. Canadian Psychological Review, 1975, 16, 12-21.

Festinger, L. A. A theory of social comparison processes. Human Relations, 1954, 7, 117-140.

Festinger, L. A. A theory of cognitive dissonance. Stanford: Stanford University Press, 1957.

Fitts, W. H. The self-concept and performance: Studies on the self-concept and rehabilitation. Dede Wallace Center, Nashville: Monograph V, 1972.

Gary, V., & Guthrie, D. The effect of jogging on physical fittness and self-concept in hospitalized alcoholics. Quarterly Journal of Studies on Alcohol, 1972, 33, 1073-1078.

Gerard, H. B. Some determinants of self-evaluation. Journal of Abnormal and Social Psychology, 1961, 62, 288-293.

Gergen, K. J. The concept of self. New York: Holt, Rinehart & Winston, 1971.

Greenhaus, J. H., & Badin, I. J. Self-esteem, performance, and satisfaction: Some tests of a theory. Journal of Applied Psychology, 1974, 59, 722-726.

Haas, H. I., & Maehr, M. L. Two experiments on the concept of self and the reaction of others. Journal of Personality and Social Psychology, 1965, 1, 100-105.

Hebb, D. O. The American revolution. The American Psychologist, 1960, 15, 735-745.

Horney, K. Our inner conflicts. New York: Norton, 1945.

Ickes, W. J., Wicklund, R. A., & Ferris, C. B. Objective self-awareness and self-esteem. Journal of Experimental Social Psychology, 1973, 9, 202-219.

James, W. Principles of psychology. New York: H. Holt, 1890.

Janis, I. L., & Field, P. B. Sex differences and personality factors related to persuasibility. In C. I. Hovland & I. L. Janis. (Eds.), Personality and persuasibility. New Haven: Yale University Press, 1959.

Johnson, C. D., Gormly, J., & Gormly, A. Disagreements and self-esteem: Support for the competence-reinforcement model of attraction. Journal of Research in Personality, 1973, 7, 165-172.

Jones, S. C. Some determinants of interpersonal evaluating behavior. Journal of Personality and Social Psychology, 1966, 3, 397-403.

Jones, R. A., Sensenig, J., & Haley, J. V. Self-descriptions and configurations of content and order effects. Journal of Personality and Social Psychology, 1974, 30, 36-46.

Kiesler, C. A., & Kiesler, S. B. Conformity. Reading, Massachusetts: Addison-Wesley Publishing Co., 1969.

Koocher, G. P. Swimming, competence, and personality change. Journal of Personality and Social Psychology, 1971, 18, 275-278.

Korman, A. K. Toward an hypothesis of work behavior. Journal of Applied Psychology, 1970, 54, 31-41.

Lewin, K. A dynamic theory of personality: Selected papers. New York: McGraw-Hill, 1935.

Lieberman, M. A., Yalom, I. D., & Miles, M. B. Encounter groups: First facts. New York: Basic Books, 1973.

Maehr, M. L., Mensing, J., & Nafzger, S. Concept of self and the reaction of others. Sociometry, 1962, 25,353-357.

Maracek, J., & Mettee, D. Avoidance of continued success as a function of self-esteem, level of esteem certainty, and responsibility for success. Journal of Personality and Social Psychology, 1972, 22, 98-107.

Mead, G. H. Mind, self, and society: From the standpoint of a social behaviorist. Chicago: University of Chicago Press, 1934.

Morse, S., & Gergen, K. J. Social comparison, self-consistency, and the concept of self. Journal of Personality and Social Psychology, 1970, 16, 149-156.

Perez, R. C. The effect of experimentally induced failure, self-esteem, and sex on cognitive differentiation. Journal of Abnormal Psychology, 1973, 81, 74-79.

Rogers, G. R. Client-centered therapy. Boston: Houghton-Mifflin, 1951.

Rosenberg, M. Society and the adolescent self-image. Princeton: Princeton University Press, 1965.

Rosenberg, M., & Simmons, R. G. Black and white self-esteem: The urban school child. Presented at American Sociological Association, Washington, D.C., 1971.

Rosenthal, R. Interpersonal expectations: Effects of the experimenter's hypothesis. In R. Rosenthal & R. L. Rosnow, Artifact in behavioral research. New York: Academic Press, 1969. Pp. 186-194.

