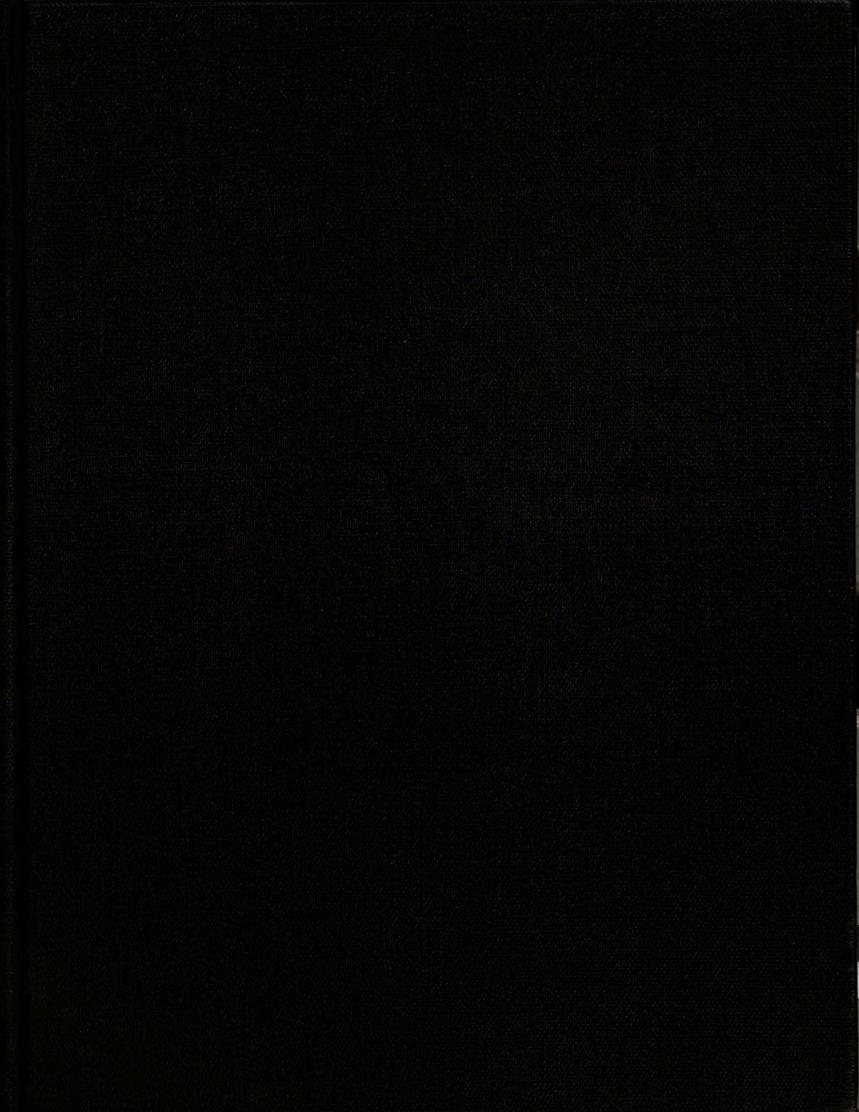




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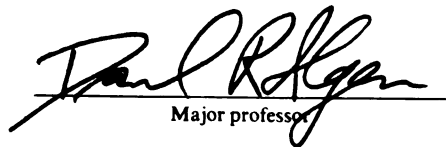
Motivation in Groups: A Control Theory Model

presented by

Anne Marie O'Leary

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MOTIVATION IN GROUPS:
A CONTROL THEORY MODEL

By

Anne Marie O'Leary

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Management

1990

ABSTRACT

MOTIVATION IN GROUPS: A CONTROL THEORY MODEL

By

Anne Marie O'Leary

This research developed and tested a model of the psychological processes involved in the motivation of individuals operating within groups. In line with control theory, the model suggested that individual group members compare the group's referent standard to the group's performance feedback information and a decision is made about whether a discrepancy exists between the two. Group members were hypothesized to undergo a social comparison process aimed at determining the degree of their individual responsibility for the group's performance outcome. These perceptions were expected to influence the individual's choice of attributional source (i.e., attributions to self, group, task difficulty, or luck). The locus of causality of the attributional source chosen was hypothesized to influence the affective reactions (satisfaction with self performance, satisfaction with the group) of the group member, and the stability of the source was expected to influence the future commitment of the individual to the group's referent standard. Finally, the commitment of the group member was expected to relate to the future performance of the group member.

