### People seem to display a common human foible of structuring their retrospective analyses of events such that they receive personal credit for having produced desirable, positive outcomes and avoid personal blame for having produced undesirable, negative outcomes -- a process termed egocentrism.

The present research program sought to determine (1) if egocentric perceptions do occur in group situations, (2) the precise ways egocentrism is manifested, (3) personality and situational factors that might maximize and minimize egocentrism, and (4) the relationship between egocentrism and other group process variables such as group performance, group cohesion, and group morale.
mize egocentrism; and (4) the ramifications of egocentrism for group interactions. The research was successful in accomplishing the major objectives. First, it was demonstrated that egocentric perceptions do occur in group situations, producing both self-enhancement and self-protection, often at the expense of others in the group. Second, specific ways in which egocentrism is manifested were isolated. It was shown that egocentrism affects group members' feelings of personal responsibility for a group's performance, relative responsibility for the group's performance, perceptions of dominance and leadership patterns, evaluations of the accuracy of group performance feedback, and perceptions of the amount of interpersonal agreement that existed amongst group members. Typically, members of successful as compared to failing groups rated themselves as more personally responsible for the group's performance, more responsible than others in the group, more dominant in the group, and believed that the group's feedback was more accurate and that the members agreed amongst themselves more. Third, the effects of situational and personality variables on egocentrism were tested. It was shown that egocentrism was minimized primarily when; (a) group cohesiveness was high; (b) members were self-conscious about their group roles; and (c) group members received explicitly unfavorable evaluations from their peers. Egocentrism also was differentially affected by: (a) personality variables such as self-esteem and Machiavellianism, (b) sex, (c) patterns of group dissent, (d) leadership role in the group, and (e) whether or not personal accounts of the group's activities would be seen by other group members. Fourth, the conceptual framework allowed for predictions to be made concerning the effects of egocentrism on long-term group dynamics. Knowledge of the types of perceptions, attitudes, and expectations likely to occur in specific group situations should aid group dynamicists in making recommendations about how to improve group functioning and maintain group cohesion. Since the perceptions previously described had not received prior attention in theory or research on groups, the present research represents a step forward in understanding group dynamics.
Final Report

Introduction

Background

Groups and organizations cease to function effectively when divisiveness and disharmony permeate the air. One of the more common causes of such dissension is the development of rivalries over status, leadership, and the distribution of group rewards. In many cases, a majority of the group members believe that they are being treated inequitably by not receiving adequate compensation from the group relative to their inputs, and believe that their share of the group rewards should be increased. When this occurs, the group can easily disintegrate from within.

These rivalries are predicated on the group members' retrospective perceptions of who did what in the group, and what effects these actions had on the eventual outcomes to the group as a whole. Although such retrospective analyses may sometimes be quite accurate, they are frequently biased by self-serving motivational processes. To protect and enhance self-esteem, people seem to display a common human foible of structuring their retrospective analyses of events such that they receive personal credit for desirable, positive outcomes while avoiding blame for undesirable, negative outcomes -- a process termed egocentric perception. Thus, following a group success, the group members may each glow with the belief that their input was crucial to the completion of the task and assume high personal responsibility for the group's performance; following a group failure, the group members may each sorrowfully recall all of the incorrect opinions voiced by others and minimize personal responsibility for the failure. It is not hard to think of numerous examples of such phenomena from every day experience, national politics, show business partnerships, etc., where group
members apparently tried to enhance personal responsibility for a group success and minimize personal responsibility for a group failure. Unfortunately, such anecdotal examples always involve numerous confoundings and fall far short of allowing any type of precise analysis. It is not even clear from such everyday examples that egocentrism does indeed occur in groups; it is possible that those people who do take high responsibility for a prior group success or low responsibility for a prior group failure actually did contribute more to the group than others. To determine if egocentrism does occur in groups, it is necessary to control contributions to the group and independently vary the outcomes received by the group. Additionally, examination of everyday examples tell us little or nothing about specific situational and personality variables that might maximize or minimize egocentrism if it does occur.

The present program of research systematically examined various personality and situational variables to determine (1) if egocentric perceptions do occur in group situations, (2) the precise ways egocentrism is manifested, (3) the factors that might maximize and minimize egocentrism, and (4) the ramifications of egocentrism for group interactions. With answers to these questions, it becomes possible to describe more clearly what transpires during and after group problem-solving endeavors and to make recommendations about techniques which could potentially improve group functioning.

The present program of research differs from traditional work on related topics in at least two major ways. First, although egocentrism had previously been studied in individual testing situations (i.e., where a person works alone on a task and then receives personal performance feedback), no studies had systematically examined the phenomenon in group settings. It is not altogether obvious that the same types of reactions obtained in individual testing situations (in which personal performance information is received) occur in group
testing situations (in which group performance information but not personal performance information is received). Discovering that one's group succeeds or fails might have quite different psychological implications than discovering that one has personally succeeded or failed. Also, in group situations there are a myriad of possible reactions that could occur which are unavailable in individual situations, e.g., blaming the other members for failure, believing that one has influenced or failed to influence the others and vice-versa, believing that one has been a leader or follower, etc. These reactions deserve scrutiny in their own right.

Second, although numerous group studies have been directed at specifying variables which increase or decrease group harmony, such studies typically employ a limited number of dependent variables and stop short of obtaining information about processes which could undermine group functioning in the long run. Subjects are rarely asked to provide detailed retrospective analyses of what transpired in their groups. For example, one of the most consistent generalizations made about group satisfaction is that group success produces group harmony and interpersonal attraction while failure produces group disharmony and dislike (cf. Cartwright & Zander, 1968; Shaw, 1976; Zander, 1971). Studies supporting the generalization typically provide groups with bogus performance feedback and then measure expressed liking. However, consistent with the previous discussion, group satisfaction might occur momentarily because each member of a successful group retrospectively believes that he was above-average in contributions to the group and was a group leader. In the long run, such perceptions could undermine group harmony if each member expects a greater-than-average share of the group rewards but receives only an average amount. There is no way of knowing whether such processes occur since prior studies have not measured the relevant variables.
Egocentrism in Individual-Testing Situations

Research on egocentrism in individual testing situations provides a background against which the present results can be compared. A frequently mentioned phenomenon in the psychological literature is the tendency of people to believe only the best about themselves and their actions (cf. Gergen, 1971; Jones, 1973; Rosenberg, 1968; Wylie, 1961). A variety of studies have shown that people generally accept the implications of favorable personal information but tend to reject the implications of unfavorable personal information. In personality-testing situations, for instance, people accept the accuracy of measurement instruments which produce positive personal information but derogate those instruments which produce negative personal information (Eagly, 1967; Steiner, 1968), and this has been found irrespective of whether the instruments are carefully devised psychological tests, astrological analyses, or handwriting analyses (Felice, 1974). In interpersonal interactions, people like those who praise them and dislike those who criticize them (Aronson & Linder, 1965; Dittes, 1959; Jones & Wortman, 1973).