Ryckman, R. M., & Rodda, W. C. Confidence maintenance and performance as a function of chronic self-esteem and initial task experience. The Psychological Record, 1972, 22, 241-247.

Sarbin, T. R. A preface to a psychological analysis of the self. Psychological Review, 1952, 59, 11-22.

Secord, P. F., & Backman, C. W. Personality theory and the problem of stability and change in individual behavior: An interpersonal approach. Psychological Review, 1961,

68, 21-33.

Schachter, S. Deviation, rejection, and communication. Journal of Abnormal and Social Psychology, 1951, 46, 190-207.

Schalon, G. L. Effect of self-esteem upon performance following failure stress. Journal of Consulting and Clinical Psychology, 1968, 32, 497.

Shaw, M. E. Group dynamics: The psychology of small group behavior. New York: McGraw-Hill, 1971.

Sherif, M. The psychology of social norms. New York: Harper, 1936.

Shrauger, J. S. Responses to evaluation as a function of initial self-perceptions. Psychological Bulletin, 1975, 82, 581-596.

Shrauger, J. S., & Rosenberg, S. E. Self-esteem and the effects of success and failure feedback on performance. Journal of Personality, 1970, 38, 404-417.

Silber, E., & Tippett, J. S. Self-esteem: Clinical assessment and measurement validation. Psychological Reports, 1965, 16, 1017-1071.

Solley, G. M., & Stagner, R. Effects of magnitude of temporal barriers, type of goals, and perception of the self. Journal of Experimental Psychology, 1956, 51, 62-70.

Videbeck, R. Self-conceptions and the reactions of others. Sociometry, 1960, 23, 351-359.

Webster, M. Jr., & Sobieszek, B. Sources of self-evaluation: A formal theory of significant others and social influence.

New York: John Wiley & Sons, 1974.

Wilson, S. R. Ability evaluation and self-evaluation as types of social comparisons. Sociometry, 1973, 26, 600-607.

Wylie, R. C. The self concept. Lincoln: University of Nebraska Press, 1961.

Wylie, R. C. The present status of self theory. In E. F. Borgatta and W. W. Lambert (Eds.), Handbook of personality theory and research. Chicago: Rand McNally, 1968. Pp. 728-787.

Wylie, R. C. The self concept (Rev. ed.) Vol. 1. A Review of methodological considerations and measuring instruments. Lincoln: University of Nebrask Press, 1974.

Zajonc, R. B., & Brickman,P. Expectancy and feedback as independent factors in task performance. Journal of Personality and Social Psychology, 1969, 11, 148-156.

Ziller, R. C. The social self. New York: Pergamon Press, 1973.

Appendix I

Questionnaire Booklet

Thank you very much for agreeing to participate in this research. This experiment is one in a series of similar experiments designed to investigate the relationship between performance ability during stages of learning a task and some personality characteristics. The PRT which you have just taken has been taken by a wide range of people in a variety of different experiments. Recently, research has shown that scores obtained on this test during early stages of learning seem to be closely related to general personality characteristics. There are still questions that remain unanswered concerning this relationship however, and the present research is designed to answer some of these questions.

All of the questions pertain to your performance on the PRT. Please be honest with yourself when answering each of the questions. Your honesty and sincerity is important for the success of this research program. At the completion of the experiment you will be provided with more details concerning this research. You will also be provided an opportunity to ask questions. Make sure your student number is written on your booklet.

Please turn now to the first page of questions. Please read all the instructions carefully before you begin.

RSE

Please answer the following 10 items as conscientiously as you can. Base your answers only on your experience regarding this experiment. That is, if a question asks how you feel about your ability you should interpret that to mean how you feel about your ability to this specific situation. Circle only one response for each item.

1. Regarding my performance in this experiment, I feel that I'm a person of worth, at least on an equal plane with others.
    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree
2. Regarding this experiment, I feel that I have a number of good qualities:
    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree
3. All in all, as far as this experiment is concerned, I am inclined to feel that I am a failure.
    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree

4. In this experiment I am able to do things as well as most other people.

    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree

5. With respect to this experimental situation I feel I do not have much to be proud of.

    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree

6. In this experiment situation I take a positive attitude toward myself.

    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree

7. On the whole, as far as this experiment is concerned, I am satisfied with myself.

    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree

8. In this situation I wish I could have more respect for myself.

    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree

9. In this situation I certainly feel useless at times.

    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree

10. At times I think I am no good at all in this situation.

    1. strongly agree
    2. agree
    3. disagree
    4. strongly disagree

EOP

For each of the following questions circle the answer that is most appropriate for you. Some of these questions are designed to provide data on factors that influenced your performance on the pursuit rotor. Please answer as carefully as possible.