This model was tested in a sample of nineteen college intramural basketball teams. One hundred and forty four individuals completed questionnaires at each of three basketball games. Individual performance in the games served as the performance measure.

The results provided general support for the model. The individual team member's perception of his performance level influenced his perception of responsibility for the group's performance outcome. In addition, this perception of felt responsibility influenced the attributional source chosen by the individual. The locus of causality of the attributional source influenced the individual's satisfaction with self performance, however there was no support for the hypothesis that the locus of causality of attributions would predict satisfaction with the group. There was mixed support for the prediction that the stability of attributions would influence commitment to the group's standard on the next performance trial. Although there was no support for the hypothesis that commitment to the group's standard would be positively related to individual performance, there was a positive relationship between individual commitment to the group's standard and group performance.

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1990

ACKNOWLEDGEMENTS

There are a few wonderful people who have greatly influenced the person that I am, both personally and professionally, and to them I owe a great debt. I can offer only gratitude in return, along with the promise that I will try to make them proud of this person they have shaped.

Most of all I thank my parents, whose opinion of me was always much higher than my own, for seeing my options as so limitless. I also thank the rest of my family (Margo, Joseph, Eileen, Mary, Sharon, Joanne, Colleen, Patrick, Becky, Terry, Bob, Tim, Betsy, Jenny) for being my most treasured friends; there is no group I would rather belong to.

I thank my teachers at MSU for helping me develop a new view of the world. Professionally, I owe them all that I am. On a personal level, however, they have also given to me. I thank Dan Ilgen for being a truly genuine, gentle person; he is my standard. I thank Georgia Chao for the role modeling; she has shown me the meaning of poise. I thank John Hollenbeck for making this "work" so much fun; his enthusiasm is infectious.

And, of course, to all of my friends in the program I am grateful. Each of them has expanded my view in some unique way, and that is the greatest gift they could give.

It's time to move on. I am ready. I am sorry.

Yet all experience is an arch where thro'
Gleams that untravell'd world whose margin fades
For ever and for ever when I move.

-Tennyson

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CHAPTER ONE: INTRODUCTION

Landy and Becker (1987), in their recent review of research and theory in the work motivation area, suggest that the search for one "right theory" of work motivation is misguided. They point out that no one theory developed to date is able to explain all motivated human behavior, nor are they optimistic that such a theory will ever be developed. They suggest, in line with Pinder (1984), that existing theories of work motivation might be considered "middle range" theories (i.e., theories that are useful in the prediction and understanding of a subset of motivated behavior). The authors further point out that viewing existing theories of work motivation as competitors is an ineffective strategy for knowledge acquisition. They suggest instead that there is value in devising frameworks that link these existing theories, and they refer to such frameworks as "metatheories" (Landy, 1985; Landy & Becker, 1987; Landy & Becker, 1982). One of the central points of the review was the need for a new synthesis of middle range theories into metatheoretic frameworks.

The synthesis of existing theories of work motivation into metatheoretic frameworks is useful for several reasons. First, metatheories allow researchers to cumulate the findings related to existing theories. It is possible, therefore, to obtain a clearer picture of what is known and what is not yet known regarding a specific area of study than would be possible from examination of the findings related to only one theory. For example, Campion and Lord (1982) suggested that one reason for the lack of progress in regard to understanding the processes underlying goal setting was that researchers

concerned with goal setting were rarely concerned with feedback, despite the well known finding that knowledge of results is a necessary condition for the use of goal setting techniques. By placing goal setting theory within a metatheoretic framework (control theory) the authors were able to point to an area of goal setting theory which has not been fully explained. Second, the development of a metatheory allows researchers to discover the strengths and weaknesses of each of the middle range theories (i.e., it may suggest boundary conditions for the middle range theories). For example, Landy and Becker (1985) proposed that existing theories of work motivation are differentially suited for predicting different dependent variables. They suggested that expectancy theory is most appropriate for predicting occupational and/or organizational choice, while equity theory is better suited to the prediction of affective reactions. Finally, providing a metatheoretic framework to existing theories serves the useful function of pointing to areas which are promising for future research.

It will be argued here that control theory (Wiener, 1948) is a useful metatheoretic framework for providing a synthesis of existing theories. At the individual level of analysis, control theory has been used to explain the relationships among goal setting, feedback, task performance, and future goal setting (Hollenbeck, 1989). In addition, control theory has been suggested as an integrative metatheory for the synthesis of existing theories of work motivation at the individual level (Klein, 1989). Control theory can cumulate previous research findings (Klein, 1989), and is useful for pointing out areas requiring future research (Klein, 1989; Taylor, Fisher, & Ilgen, 1984). In

addition control theory is a dynamic theory, an important trait lacking in many existing theories of work motivation. Finally, control theory is flexible enough to incorporate constructs from other areas of psychology and to explain findings related to these constructs.

