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**Receiving Feedback in a Social Context:
The Role of Goal-Orientation**


by
Scott Tonidandel

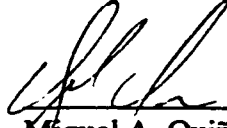
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ABSTRACT

Receiving Feedback in a Social Context: The Role of Goal-Orientation

by

Scott Tonidandel

The present study examined the relationship between feedback and subsequent task performance in a social context. Participants performed three trials of a decision-making task interrupted by two group discussion periods. Social process variables, such as influence, expertise, and perceived competence, were found to impact the feedback-performance relationship. In addition, goal-orientation was found to moderate individuals' reactions to the feedback. Results also suggested that goal-orientation moderated the effect of social processes on performance, but the findings were not consistent. These moderating relationships are potential explanations for enhancing or attenuating effects of feedback on performance.

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Introduction

Feedback has been defined as information received about the correctness, adequacy, or accuracy of past behavior (Kluger & DeNisi, 1996). Typically, research examining the relationship between feedback and performance has focused solely on individuals in isolation. This research has generally found that providing feedback about how past performance deviates from standards improves future performance on the task (Podsakoff & Farh, 1989). Despite previous consensus about the beneficial effects of feedback, it has been shown to adversely influence performance in numerous recent studies (Kluger & DeNisi, 1996). A meta-analysis conducted by Kluger and DeNisi (1996) found that feedback interventions decreased performance in over 33% of included studies. A possible explanation of this inconsistency in the feedback literature is that researchers have tended to ignore social processes in traditional feedback studies.

In contrast to examining individuals in isolation, in a more realistic scenario, individuals perform work functions in a larger social environment where they frequently interact with others who are performing similar tasks. For example, teachers typically perform their work functions individually. Yet, throughout the school day, they have the opportunity to interact with other teachers and administrators during planning periods, lunch breaks, and staff meetings. A similar pattern of events is evident in numerous other jobs where individual employees interact and socialize in and out of the work setting. Interactions among coworkers have the potential to both enhance and attenuate the feedback-performance relationship. The failure to account for these social interactions may be responsible for the conflicting results observed in the literature. Remarkably few studies have considered the effect of feedback in a social context. In particular, little research has devoted attention to variables that might impact the feedback-performance

relationship in such a context. The goal of the present study is to investigate how goal-orientation affects the use of feedback and its impact on performance in a social context. In addition, this research will also explore the influence of social process variables on the feedback-performance relationship.

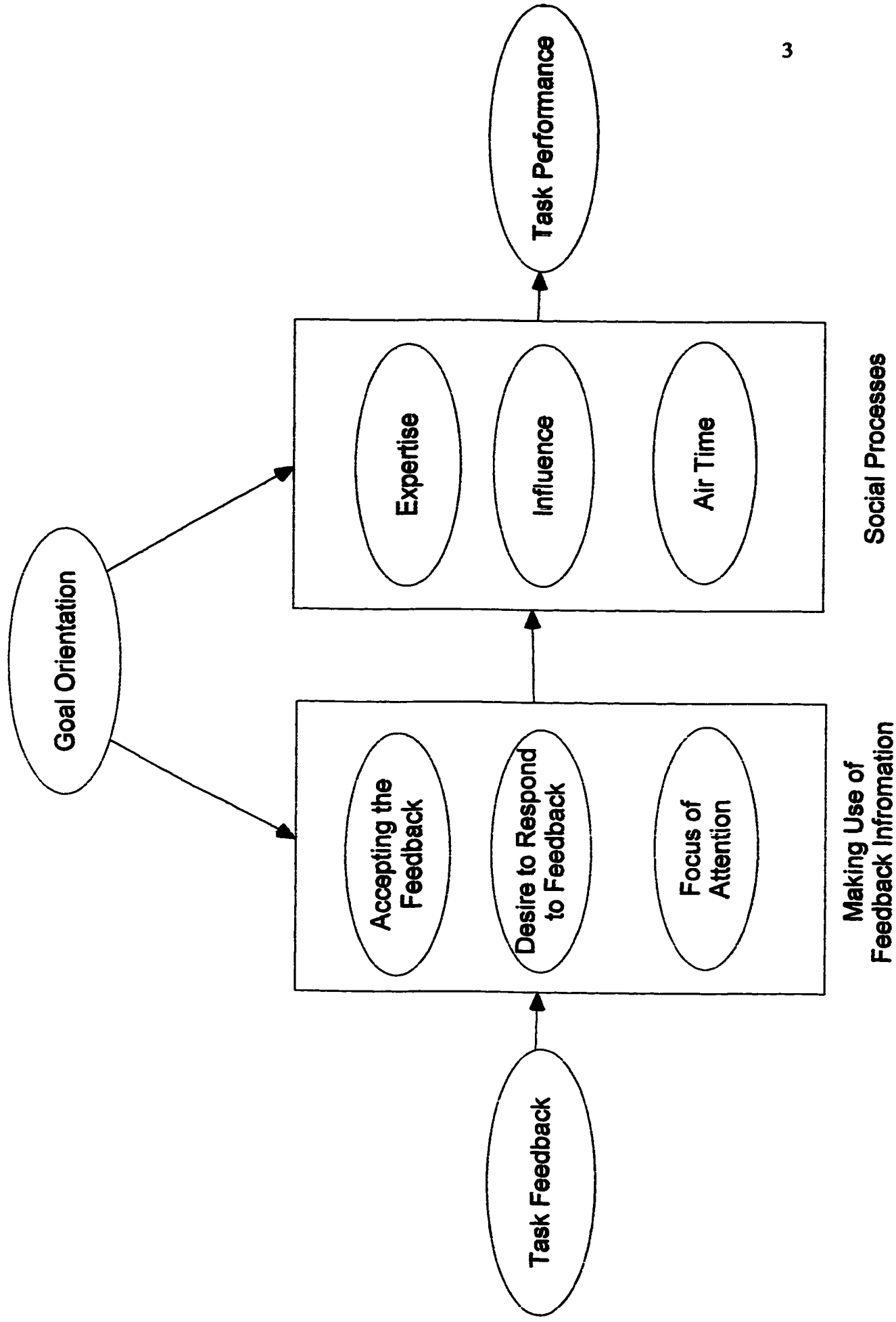
Figure 1 contains a proposed model for examining feedback in a social context. As shown in figure 1, the relationship between feedback and performance is hypothesized to be mediated by social process and feedback utilization. In addition, goal orientation is predicted to influence the effect of both of these variables. The remainder of this paper will focus on the development and testing of hypotheses related to the various linkages illustrated in the model.

Social Process: Influence, Expertise, and Air Time

When individuals receive feedback in social settings, there are a number of social processes that may attenuate or enhance the feedback-performance relationship. Previous research has shown that performance in social situations is positively related to expertise (Yetton & Bottger, 1982). According to Steiner (1972), performance is determined by member resources and group process. When group members are given the opportunity to interact, they can draw on the resources of the most competent member to achieve higher levels of performance. However, possessing expertise is not the sole requirement for higher performance. Individuals in social settings must also make sufficient use of that expertise. Bottger and Yetton (1988) and Trotman, Yetton, and Zimmer (1987) both found that performance was a function of the level of expertise in the group and the ability to recognize that expertise.

Recognition of expertise is typically demonstrated by the extent to which high performers influence the rest of the group. As a result, researchers have attempted to identify and operationalize the variables that determine the amount of influence wielded

Figure 1: Proposed Model of Feedback in a Social Context



by a specific group member. In a study by Littlepage, Schmidt, Whisler, and Frost (1995), influence was determined in part by air time (the amount of time the individual group member talked) and others' ratings of expertise. Subjects who talked more in the group discussions and who were perceived as more competent were found to exert the most influence. Based on these findings, the following hypotheses are offered:

H1a: The amount of influence exerted by the most competent group members is hypothesized to be positively related to performance.

H1b: The amount of influence exerted by an individual is hypothesized to be positively related to air time.

H1c: The amount of influence exerted by an individual is hypothesized to be positively related to others' ratings of competence.

Other Factors Affecting the Feedback-Performance Relationship

Due to the conflicting results obtained in a number of studies, researchers have endeavored to determine what variables influence the feedback-performance relationship. In a review of the feedback literature, Nadler (1979) recognized a number of factors that may impact the effectiveness of feedback. Specifically, Nadler's review led him to conclude that four facets may influence the feedback performance relationship: the characteristics of the feedback, the structure of the task, the nature of the feedback process, and differences among individuals receiving the feedback. Based on meta-analytic results, Kluger and DeNisi (1996) also suggest that characteristics of the feedback, situational variables, and individual differences are important variables that influence the feedback-performance relationship. They extended Nadler's model to include whether one's attention is focused on the task or on the self.

According to Kluger and DeNisi (1996), the variation across studies of the effects of feedback on performance may be due to how the feedback focuses one's attention. Using control theory as a framework, Kluger and DeNisi (1996) propose that attention is organized into a hierarchy, and feedback can direct the focus of one's attention to various levels of the hierarchy. At the highest level of the hierarchy, the focus is on self-related concerns such as how competent one appears to others, whereas at lower levels of the hierarchy, the focus is on the task. Focusing attention on the self diverts attention from the task and focuses it on meta-task process. From a meta-analysis of the individual feedback literature, Kluger and DeNisi (1996) concluded that feedback that focuses attention on meta-task process attenuates the feedback-performance relationship while feedback that focuses attention on the task enhances the relationship. Enhancement is expected to result when feedback focuses attention at a level that allows for the development of strategies for improving task performance. Attenuation is expected to occur as a result of feedback drawing attention away from strategy development and onto the self. These hypotheses were supported as feedback was found to be more effective when it focuses attention on specific strategies for improving task performance.

Goal-orientation

Because one's focus of attention seems to affect the feedback-performance relationship, an important variable that may determine whether individuals in a social context benefit from feedback is goal-orientation. The construct of goal-orientation describes an individual's tendency to focus on task versus self-related concerns. Researchers have distinguished between goal-orientations in which individuals are preoccupied with how their competence is judged as opposed to situations in which improving their task skill or understanding is the primary end (Elliot & Dweck, 1983). Ego-involvement can be defined as the extent to which persons believe that their task

performance reflects important personal attributes (Butler, 1993). When persons are ego-involved, their attention is focused on the self. As a consequence, they pursue performance goals in which they “strive to demonstrate, and thereby gain favorable judgments of their competence via task performance or to avoid negative judgments of their competence” (Button, Mathieu, & Zajac, 1996, p. 2). Unlike ego-involved individuals, task-involved individuals focus their attention more on the achievement of task goals. They are more concerned with attaining mastery or learning than with the appearance of proficiency.

Aside from determining one's focus of attention, goal-orientation may also affect task performance. Diener and Dweck (1978; 1980) measured children's performance over repeated trials of card discrimination problems. In both studies, participants with a performance goal-orientation were more likely to display helpless behaviors after failure. These children used less successful task strategies and subsequently performed worse than children with a learning orientation. More recently, other researchers have obtained similar results. Elliott and Harackiewicz (1996) found that ego-involved subjects were less intrinsically motivated and this deficit had an adverse effect on performance. Phillips and Gully (1997) found that goal-orientation was related to performance through self-efficacy. In each of the aforementioned studies, ego-involvement was negatively related to performance. Based on these results, the following hypotheses are offered:

H2: Individuals who are task-involved are hypothesized to outperform individuals who are ego-involved.

H3: Ego-involved individuals that receive feedback are hypothesized to perform worse than task-involved individuals that receive feedback. No differences are predicted among the no feedback conditions.

One potential explanation for why ego-involved individuals may perform worse than task-involved individuals concerns the use of feedback. Goal-orientation has been found to be related to a number of cognitive, affective, and behavioral responses to performance outcomes. These differing response patterns have particular relevance to various aspects of the use of feedback by individuals. Making use of feedback first requires that the feedback be perceived accurately (Ilgen, Fisher, & Taylor, 1979). A person may choose to acknowledge or ignore the feedback. Moreover, even if the feedback has been acknowledged, it may have been perceived inaccurately or distorted. Goal-orientation has been found to influence the perception of feedback, with individuals high in ego-involvement distorting feedback in their favor (Baumeister, Cooper, & Skib, 1979). Aside from distorting the feedback, ego-involved individuals have also been found to selectively acknowledge only positive feedback. In a study by Hakmiller (1966), subjects completed a bogus personality inventory that supposedly measured a trait that was characterized as desirable for those in the high ego-involvement condition and undesirable for those in the low ego-involvement condition. Subjects in the high ego-involvement condition were more likely to choose as a comparison other someone who was worse off than themselves. Willis (1981) found a similar pattern of downward comparisons. By actively seeking out comparison others who performed worse than they did, individuals were essentially seeking favorable feedback while attempting to avoid unfavorable information.