Not only do people respond more favorably to the source of positive rather than negative information, they also alter the meaning and implications of the information itself depending upon its valence. People who receive negative personality evaluations, for instance, often project similar negative qualities onto their associates, allowing themselves to look good by comparison (Bramel, 1962; Pepitone, 1964; Steiner, 1968). People also tend to underrecall the content of negative as compared to positive evaluations (Steiner, 1968). Indeed, Rosenberg (1968) argues that through selective interpretation of their behavior and judicious selection of the standards by which it is judged, people manage to view themselves favorably in most situations. As such analyses imply, people actually change their self-evaluations more following receipt of discrepant
personal information when the information is positive rather than negative (Eagly, 1967; Eagly & Acksen, 1971; Wylie, 1961). The processes described above are allowed most leeway, and hence primarily occur, in relatively ambiguous situations in which minimal future "testing" is anticipated, thus freeing the person from having to defend challenges to his or her restructuring of the situation (Eagly & Acksen, 1971; Jones, 1973; Regan, 1976; Regan, Gosselink, Hubsch, & Ulsh, 1975; Schlenker, 1975a; Wortman, Costanzo, & Witt, 1973).

Research on attribution theory, which deals with how people process information when inferring the cause of a particular action or outcome, has also noted the existence of systematic self-protective biases in the attribution of causality. People seem to attribute causality for an event in a manner which reflects well upon themselves. After completing a problem-solving task, subjects attribute personal success largely to internal, personal factors such as ability and effort, while attributing personal failure to external, environmental factors such as bad luck and task difficulty (Fitch, 1970; Fontaine 1975; Luginbuhl, Crowe, & Kahan, 1975; Sobel, 1974; Snyder, Stephan, & Rosenfield, 1976; Wortman et al., 1973). Predicting such results, Heider (1944, p. 369) observed that the "tendency to raise the ego level will [cause a person to] structure causal units in such a way that good acts and not bad ones are attributed to the person."

**Model for the Study of Egocentrism in Groups**

It was proposed that individuals in group situations will retrospectively describe the group's activities in such a way that they increase their personal association with positive group outcomes and decrease their personal association with negative outcomes. From this basic proposition, specific hypotheses were derived concerning how members perceive particular aspects of the group's endeavors, e.g., how they assign responsibility for the group's outcomes, describe
their personal performance relative to the group's performance, perceive patterns of interpersonal influence that occurred, perceive relative leadership and dominance, and evaluate the accuracy of measures of the group's performance. The aforementioned variables served as dependent measures in the experiments; the specific hypotheses concerning each will be considered shortly. It was also proposed that specific situational, group outcome, and personality factors would maximize or minimize such egocentric effects; specific operationalizations of these factors served as independent variables in the experiments.

Figure 1 presents the heuristic blueprint of variables that were hypothesized to affect egocentrism in groups. On the input side are three major classes of variables that should, in interaction, determine the degree to which egocentric biases affect the perceptions, attitudes, and expectations of group members.

The group's successful or unsuccessful performance on a task determines the valence of the group outcome. All of the experiments in the program varied group outcomes by employing bogus group performance feedback as one of the independent variable manipulations. By randomly informing group members that their group had either done very well or very poorly, actual contributions to the group and the actual performance of the group can be separated from perceived group outcomes, providing an uncontaminated means of assessing egocentrism.

According to the first proposition, group members will increase their personal association with positive group outcomes and decrease their personal association with negative group outcomes. There are numerous ways such association/dissociation can be achieved, each of which could be more or less interchangeable in accomplishing the person's goal. The most direct means of personal association/dissociation is through claiming high personal responsibility for a group success and low personal responsibility for a group failure. Alternatively, a person
MEDIATING VARIABLE

OUTPUTS

Perceptions, Attitudes, and Expectations

Egocentric Biases

INPUTS

SITUATIONAL VARIABLES

Social Climate
Reality Constraints
Task Importance
Position in Group

GROUP OUTCOMES

Group Performance
Group Rewards and/or Costs

PERSONALITY VARIABLES

Self-Esteem
Internal Control
Cognitive Complexity

---

7
could claim high personal dominance and leadership following a group success and low personal dominance and leadership following a group failure. It was hypothesized that these and other means of affecting personal association would be correlated. The following specific hypotheses concerning association with group outcomes were tested. (1) Members would report greater personal responsibility for a group success than a group failure. (2) Members would assign themselves more responsibility than they assign other group members following a group success and less responsibility than they assign others following a group failure. (3) Members would perceive themselves as having been more dominant in group interactions after a group success than after a group failure (both absolutely and relative to other group members). (4) Members would perceive themselves as having influenced others more and having been influenced by others less following a group success than a group failure. (5) Members would perceive their personal performance to be equivalent to the group's performance following a group success but would perceive their personal performance as superior to the group's performance following a group failure. (6) Members would evaluate the group-performance-feedback as being more accurate following a group success than a group failure.

Four classes of situational variables are depicted in Figure 1: (1) the social climate of the group, (2) reality constraints, (3) task importance, and (4) a member's position (e.g., leader versus follower) in the group. Each of these variables were expected to interact with group outcome to affect egocentrism.

The social climate of the group describes the degree of cohesiveness and attraction existing among group members. Less egocentrism should occur in groups with high as compared to low cohesiveness. In high cohesive groups, norms and interpersonal bonds should exist which minimize blaming others for failure or taking credit from them for success. Further, Hertman (1970) has suggested that liked others are viewed as an extension of self over which egocentric protection
is extended. Experiment II (Schlenker & Miller, 1975) tested the effects of
group cohesiveness on egocentrism.

*Reality constraints provide a limitation on the degree to which members can
display egocentrism. Four specific reality constraints were examined in the
present program. First, a person's actual contributions to a group can indicate
whether he deserves any credit for success or blame for failure. For instance,
an individual who is clearly in the group majority on a particular vote would
find it difficult to deny at least some responsibility for a group failure, while
an individual who is clearly in the group minority on a particular vote would
find it difficult to accept high personal responsibility for a group success.
Experiment II (Schlenker & Miller, 1976a) examined the effects of minority-
majority status in a group and the amount of dissent that existed from the majority
vote on egocentric perceptions. Second, the evaluations a member receives
from his peers should provide a reality check on what he can later claim. If
a member discovers that his peers viewed him as contributing a great deal to the
group he should find it easy to claim high responsibility for a group success,
while if he discovers that his peers viewed his contributions as below average
he should find it difficult to later claim high responsibility for success.
Experiment V (Schlenker & Miller, 1976c) examined the effects of peer evaluations
on egocentrism. Third, it has been found in individual testing situations that
when a person anticipates taking a subsequent test of his ability, his egocen-
trism when describing initial accomplishments is decreased (e.g., Eagly & Ack-
sen, 1971; Jones, 1973; Wortman, Costanzo, & Witt, 1973). The possibility of
failing the subsequent test after an initial success causes people to restrain
the degree to which they attribute the initial success to personal ability
rather than luck. Experiment I (Schlenker & Forsyth, 1975) examined the effects
of future testing on egocentrism. Fourth, degree of egocentrism should be con-
strained by whether a member is describing the group's activities to an uninvolved observer (e.g., an experimenter) or other members of one's group who might challenge an account which denies the others their credit or gives them inordinate blame. Experiment IV (Schlenker & Miller, 1975b) examined the effects on egocentrism of whether retrospective descriptions of the group's interaction would be seen by only the experimenter or by other group members.