1. When you first began to practice on the pursuit rotor did you think the task was,
    1. extremely easy
    2. easy
    3. moderate
    4. difficult
    5. extremely difficult
2. Before you began your fourth trial (the test trial) on the pursuit rotor did you think the task was,
    1. extremely easy
    2. easy
    3. moderate
    4. difficult
    5. extremely difficult
3. How important was "luck" in determining your score on the pursuit rotor
    1. extremely unimportant
    2. unimportant
    3. not sure

4. important
5. extremely important

4. How important was "skill" in determining your score in the pursuit rotor
   1. extremely unimportant
   2. unimportant
   3. not sure
   4. important
   5. extremely important
5. If you had to repeat one trial on the pursuit rotor right now what do you think you would score on that trial. (place a single mark on the line to indicate what you think your score would be)

   0_____100
6. Given the same amount of practice as you have had where do you think most other people would score (again indicate your answer with a single mark)

   0_____100
7. What did you focus your attention on during your performance? (rank each of the alternatives. Put a 1 beside that which you concentrated on the most, 2 beside the second-most, etc.)

   ( ) the metal disc

   ( ) the speed of rotation

   ( ) coordination of hand, arm, & eyes.

   ( ) how hard I was pressing down on the stylus

( ) general concentration on all aspects

( ) mentally keeping track of what I was doing

8. Have you ever performed on a pursuit-rotor before?

    1. yes
    2. no

9. How satisfied are you with your performance?

    1. extremely dissatisfied
    2. dissatisfied
    3. no feelings about it
    4. satisfied
    5. extremely satisfied

VIP

The following list of 27 descriptive words and phrases apply in some way to everyone. Carefully consider each of these as it applies to yourself. Indicate your own personal feelings about yourself by rating yourself on each of these descriptive words and phrases according to the following scale. When considering each of these adjectives do not rate how satisfied you are generally rather rate your degree of satisfaction with each of these 27 adjectives in terms of how you feel in this experimental situation only. Circle the level of satisfaction that you feel. (e.g., My head 1 2 3 ④ 5).

1. Extremely dissatisfied with.
2. Moderately dissatisfied with.
3. No feelings one way or the other.
4. Moderately satisfied with.
5. Extremely satisfied with.

1. My health 1 2 3 4 5
2. My agility and athletic ability 1 2 3 4 5
3. My friendliness 1 2 3 4 5
4. My ability to express myself 1 2 3 4 5
5. My neatness and cleanliness 1 2 3 4 5
6. My walk 1 2 3 4 5
7. My helpfulness 1 2 3 4 5
8. My intelligence 1 2 3 4 5
9. My body shape, build, and proportion 1 2 3 4 5
10. My posture 1 2 3 4 5

11. My humour 1 2 3 4 5

12. My power of concentration 1 2 3 4 5

13. My appearance (face) 1 2 3 4 5

14. My confidence in movements 1 2 3 4 5

15. My openness and honesty 1 2 3 4 5

16. My comprehension ability 1 2 3 4 5

17. My weight 1 2 3 4 5

18. My degree of amount of tenseness, nervousness, or fidgetiness 1 2 3 4 5

19. My ability to be relaxed and casual with others 1 2 3 4 5

20. My thinking ability 1 2 3 4 5

21. My complexion 1 2 3 4 5

22. My coordination 1 2 3 4 5

23. My listening ability 1 2 3 4 5

24. My clothes 1 2 3 4 5

25. My temper 1 2 3 4 5

26. My level of shyness 1 2 3 4 5

27. My level of conceit and vanity 1 2 3 4 5

Appendix II

Post-Experimental Questionnaire

Each question of the Post-Experimental Questionnaire was typed on a separate page. The subjects were asked to answer them in order from 1 to 10.

1. What do you believe the experimenter was trying to prove in this experiment?
2. What results do you think Mr. Burgoyne expected in the first part of this experiment?
3. What was it that gave you your idea of what the experimenter was trying to prove. (Please rank each of those that contributed to your idea. Put a 1 beside the one that influenced you the most, a 2 for the next, etc. You do not have to put a number by every one.)