Not only does goal-orientation affect the perception of feedback, but it has also been found to affect the acceptance of feedback. If you assume the feedback has been acknowledged, individuals can either accept or derogate the validity of the feedback (Ilgen, Fisher, & Taylor, 1979). To accept the feedback, the individual must believe that the feedback is an accurate portrayal of performance. In cases where a person is the

source of the feedback, individuals may accept the credibility of this evaluator or may attack his or her trustworthiness and expertise. If the source's credibility cannot be challenged, the individual may choose to derogate the task. In a study by Dutton (1972), subjects were told that performance at the task was positively associated to IQ or unrelated to IQ. Compared to subjects in the low ego-involvement condition, subjects who thought performance was related to IQ rated their evaluator more positively when they succeeded and more negatively when they failed. The derogation of the feedback source indicates a lack of acceptance of the validity of the feedback by high ego-involved subjects.

Goal-orientation has also been found to affect whether an individual takes responsibility for the feedback. Individuals have the option to deny responsibility, perhaps attributing the performance to external factors, or may take responsibility and view their own actions as the cause of the performance (Ilgen, Fisher, & Taylor, 1979). By taking responsibility for the feedback, the individual will presumably want to respond in line with the feedback message. Miller (1976) investigated the performance attributions of high and low ego-involved subjects when given evaluative feedback. Subjects in the high ego-involvement condition completed a bogus social perceptiveness scale and were told that the scale was a well validated measure that was positively correlated to desirable characteristics such as intelligence, personal and marital happiness, and job performance. In the low ego-involvement condition, subjects were told that the test was unvalidated and its usefulness was in doubt. Compared to low ego-involved subjects, high ego-involved subjects were more likely to attribute positive performance to ability and negative performance to luck. Anderson and Slusher (1986) also found asymmetrical attributions of success and failure made by ego-involved subjects. Similar results were obtained by Nicholls (1975) in a study of fourth grade children.

In summary, ego-involvement has been found to interfere with the use of the feedback at multiple stages. This study will similarly investigate the effects of goal-orientation on the use of feedback. The following hypothesis is offered:

H4: Ego-involved individuals are hypothesized to be a) less likely to accept feedback, b) less likely to desire to respond to the feedback, and c) less likely to focus attention on the task compared to task-involved individuals.

The literature reviewed above suggests that goal-orientation may impact the use of feedback by individuals. The construct of goal-orientation may be particularly relevant when feedback is presented to an individual in a social context. More specifically, when individuals are given an opportunity to discuss the implications of feedback information with others, goal-orientation may interfere with these social interactions and thereby decrease the usefulness of such an opportunity. The next section of the paper will focus on the effect of goal-orientation on various social process variables that may ultimately impact the feedback-performance relationship.

Goal-orientation may play a significant role in the amount of influence exerted by group members. As previously stated, influence is determined in part by perceived competence (Littlepage et. al., 1995). Because ego-involved individuals believe that their task performance reflects important personal attributes, they desire to attain favorable judgments of competence (Dweck & Leggett, 1988). As a result, individuals who are ego-involved may try to engage in behaviors that will allow them to appear competent. Past research has shown that others' ratings of competence are positively related to air time (Littlepage et. al., 1995). In other words, individuals who spent more of the discussion time talking were rated as more competent. Thus, individuals who are more ego-involved may spend more time talking in the group discussions, regardless of task performance, so as to appear competent. Task-involved individuals, on the other hand, are more concerned

with improvement. Consequently, poor performing individuals who are task-involved may talk less than better performing group members in order to learn how they can improve. In fact, Diener and Dweck (1978; 1980) observed mastery-oriented and helpless children exhibit the above behaviors. More than half of the children in the helpless condition, while virtually none of the children in the mastery-oriented condition, engaged in task irrelevant verbalizations that were usually of a self-aggrandizing nature. These children were presumably attempting to direct attention away from their performance inadequacies while attempting to enhance their image with these statements. Thus, the present study hypothesizes a similar pattern of behaviors.

H5a: For those receiving feedback, prior performance on the task is hypothesized to be positively related to air time in group discussions for task-involved individuals but will be unrelated to air time for ego-involved individuals. No relationship is predicted in the no feedback conditions.

Moreover, the disparate rates of talking between task and ego-involved individuals may cause the different groups to vary in the accuracy of their competency judgments. Recall that air time has been found to be positively related to others' ratings of expertise (Littlepage et. al., 1995). Ego-involved individuals may be trying to use the discussion periods to draw attention away from poor performance and bolster their self-image. Moreover, since task-involved group members who perform poorly are not trying to appear competent and are not talking excessively, accurate judgments of competence should be easier than for ego-involved groups.

H5b: For those who receive feedback, prior performance on the task is hypothesized to be positively related to others' ratings of competence for task-involved individuals but will be unrelated to others' ratings of competence for ego-involved individuals. No relationship is predicted in the no feedback conditions.

Because ego-involved subjects may be talking more and trying to appear competent regardless of the information conveyed by the feedback, other group members may have difficulty in accurately determining the most competent members. This difficulty of identifying competence may result in poor performers wielding more influence for ego-involved individuals than is warranted by their previous performance.

H5c: For those that receive feedback, prior performance on the task is hypothesized to be positively related to influence for task-involved individuals but will be unrelated to influence for ego-involved individuals. No relationship is predicted in the no feedback conditions.

Potential Covariates

Past research has treated goal-orientation as both a dispositional and situational characteristic. For example, Anderson and Slusher (1986), Elliot and Dweck (1988), and Elliot and Harackiewicz (1996) manipulated goal-orientation by varying the instructions presented to subjects. On the other hand, Phillips and Gully (1997) and VandeWalle and Cummings (1997) treated goal-orientation as a dispositional trait to be measured with a questionnaire. More recently, researchers have tended to view goal-orientation as a dispositional trait that can be manipulated by situational cues (Button, et. al., 1996). According to Button, et al. (1996; VandeWalle & Cummings, 1997), goal-orientation may predispose individuals to respond in a particular manner, but situational characteristics may produce a different or less acute pattern of behavior.

Aside from the differing trait versus state views of goal-orientation, there is also some debate regarding the dimensionality of the goal-orientation construct. Typically, researchers have attempted to classify participants as either task-involved or ego-involved (Elliot & Dweck, 1988). Such classification schemes suggest that goal-orientation is a unidimensional construct. However, recent evidence suggests that task-involvement and

ego-involvement is best described by a two-factor model (Button, et. al., 1996). Because these two factors are uncorrelated, it is possible for an individual to be high or low on both dimensions. Based on this construct validation work, recent research examining goal-orientation has used this two-factor structure (VandeWalle & Cummings, 1997; Phillips & Gully, 1997) in assessing dispositional goal-orientation.

The present study intends to manipulate goal orientation through a situational manipulation. However, because of the non-orthogonal validation findings and potential dispositional influence of goal-orientation, it will be measured and included as a control variable.

When individuals are ego-involved, their attention is focused on the self. As a consequence, they are concerned with displaying and maintaining a favorable impression of competence (Dweck & Elliott, 1983). One variable that may affect the degree to which ego-involved individuals attempt to display favorable impressions is self-monitoring. Self-monitoring refers to the extent to which an individual monitors and regulates their self-presentations (Snyder, 1987). High self-monitors tend to regulate their self-presentations to fit the social situation, whereas low self-monitors are more concerned with presenting an accurate, rather than appropriate, representation of their inner attitudes and beliefs. These self-monitoring behaviors have important implications for how individuals interact in social situations. In particular, self-monitoring may influence the amount of impression management exhibited by ego-involved subjects. Because high self-monitors are more likely to attend to situational cues (Fandt & Ferris, 1990), they may be more likely to attempt to appear competent in the ego-involvement condition than low self-monitors. As a result, dispositional self-monitoring will be controlled.

Method

Participants

Participants were 166 male and female undergraduate students enrolled in psychology classes. All participants volunteered for the experiment and received course credit for their participation. Participants were randomly assigned to conditions and participated as members of three or four person groups. The data from 8 subjects were removed due to a computer malfunction. The data from 6 other subjects were removed because their groups consisted of only two subjects due to cancellations or no-shows from students.

Design

The design used in this study was a 2 (feedback vs. no feedback) X 2 (ego-involved vs. task-involved) X 3 (trials) design with trials as a within subjects variable and dispositional goal-orientation and self-monitoring as covariates.

Apparatus

The task was performed in Hypercard on an Apple Macintosh LC 475 computer with a thirteen inch color monitor.

Goal Orientation Manipulation

Participants assigned to the ego-involvement condition received the following instructions:

The task that you will be performing in today's session involves problem solving and making decisions in a survival situation. The task that you are performing is similar to exercises used in assessment centers to evaluate the ability of people to perform professional and managerial jobs. As you can see, we are videotaping these sessions. We will evaluate you on the basis of your interactions in the group. Among the personal characteristics that we will assess are decision making ability, social skill, and general leadership capabilities, all of which have been found to predict success in professional and managerial jobs. Try to do as well as you can in your performance of the task and in the group sessions.

Participants in the task-involvement condition received the following instructions:

The task that you will be performing in today's session involves problem solving and making decisions in a survival situation. We know that everyone is capable of doing well on this task if they are given sufficient time and opportunity to learn. We will ask you to perform this task several times, and we would like you to try to improve your performance. As you can see, we are videotaping these sessions. We are concerned with the strategies that people can use to improve their own performance over trials. Consequently, we are not concerned with evaluating you but in describing the various approaches people take to this task. We are mainly concerned with how you personally improve in your performance over trials and the unique ways in which you achieve improvement. Try to improve your performance as much as you can. Use the group sessions as an opportunity to improve.

The manipulations of task and ego-involvement in this experiment are consistent with other ego-involvement manipulations in the literature (Butler, 1992).

Feedback Manipulation

In the feedback condition, individuals received their individual score on each trial as well as the average score for their group. In the no feedback condition, the individuals received no information concerning their individual or group performance after the first two trials. After the final trial both individual and group feedback was also presented in this condition.

The Task

The task used in this study was based on The Desert Survival Situation. Participants were presented with a scenario in which their plane has just crash landed in the a desert in the southwestern United States. Participants were told that the plane crashed about 65 miles off course and there is a mining town 70 miles to the south. Based on this limited information, participants were given a list of 15 items and asked to rank order these items based on the items' importance to the groups' survival.

Measures

Performance. Scores on the task are computed by summing the absolute value of a subject's ranking of each item with the ranking of each item by an expert.

$$\text{Score} = (\sum | \text{individual's ranking} - \text{expert's ranking} |)$$

The expert's ranking were the rankings of an expert in desert survival from the United States Army. Scores on the task ranged from 0 - 120 with a lower score representing superior performance.

Goal-orientation. Aside from manipulating goal-orientation, a disposition measure of goal-orientation was included in the study. Dispositional goal-orientation was assessed using the 8 item Performance Goal Orientation Scale and the 8 item Learning Goal orientation Scale (Button, Mathieu, & Zajac, 1996). Responses on both scales are based on a 7-point scale that ranged from (1) "Strongly Disagree" to (7) "Strongly Agree." The internal-consistency coefficient alpha reliabilities for the two scales are .73 and .79 respectively. Scores on the Performance Goal Orientation Scale ranged from 2.63 to 7.00 with a mean of 5.42 (0.68). For the Learning Goal Orientation Scale, the average score was 5.50 (0.61) with scores ranging from 2.50 to 7.00.

Self-monitoring. A dispositional measure of self-monitoring was also included to be used as a covariate in the analyses. Self-monitoring was assessed using the Self-monitoring Scale (Snyder & Gangestad, 1986). The scale consists of 18 true/false items and has an internal-consistency reliability of .70. The average score on this scale was 11.04 (3.21) with scores ranging from 4.00 to 18.00.

Influence. Influence was defined as the average similarity between an individual's ranking of each item and the other group member's ranking of each item on the subsequent trial.

$$\text{Influence} = \text{average} (120 - \sum | \text{individual ranking} - \text{other group member's ranking} |)$$

This method is similar to those used by Bottger (1984) and Littlepage et. al. (1995). Higher scores indicate more influence.

Perceived Competence. Participants were asked to rank order their fellow group members in terms of their competence at performing the task. Lower scores indicate higher levels of perceived competence.

Air Time. The amount of time a subject spent talking was measured by reviewing the video-taped discussion sessions and, with the aid of a stopwatch, timing the amount of time each individual talked. Two research assistants, blind to experimental condition, independently measured time spent talking for each individual. To calculate interrater reliability, a subset of group discussion tapes was compared across raters. The interrater reliability for these sixteen tapes was .83.