Task importance should affect the degree to which a person would view the group's outcome as relevant to self-esteem. The more important the task, the more likely the individual should be to display egocentric biases to protect or enhance self-esteem; this hypothesis was tested in Experiment I (Schlenker & Orsryth, 1975).

Finally, one's position in the group (e.g., group leader, peripheral member) should affect egocentric biases by affecting both reality constraints and personal involvement. Leaders should find it more difficult than peripheral group members or members of leaderless groups to deny personal responsibility for a failure. These hypotheses were tested in a study which was not specifically included in the contract but was run during the contract period (Caine & Schlenker, 1976).

The effects of several personality variables (e.g., self-esteem, internal-external control orientation, Machiavellianism, need for social approval, test anxiety, other acceptance) on egocentrism were assessed in Experiment II (Schlenker & Miller, 1975) and in two experiments that were independent of the contract (Schlenker, 1975b; Schlenker, Soraci, & McCarthy, 1976).

Overview of the Experimental Procedure
The five experiments completed under the contract and four related experiments not specifically included in the contract (Caine & Schlenker, 1976; Miller, Goldman, & Schlenker, 1976; Schlenker, 1975b; Schlenker, Soraci, & McCarthy, 1976)
all involved a similar basic procedure. Subjects worked in four-person, same-sex groups on various problem-solving tasks that required group decisions. Generalizability of results was assessed by using different subject populations (e.g., ROTC cadets vs. introductory psychology students, males vs. females) and different problem-solving tasks (e.g., multiple-choice format problems, moral dilemma problems, military-relevant problems) in different experiments. After encountering each problem, the group members privately voted for one of several alternative solutions that were provided with the problem. The solution chosen by the majority of the group members ostensibly represented the "group decision" on each problem. After completion of the problems, evaluative feedback was given concerning the quality of the group's overall performance, both in terms of absolute points scored and standing relative to other groups. The performance feedback was actually bogus and was randomly assigned to indicate either a very successful, very unsuccessful, or average overall performance. In several of the experiments (Experiments III, IV, and V) members of the same group received different group feedback scores; thus, some of the members believed that their group had succeeded while others believed that it had failed. Since these group members had observed the identical group interaction, any differences in how they retrospectively described group activities must represent a subjective bias of some type. In many real groups, the only feedback that is provided about how much a group member objectively contributed to the group is based on inferences he wishes to make from the performance of the group as a whole, and this consideration was built into the experimental setting. No objective individual performance feedback from the experimenter was ever given, so participants generally had no tangible basis aside from overall group performance for inferring personal contributions. In fact, in all but Experiment II subjects did not even know the exact pattern of answers selected by the other group
members nor whether their personally preferred solutions agreed with or disagreed with those chosen by the majority. Thus, the basic procedure parallels that of many real groups: members confront a problem, express their preferences in votes that produce a majority "group decision," and then discover whether the group decision was a wise or poor one. After receiving the group performance feedback, participants were asked to express their perceptions of the group situation on questionnaires tailored for this purpose.

**Results**

For purposes of integration and ease of presentation, the results from the experiments will be grouped according to major classes of egocentric effects found across studies. For details concerning each study, the reader is referred to the relevant journal article or technical report.

It will be recalled that the basic proposition guiding the research was that group members would attempt to increase their personal association with positive group outcomes and decrease their personal association with negative group outcomes. To achieve this goal, group members could vary their ascriptions of personal responsibility, relative responsibility, and dominance and leadership in the group. These variables will be considered in turn.

**Responsibility**

The most obvious manner of increasing personal association with a positive group outcome and decreasing personal association with a negative group outcome is by taking high personal responsibility for a group success and low personal responsibility for a group failure. In every study conducted in the research program, such an effect was obtained.—members of successful groups took higher personal responsibility for the group's performance than did members of failing groups (Caine & Schlenker, 1976; Schlenker, 1975b; Schlenker & Forsyth,
1975; Schlenker & Miller, 1975, 1976a, 1976b, 1976c; Schlenker, Soraci, & McCarthy, 1976). The reliability and generality of this effect was striking. It occurred (1) for both male and female subjects, (2) run by male and female experimenters, (3) across different types of group decision problems, and (4) irrespective of the seating arrangements of the group members (i.e., face-to-face, around a table separated by partitions, or separation in individual cubicles).

As predicted, situational variables did interact with group outcome to affect egocentrism. The social climate of the group was expected to affect egocentrism by minimizing its occurrence in high cohesive groups. Schlenker and Miller (1975) found that subjects took greater personal responsibility for a group success than a group failure only when the group was low in cohesiveness. As hypothesized, members of highly cohesive groups took high personal responsibility for the group's outcomes irrespective of group success or failure.

Four reality constraints similarly affected ascriptions of personal responsibility -- role position in the group, majority-minority group status, seating arrangements producing self-consciousness, and peer evaluations. Caine and Schlenker (1976) found that ROTC cadets took greater personal responsibility for a group success than a group failure only when they were in a follower-role in a group with a leader or when they were equal group members in a leaderless group. As predicted, group leaders took high personal responsibility for the group's performance irrespective of whether the group succeeded or failed.

Schlenker and Miller (1976a) found that subjects took greater personal responsibility for a group success than a group failure only when they believed that they were members of the group's majority, i.e., that they had been one of the people who had recommended the solution which was finally adopted by the group. Minority members (i.e., those who believed they disagreed with the group's solu-
tions) took moderate responsibility for the group's performance irrespective of group success or failure. This effect is quite interesting since it indicates that group members were constrained by reality only in part. A majority member should be expected to take greater responsibility for the group's performance than a minority member since only the former had contributed an answer on which the group's performance was evaluated. Indeed, following a group success, majority members did take more responsibility than minority members. However, following a group failure, majority and minority members took equal, low amounts of personal responsibility. The majority members of failing groups thus dissociated themselves from the group failure more than would seem justified by the actual group situation.