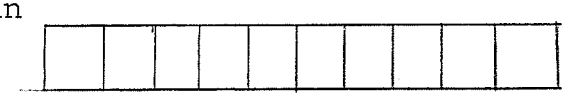
   _____the taped instructions _____Mr. Burgoyne

   _____the experimenter _____the questionnaires

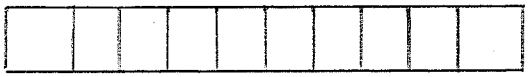
   _____from other students who told me about the experiment
4. How hard were you trying to keep the stylus on the disc during the test trial in Mr. Burgoyne's part of the experiment.

   Trying as hard as possible / / / / / / / / / / / Trying as little as possible
5. Was there any part of the experiment that made you suspicious? If so, what part?

6. Were you certain about how you were supposed to perform on the PRT?

Very certain  Very uncertain

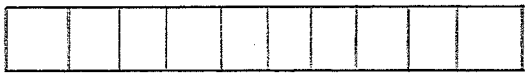
7. Were you certain about how you were supposed to answer each of the questionnaires?

Very certain  Very uncertain

8. How much about your personality do you think is indicated by your PRT Score?

Very much  Very little

9. How hard were you trying to keep the stylus on the disc on your last PRT trial?

Trying as hard as possible  Trying as little as possible

10. On the last PRT trial do you think the experimenter wanted you to:

_____do your very best

_____score lower than before

_____stay about the same as your previous PRT score

_____score higher than before

Appendix III

Debriefing

This experiment was not really a study to investigate the relationship between PRT performance and personality characteristics. The experiment actually involved attempts to influence your confidence of your ability on the PRT machine.

Mr. Burgoyne does not really work for a major airline company. It was necessary to create the impression that Mr. Burgoyne was an expert on the PRT so that the feedback that he gave to you was believable. Also, there are no norms for performance on the PRT. You were led to believe that other university students scored a certain way to see if that would influence how you felt about your own performance.

You see the purpose of the experiment is to investigate the effects of (1) feedback from an expert, and (2) knowledge of how others score on your feelings of self-evaluation and on your actual performance. Our pilot studies indicated that the only effective way of investigating these effects in the lab necessitated the use of deception.

I want it to be clear to you that your performance of the PRT machine does not reveal anything at all about you or your personality. I also want it to be clear that Mr. Burgoyne has no involvement whatsoever with an airline company. Mr. Burgoyne is actually my assistant for this research. Do you see why it was necessary for us to deceive you?

Appendix III (Cont'd)

Did you have any knowledge about this experiment? ... Had you been told anything about it before you arrived here? As you can imagine it would really mess up the results of a study like this if people know what it was all about.

Before you go I would like to urge you not to discuss this experiment with other students for three weeks. That's how long I will be testing subjects. Will you give me your word not to tell anybody else about it for the next three weeks.

Thanks alot.

Now do you have any other questions?

Appendix IV

Table A

Summary of Multivariate Analysis of Variance of Estimated and Difference Performance Scores

Source	df	MS	Univariate F	Step Down F
		Estimate of Performance		
Feedback (A)	1	194.67	2.00	.62
Social Comparison (B)	2	600.40	6.18*	6.92**
Validity of Social Comparison (C)	1	106.00	1.09	1.13
A x B	2	22.23	.23	.15
B x C	2	82.78	.85	1.07
A x C	1	36.75	.37	.34
A x B x C	2	46.36	.48	.58
Error	96	97.01		
		Pre-Post Difference Score		
Feedback (A)	1	13.16	.36	.71
Social Comparison (B)	2	3.41	.09	.03
Validity of Social Comparison (C)	1	120.58	3.30	3.27
A x B	2	9.14	.25	.21
B x C	2	13.14	.36	.32
A x C	1	.20	.01	.01
A x B x C	2	35.92	.98	1.13
Error	96	36.49		

* $p < .003$

** $p < .002$

Appendix IV

Table B

Self-Esteem--Performance Estimate Correlation Coefficients

Feedback	Social Comparison		
	Negative Discrepancy	No Discrepancy	Positive Discrepancy
	Valid Social Comparison		
Positive	-.23	.00	.04
Negative	-.07	-.45	.27
	Invalid Social Comparison		
Positive	.33	.27	-.39
Negative	-.43	-.34	-.24

Note - High self-esteem scores indicate low self-esteem. Therefore, negative correlations indicate that low self-esteem is associated with low performance estimates.