Procedure

Upon arrival at the experimental laboratory, participants were individually assigned to one of four computers. All subsequent instructions were presented by the computer. After providing informed consent, participants' dispositional goal orientation and self-monitoring were assessed.

Participants then received the task instructions that include the situational goal-orientation manipulation and began the first trial of the task. After completing the first trial, participants received accurate feedback regarding their individual performance on the task. Participants also received accurate group feedback, which is simply the average of the individual group member's scores. An example of the screen that contained the feedback can be found in appendix 2. Participants were then given the opportunity to engage in a 25 minute videotaped discussion period. The instructions for the discussion period were as follows:

You will now have the opportunity to discuss the task with the other members of the group. This discussion is intended to provide you the chance for sharing ideas or thoughts about the task and anything else related to the task.

After the discussion period, participants performed two more trials, interrupted by a 15 minute discussion period. No conversation between group members was permitted except during the group discussions.

Post-task Questionnaire

Upon completion of the final trial, participants responded to a 20 item questionnaire designed to assess various attitudes and perceptions about the task using a 7-point scale (see appendix 1). Participants also respond to an open-ended question that asked, "What do you believe was the cause of your performance?"

Manipulation Check

Four questions were included to assess the effectiveness of the goal-orientation manipulation (see Appendix 1). Participants rated their level of agreement with each item on a seven-point scale with responses ranging from strongly disagree (1) to strongly agree (7). A typical item from this scale was "During the group discussion period, my goal was to master the task."

Results

Prior to testing the hypotheses the data were subjected to a trials (3) X previous task experience (2) ANOVA of previous experience with tasks similar to the experimental task affected performance (see Table 1). Question 1 of the post task questionnaire asked participants whether they had experience with a similar task to the one used in the experiment. Thirty-three percent of the subjects reported having prior exposure to a similar task. The means and standard deviations of scores for subjects with and without previous experience are contained in table 2. A trial (3) X previous task experience (2)

ANOVA revealed that previous task experience did not significantly affect task performance, $F(2,298) = 1.49$, $p = .288$. A Chi-square test was used to examine if the proportion of participants with previous task experience is different across the four conditions. No significant difference was found across conditions, $\chi^2(3) = .715$, $p = .870$. Because previous experience with similar tasks did not appear to affect performance and participants with previous experience were evenly distributed across condition, all individuals were included in the analyses.

Scale Development

Participants' responses to the 20 item questionnaire were subjected to a principle components factor analysis. Based on an examination of the scree plot, four factors were retained. A factor analysis was re-computed specifying a four-factor solution using a varimax rotation. Items with factor loadings greater than .40 or less than -.40 were considered. One item had loadings of .40 or greater on more than one factor (see Appendix 1, question 14). This complex item was not included on any scale. A second item failed to load significantly on any factor and was subsequently not included on any scale (see Appendix 1, question 19). The four factors accounted for approximately 54% of the variance.

Table 1: Source table for trials (3) X previous task experience (2) ANOVA on performance.

Effect	SS	df	MS	F	p	η^2
Experience	1728	1	1728	5.82	.017	.67
Error	296	149				
Trials	13808	2	6904	80.29	.001	1.00
Trials X Experience	256	2	128	1.49	.228	.32
Error	25624	298				

Table 2: Means and standard deviations for subjects with or without previous task experience across the three trials.

	Trial 1	Trial 2	Trial 3
Previous Task Experience	63.76(15.20)	54.04(12.46)	50.72(11.68)
No previous Task Experience	69.21(12.22)	55.94(11.38)	53.83(12.80)

Self-perceived performance and satisfaction (8 items). Items loading on this factor reflect participants' perceptions of their performance and their satisfaction with their level of performance. Typical items on this factor asked participants how well they thought they did and how satisfied they were with their performance. Higher scores on this factor indicated higher levels of perceived performance and satisfaction. The internal consistency of this scale assessed by coefficient alpha was .82.

Although these eight items loading on the same factor, conceptually there is justification for dividing this factor into two separate constructs. An examination of the factor loadings reveal that the items loading highest on this factor may represent self-reported satisfaction while the items with lower loading on this factor may represent perceived performance. Coefficient alpha for these two separate subscales was .80 and .71 respectively.

Importance and stability of performance (3 items). The items that composed this factor assessed the degree to which participants felt that their performance on the task was important and stable over time. A sample item from this scale is "I care very much about how I do on this task." Higher scores on this scale reflected higher levels of importance and stability of task performance. Coefficient alpha for these three items was .68.

Although the three items met the empirical criteria to be considered a single factor, one may want to separate this factor into more conceptually sensible factors. Specifically, two of the three items loaded highly on this factor and seemed to represent an importance of performance construct. Coefficient alpha for these two items was .87. The factor loading for the remaining item was substantially lower and appears to assess self-perceived

stability of performance. Because of the differential factor loadings and the enhanced internal consistency reliability, analyses involving this factor were repeated on the conceptually distinct components.

Acceptance of feedback (3 items). The third factor dealt with the participants' perceptions of the feedback. Items loading on this factor assessed whether participants felt the feedback was an accurate reflection of their performance. A typical item from this scale is "I do not agree with the feedback provided." Participants who scored high on this factor perceived the feedback to be an accurate reflection of performance. Internal consistency reliability assessed by coefficient alpha was .69.

Focus of attention (4 items). The items that loaded on this factor assessed the degree to which participants were focused on the task during the experiment. A sample item from this scale is "I felt self-conscious when performing this task." Higher scores on this scale reflected lower levels of task focus. Coefficient alpha for these four items was .61.

Table 3 contains the items selected for each scale as well as the factor loadings. Scores on items composing each factor were averaged for each participant to create the four composite scales. Values for each composite could range from 1 to 7. Table 4 contains the means, standard deviations, and intercorrelations for each scale. Tables 5-8 contains the means, standard deviations, and intercorrelations for each scale by condition.

Table 3: Post-task questionnaire factor loadings

Scale	1	2	3	4
1. Performance and satisfaction				
How satisfied would you be if you personally attained the same level of performance in the next session?	.78	-.09	-.09	-.09
How satisfied would you be if your group attained the same level of performance in the next session?	.77	-.23	.06	.01
How satisfied were you with your group's performance on this task at the end of the experiment?	.72	-.07	.24	.12
How well did your group perform on this task?	.70	.20	.09	.09
How satisfied were you with your personal performance on this task at the end of the experiment?	.66	.15	-.16	-.07
How much did you personally improve over the course of the sessions?	.55	.22	.17	.05
How well did you personally perform on this task?	.53	.29	-.15	-.02
How much did your group improve on this task over the course of the sessions?	.53	.19	.07	.23
2. Importance and stability of performance				
I care very much about how I do on this task.	-.01	.87	.12	.05
How important to you is your performance on this task?	.08	.87	.02	-.07
Do you believe that the causes of your performance could change over time or is it highly stable and unlikely to change?	.28	.41	.04	-.11
3. Acceptance of feedback				
I do not agree with the feedback provided.*	.06	.03	.87	.08
The feedback I received was an accurate evaluation of my performance.	.15	.01	.75	.08
It is hard to take the feedback seriously.*	-.11	.11	.68	-.22
4. Focus of attention				
I was very concerned about how I appeared to others in the group discussions we held during the session.	.10	.18	.05	.72
I thought about things unrelated to the task during the experiment.	-.13	-.28	-.17	.70
I had trouble focusing my attention on the task.	-.06	-.31	.09	.66
I felt self-conscious when performing this task	.18	.09	-.02	.57

* indicates item was reverse-scored

Table 4: Means, standard deviations, and intercorrelations for all conditions.

	M (SD)	1	2	3	4	5	6
1. Score at Time 1	67.38(13.44)						
2. Score at Time 2	55.37(11.72)	.38**					
3. Score at Time 3	54.20(12.62)	.33**	.71**				
4. Dispositional Ego-involvement	5.42(0.68)	-.01	.09	.01			
5. Dispositional Task-involvement	5.50(0.61)	-.02	-.10	-.09	.16*		
6. Dispositional Self-monitoring	11.04(3.21)	.11	.05	.01	.11	.05	
7. Influence at Time 2	70.44(12.86)	-.39**	.12	.18*	-.01	.05	.10
8. Influence at Time 3	92.55(12.71)	-.12	-.22	-.02	.02	-.03	.00
9. Air Time Discussion 1	0.26(0.14)	-.12	-.04	-.01	.05	.09	.27**
10. Air Time Discussion 2	0.26(0.15)	-.03	-.12	-.11	.05	.11	.25**
11. Other's Ratings of Competence	2.44(3.21)	.57**	.42**	.33**	.02	.01	-.02
12. Acceptance of Feedback	3.99(1.01)	-.02	-.10	-.21*	-.08	-.02	-.12
13. Focus of Attention	3.04(1.07)	.08	.07	.02	.12	-.16*	-.02
14. Satisfaction	3.87(1.04)	.12	.08	-.07	-.03	-.01	.04
15. Self-perceived Performance	4.37(0.95)	.03	-.16	-.42**	.08	.15	.06
16. Importance of Performance	3.77(1.27)	-.04	-.10	-.15	.06	.11	.04
17. Perceived Stability of Performance	4.09(1.41)	.02	.06	.04	.09	-.02	.06
18. Previous Task Experience	1.67(0.47)	.19*	.08	.19*	-.01	.04	.00

* $p < .05$ ** $p < .01$

Table 4 (continued).

	7	8	9	10	11	12	13
1. Score at Time 1							
2. Score at Time 2							
3. Score at Time 3							
4. Dispositional Ego-involvement							
5. Dispositional Task-involvement							
6. Dispositional Self-monitoring							
7. Influence at Time 2							
8. Influence at Time 3	.17*						
9. Air Time Discussion 1	.24**	-.01					
10. Air Time Discussion 2	.11	.05	.72				
11. Other's Ratings of Competence	-.18*	-.29**	-.12	-.22**			
12. Acceptance of Feedback	-.09	.01	-.14	-.02	-.05		
13. Focus of Attention	.02	-.10	-.13	-.10	.11	-.04	
14. Satisfaction	-.09	.16*	-.14	-.09	-.11	.01	.06
15. Self-perceived Performance	-.16	.03	-.10	.04	-.10	.08	.03
16. Importance of Performance	-.02	.01	.18*	-.20*	-.11	.13	-.13
17. Perceived Stability of Performance	.16	.25**	.06	.13	-.01	.08	-.10
18. Previous Task Experience	-.10	.07	.01	-.02	.07	-.07	.07

* $p < .05$ ** $p < .01$

Table 4 (continued).

	14	15	16	17
1. Score at Time 1				
2. Score at Time 2				
3. Score at Time 3				
4. Dispositional Ego-involvement				
5. Dispositional Task-involvement				
6. Dispositional Self-monitoring				
7. Influence at Time 2				
8. Influence at Time 3				
9. Air Time Discussion 1				
10. Air Time Discussion 2				
11. Other's Ratings of Competence				
12. Acceptance of Feedback				
13. Focus of Attention				
14. Satisfaction				
15. Self-perceived Performance	.51**			
16. Importance of Performance	.05	.22**		
17. Perceived Stability of Performance	.23*	.20*	.26**	
18. Previous Task Experience	-.05	-.13	.01	-.10

* $p < .05$ ** $p < .01$

Table 5: Means, standard deviations, and intercorrelations for the ego-involved/feedback condition.

	M (SD)	1	2	3	4	5	6	7
1. Score at Time 1	67.28(15.27)							
2. Score at Time 2	53.74(11.57)	.42**						
3. Score at Time 3	53.33(11.68)	.44**	.72**					
4. Influence at Time 2	69.47(14.08)	-.44**	.07	.01				
5. Influence at Time 3	91.67(13.31)	-.21	-.50**	-.15	.34*			
6. Air Time Discussion 1	0.26(0.13)	-.18	.01	-.11	.10	-.15		
7. Air Time Discussion 2	0.26(0.13)	-.08	-.11	-.05	.04	-.05	.50**	
8. Other's Ratings of Competence	2.46(0.83)	.53**	.13	.05	-.32	.00	-.44**	-.34*
9. Acceptance of Feedback	3.89(.98)	-.03	.06	-.04	-.20	-.20	-.06	-.07
10. Focus of Attention	2.72(1.00)	.09	-.11	-.23	.02	-.02	-.29	-.22
11. Satisfaction	3.74(0.80)	.06	.12	-.29	-.22	-.08	-.09	-.09
12. Self-perceived Performance	4.20(1.00)	.24	-.21	-.51	-.46**	-.15	-.13	-.04
13. Importance of Performance	3.94(1.16)	.06	-.08	-.25	-.07	.09	.07	.10
14. Perceived Stability of Performance	4.00(1.24)	-.10	-.33	-.05	-.06	.20	-.06	.07
15. Previous Task Experience	1.62(0.49)	.21	.21	.23	-.01	.08	.06	-.04

* $p < .05$

** $p < .01$

Table 5 (continued).