Schlenker and Miller (1975b) examined the effects of seating arrangements on egocentrism. They found that group members took greater personal responsibility for a group success than a group failure when they interacted face-to-face around a table when working on problems. But when group members interacted via microphones from separate individual cubicles, they took high personal responsibility for both a group success and a group failure. Since other studies have found egocentric effects when subjects were separated in individual cubicles (Schlenker, 1975b; Schlenker & Forsyth, 1975; Schlenker & Miller, 1976a), the elimination of the effect was assumed to be due to the presence of the microphones. By focusing the subjects on their actual words and contributions through the use of microphones which reverberated their voices, high objective self-awareness was apparently created. It has been found in role-play situations that when subjects are self-conscious and objectively self-aware, they tend to take higher personal responsibility for failure than they otherwise would (Duval & Wicklund, 1972). The creation of self-consciousness in a group situation thus seems to eliminate the egocentric effect.
Finally, Schlenker and Miller (1976c) examined the effects of receiving evaluations regarding personal performance from other group members on egocentrism. They found that when subjects received evaluative feedback from their peers stating that the peers viewed them as having contributed a great deal to the group, subjects took much greater personal responsibility for a group success than a group failure. When subjects received peer evaluations indicating that the others viewed them as being average or below average, the effect was eliminated. Two important conclusions can be drawn from these results. First, reality did constrain egocentrism by eliminating the responsibility effect when subjects discovered they were evaluated as average or below. Interpersonal evaluations clearly affect egocentrism. Second, these results strongly suggest that in the absence of explicit evaluative feedback from other group members, group members assume that they are quite favorably evaluated.

The importance of the task was systematically manipulated in three separate studies (Schlenker, 1975b; Schlenker & Forsyth, 1975; Miller, Goldman, & Schlenker, 1976). It had been hypothesized that egocentrism would increase as the importance of the group task became greater. However, no such effect occurred in any of the studies. The manipulations of task importance were successful according to the manipulation checks, yet task importance did not affect egocentrism -- in each study, subjects took greater personal responsibility for a group success than a group failure irrespective of whether (1) the task was described as highly valid or not highly valid, (2) they could earn money versus not earn money, and (3) they could earn money by doing well on a valid test versus no possibility of earning money on an invalid test. The hypothesis regarding task importance and egocentrism was clearly disconfirmed.

In summary, group members typically assume high personal responsibility for a prior group success and low personal responsibility for a prior group failure.
The effect is minimized or eliminated if (a) the group is highly cohesive, (b) a person is the group leader, (c) a person belongs to a group's minority, (d) a person is made to be self-conscious, or (e) a person discovers that the other group members evaluate him as being average or below in task ability. No personality variables were found to be related to ascriptions of personal responsibility.

Relative Responsibility

It was hypothesized that group members would associate themselves more than they would others in the group with a successful group performance and would associate themselves less than they would others in the group with a failing group performance. The most direct means of assessing this hypothesis was by comparing subjects' ascribed personal responsibility with the amount of responsibility they ascribed to others in the group. Schlenker (1975b) found that subjects took greater responsibility than they assigned the average group member following a group success and took slightly, though not significantly, less responsibility than they assigned the average group member following a group failure, supporting the hypothesis. Wolosin, Sherman, and Till (1973) found identical effects in two-person, male groups. Schlenker and Miller (1976c) found that subjects took significantly less responsibility than they assigned the average group member following a group failure but assigned the same amount of responsibility to themselves as they did to the average group member after a group success (though this was true only for subjects who believed they were favorably evaluated by their peers). These studies thus provide support for the hypothesized relationships. However, no single study found a relative increase in responsibility following success and a relative decrease in responsibility following failure -- the studies demonstrated that either a significant increase or a significant decrease in relative responsibility occurred.
Schlenker and Miller (1976b) found that these relative responsibility effects were qualified by sex differences and by whether subjects believed their responses would be seen by the other group members. Females were found to be highly egocentric when other group members would not see their evaluations of the situation -- they took significantly less responsibility than they assigned other group members after a group failure and slightly, though no significantly, more responsibility than they assigned the average group member after a group success. However, females became quite "humble" in their ascriptions of relative responsibility if they believed their answers would be seen by the others in the group -- taking more relative responsibility for a group failure than for a group success. Males, on the other hand, were most egocentric when they believed that others would see their answers. Thus, so long as females believed that others would not view their responses, they behaved in an egocentric fashion. The effect is perhaps due to females' generally greater need for approval and desire to maintain accommodative interpersonal relations -- they look "good" to the experimenter by being egocentric in private and "good" to the other group members by being humble in public.

Schlenker and Miller (1976a) found that subjects took significantly less relative responsibility following a group failure but about average relative responsibility following a group success. However, this effect was obtained only when subjects rated themselves relative to the "poorest" group member and not when they rated themselves relative to the "average" or "best" group member.

Four studies in the series did not find relative responsibility effects (Caine & Schlenker, 1976; Schlenker & Forsyth, 1975; Schlenker & Miller, 1975; Schlenker, Soraci, & McCarthy, 1976). However, in two of these studies relative differences were found on related dimensions of group activities. Schlenker et al. (1976) found that subjects rated themselves as having contributed more to the group than
the "poorest" group member following a group success, and Schlenker and Miller (1975) found that members of noncohesive groups rated themselves as more dominant and more of a leader than the average group member following a group success. The other two studies (Caine & Schlenker, 1975; Schlenker & Forsyth, 1975) did not provide an adequate battery of other related measures to find such effects.

In summary, every study in the series which provided adequate measures to differentiate self and other perceptions found some type of relative association effect depending upon whether the group succeeded or failed. Subjects felt either more responsible, dominant, or contributory than the average or poorest group member following a group success or felt less responsible than the average or poorest group member following a group failure. Clearly, people do desire to portray themselves as having done more than at least some others in the group after a group success or as having impeded the group less than some others after a group failure. This is an important and portentous conclusion, since it implies that people might expect greater than average rewards from the group following a group success and less than average costs from the group following a group failure. However, several questions remain unanswered.

First, why have none of the studies which examined the issue found both relative association effects, i.e., greater responsibility than average following success and less responsibility than average following failure? It is possible that subtle situational cues affect which of these two outcomes will obtain. For example, if situational cues orient subjects toward achieving success, then they might perceive greater relative association with a success but not less relative association with a failure. Conversely, if situational cues orient subjects toward avoiding failure, then they might perceive less relative association with a failure but not more relative association with a success.