Research at the Group Level

Over fifteen years ago, Steiner suggested that, "the group seems to have gone out of fashion" (1972, p. vii). He pointed out that researchers had shown a great deal of interest in groups until the late 1950's, at which time focus was shifted to the individual level of analysis. After that time, the group as a task-performing system was largely ignored. Austin and Bobko (1985) similarly suggested that there has been relatively little research conducted on group processes and group performance given the fact that the productivity of work groups is a critical component of the productivity of an organization.

Presently, there is a renewed interest in the study of groups and group variables in the organizational behavior literature. This renewed interest is likely due to the recognition that much of the work accomplished in organizations is accomplished in groups (Austin & Bobko, 1985). Locke, Shaw, Saari, and Latham (1981), in their review of the goal setting literature, called for more research dealing with goal setting at the group level of analysis. Ilgen, Shapiro, Salas, and Weiss (1987) have also discussed the importance of exploring goal setting within the context of groups. Nadler (1979) reviewed research related to the effects of feedback on the task behavior of groups and called for future research in this area, especially research directed at understanding the process of feedback use in groups. While there is not

yet a comprehensive body of knowledge available regarding work motivation in groups, there is clearly a growing interest in conducting research on this topic at the group level.

As research on work motivation in groups develops, it is necessary that some integration of existing findings take place. For example, as the focus on group goal setting increases, it is important that issues of group feedback also become salient to researchers because of the necessity of feedback in the use of goal setting techniques (Locke, et al., 1981; Erez, 1977). Several researchers have recognized this increased interest in group level issues, and the need for some integration of research, and have called for the development of a comprehensive framework to guide the cultivation of this interest. Ilgen, et al., (1987) point to the need for an overarching model to serve as a framework for the examination of goal setting in group contexts. They suggest that such a comprehensive model would provide a useful guide for pointing to future research needs. Similarly, Klein (1989), who provided an integrated control theory model of work motivation at the individual level, has suggested that control theory might be adapted to explain work motivation at the group level. In addition, Steers and Porter (1974), in their review of goal attributes at the individual level, suggested that it is insufficient to simply accept that goal setting programs "work"; these authors encouraged research which explains how and why goal setting has been so successful in attempts to influence human behavior.

The present paper suggests that control theory serves as a useful metatheoretic framework for motivational issues at the group level. The

usefulness of control theory for explaining motivational phenomena at the individual level is well documented (Campion & Lord, 1982; Carver & Scheier, 1982; Carver & Scheier, 1981; Hollenbeck, 1989; Ilgen, et al., 1987; Klein, 1989; Scheier & Carver, 1982; Taylor, et al., 1984). This study will develop and test a control theory model of group motivation and performance. It is argued that the proposed group level control theory model is useful for: a) cumulating empirical findings of group level research, b) pointing out the strengths and weaknesses in existing theories of motivation applied to group settings, and c) providing a framework for future research on group motivation and performance. The necessity for such a model has been established by previous researchers (Ilgen, et al., 1987; Klein, 1989) and appears especially vital given the renewed interest in groups in both the goal setting and feedback areas.

Outline

The following chapter will review control theory and its previous applications to the organizational behavior area. Specifically, the chapter discusses the use of control theory for explaining goal setting findings at the individual level (Campion & Lord, 1982; Hollenbeck & Williams, 1987) and for explaining the use of feedback at the individual level (Taylor, et al., 1984). In addition, the chapter discusses the model developed by Klein (1989) that presents an individual level control theory model of motivation. Finally, the research by Hollenbeck (1989) and Hollenbeck and Brief (1987), that addresses behavioral and affective reactions within the control theory perspective, will be discussed.

The third chapter will present and discuss the proposed control theory model of motivation at the group level, as well as specific hypotheses related to this model. Chapter Four will outline the method used to test these hypotheses, and Chapter Five will provide the results of this test. Finally, Chapter Six will discuss the findings in relation to the model, and will make suggestions regarding interpretation and areas requiring future theoretical and empirical research attention.