	8	9	10	11	12	13	14
1. Score at Time 1							
2. Score at Time 2							
3. Score at Time 3							
4. Influence at Time 2							
5. Influence at Time 3							
6. Air Time Discussion 1							
7. Air Time Discussion 2							
8. Other's Ratings of Competence							
9. Acceptance of Feedback	-.09						
10. Focus of Attention	.17	-.08					
11. Satisfaction	-.02	.33*	.10				
12. Self-perceived Performance	.11	.27	.02	.59**			
13. Importance of Performance	-.13	.11	-.18	-.08	.10		
14. Perceived Stability of Performance	-.27	.27	-.27	.21	.27	.05	
15. Previous Task Experience	.30	.05	.21	-.14	-.14	.14	-.04

* $p < .05$ ** $p < .01$

Table 6: Means, standard deviations, and intercorrelations for ego-involved/no feedback condition.

	M (SD)	1	2	3	4	5	6	7
1. Score at Time 1	68.25(12.53)							
2. Score at Time 2	62.31(7.60)	.36*						
3. Score at Time 3	60.00(6.49)	.18	.17					
4. Influence at Time 2	74.40(9.66)	-.25	-.32	-.18				
5. Influence at Time 3	98.47(13.44)	-.15	-.34	.23	.10			
6. Air Time Discussion 1	0.28(0.15)	.06	-.26	-.08	.38*	.12		
7. Air Time Discussion 2	0.29(0.12)	.06	-.20	-.10	.15	.31	.55**	
8. Other's Ratings of Competence	2.34(0.80)	-.12	.34	.07	-.35	-.12	-.72**	-.39*
9. Acceptance of Feedback	3.66(0.98)	-.10	.00	-.07	.04	.12	-.32	.12
10. Focus of Attention	3.17(1.13)	.17	.25	.09	-.21	-.28	-.36	-.11
11. Satisfaction	4.31(1.10)	.24	.01	.06	-.19	.24	-.29	-.28
12. Self-perceived Performance	4.56(0.88)	-.10	-.24	-.44**	-.12	.16	-.16	-.22
13. Importance of Performance	3.90(1.19)	-.07	-.25	-.28	-.06	.12	.10	.11
14. Perceived Stability of Performance	4.71(1.35)	.20	.11	.08	-.04	.31	.10	.20
15. Previous Task Experience	1.68(0.48)	.10	.04	.56**	-.10	.03	.04	.12

* $p < .05$

** $p < .01$

Table 6 (continued).

	8	9	10	11	12	13	14
1. Score at Time 1							
2. Score at Time 2							
3. Score at Time 3							
4. Influence at Time 2							
5. Influence at Time 3							
6. Air Time Discussion 1							
7. Air Time Discussion 2							
8. Other's Ratings of Competence							
9. Acceptance of Feedback	.38*						
10. Focus of Attention	.58**	.40*					
11. Satisfaction	-.22	.20	.16				
12. Self-perceived Performance	-.29	.40*	-.06	.40*			
13. Importance of Performance	-.21	.33*	.04	.16	.39*		
14. Perceived Stability of Performance	.15	.25	-.12	.16	.08	.34*	
15. Previous Task Experience	-.08	-.27	-.08	-.10	-.15	-.12	-.26

* $p < .05$ ** $p < .01$

Table 7: Means, standard deviations, and intercorrelations for the task-involved/feedback condition.

	M (SD)	1	2	3	4	5	6	7
1. Score at Time 1	66.60(12.86)							
2. Score at Time 2	54.05(10.96)	.39**						
3. Score at Time 3	52.42(13.55)	.28	.57					
4. Influence at Time 2	69.51(12.50)	-.45**	.04	.26				
5. Influence at Time 3	89.20(8.16)	-.16	-.38	-.07	.29			
6. Air Time Discussion 1	0.25(.15)	-.26	-.08	-.18	.16	.12		
7. Air Time Discussion 2	0.26(.16)	-.14	-.17	-.18	.06	.09	.89**	
8. Other's Ratings of Competence	2.50(0.90)	.64**	.32*	.30	-.39**	-.23	-.59**	-.50**
9. Acceptance of Feedback	4.31(0.74)	.01	-.12	-.18	-.11	.32*	-.09	-.06
10. Focus of Attention	2.93(1.00)	.02	.29	.26	.33	-.17	.10	-.03
11. Satisfaction	3.51(0.95)	.12	-.13	-.15	-.15	.15	-.43**	.05
12. Self-perceived Performance	4.33(0.94)	-.06	-.33	-.48**	-.13	.02	-.29	.00
13. Importance of Performance	3.72(1.10)	-.13	.01	.01	-.06	-.11	.26	.35*
14. Perceived Stability of Performance	3.91(1.38)	-.15	.06	-.09	.46**	.19	-.04	.07
15. Previous Task Experience	1.70(0.46)	.29	-.09	.10	-.20	.07	.06	.06

* $p < .05$

** $p < .01$

Table 7 (continued).

	8	9	10	11	12	13	14
1. Score at Time 1							
2. Score at Time 2							
3. Score at Time 3							
4. Influence at Time 2							
5. Influence at Time 3							
6. Air Time Discussion 1							
7. Air Time Discussion 2							
8. Other's Ratings of Competence							
9. Acceptance of Feedback	.04						
10. Focus of Attention	.03	-.22					
11. Satisfaction	-.07	-.05	.22				
12. Self-perceived Performance	-.19	-.16	.37*	.52**			
13. Importance of Performance	-.05	.05	-.19	-.12	.09		
14. Perceived Stability of Performance	.06	-.05	.08	.15	.06	.29	
15. Previous Task Experience	.16	-.14	-.15	-.23	-.13	.02	-.19

* $p < .05$ ** $p < .01$

Table 8: Means, standard deviations, and intercorrelations for the task-involved/no feedback condition.

	M (SD)	1	2	3	4	5	6	7
1. Score at Time 1	67.63(13.29)							
2. Score at Time 2	52.68(13.57)	.37*						
3. Score at Time 3	50.16(14.82)	.38*	.89**					
4. Influence at Time 2	69.25(14.03)	-.39	.23	.24				
5. Influence at Time 3	92.41(10.41)	.02	-.17	-.22	-.21			
6. Air Time Discussion 1	0.26(0.14)	-.04	.01	.06	.37*	-.16		
7. Air Time Discussion 2	0.26(0.18)	.07	-.14	-.14	.16	-.15	.76**	
8. Other's Ratings of Competence	2.41(0.86)	.39*	.16	.06	-.38*	.03	-.39*	-.29
9. Acceptance of Feedback	4.00(1.22)	.05	-.15	-.15	.05	.20	-.08	-.07
10. Focus of Attention	3.39(1.07)	.03	-.16	-.06	-.14	-.06	-.12	-.13
11. Satisfaction	4.05(1.17)	.02	.07	-.20	.11	.07	.11	-.01
12. Self-perceived Performance	4.43(0.95)	.02	.18	-.33	.15	-.09	.22	.17
13. Importance of Performance	3.57(1.59)	.02	-.10	-.17	.22	-.10	.36	.46*
14. Perceived Stability of Performance	3.87(1.86)	.11	.18	-.13	.24	.12	.25	.11
15. Previous Task Experience	1.68(0.47)	.14	.13	.18	-.12	.12	-.12	-.16

* $p < .05$

** $p < .01$

Table 8 (continued).

	8	9	10	11	12	13	14
1. Score at Time 1							
2. Score at Time 2							
3. Score at Time 3							
4. Influence at Time 2							
5. Influence at Time 3							
6. Air Time Discussion 1							
7. Air Time Discussion 2							
8. Other's Ratings of Competence							
9. Acceptance of Feedback	.16						
10. Focus of Attention	-.09	-.18					
11. Satisfaction	-.05	.01	-.42*				
12. Self-perceived Performance	-.08	-.21	-.42*	.56**			
13. Importance of Performance	.06	-.04	-.20	.18	.31		
14. Perceived Stability of Performance	.24	-.01	-.11	.30	.42*	.35	
15. Previous Task Experience	-.16	.03	.24	.21	-.14	-.01	.05

* p < .05

** p < .01

Manipulation checks

The four questions included to assess the effectiveness of the goal-orientation manipulation were used to create two separate scales. The first scale consisted of two questions designed to assess the degree to which an individual was task-oriented during the group discussion period. The internal-consistency reliability assessed by coefficient alpha was .61. The second scale also consisted of two questions and was designed to measure the extent an individual was performance-oriented during the group discussion. The coefficient alpha for this measure was .88. A feedback (2) X goal-orientation (2) ANCOVA was performed on both of these scales with dispositional levels of task-involvement, ego-involvement, and self-monitoring covaried out of the analysis (Tables 9 & 10). No statistically significant differences were found for either the main effect, $p > .05$, or the interaction, $p > .05$. Adjusted means and standard errors are contained in table 11.

As a further test of the efficacy of the manipulation, a feedback (2) X goal-orientation (2) ANCOVA was performed on the Importance and stability of performance scale. Dweck and Legget (1988) suggest that one of the key differences between the two goal-orientations is the attributions of performance outcomes. Specifically, ego-involved individuals view outcomes as diagnostic of innate ability. Failures are viewed as indicative of low ability, and as insurmountable. As a result, ego-involved individuals believe that little can be done to enhance task performance. In contrast, task-involved individuals interpret performance outcomes as reflective of effort. Consequently, they feel that they have control over the factors that are responsible for performance.

Table 9: Source table for feedback (2) X goal-orientation (2) ANCOVA on the ego-involvement manipulation check questions.

Effect	SS	df	MS	F	p	η^2
Dispositional ego-involvement	22.62	1	22.62	13.68	.001	.96
Dispositional task-involvement	4.97	1	4.97	3.01	.085	.41
Self-monitoring	0.94	1	0.94	0.57	.452	.12
Feedback	4.52	1	4.52	2.73	.10	.38
Goal-orientation	0.32	1	0.32	0.19	.661	.07
Feedback X Goal-orientation	0.34	1	0.34	0.21	.649	.07
Error	233	141	1.65			

Table 10: Source table for feedback (2) X goal-orientation (2) ANCOVA on the task-involvement manipulation check questions.

Effect	SS	df	MS	F	p	η^2
Dispositional ego-involvement	3.87	1	3.87	4.22	0.42	.532
Dispositional task-involvement	6.61	1	6.61	7.21	.008	.760
Self-monitoring	0.37	1	0.37	0.41	.525	.097
Feedback	2.76	1	2.76	3.01	.085	.407
Goal-orientation	0.78	1	0.78	0.85	.357	.150
Feedback X Goal-orientation	0.12	1	0.12	0.13	.716	.065
Error	130	142	0.92			

Table 11: Adjusted means and standard errors by condition for the task-involved and ego-involved manipulation check questions.

	Task-involved manipulation check questions	Ego-involved manipulation check questions
Feedback \ Task-involved condition	5.38 (0.14)	3.96 (0.12)
No feedback \ Task-involved condition	5.05 (0.16)	4.41 (0.21)
Feedback \ Ego-involved condition	5.47 (0.16)	4.15 (0.21)
No feedback \ Ego-involved condition	5.25 (0.17)	4.41 (0.24)

Moreover, because performance is not reflective of some innate ability, performance on the task should not be as important for task-involved individuals. The ANCOVA revealed a statistically significant main effect for goal-orientation, $F(1,144) = 4.76$, $p = .031$ (see table 12). The main effect of feedback and the interaction were both non-significant, $p > .05$. An examination of the significant main effect of goal-orientation reveals that individuals in the ego-involved condition perceived performance on the task to be more important and more stable (adjusted mean = 4.07) than the task-involved subjects (adjusted mean = 3.72). This finding is consistent with the current conceptualization of task versus ego-orientation in the literature (VandeWalle & Cummings, 1997). Because this factor may be composed of two conceptually distinct components, reported task importance and perceived stability of performance, identical analyses were performed on each of these facets. No statistically significant differences were observed for either main effect or the interaction of goal-orientation and feedback for the task-importance facet, $p > .05$ (see Table 13). For the perceived stability of performance facet, no statistically significant differences were found for the main effect of feedback or the interaction of feedback and goal-orientation, $p > .05$. However, a statistically significant main effect was found for goal-orientation, $F(1,144) = 4.97$, $p = .027$ (see Table 14). Participants in the ego-involved condition were significantly more likely to report that performance on the task was stable (adjusted mean = 4.38) compared to task-involved participants (adjusted mean = 3.87). The significant result obtained for perceived stability of performance suggests that the manipulation was at least partially successful.