Second, why in some situations do people vary their relative association
by claiming greater or lesser relative responsibility while in other situations
they achieve this goal by claiming greater or lesser contributions or dominance
and leadership? Certainly, all three dimensions (relative responsibility, rela-
tive contributions, relative dominance and leadership) accomplish the same objec-
tive of associating or dissociating members from the group outcome and they might
be interchangeable -- if a person describes relative differences on one dimension
he need not do so on the others. But why would one dimension be selected over
the others? It is possible that the nature of the task and evaluation will
determine which might occur. For example, when working on a task that requires
little group member interaction, people may best increase their self-esteem by
egocentrically perceiving differences in relative responsibility. When working on
a task that requires interaction but where task completion is the primary group
goal, self-esteem might be best protected by perceiving relative differences in
leadership and dominance. When working on a task that requires interaction and
where maintaining positive interpersonal relations is the primary group goal, people
may protect and enhance their self-esteem by perceiving relative differences in
socioemotional ability. Thus, the most salient task dimension may determine whether
people accomplish relative association/dissociation by perceiving relative differ-
ences in responsibility, dominance, or socioemotional ability. Also, since claim-
ing relative responsibility differences might be the most blatant manner of achiev-
ing association/dissociation, the more subtler ways of achieving the same goal
(i.e., relative dominance and leadership) may be employed if people perceive a
danger that the other group members will discover and punish their egocentrism.
These hypotheses can be easily tested in future studies.

Third, the issue of "relative to whom?" remains unresolved. Since some
studies found relative differences only in relation to comparisons with the poorest
but not the average group members, it seems likely that people are wary of taking
too much responsibility away from the other group members for fear that they would be evaluated negatively by observers. Behaving in a blatantly egocentric manner when under public scrutiny could produce social condemnation, as females in the Schlenker and Miller (1976b) study apparently recognized. When evaluation apprehension and the possibility for condemnation is high, people may refrain from looking "too good" by associating/dissociating themselves only relative to the poorest group member; but when these variables are not salient, subjects may accomplish the same ends by associating/dissociating themselves relative to the average group member.

Irrespective of these unresolved questions, the major conclusion is inescapable. People apparently do exhibit relative association/dissociation with group activities depending upon the caliber of the group's performance.

**Personal Performance Relative to Group Performance**

Every study in the project found identical results with respect to people's ascriptions of their personal performances relative to the performance of the group as a whole (Schlenker, 1975b; Schlenker & Forsyth, 1975; Schlenker & Miller, 1975, 1976a, 1976b, 1976c; Schlenker, Soraci, & McCarthy, 1976). Participants always inferred the caliber of their personal performance from that of the group performance when the group had succeeded -- they rated the quality of both their personal performance and the group performance identically. However, participants dissociated their personal performance from that of the group's when the group had failed. Following group failure, subjects always rated the caliber of their personal performance much higher than they did the group's performance. The only exception to this effect occurred when subjects believed they were evaluated very poorly by the other group members (Schlenker & Miller, 1976c). These effects provide strong support for the hypothesized association with group outcomes following success and dissociation with group outcomes following failure.
Dominance and Leadership

In four of the studies in the project (Schlenker & Miller, 1975, 1976a, 1976b, 1976c) subjects rated both themselves and the "average group member" on bi-polar adjective scales. Factor analyses revealed that a dominance or leadership dimension emerged in every study. Two studies found that subjects rated themselves as more relatively dominant when the group succeeded than when it failed (Schlenker & Miller, 1975, 1976b), however, this effect was eliminated in those studies if either the group was highly cohesive or if the members were highly self-conscious. The other two studies did not find a comparable effect of group performance on relative dominance. Schlenker and Miller (1976c) found that group members perceived themselves as more relatively dominant the more favorably they were evaluated by their peers; and Schlenker and Miller (1976b) found that group members perceived themselves as relatively more dominant when they were in the group's majority rather than minority. Thus, there was some support for the hypothesis that group members perceive themselves to be more relatively dominant and a leader following a group success rather than failure, but the effect was easily overcome by other situational variables.

Accuracy of the Group Feedback

Studies of egocentrism in individual testing situations have repeatedly found that people derogate the accuracy of tests which generate failure feedback (Eagly, 1967; Felice, 1974; Steiner, 1968). A similar egocentric phenomenon was found in every one of the present group studies that asked subjects to rate the accuracy of the measure of group performance. Subjects rated the feedback as more accurate following a group success than a group failure (Schlenker & Miller, 1975, 1976a, 1976b, 1976c; Schlenker, Soraci, & McCarthy, 1976). The effect was obtained both for multiple-choice tests which could be graded objectively by an answer key and for group decision problems which required subjective
interpretation of moral judgments. Thus, group members accept the veracity and implications of favorable group feedback much more readily than they do the veracity and implications of unfavorable group feedback.

Perceived Agreement Within Groups

A general tendency was noted across the studies for group members to associate the amount of agreement they perceived to have existed within the group with group performance. All four of the studies which asked subjects to rate how much the group members' opinions had agreed during the group interaction found that greater agreement was perceived following a group success than a group failure (Schlenker & Miller, 1975, 1976a, 1976b, 1976c). The effect occurred despite the facts that (a) in the latter three studies, group success or failure feedback was randomly assigned within each group -- thus, the identical group interaction was perceived differently by the two members who received failure feedback than it was by the two who received success feedback; and (b) in the Schlenker and Miller (1976a) study, subjects received specific information informing them how much agreement actually had existed within their groups. Apparently, there is a tendency for members to gloss over differences of opinion if the group succeeds and accentuate differences if the group fails.

Sex Differences

It was consistently found that males described themselves as being more involved with their groups, more dynamic, and more task-competent than females in the four studies that included sex as an independent variable (Schlenker & Forsyth, 1975; Schlenker & Miller, 1976b, 1976c). Males as compared to females rated themselves as more relatively dominant (Schlenker & Miller, 1975, 1976b, 1976c), stated that the task was more important (Schlenker & Forsyth, 1975), and that they had performed better (Schlenker & Miller, 1976c). These results could be due to socialization differences between the sexes. Males are
generally socialized to be more aggressive, dominant, and task motivated than are females (Maccoby & Jacklin, 1974).

**Personality Characteristics**

Three studies pretested subjects on a variety of personality scales to determine the effects of personality factors on egocentrism (Schlenker, 1975b; Schlenker & Miller, 1975; Schlenker, Soraci, & McCarthy, 1976). These studies employed measures of self-esteem, internal-external control orientation, need for social approval, Machiavellianism, test anxiety, and repression-sensitization.