CHAPTER TWO: APPLICATIONS OF CONTROL THEORY

Control Theory

Most theorists trace the origins of control theory to the work of Wiener (1948). Control theory has since proved useful as a theoretical framework in a variety of fields of study (e.g., engineering, applied mathematics, economics, and medicine; Carver & Scheier, 1982). Powers (1973), Carver and Scheier (1982), and Miller, Galanter, and Pribram (1960) are usually credited with extending control theory into the realm of psychology and individual behavior. Since these early works, control theory has been used as a framework for explaining and predicting a variety of human behaviors (Campion & Lord, 1982; Carver & Scheier, 1981; Carver & Scheier, 1982; Hollenbeck, 1989; Hollenbeck & Brief, 1988; Hollenbeck & Williams, 1987; Klein, 1989; Taylor, et al., 1984).

The basic unit of organization in control theory is the negative feedback loop. Miller, et al., (1960) referred to this loop as the TOTE (test-operate-test-exit) sequence (see Figure 1). Within this framework, the system engages in self-monitoring, testing input information about the current state of operation against some desired state of operation (represented by the "Test" box in Figure 1). When an incongruity between the current state and the desired state is detected, the system takes some action to eliminate this incongruity (represented by the "Operate" box in Figure 1). The system continues to test and operate until the incongruity is eliminated.

The example typically provided in demonstrating the use of control theory for mechanical systems is the functioning of a thermostat (i.e., a system which senses and monitors environmental temperature).

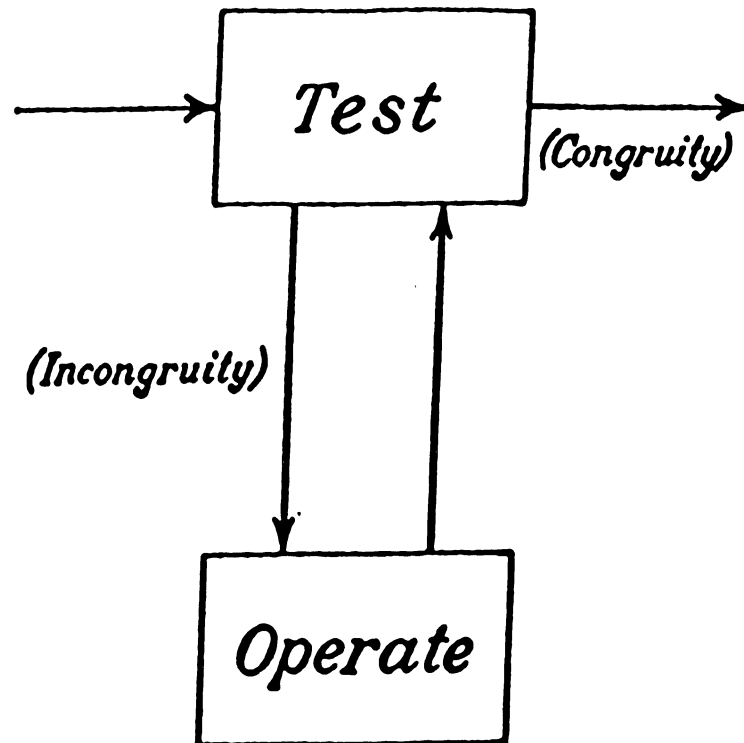


Figure 1. Miller, Galanter, & Pribram (1960) TOTE sequence.

Thermostats are set at some desired temperature (which represents the desired state of operation). The thermostat system has a mechanism for sensing the existing temperature of the environment (current state of operation), and this temperature is compared to the desired temperature (the "test" box in Figure 1). If a discrepancy is discovered between the desired and actual temperatures, the system is activated to reduce this discrepancy. The system continues to monitor the environment and take corrective action until the discrepancy reaches some acceptable level.

Other control theorists have described a cycle similar to that proposed by Miller, et al., (1960), although they have provided more detail regarding process. Carver and Scheier (1982, 1981) proposed the control theory model presented in Figure 2. Again, they contend that the basic unit of control is the negative feedback loop. They refer to this as a "negative" loop because its purpose is to negate, or decrease, the discrepancies between the desired and actual states. Within their model, the input function involves the sensing of the present condition of the system. This condition is then compared to some predetermined reference value via a mechanism called a comparator. If the comparator senses some discrepancy between the present condition and the reference value, the system undertakes some action, referred to as an output function, in order to eliminate or decrease this discrepancy. This action is hypothesized to impact upon the system's environment rather than upon the discrepancy directly. Finally, the disturbance component represented in the model indicates that forces external to the system may impinge upon the system. These forces may be discrepancy reducing