Table 12: Source table for feedback (2) X goal-orientation (2) ANCOVA on the importance and stability of performance factor.

Effect	SS	df	MS	F	p	η^2
Dispositional ego-involvement	1.15	1	1.15	1.01	.316	.17
Dispositional task-involvement	0.29	1	0.29	0.26	.613	.08
Self-monitoring	0.46	1	0.46	0.43	.527	.10
Feedback	0.01	1	0.01	0.11	.916	.05
Goal-orientation	4.66	1	4.66	4.09	.045	.52
Feedback X Goal-orientation	0.81	1	0.81	0.71	.400	.13
Error	163.85	144	1.14			

Table 13: Source table for feedback (2) X goal-orientation (2) ANCOVA on the importance of performance questions.

Effect	SS	df	MS	F	p	η^2
Dispositional ego-involvement	0.52	1	0.52	0.32	.574	.09
Dispositional task-involvement	1.85	1	1.85	1.14	.287	.19
Self-monitoring	0.46	1	0.46	0.28	.596	.08
Feedback	0.59	1	0.59	0.36	.548	.09
Goal-orientation	2.85	1	2.85	1.76	.187	.26
Feedback X Goal-orientation	0.42	1	0.42	0.26	.873	.05
Error	233.59	144	1.62			

Table 14: Source table for feedback (2) X goal-orientation (2) ANCOVA on the perceived stability of performance question.

Effect	SS	df	MS	F	p	η^2
Dispositional ego-involvement	3.17	1	3.17	1.64	.202	.25
Dispositional task-involvement	1.20	1	1.20	0.62	.431	.12
Self-monitoring	0.46	1	0.46	0.24	.626	.08
Feedback	3.49	1	3.49	1.81	.181	.27
Goal-orientation	9.60	1	9.60	4.97	.027	.60
Feedback X Goal-orientation	5.26	1	5.26	2.73	.101	.38
Error	277.86	144	1.93			

Table 15: Adjusted means and standard errors by condition for the importance and stability of performance factor, the importance of performance only, and the stability of performance only.

	Importance and stability of performance factor	Importance of performance	Stability of performance
Feedback \ Task-involved condition	3.78 (0.16)	3.72 (0.19)	3.90 (0.20)
No feedback \ Task-involved condition	3.65 (0.17)	3.56 (0.21)	3.83 (0.20)
Feedback \ Ego-involved condition	3.99 (0.17)	3.97 (0.21)	4.03 (0.20)
No feedback \ Ego-involved condition	3.78 (0.19)	3.97 (0.23)	4.72 (0.20)

Test of hypotheses

Hypothesis 1a. The amount of influence exerted by the most competent group members was hypothesized to be positively related to group performance. The correlation between influence and group performance for individuals who performed poorly on the previous trial was $r(78) = .037$, $p = .746$. For individuals who performed well on the previous trial, the correlation between influence and performance was $r(73) = .533$, $p < .001$. These two correlations significantly differed from one another, $z = 3.35$, $p < .001$, indicating that as better performing group members exert more influence, group performance increases.

Hypothesis 1b. The amount of influence exerted by an individual was hypothesized to be positively related to air time. To examine this relationship, the average amount of influence an individual exerted over fellow group members' responses was correlated with the proportion of time the individual talked in the previous discussion period. For trial 2, the correlation between influence and air time was $r(145) = .239$, $p = .004$, and for trial 3 the correlation was $r(143) = .048$, $p = .571$. Moreover, these two correlations were significantly different from each other, $t(134) = 3.08$, $p < .01$. These results partially support the hypothesis. Individuals who talked a larger percentage of the time in discussion period 1 had significantly more influence over group members' responses in the next trial. However, this relationship was not significant for discussion period 2.

Hypothesis 1c. The amount of influence an individual possesses was hypothesized to be positively related to others' ratings of competence. A correlation between average

influence on fellow group members' responses was found to be significantly related to others' ratings of competence at the end of the experiment, $r(151) = -.30, p < .001$.

Consistent with the hypothesis, people who were rated as more competent by their fellow group members were also found to have more influence over the other group members' responses over the course of the experiment.

To test hypotheses 2 and 3, a feedback (2) X goal-orientation (2) X trials (3) ANCOVA was used to test differences between means for significance. Dispositional levels of task and ego-involvement, along with an individual's level of self-monitoring, were covaried out of the analysis. Measures of central tendency and dispersion can be found in Table 3. Prior to data analysis, the assumptions of the ANCOVA were examined for violations. Mauchley's test of sphericity obtained a statistically significant chi-square value indicating that the assumption of sphericity may have been violated. To compensate, significance tests were corrected using the Greenhouse-Geiser epsilon correction to adjust the critical value (Stevens, 1996). The assumption of homogeneity of regression was also tested. The assumption was not violated for any analyses that utilized covariates.

Hypothesis 2. Individuals who are task-involved were hypothesized to outperform individuals who are ego-involved. Consistent with the hypothesis, the interaction of trials X goal-orientation was statistically significant, $F(2,209) = 3.99, p = .019$ (see Table 16). A test of simple effects reveals that no statistically significant difference existed in mean performance on the first trial, $F(1,147) = 0.142, p = .707$, between individuals who were ego-involved (adjusted mean = 67.85, SD = 1.63) and

Table 16: Source table for trials (3) X feedback (2) X goal-orientation (2) ANCOVA on performance.

Effect	SS	df	MS	F	p	η^2
Dispositional ego-involvement	123.28	1	123.28	0.42	.518	.10
Dispositional task-involvement	201.67	1	201.67	0.69	.408	.13
Self-monitoring	609.20	1	609.20	2.08	.151	.30
Feedback	344.72	1	344.72	1.18	.280	.19
Goal-orientation	1953.27	1	1953.27	6.67	.011	.73
Feedback X Goal-orientation	937.51	1	937.51	3.20	.076	.43
Error	42467	145	937.51			
Trials	17.76	2	8.88	0.11	.900	.07
Trials X Dispositional ego-involvement	150.74	2	75.37	0.90	.409	.20
Trials X Dispositional task-involvement	135.11	2	67.55	0.90	.448	.19
Trials X Self-monitoring	185.08	2	92.54	1.10	.334	.24
Trials X Feedback	160.35	2	80.17	0.95	.386	.22
Trials X Goal-orientation	670.74	2	335.37	3.99	.019	.71
Trials X Feedback X Goal-orientation	536.49	2	268.25	3.19	.042	.61
Error	24360	290	83.99			

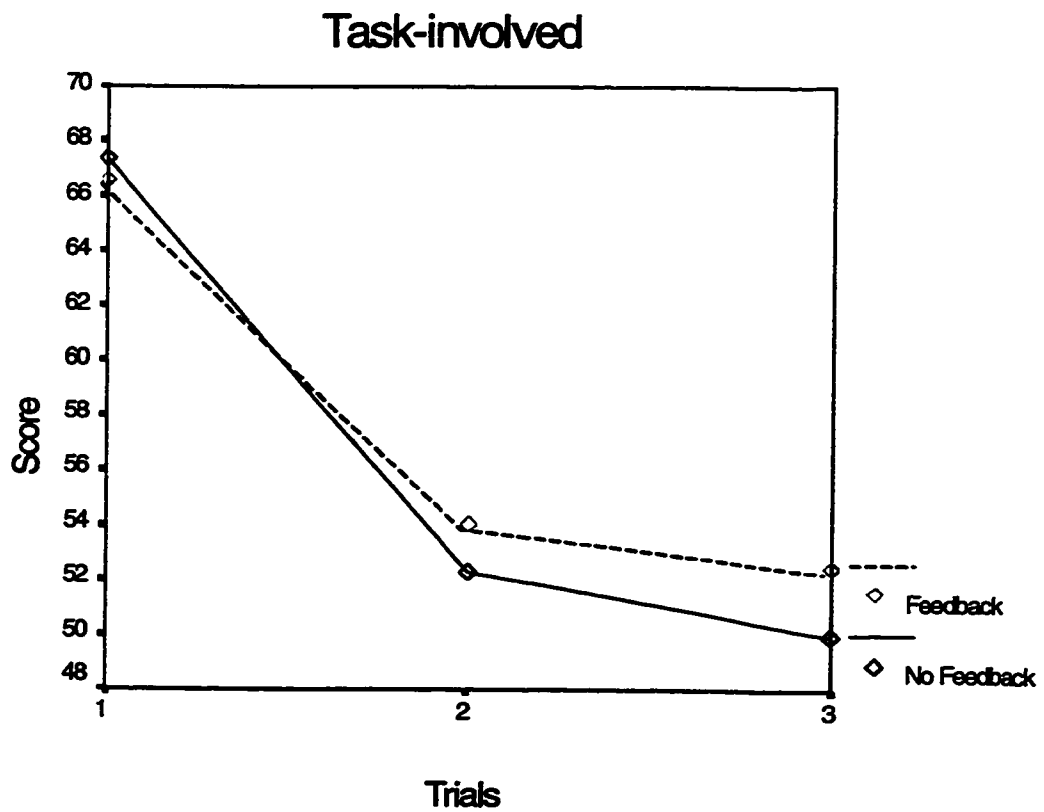
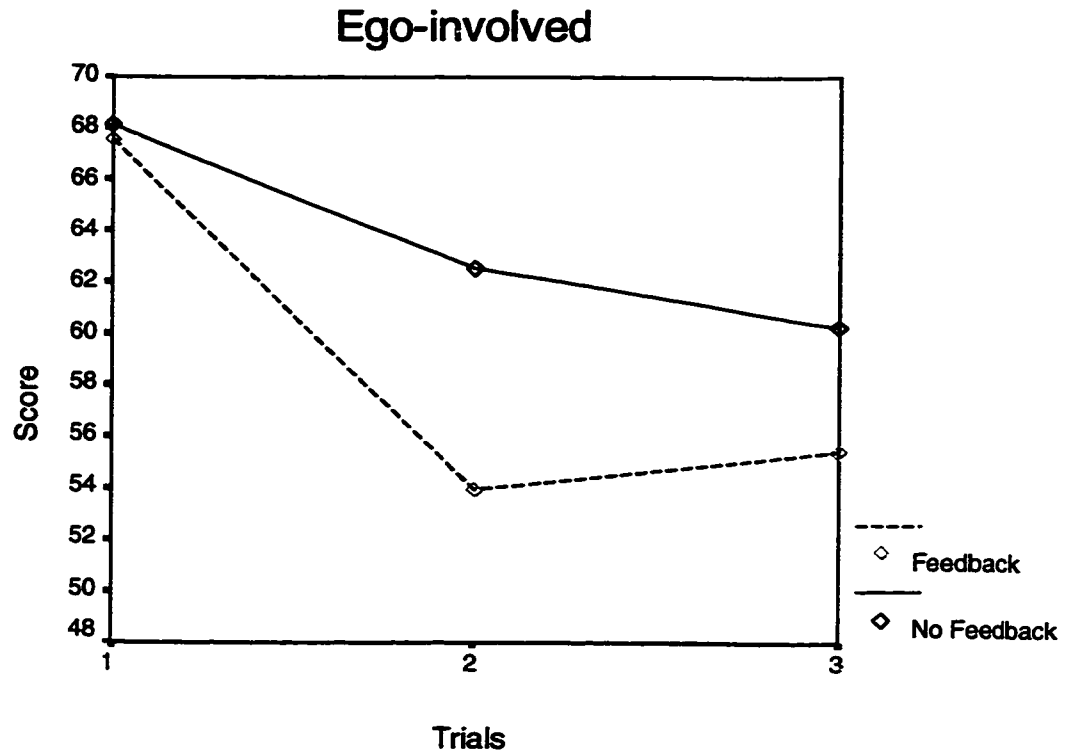
individuals who were task-involved (adjusted mean = 67.02, SD = 1.52). On the second trial, there was a statistically significant difference in mean performance, $F(1,147) = 6.15$, $p = .014$. Individuals who were ego-involved (adjusted mean = 58.26, SD = 1.34) performed more poorly than individuals who were task-involved (adjusted mean = 53.15, SD = 1.25). A statistically significant difference in mean performance was also observed on the final trial, $F(1,147) = 9.86$, $p = .002$, with individuals who were ego-involved (adjusted mean = 57.81, SD = 1.47) performing more poorly than individuals who were task-involved (adjusted mean = 51.17, SD = 1.37). The mean performance across the three trials for the feedback and no feedback conditions are contained in table 17. The interaction of trials X feedback failed to achieve statistical significance, $F(2,209) = .95$, $p = .386$ (see Table 16), indicating that there was no difference in mean performance across the three trials between individuals receiving feedback and individuals that did not receive feedback.