The self-esteem variable generated the most consistent effects on egocentrism. People with high self-esteem have a much more positive view of their abilities and characteristics than do those with low self-esteem. People with high self-esteem therefore should display greater egocentrism because they expect to succeed and are more defensive following failure than are those with low self-esteem (Fitch, 1970). In the present studies, high self-esteem people did display somewhat more egocentric patterns of responses than did those with low self-esteem. Following a group success, high self-esteem subjects felt that they had been largely uninfluenced by the other group members (Schlenker & Miller, 1975; Schlenker et al., 1976). High self-esteem subjects thus took credit for having arrived at the "correct" answers independently, without the aid of the other group members. High self-esteem subjects also felt that they did better on the tasks than did low self-esteem subjects (Schlenker et al., 1976). Finally, high self-esteem subjects displayed some defensiveness by deemphasizing their prominence in the group after a group failure -- they described themselves as less dominant and as having been less of a leader than did low self-esteem subjects (Schlenker & Miller, 1975). In sum, although high and low self-esteem subjects did not differ in their direct ascriptions of responsibility for the group's performance, they did differ on the more indirect measures of egocen-
Ego-centrism, with high self-esteem people displaying more egocentrism than low self-esteem people.

People who score high as compared to low on Machiavellianism are more oriented toward interpersonal manipulation and control (Christie & Geis, 1970). Since portraying oneself as closely associated with positive outcomes but not negative outcomes can often impress observers and achieve rewards, it was expected that high as compared to low Machs would demonstrate greater egocentrism. This indeed seemed to be the case. High as compared to low Machiavellians took greater relative responsibility following a group success and less relative responsibility following a group failure (Schlenker et al., 1976).

Although sporadic effects were found with the other personality variables which were examined, none of them generated consistent or impressive findings.

**Theoretical Perspectives**

Ego-centrism has been explained from three different theoretical perspectives -- (1) self-serving motivational biases (e.g., Heider, 1958), (2) veridical information processing (Bem, 1972; Miller & Ross, 1975), and (3) impression management (Schlenker & Forsyth, 1975). Although the experiments in the project were not specifically designed to pit rival hypotheses from these theories against one another, data was obtained which bears on the theories.

The self-serving motivational bias approach proposes that perceptions and attributions are in part determined by an individual's needs to maintain or enhance self-esteem (Heider, 1944, 1958; Jones, 1973; Kelley, 1967; Schlenker, 1975b; Shaver, 1970; Wortman, 1970). As long as a situation provides some ambiguity and room for error, perceptions will be biased to provide relatively favorable (or at least not unfavorable) self-implications. Perceptual biases in the service of self-esteem protection and enhancement are expected to increase,
thereby increasing egocentrism, as: (a) the situation becomes more ambiguous and open to distortion, (b) the importance of the task increases, thereby bearing more directly upon the person's self-esteem, and (c) feedback about performance becomes more relevant to a salient dimension of the person's self-concept.

By and large, support was found for the self-serving biases approach. Subjects did employ both self-enhancing and self-protective attributions in their retrospective analyses of the group situation. However, one of the major predictions of the approach was not supported— that egocentrism would increase as task importance increased. Three separate studies manipulated task importance in slightly different ways, using money, descriptions of task validity, and a combination of both to differentiate high and low task importance conditions (Schlenker, 1975b; Schlenker & Forsyth, 1975; Miller, Goldman, & Schlenker, 1976). Although manipulation checks in the three studies indicated that people felt that the task was more important under high rather than low importance conditions, task importance did not affect attributions. These results do not fatally wound the self-serving biases approach (Schlenker & Forsyth, 1975). But the lack of predicted effects of task importance across the divergent studies does weaken it.

Bem (1972) proposed that it is not necessary to infer any self-serving motivational bias to explain egocentrism. He reasoned that if a person expects to succeed at a particular task, success should be attributed to personal, internal factors while failure should be attributed to nonpersonal, external factors. However, if a person expects to fail on a task, failure should be attributed to internal factors and success should be attributed to external ones. Simply, people are hypothesized to attribute causality in a manner contingent upon their expectations. Extending this analysis, Miller and Ross (1975) suggested that the vast majority of individuals, particularly well-educated ones, have a long history of past success and infer that success is caused by personal factors
while failure is caused by nonpersonal ones. According to Miller and Ross, one should find evidence that supports the existence of self-enhancing biases. However self-protective biases should not occur because people are expected to perceive greater covariation between their own actions and success than between their actions and failure. In their review of the relevant literature, Miller and Ross note support for their interpretation that people will take high personal responsibility for success but will not avoid personal responsibility for failure.

The information-processing approach did not receive support in the majority of studies conducted under the contract. Three studies (Schlenker & Miller, 1976a, 1976b, 1976c) found that subjects took significantly less responsibility than they assigned others in the group following a group failure, evidencing concern for self-protection in their attributional patterns. Schlenker and Miller (1976a) also found that subjects whose personal failure was most obvious displayed self-protective biases in other ways. Subjects who were in the majority of a failing group (and hence were objectively quite responsible for the group's failure) took as little responsibility as subjects who were in the minority of a failing group. After a group success, though, majority-subjects took much greater responsibility for the group's performance than did minority-subjects. Thus, being highly responsible for group failure produced decreased attributions of personal responsibility--a self-protective bias which is difficult to explain via information processing.

Schlenker and Forsyth (1975) proposed that people do try to claim credit for success and avoid blame for failure. However, they suggested that such behavioral effects might not be generated by self-serving perceptual biases but instead are produced by self-serving self-presentations to others. By describing their actions to others in an egocentric way (i.e., by taking high
personal responsibility for success and low personal responsibility for failure, people can impress observers with tales of personal accomplishments and/or escape the embarrassment of a tale of personal failure. The impression management position is concerned with behavioral accounts of past actions and is not committed to either the view that perceptions are self-serving or the view that perceptions of logically veridical. After having "tailored" a description of an event in a way that has positive implications for the self, people may eventually come to believe that description and not be able to recall their initial perceptions. Egocentrism is thus taken out of the realm of an intrapsychic perceptual phenomenon and viewed as an interpersonal influence strategy. According to the impression management position, numerous interpersonal variables should affect self-presentation relevant to egocentrism. When observers can readily refute an individual's account of an event, people should be less likely to display egocentrism (Schlenker, 1975a). Consequently, unambiguous events, situations in which observers know the actor's past history, or situations in which a future event could invalidate a particular egocentric account all would minimize reported egocentrism.

Similarly, egocentric self-presentation should occur more frequently in situations in which there is an "important" observer who could be deceived and when there are more rewards at stake that can be gained through egocentric behaviors.

The impression management position received support in all of the studies. The fact that manipulations of who would see subjects' questionnaire responses affected egocentrism provides additional support (Schlenker & Miller, 1975b).