Hypothesis 3. The results for the main effects of feedback and goal-orientation must be qualified by the findings for the interaction. Feedback was predicted to have a differential effect on the performance between individuals who are ego-involved versus individuals who are task-involved. The interaction of feedback X goal-orientation X trials was statistically significant, $F(2,290) = 3.19$, $p = .042$. An examination of the simple effects reveals no statistically significant interaction of trials X feedback for task-involved, $F(2,152) = .515$, $p = .599$. On the other hand, a statistically significant trials X feedback interaction was observed for ego-involved individuals, $F(2,132) = 3.43$, $p = .035$. Further analysis of this effect reveals a statistically nonsignificant difference in

Table 17: Adjusted means and standard errors of performance across the three trials for subjects who did and did not receive feedback.

	Trial 1	Trial 2	Trial 3
Feedback	67.10 (1.51)	53.98 (1.24)	53.90 (1.36)
No feedback	67.77 (1.64)	57.43 (1.35)	55.08 (1.48)

Figure 2: The interaction of trials X feedback X goal-orientation on performance.



performance at trial 1, $F(1,66) = .086$, $p = .77$, between ego-involved subjects that received feedback (adjusted mean = 67.26, SD = 2.29) and ego-involved subjects that did not receive feedback (adjusted mean = 68.28, SD = 2.53). However, by trial two there was a statistically significant difference, $F(1,66) = 3.38$, $p = .014$, in mean performance between ego-involved individuals. Ego-involved subjects who received feedback performed better (adjusted mean = 53.56, SD = 1.65) than those who did not receive feedback (adjusted mean = 62.53, SD = 1.82). The difference in performance between ego-involved individuals who received feedback (adjusted mean = 55.15, SD = 1.56) and ego-involved individuals who did not receive feedback (adjusted mean = 60.23, SD = 1.73) was also statistically significant at trial three, $F(1,66) = 4.60$, $p = .036$. For task-involved individuals, no statistically significant difference in performance across the three trials was observed regardless of whether feedback was given. To summarize, a statistically significant interaction was obtained, but it was not in the predicted direction.

Hypothesis 4a. Participants who are ego-involved were hypothesized to be significantly less likely to accept the feedback than individuals in the task-involved condition. The means on the feedback acceptance factor for each condition are contained in table 18. A goal-orientation (2) X feedback (2) ANCOVA revealed a statistically significant main effect of goal-orientation, $F(1,144) = 6.29$, $p = .013$, on feedback acceptance. As hypothesized, subjects in the ego-involved condition were significantly less likely to accept the validity of the feedback (adjusted mean = 3.76) than participants in the task involved condition (adjusted mean = 4.17). The interaction of

Table 18: Source table for feedback (2) X goal-orientation (2) ANCOVA on the acceptance of feedback factor.

Effect	SS	df	MS	F	p	η^2
Dispositional ego-involvement	0.92	1	0.92	0.94	.334	.16
Dispositional task-involvement	0.02	1	0.02	0.02	.897	.05
Self-monitoring	1.60	1	1.60	1.63	.204	.25
Feedback	1.99	1	1.99	2.04	.156	.29
Goal-orientation	6.16	1	6.16	6.29	.013	.70
Feedback X Goal-orientation	0.09	1	0.09	0.09	.760	.06
Error	141.03	144	0.98			

goal-orientation X feedback and the main effect of feedback were both statistically nonsignificant, $p > .05$ (see Table 19).

Hypothesis 4b. Participants in the ego-involved condition were hypothesized to be significantly less likely to focus attention on the task. A goal-orientation (2) X feedback (2) ANCOVA on the focus of attention scale did not produce a statistically significant main effect of goal-orientation, $F(1,144) = 1.00$, $p = .318$, as hypothesized. The interaction of goal-orientation X feedback was also statistically nonsignificant, $F(1,144) = .019$, $p = .890$. However, there was a statistically significant main effect for feedback, $F(1,144) = 7.01$, $p = .007$ (see Table 20). Participants who received feedback were significantly less likely to report difficulty focusing attention on the task (adjusted mean = 2.82) than participants in the no feedback condition (adjusted mean = 3.29).

Hypothesis 4c. There is also evidence that individuals in the task-involved condition were more dissatisfied with their performance and perhaps more motivated to do better than ego-involved subjects. Hypothesis 3c states that individuals who are ego-involved will be less likely to desire to respond to the performance feedback. To address this question, the four questions composing the reported satisfaction facet from the self-perceived performance and satisfaction factor were subjected to a goal-orientation (2) X feedback (2) ANCOVA (see Table 21). A statistically significant difference was obtained for the main effect of feedback $F(1,144) = 10.82$, $p < .001$. Participants who did not receive feedback were more likely to be satisfied with their own performance and the performance of their group (adjusted mean = 4.18) than participants who received feedback (adjusted mean = 3.63). The results for the main effect of goal-orientation were

Table 19: Source table for feedback (2) X goal-orientation (2) ANCOVA on the focus of attention factor.

Effect	SS	df	MS	F	p	η^2
Dispositional ego-involvement	3.09	1	3.09	2.91	.090	.39
Dispositional task-involvement	5.68	1	5.68	5.35	.022	.63
Self-monitoring	0.57	1	0.57	0.53	.466	.11
Feedback	8.08	1	8.08	7.60	.007	.78
Goal-orientation	1.07	1	1.07	1.00	.318	.17
Feedback X Goal-orientation	0.02	1	0.02	0.02	.890	.05
Error	152.88	144	1.06			

Table 20: Source table for feedback (2) X goal-orientation (2) ANCOVA on the satisfaction factor.

Effect	SS	df	MS	F	p	η^2
Dispositional ego-involvement	0.18	1	0.18	0.17	.678	.07
Dispositional task-involvement	0.05	1	0.05	0.05	.822	.06
Self-monitoring	0.03	1	0.03	0.03	.865	.05
Feedback	11.22	1	11.22	10.82	.001	.90
Goal-orientation	2.25	1	2.25	2.17	.143	.31
Feedback X Goal-orientation	0.02	1	0.02	0.02	.896	.05
Error	149.37	144	1.04			

Table 21: Adjusted means and standard errors by condition for the feedback acceptance factor, the focus of attention factor, and the satisfaction factor.

	Feedback acceptance factor	Focus of attention factor	Satisfaction Factor
Feedback \ Task-involved condition	4.31 (0.15)	2.92 (0.16)	3.51 (0.16)
No feedback \ Task-involved condition	4.03 (0.16)	3.37 (0.17)	4.05 (0.17)
Feedback \ Ego-involved condition	3.85 (0.16)	2.72 (0.17)	3.74 (0.17)
No feedback \ Ego-involved condition	3.66 (0.18)	3.21 (0.19)	4.32 (0.18)

statistically nonsignificant, $F(1,144) = 2.17$, $p = .143$. However, the mean pattern of responses across the two groups was in the predicted direction. Ego-involved participants were more satisfied with their own performance and the performance of their group (adjusted mean = 4.03) than participants who received feedback (adjusted mean = 3.78). The interaction of feedback X goal-orientation was also nonsignificant, $F(1,144) = .02$, $p = .896$.

Post hoc analyses of the data was used to further explore the relationship between goal-orientation and feedback acceptance, desire to respond to the feedback, and focus of attention. Compared to task-involved individuals, ego-involved individuals typically view performance outcomes as more meaningful because they reflect important personal attributes. As a result, the relationship between performance on the task and the various reactions to the feedback may depend on an individual's goal-orientation. For example, because performance represents an innate quality, ego-involved individuals may be more likely to accept the feedback when they performed well and more likely to reject the feedback when they performed poorly. Whereas, for task-involved individuals, performance on the task is less of a measure of self-worth so its relationship with feedback acceptance will be less. Similarly, one might suspect that the relationship between other reactions to the feedback and performance might be moderated by goal-orientation.

To test these possibilities, the moderating effect of goal orientation on the relationship between feedback acceptance, desire to respond to the feedback, and focus of attention, and three performance measures, actual performance on trial 3, rank order performance within one's group at trial 3, and perceived performance, was evaluated.

Multiple measures of performance were used because research suggests that actual performance may not be as important when exploring responses to the feedback. For example, Neese, Mudgett, and Quiñones (in press) suggests that feedback sign may be an important variable to consider instead of actual performance when examining cognitive and behavioral responses to feedback. They argue that absolute performance may not be as important as performance relative to a standard. In the present study, the standard for comparison is likely to be the performance of fellow group members. As a result, rank order performance may be a more appropriate measure than feedback sign in this context. Because no specific hypotheses were offered, these analyses were purely exploratory. The results for these analyses can be found in table 22. No significant results were found for the moderating effect of goal-orientation on the relationship between the desire to respond to the feedback and the various performance measures or on the relationship between focus of attention and the various performance measures. Similarly, the moderating effects of goal-orientation on feedback acceptance and performance on trial 3 and feedback acceptance and rank order performance within one's group at trial 3 were statistically nonsignificant. Goal-orientation appeared to be a statistically significant moderator of the relationship between acceptance of the feedback and perceived performance. The correlation between feedback acceptance and perceived performance for task-involved and ego-involved individuals was .32, $p = .003$, and $-.20$, $p = .103$, respectively. These two correlations were statistically significantly different, $z = 3.20$, $p < .01$. According to these results, task-involved individuals were more likely to

Table 22: Correlations between reactions to the feedback and measures of performance for ego and task-involved individuals.

	Ego- Involved	Task- Involved	Z	p
Feedback acceptance and performance on trial 3	-.07	-.23	0.94	.347
Feedback acceptance and rank order performance on trial 3	.02	-.23	1.56	.119
Feedback acceptance and perceived performance	-.20	.32	3.20	.001
Desire to respond to the feedback and performance on trial 3	-.08	-.12	0.24	.810
Desire to respond to the feedback and rank order performance on trial 3	-.17	-.25	0.55	.582
Desire to respond to the feedback and perceived performance	.55	.49	0.49	.624
Focus of attention and performance on trial 3	-.06	.12	1.07	.285
Focus of attention and rank order performance on trial 3	.08	.10	0.10	.920
Focus of attention and perceived performance	.06	-.01	0.40	.689

report that they accepted the feedback when they performed worse while the reverse was true for ego-involved individuals.

Although no statistically significant differences between the goal-orientation conditions were found on the satisfaction facet, looking at responses to individual questions composing this facet may be informative. Two of the questions composing this facet deal with satisfaction with group performance. A third question concerns satisfaction with individual performance at the end of the experiment. Although each of these questions are measures of an overall satisfaction construct, neither of them address the hypothesis as well as the fourth item composing the satisfaction scale. The post-experimental question, "How satisfied would you be if you personally attained the same level of performance in the next session?", was subjected to a goal-orientation (2) X feedback (2) ANCOVA. The results for the main effect of goal-orientation approached conventional levels of significance, $F(1,144) = 3.66$, $p = .058$. Subjects who were task-involved stated they would be less satisfied (adjusted mean = 3.08) than subjects in the ego-involved condition (adjusted mean = 3.52). The main effect for feedback was also significant, $F(1,144) = 6.91$, $p = .009$. Subjects who received feedback reported being less satisfied (adjusted mean = 3.00) than subjects who did not receive feedback (adjusted mean = 3.60). The interaction of goal-orientation X feedback was non-significant, $F(1,144) = 1.25$, $p = .266$.

Hypothesis 5a. For individuals who receive feedback, prior performance of the task is hypothesized to be positively related to air time in group discussions for task-involved individuals but not for ego-involved individuals. For ego-involved individuals,

the correlation between score on trial 1 and proportion of time spent talking in discussion 1 was $r(39) = -.18, p = .287$, while the correlation between score on trial 2 and proportion of time spent talking in discussion 2 was $r(39) = -.11, p = .507$. For task-involved groups, the correlation between score on trial 1 and proportion of time spent talking in discussion 1 was $r(40) = -.26, p = .102$ while the correlation between score on trial 2 and proportion of time spent talking in discussion 2 was $r(40) = -.17, p = .273$. The correlation of air time and score on the previous trial was not statistically significantly different over time for either ego-involved, $t(36) = .37, p > .05$, or task-involved subjects, $t(37) = .51, p > .05$. Moreover, the correlation between air time and score on the previous trial was not statistically significantly different between ego-involved or task-involved subjects for discussion 1, $z = 0.36, p > .05$, or discussion 2, $z = 0.26, p > .05$. The non-significant results suggest that there is no statistically significant difference in the relationship between performance and air time between task and ego-involved groups for either time period. Despite this statistically non-significant result, the pattern of observed correlations was in the predicted direction.