In sum, all three of the positions received some support from the studies. The information processing approach received the greatest nonsupport, followed by the self-serving biases position and the impression management position.
Implications

As previously described, the research was successful in accomplishing the major objectives of the project. First, it was demonstrated that egocentric processes do occur in group situations, producing both self-enhancement and self-protection, often at the expense of others in the group. Second, specific ways in which egocentrism is manifested were isolated. It was shown that egocentrism affects group members' feelings of personal responsibility for a group's performance, relative responsibility for the group's performance, and perceptions of dominance and leadership patterns. Third, the effects of certain classes of situational and personality variables on egocentrism were specified and tested. It was shown that egocentrism was minimized primarily when (a) group cohesiveness is high, (b) members are self-conscious about their group roles, and (c) group members receive explicitly unfavorable evaluations from their peers. Under all other conditions studied, egocentrism occurred and was differentially affected by: (a) personality variables such as self-esteem and Machiavellianism, (b) sex of respondent, (c) patterns of group dissent and majority-minority status, (d) leadership role in the group, (e) the valence of evaluations received from other group members, and (f) whether or not personal accounts of the group's activities would be seen by other group members.

Through knowledge of the most likely perceptions and attitudes of group members in various situations it becomes possible for organizational theorists and group leaders to make recommendations for improving group morale and avoiding possible dissension. One concern of many group leaders pertains to feelings of equity and inequity in groups. It has been shown that perceptions of inequity in groups produce dissension (Adams, 1965; Walster, Berscheid, & Walster, 1973). Although no studies have specifically examined how egocentrism affects perceptions of equity, some relevant hypotheses can be derived from the studies.
in this project. For example, assume that an individual objectively contributes an "average" amount to a group effort that produces success and group rewards, and therefore is actually entitled to an "average" share of the rewards. For egocentric reasons, though, he asserts that he has greater-than-average responsibility for the success and exerted greater-than-average leadership. He therefore expects a greater-than-average share of the group outcomes. He should be quite disappointed with only an average share, should feel that he has been treated inequitably, and should be less willing than before to assume future responsibility when working on a new task. An observer might be quite perplexed by this individual's behavior, believing that there is no "reason" for such discontent given that the group succeeded and the rewards "appeared" to be equitable. Knowledge of such potential problems in successful groups should aid leaders in dealing with tensions which might develop.

In failing groups comparable processes with equally dangerous potentials could develop. This research project found that people in failing groups perceive less personal responsibility, less relative responsibility, and feel less dominant than do members of successful groups. These perceptions could create a self-fulfilling prophecy in which members of failing groups refuse to work as hard on future tasks, shun responsibility for them, and retreat from future group activities, refraining from attempts to lead. These effects are above and beyond the typical disappointment one might expect from members of failing groups, and could create serious morale problems. Further, members of failing groups might expect to bear a less-than-average share of the costs for failure, since they perceive themselves to have done relatively less to contribute to the failure than others. An "objectively equitable" distribution of costs could further compound the developing morale problems.

Knowledge of the types of perceptions, attitudes, and expectations likely to
occur in groups should aid group dynamicists in making recommendations about how to improve group functioning, turn morale problems around, and prevent dissension from developing. Since the perceptions previously described had not received prior attention in theory or research on groups, the present project represents a step forward in understanding group dynamics.
References


Canne, B. T., & Schlenker, B. R. Role position and group performance as determinants of egocentric perceptions in cooperative groups. Mimeographed manuscript, University of Florida, 1976.


Eagly, A. H., & Acksen, B. A. The effect of expecting to be evaluated on change toward favorable and unfavorable information about oneself. Sociometry, 1971, 34, 411-422.


Schlenker, B. R. Group members' attributions of responsibility for prior group performance. Representative Research in Social Psychology, 1975, 6, 96-103. (b)


Steiner, I. D. Reactions to adverse and favorable evaluations of oneself. Journal of Personality, 1968, 36, 553-564.


Addendum

Related Studies Conducted by the Principal Investigator
Which Contain Citations to the Office of Naval Research

During the term of the contract, other research and theoretical papers which I've done have contained notes of appreciation to ONR. Some of these are directly related to the contract in that they investigated egocentric processes in group or individual situations or pursued issues raised by the results of one or more of the contracted studies. Other articles developed from an impression management interpretation of interpersonal processes; this interpretation was generated in part by some of the results of the contracted studies (as previously mentioned), and hence are indirectly related by being part of a common theoretical schema. An annotated bibliography appears below.


An examination of situational factors which "pressure" individuals to behave consistently. The results of the study supported an impression management interpretation of behavioral consistency and failed to support cognitive consistency theory interpretations. Also, the study isolated major dimensions of personal attributes selected by individuals for self-presentation purposes.


An examination of audience attributes such as degree of warmth and knowledge about the actor as determinants of modest or braggadily self-presentation.


The study examined egocentric perceptions in cooperative groups and was the basis for the contracted projects. Female group members took greater responsibility for a group success than a group failure and took greater-than-average responsibility if the group succeeded and slightly less-than-average responsibility if the group failed.

Group members took greater responsibility for a group success than a group failure. Although self-esteem did not directly affect ascriptions of responsibility, it did affect perceived influence. High self-esteem people perceived less influence following success than failure, thereby associating themselves directly with a positive group outcome.


Army ROTC cadets who were assigned to the position of group leader took high personal responsibility for the performance of their group irrespective of success or failure. Cadets assigned to the positions of either followers or equal group members took high personal responsibility for a group success and low personal responsibility for a group failure.


The importance of a group task was manipulated by offering payment for correct group answers and by stressing the validity of the test (high importance) or by offering no external incentives and by stressing the lack of test validity (low importance). Although the manipulation checks indicated that the task importance dimension was salient to subjects, it did not affect egocentrism. The results support those of Schlenker and Forsyth (1975) who similarly found no effects of task importance on egocentrism.


A field study of egocentrism following a competitive task (tennis) demonstrated the generalizability of results to a nonlaboratory setting. Tennis players took greater personal responsibility after a win than a loss. Sex differences indicated that females qualify their attributions after success by stressing the role of luck more than do males, suggesting a possible "fear of success" conflict in women.


A reinterpretation of attitude change following counterattitudinal behavior in terms of impression management rather than dissonance. The results indicated that "attitude change" can be used as an impression management tactic to account for embarrassing behaviors.

A reexamination of reactions to aversive tasks from an impression management rather than dissonance perspective. The results suggest that people do not "reduce dissonance" in such settings, but rather manage their attitude statements to impress observers.


An impression management reinterpretation of attitude changes following proattitudinal behaviors. The results showed that people increase the intensity of their attitude statements following proattitudinal actions when environmental variables make them appear nonresponsible for their actions. Support was obtained for impression management theory while self-perception theory predictions were not supported.


The results illustrated the role of impression management in accounting for aversive actions.


An examination of prevailing stereotype patterns under various conditions of attitude measurement. The bogus pipeline attitude assessment technique was found to reduce some social desirability biases in responding and not substitute social undesirability bias.


An examination of responses to the use of threats and promises in conflict settings. An attributional interpretation of influence was preferred.