Similar analyses were also performed using another measure of performance, rank order performance within one's group (see Table 23). The correlations between rank order performance on trial 1 and air time during discussion period 1 were $r(39) = -.124, p = .453$, for ego-involved subjects and $r(40) = -.240, p = .136$, for task-involved subjects. The correlations between air time and rank order performance on the previous trial between ego and task-involved individuals were not statistically significantly different, $z = 0.52, p = .603$. For the next trial, the correlations between rank order

Table 23: Correlations between air time and performance on the previous trial for ego and task-involved individuals.

	Ego- Involved	Task- Involved	Z	p
Performance on trial 1 and air time in discussion 1	-.18	-.26	0.36	.718
Performance on trial 2 and air time in discussion 2	-.11	-.17	0.26	.794
Rank order performance on trial 1 and air time in discussion 1	-.12	-.24	0.52	.603
Rank order performance on trial 2 and air time in discussion 2	-.34	-.41	0.32	.749

performance and air time were $r(39) = -.175, p = .286$ and $r(40) = -.305, p = .047$, for ego and task-involved subjects respectively. Once again, these two correlations were not statistically significantly different from one another, $z = 0.59, p = .600$. The results using rank order performance within one's group is similar to the result found using actual performance. The results were statistically nonsignificant but were in the predicted direction.

Hypothesis 5b. For individuals who receive feedback, performance on the task is hypothesized to be positively related to others' ratings of competence for task-involved individuals, but unrelated for ego-involved individuals. The relationship between one's average score across the three trials and others' ratings of competence was $r(39) = .32, p = .046$, and $r(43) = .54, p < .001$, for ego-involved and task-involved participants respectively. A z-score test revealed that these two correlations are not statistically significantly different, $z = 1.19, p = .12$. The correlation of competence and rank order performance within one's group on the final trial was also used to test this hypothesis (see Table 24). For task-involved individuals, the correlation between rank order performance on trial 3 and others' ratings of competence was $r(40) = .432$, while the results for ego-involved subjects were $r(39) = .079$. These two correlations were not statistically significantly different from one another, $z = 1.67, p = .095$. The nonsignificant z-scores for the correlations using both performance measures suggests that there is no statistically significant difference in the relationship between performance and other's rankings of competence between task and ego-involved groups.

Table 24: Correlations between other's ratings of competence and performance on the task for ego and task-involved individuals.

	Ego- Involved	Task- Involved	Z	p
Average performance and competence	.32	.54	1.19	.120
Rank order performance and competence	.08	.43	1.67	.095

Despite this statistically nonsignificant result, the pattern of observed correlations was in the predicted direction.

Hypothesis 5c. For individuals who receive feedback, prior performance on the task was hypothesized to be positively related to influence for the task-involved individuals, but not for the ego-involved individuals. For the second and third trials, influence for ego-involved subjects was related to their score on the previous trial $r(39) = -.443$, $p = .005$, and $r(39) = -.498$, $p < .001$, respectively. Influence for task-involved subjects was related to score on the previous trial $r(43) = -.449$, $p = .003$, and $r(43) = -.378$, $p = .012$, for trials two and three respectively. A z-score was computed for both pairs of correlations and no statistically significant differences were found between goal-orientation conditions for trials two, $z = 0.03$, $p > .05$, or three, $z = 0.65$, $p > .05$. Again, these results were also conducted using rank order performance within one's group (see Table 25). For the second trial, the correlation between rank order performance and influence was $r(39) = -.175$ for ego-involved subjects and $r(40) = -.305$ for task involved individuals. The results on trial 3 for ego-involved and task-involved subjects was $r(39) = -.388$ and $r(40) = -.289$ respectively. The correlations between goal-orientation conditions were statistically nonsignificant for trial 2, $z = 0.60$, $p = .549$, and trial 3, $z = 0.49$, $p = .624$. Based on the results from both performance measures, no statistically significant difference was observed in the relationship between influence and prior performance between task and ego-involved subjects.

The above analyses for each of the hypotheses were repeated at the group level. In general, the results were in the same direction as those at the individual level, but they

Table 25: Correlations between influence and performance on the previous trial for ego and task-involved individuals.

	Ego- Involved	Task- Involved	Z	p
Performance on trial 1 and influence on trial 2	-.44	-.45	0.03	.976
Performance on trial 2 and influence on trial 3	-.50	-.38	0.65	.516
Rank order performance on trial 1 and influence on trial 2	-.18	-.31	0.60	.549
Rank order performance on trial 2 and influence on trial 3	-.39	-.29	0.49	.624

were typically non significant. The lack of significant findings at the level of the group was most likely due to a loss of degrees of freedom and a subsequent decrement in statistical power.

Discussion

The present study produced somewhat mixed findings regarding the effect of goal-orientation on the feedback-performance relationship. As predicted by hypothesis 2, individuals who were ego-involved performed statistically significantly worse over the three experimental trials than individuals in the task-involved conditions. In contrast, contrary to hypothesis 3, the pattern of results was not in the predicted direction. This hypothesis predicted that feedback would have a larger beneficial effect on performance for task-involved individuals compared to ego-involved individuals, and that there would be no differences in performance between the no feedback conditions. The observed pattern of results was inconsistent with these predictions. The data show that the presence of feedback had a beneficial effect for ego-involved subjects, but not for task involved subjects. Task-involved subjects performed well regardless of whether feedback was present. What is responsible for this unanticipated pattern of results? In particular, why did the ego-involved/feedback condition perform at a level comparable to the task-involved/feedback condition? Also, what can explain the high level of performance observed in the task-involved/no feedback condition?

In the present study, for groups that received feedback, no statistically significant difference in performance was found between these two conditions. One potential explanation for these inconsistent findings is that the presence of feedback cued a task

focus even in the ego-involvement condition. Butler (1987) found that the presence of feedback and the type of feedback cued either task-involving or ego-involving attributions. For example, praise and grades tended to cue ego-involving attributions whereas comments tended to cue task-involving attributions. Similarly, Kluger and DeNisi (1996) found that the type of feedback is an important variable in determining one's focus of attention. In their model of feedback interventions, the type of feedback was largely responsible for whether attention is focused on task or self relevant details. A similar effect may be occurring in the present study. In the present study, participants received numerical feedback reflecting their score on the task. The type of feedback provided may have had the effect of overriding the ego-involving manipulation by focusing attention away from the self and onto the task. The feedback may have drawn participants' attention away from self-related concerns and onto the task itself. An examination of responses on the task focus scale lends support to this speculation. Recall that a statistically significant main effect of feedback was found for the task focus scale, indicating that individuals that received feedback were significantly more likely to report focusing attention on the task than individuals that did not receive feedback. This statistically significant result suggests that the feedback may have inadvertently created a task focus, even for subjects in the ego-involved condition. Future research testing the moderating effects of goal-orientation requires accounting for the influence of the type of feedback. As a result, in future studies, researchers should consider manipulating the type of feedback presented as well.

Concerning the high performance of the task-involved/no feedback condition, one potential explanation for the pattern of results is that task-involved subjects, even when they did not receive feedback, were able to acquire task relevant information from the group discussion periods. For instance, individuals who were task-involved and did not receive feedback were just as good at gauging their own level of performance as the groups that did receive feedback. Post hoc analysis reveals that the correlation between average performance across the three trials and self-reported perceptions of performance for the task and ego-involved individuals that received feedback was -0.34 , $p = .024$, and -0.31 , $p = .056$, respectively. The differences between these two conditions were not statistically significant, $z = .15$, $p > .05$. The moderate negative correlation indicates that, in these two conditions, subjects' perceptions of performance somewhat mirrored their actual performance on the task. This result is to be expected considering that both groups received feedback about their performance on every trial. Surprisingly, for subjects in the no feedback condition, the correlation between actual and perceived performance for task-involved subjects was of a similar magnitude, $r = -0.34$, $p = .038$. However, for subjects in the ego-involved condition, the correlation was substantially less and in the wrong direction, $r = .09$, $p = .627$. Moreover, these two correlations were statistically significantly different from one another, $z = 1.75$, $p = .040$. The task-involved subjects in the no feedback condition appear able to estimate their level of performance as well as individuals in the feedback conditions. Yet, the same cannot be said for the ego-involved subjects that did not receive feedback.

The above results indicate that subjects in the task-involved condition were able to more accurately gauge their level of performance even when they did not receive any feedback. There is also evidence that these individuals more accurately estimated the ability of those around them as well. To investigate this possibility, average performance over the three trials was correlated with other group members' ratings of competence for the four conditions. For the task and ego-involved conditions that received feedback, the correlation was .54, $p < .001$, and .32, $p = .046$, respectively. The difference between these two correlations was not statistically significant, $z = 1.17$, $p > .05$. The positive correlation indicates that subjects in these two conditions were rated more competent as their performance on the task increased. Subjects who were task-involved and did not receive performance feedback were also somewhat accurate in identifying high performing group members, $r = .24$, $p = .154$. For ego-involved subjects in the no feedback condition, the strength of the relationship between performance and others' ratings of ability was substantially smaller, $r = .08$, $p = .655$. However, these correlations did not statistically significantly differ, $z = 0.71$, $p > .05$.

The finding that task-involved subjects were better able to discern their own performance level as well as the performance of others without the presence of feedback has some support from the previous literature. In a study examining the information seeking behaviors of task and ego-involved individuals, Butler (1993) found that task-involved individuals were more likely to seek out task information than ego-involved individuals. This pattern of information seeking was related to subsequent performance. Similar results were obtained by VandeWalle and Cummings (1997). In two studies of

283 students, a positive relationship was found between task-involvement and feedback seeking, while a negative relationship was found for ego-involvement and feedback seeking. These two sets of findings may help explain the pattern of results from the present study. In the present study, individuals who were task-involved in the no feedback condition may have been able to overcome the lack of performance feedback by actively seeking and obtaining relevant task information from the group discussions. Clearly the individuals in this condition were as accurate at gauging their level of performance across the three trials compared to the two feedback conditions. Individuals in the task-involved/no feedback condition were slightly better at identifying competent group members than individuals in the ego-involved/no feedback condition. As a result, they were able to achieve levels of performance similar to the two feedback conditions.

Subsequent exploration of the group discussion tapes allows some further speculation regarding potential explanations for the performance differences observed between ego and task-involved individuals. Ego-involved subjects, when presenting ideas, displayed a tendency of attempting to justify the adequacy of their ideas to fellow group members. For example, some individuals would state that they were in the Boy Scouts or that they lived in Arizona. These statements may have been an attempt to convince fellow group members that they had special knowledge of how to survive in the desert, and as a result, group members should listen to them. Unfortunately, this tendency of qualifying ideas as coming from a credible source may have resulted in fellow group members being influenced by low quality ideas. A different pattern of interactions was observed in the task-involved discussion. Task-involved individuals appeared to be more willing to let the

quality of their ideas stand for themselves. In fact, they even acknowledge when they were presenting ideas that may not be very good. For example, some individuals, after presenting ideas would make statements like, "... but what do I know." Unlike ego-involved individuals who had a tendency to convince others that their ideas were high quality, task-involved individuals appeared more likely to acknowledge their lack of expertise in the topic. Future research needs to examine social interactions in more detail to determine specifically what behaviors are more likely to be exhibited by task and ego-involved individuals and how these behaviors may ultimately impact performance.

The results regarding the use of the feedback information indicate that ego-involved subjects were significantly less likely to accept the validity of the feedback and reported having less desire to respond to the feedback information. The present study also supports the previous research examining the relationship between air time, influence, and subsequent group performance (Bottger, 1984; Littlepage et. al., 1995). For example, as predicted, individuals who were rated as more competent and who spent more time talking in the discussion periods wielded more influence on fellow group members' subsequent responses. Moreover, when better performing group members were exerting more influence, group performance increased.

Previous research exploring the connection between air time and influence has examined the relationship at only one point in time. The present study affords the opportunity to investigate the stability of this relationship over time. The relationship between air time and influence on fellow group members' subsequent responses was statistically significant for the first discussion period ($r(145) = .239$ $p = .004$) but not for

the second discussion period ($r(143) = .048, p = .571$). The observed correlations significantly differed statistically from one another ($t(134) = 3.08, p < .01$). These results suggest that air time may play less of a role in determining influence as time progresses. It is not clear why the relationship between air time and influence diminishes over time. One might speculate that initially people are influenced by those who talk more. But, after trial 2, participants have had the opportunity to test the information provided by a fellow group members. If their performance improves, participants are likely to listen to the same person in the next discussion period no matter of how much he or she talks. Similarly, if performance decreases as a result of adhering to the advice of a fellow group member, that group member may be less influential regardless of air time.