An aggressor was perceived as more aggressive but less "good" in a cooperative rather than competitive situation. Observers derogated a victim who received severe injury in a competitive situation, manifesting a "just world" phenomenon.

Observers were found to believe that an actor's attitudes were more closely related to his future behavior and expressed greater confidence in such predictions than did actor's evaluating their own attitude-behavior relationships.


A discussion of alternative philosophies of science being preferred by Harre, Secord, and others. Strengths and weaknesses of "traditional social psychology" and the ethogenic approach are described.


An examination of the arguments of critics who believe that social science is not a science in any true sense of the term. Without exception, such arguments are found to be faulty.


An examination of external and ecological validity of experimental studies of conflict. Issues related to the assessment of such validities are considered.

Schlenker, B. R., & Severy, L. J. The psychology of social issues. In M. E. Meyer (Ed.), Introduction to psychology. New York: Williams & Wilkins, in press.

The chapter covers the psychology of social issues for introductory psychology students.


An introductory social psychology text for college students.


A lengthy discussion of philosophical positions on ethics taken by teleologists, deontologists, and skeptics, specifically as they relate to the ethicality of psychological research. Two experiments are reported which assess situational and personality factors as they affect moral and ethical judgments of research.


The book will cover impression management as a social influence tactic. Some of the research done under the contract of egocentrism in groups will be reported.
LIST 1

MANDATORY

Office of Naval Research (3 copies)
(Code 452)
800 N. Quincy St.
Arlington, VA 22217

Director (6 copies)
U.S. Naval Research Laboratory
Washington, DC 20390
ATTN: Technical Information Division

Defense Documentation Center (12 copies)
Building 5
Cameron Station
Alexandria, VA 22314

-----------------------------------------------------------------------------

LIST 3

PRINCIPAL INVESTIGATORS

Dr. Macy L. Abrams
Navy Personnel R&D Center
San Diego, CA 92152

Dr. Clayton P. Alderfer
Department of Administrative Sciences
Yale University
New Haven, CT 06520

Dr. James A. Bayton
Department of Psychology
Howard University
Washington, DC 20001

Dr. H. Russell Bernard
Dept. of Sociology & Anthropology
West Virginia University
Morgantown, WV 26506

Dr. Barry Blechman
The Brookings Institution
1775 Massachusetts Ave., N.W.
Washington, DC 20036

Dr. Harry R. Day
University City Science Center
Center for Social Development
3508 Science Center
Philadelphia, PA 19104

Dr. Fred E. Fiedler
Dept. of Psychology
University of Washington
Seattle, WA 98105

Dr. Samuel L. Gaertner
Department of Psychology
University of Delaware
220 Wolf Hall
Newark, DE 19711

Dr. Paul S. Goodman
Graduate School of Industrial Administration
Carnegie-Mellon University, Schenley Park
Pittsburgh, PA 15213

Dr. Gloria L. Grace
System Development Corporation
2500 Colorado Ave.
Santa Monica, CA 90406

Dr. J. Richard Hackman
Dept. of Administrative Sciences
Yale University
New Haven, CT 06520
LIST 4

MISCELLANEOUS

AFOSR (NL)
1400 Wilson Blvd.
Arlington, VA 22209

Army Research Institute (2 copies)
Commonwealth Bldg.
1300 Wilson Blvd.
Rosslyn, VA 22209

Chief, Psychological Research Branch
U.S. Coast Guard (G-P-1/62)
400 7th St., S.W.
Washington, DC 20590

Marine Corps

Dr. A. L. Slafkosky
Scientific Advisor
Commandant of the Marine Corps
(Code RD-1)
Washington, DC 20380

Chief of Naval Personnel
Assistant for Research Liaison (Pers-Or)
Washington, DC 20370

Bureau of Naval Personnel (Pers-6)
Assistant Chief of Naval Personnel
for Human Goals
Washington, DC 20370

Cdr. Paul D. Nelson, MSC, USN
Head, Human Performance Division (Code 44)
Navy Medical R&D Command
Bethesda, MD 20014

Lcdr. C. A. Patin, U.S.N.
Director, Human Goals Department
Code 70, Naval Training Center
Orlando, FL 32813

Office of Civilian Manpower
Management
Personnel Management Evaluation Branch (72)
Washington, DC 20390

Assistant Officer in Charge
Navy Internal Relations Activity
Pentagon, Room 2E329
Washington, DC 20350

Naval Postgraduate School
Monterey, CA 93940
ATTN: Library (Code 2124)

Professor John Senger
Operations Research & Administration Sciences
Naval Postgraduate School
Monterrey, CA 93940

Training Officer
Human Resource Management Center
NTC, San Diego, CA 92133

Navy Personnel R&D Center (5 copies)
Code 10
San Diego, CA 92152

Officer in Charge
Naval Submarine Medical Research Lab.
Naval Submarine Base New London,
Box 900
Groton, CT 06340

Officer in Charge (Code L5)
Naval Aerospace Medical Research Lab.
Naval Aerospace Medical Center
Pensacola, FL 32512
Capt. Bruce G. Stone, U.S.N. (Code N-33)
Director, Education & Training Research and Program Development
Chief of Naval Education and Training Staff
Naval Air Station, Pensacola, FL 32508

Dr. H. H. Wolff
Technical Director (Code N-2)
Naval Training Equipment Center
Orlando, FL 32813

Human Resource Management Center
Attachment
Naval Support Activity
c/o FPO New York, NY 09521
ATTN: TDC Nelson

---------------------

ADDITIONS TO DISTRIBUTION LIST

Cdr. Anthony C. Cajka, U.S.N.
Department of the Navy
Human Resource Management Center
Washington, DC 20370

Bureau of Naval Personnel
Research & Evaluation Division
Code: Pers-65
Washington, DC 20370

Human Resource Management Center,
London
FPO, NY 09510

Human Resource Management Center,
Washington
Washington, DC 20370

Human Resource Management Center,
Norfolk
5621-23 Tidewater Dr.
Norfolk, VA 23511

Human Resource Management Center,
Bldg. 304
Naval Training Center
San Diego, CA 92133

Office of Naval Research (Code 200)
Arlington, VA 22217

Human Resource Management Center,
Pearl Harbor
FPO San Francisco, CA 96601

Human Resource Management School
Naval Air Station, Memphis (96)
Millington, TN 38054

Mr. Richard T. Mowday
College of Business Administration
University of Nebraska, Lincoln
Lincoln, NE 68588

CDR J. L. Johnson, USN
Naval Amphibious School L
Little Creek
Naval Amphibious Base
Norfolk, VA 23521

ARI Field Unit - Leavenworth
P.O. Box 3122
Fort Leavenworth, KS 66027

Johannes M. Pennings
Graduate School of Industrial Administration
Carnegie-Mellon University
Schenley Park
Pittsburg, PA 15213