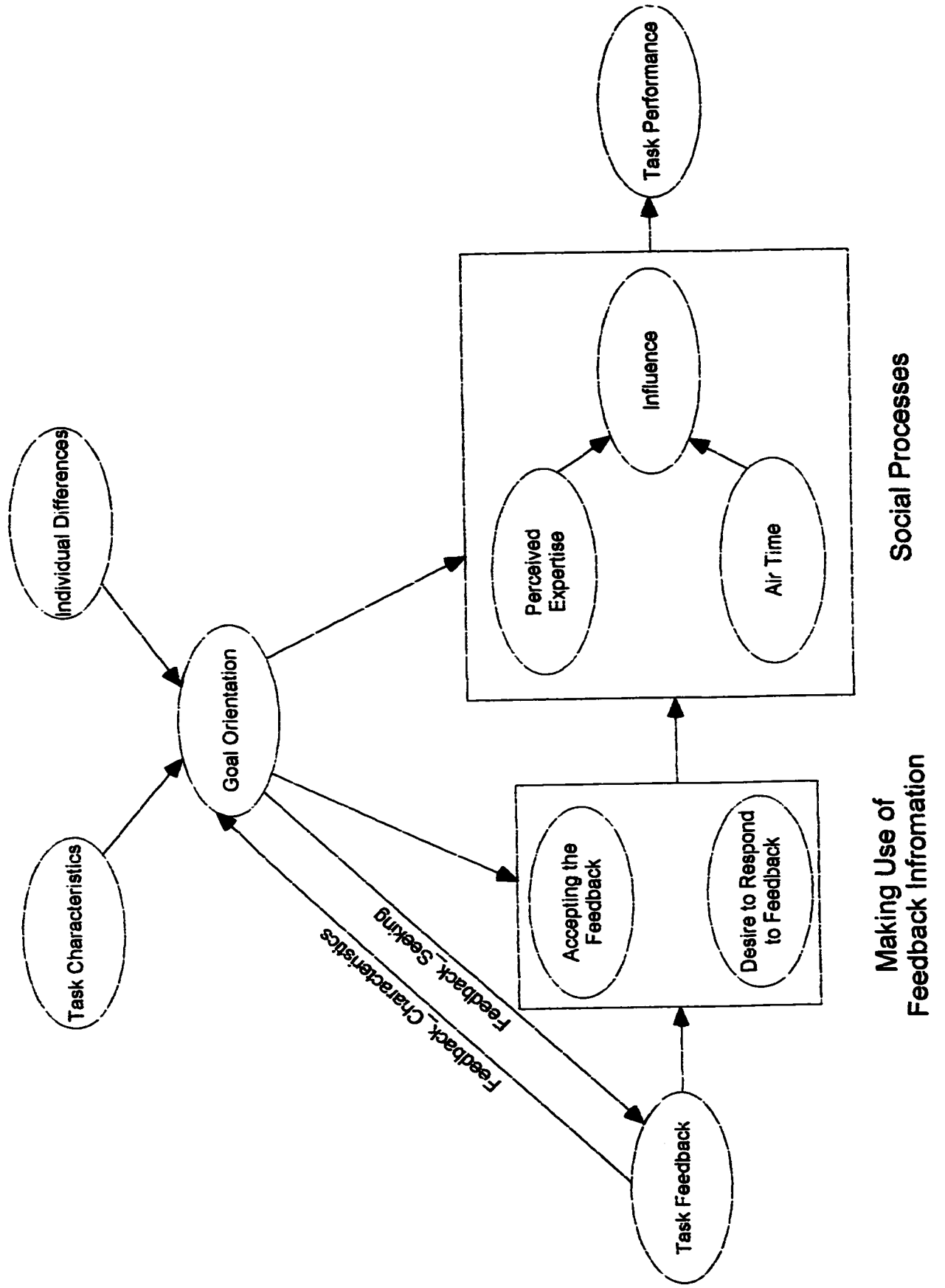
The conclusions drawn from the results examining the role of goal orientation on air time, influence, and competence judgments are tenuous. For groups that receive feedback, prior performance on the task was hypothesized to be positively related to air time in the discussions for task-involved individuals but not for ego-involved individuals. Although the tests of significance did not produce any statistically significant findings, the pattern of results were in the predicted direction. Similarly, the hypotheses predicted that performance on the task would be more positively related to others' ratings of competence for task-involved individuals than for ego-involved individuals. Once again, the results were in the predicted direction but statistically nonsignificant. Finally, no evidence was found to suggest that prior performance on the task was more positively related to influence for task-involved compared to ego-involved individuals.

Based on the findings from the present study, figure 3 contains a revised model of feedback and performance in a social context. As shown in figure 3, the relationship between task feedback and performance in a social context is mediated by making use of the feedback information and social process. The present study provides some evidence that goal-orientation influences both of these mediating variables. Although goal-orientation was manipulated through the characteristics of the task, the results of the present study and previous research (Butler, 1987) suggest that feedback characteristics may impact goal-orientation. However, the influence of feedback on goal-orientation may be bi-directional. Goal-orientation may partially determine the amount of feedback available to individuals through the enhanced feedback seeking behaviors of task-involved individuals (Butler, 1993; VandeWalle & Cummings, 1997). Although not a focus of the present study, individual differences must also be included in the model because dispositional tendencies have been shown to be important determinants of goal-orientation (Buttton, et. al., 1997).

Limitations and Future Research

Despite the generally supportive results, future research should address certain limitations. One area of improvement concerns the effectiveness of the manipulation. Although some evidence existed to support the efficacy of the manipulation, a stronger manipulation may produce more conclusive results. Research is also needed to explore some of the various linkages in the proposed model. In particular, researchers may wish to focus on the bi-directional linkage between feedback and goal-orientation. In the present study, the presence of feedback appeared to increase one's focus of attention on

Figure 3: Revised Model of Feedback in a Social Context



the task. Although the feedback was quantitative in nature and should not have elicited a task-focus (Butler, 1987), the possibility of such an occurrence is supported by the data. Further exploration of whether different types of feedback would have elicited similar attributions and performance seem fruitful. Attention should also be paid to how goal-orientation affects what type of feedback is available to individuals. Specifically, research should focus on how goal-orientation enhances feedback seeking in task-involved individuals.

Continuing to investigate the feedback-performance relationship in more realistic settings also seems warranted. Specifically, research should focus on social process variables that may enhance or attenuate this relationship. Future research on the three social process variables examined in this study, influence, expertise, and air time, is appropriate. The experimental results evaluating the role of these three variables were consistent with the proposed hypotheses, yet they were nonsignificant. Future research should proceed to investigate the potential relationships between these variables, goal-orientation, and performance in an effort to draw more definitive conclusions. Moreover, continued exploration of the stability of the interrelationships between these variables is needed.

Kluger and DeNisi (1996) proposed a feedback intervention model that postulated that the effectiveness of feedback was a function of one's focus of attention, which is determined by feedback cues, situational variables, and personality characteristics. Through a situational manipulation of goal-orientation, the present study attempted to determine if the beneficial effects of feedback on performance were dependent on one's

focus of attention. The performance data obtained from this study do support Kluger and Denisi's (1996) findings that feedback is not beneficial in all instances. Moreover, despite the unanticipated pattern of results for the performance data, the results from the present study do suggest that goal-orientation may be an important variable that can affect feedback's utility. The results suggest that situational characteristics are important determinants of attentional focus and ultimate task performance. In addition, results from this study imply that feedback characteristics may also affect attention. Researchers should continue to explore characteristics such as the feedback, the situation, and individual differences that may influence goal-orientation and task performance.

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Appendix 1: Post-Task Questionnaire

- 1) The feedback I received was an accurate evaluation of my performance.
- 2) It is hard to take the feedback seriously.
- 3) I do not agree with the feedback provided.
- 4) How well did you personally perform on this task?
- 5) How much did you personally improve on this task over the course of the session?
- 6) How well did your group perform on this task?
- 7) How much did your group improve on this task over the course of the session?
- 8) How satisfied were you with your personal performance on this task at the end of the experiment?
- 9) How satisfied would you be if you personally attained the same level of performance in the next session?
- 10) How satisfied were you with your group's performance on this task at the end of the experiment?
- 11) How satisfied would you be if your group attained the same level of performance in the next session?
- 12) How important to you is your performance on this task?
- 13) I care very much about how I do on this task?
- 14) I concentrated on finding the correct answer to this task?
- 15) I had trouble focusing my attention on the task?
- 16) I felt self-conscious when performing this task?
- 17) I thought about things unrelated to the task during the experiment?

18) I was very concerned about how I appeared to others in the group discussions we held during the session?

19) Do you believe that you had control over the factors that caused your performance?

20) Do you believe that the causes of your performance could change over time or are they highly stable and unlikely to change?

Manipulation Check Questions

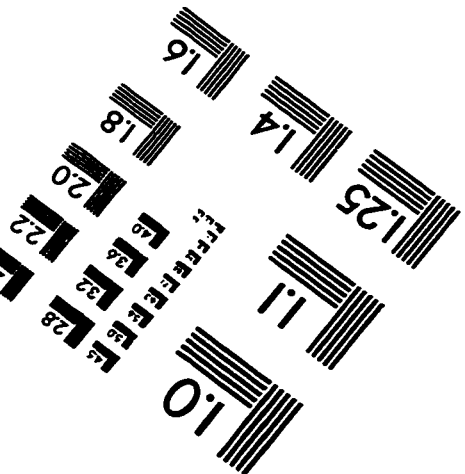
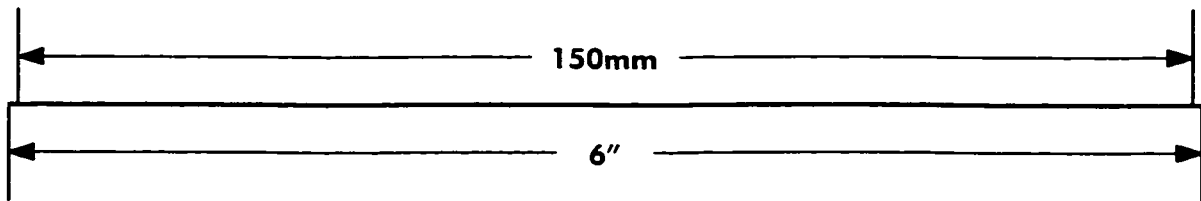
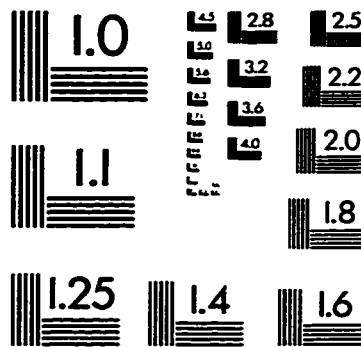
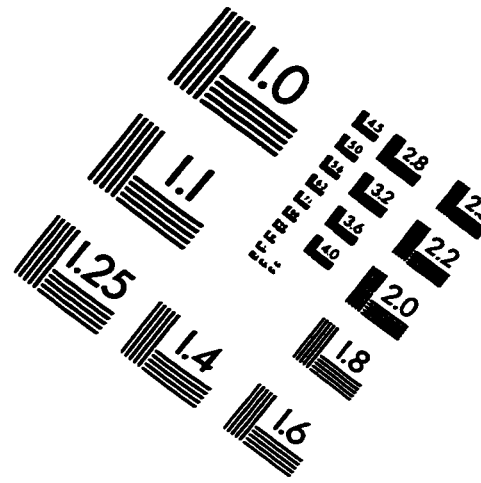
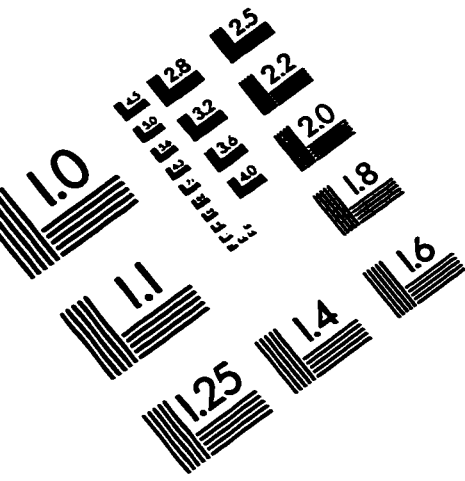
1) During the discussion period, my goal was to master the task.

2) During the discussion period, my goal was to appear competent at performing the task.

3) During the discussion period, I was interested in learning how to perform better on the task.

4) During the discussion period, I was interested in appearing proficient at performing the task.

IMAGE EVALUATION TEST TARGET (QA-3)



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