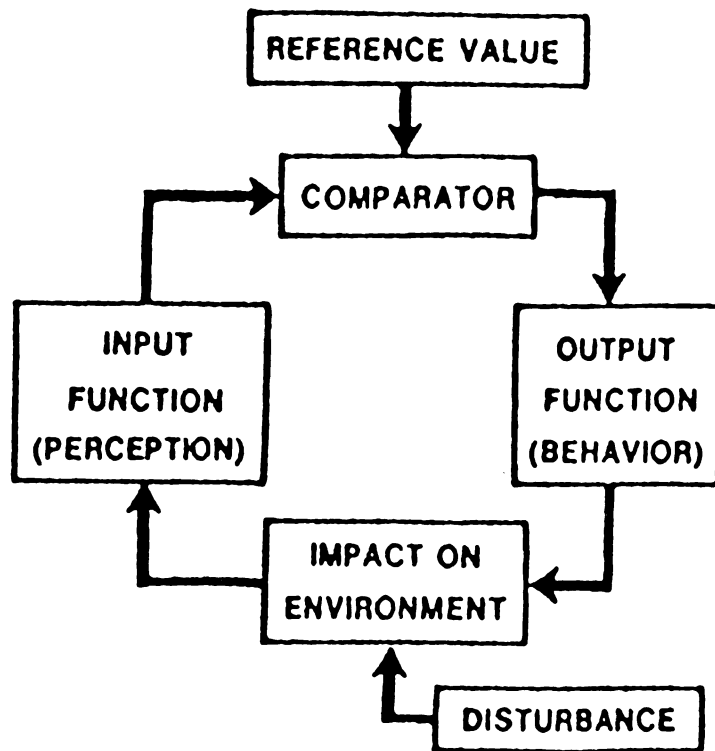


Figure 2. Carver and Scheier (1981) Control Theory Model

or discrepancy creating (Carver & Scheier, 1981; Carver & Scheier, 1982).

Carver and Scheier (1981) suggested that a feedback loop regulates behavior with respect to some comparison value. They also suggested that multiple comparison values exist at various levels of abstraction. These authors (Carver & Scheier, 1982, 1981; Scheier & Carver, 1982) and others (Powers, 1973) have suggested that these multiple control systems are connected hierarchically. They hypothesized that subordinate standards must be attained in order for standards more superordinate in the hierarchy to be attained. In addition, they suggest that superordinate standards serve as guides for the setting of subordinate standards.

Applying control theory to human systems is a complex undertaking. In human systems, the sensor function is a perception (i.e., it involves the sensing of existing conditions; Hollenbeck, 1989). Carver and Scheier (1982) provided the example of an individual driving a car. When driving a car, the driver maintains his or her course on the road by maintaining, visually, just the right distance between the hood of the car and the edge of the road (referent standard). If there is a curve in the road, the driver will begin to notice that this distance is changing and is different than the desired distance (i.e., the sensor information and the referent standard are different). This difference motivates the driver to reduce the discrepancy, and he or she will then turn the wheel in order to accomplish this (effector function).

Hollenbeck (1989) suggested that, when dealing with human systems, there are two general components to control theory. First, there is a

cognitive component in which the comparison process takes place. Second, there is an affective component in which the discrepancy produces some negative affect (dissatisfaction, frustration, anger, etc.) which the individual is motivated to reduce. Lord and Hanges (1987) point out that motivation has been defined as a multidimensional construct which involves the arousal, direction, and persistence of behavior (Locke et al., 1981; Mitchell, 1982; Naylor, Pritchard & Ilgen, 1980), and they suggest that these dimensions might be linked with specific control systems components. Specifically, they suggest that arousal is related primarily to the comparator component because discrepancies discovered by the comparator create affective reactions which motivate behavior. They further suggest that direction depends primarily upon the decision mechanism which determines the system's response to a discrepancy (i.e., whether the system will respond by changing behavior or by altering the referent). In addition, the authors suggest that persistence is related primarily to the effector function and whether it is able to create the desired change in the environment which will eventually lead to changes in the input function.

Carver & Scheier (1981) suggest that, when dealing with human systems, it is important to recognize the inherent information processing limitations of people. That is, they propose that an individual is incapable of engaging in monitoring behavior for all possible control loops in which he or she is engaged. In addition, they suggest that there are individual differences in ability to attend to this self-monitoring cycle. According to the authors, some individuals tend to focus attention inward upon the self (high "self-focus"), while

others generally focus attention outward to the environment (low "self-focus"). They propose that the negative feedback loop process described previously operates best when individuals are highly self-attentive (i.e., they focus their attention inward upon the self).

Campion and Lord (1982) presented a control theory model of the goal setting process (see Figure 3), which was modeled after Powers (1973). They suggested that the sensor accepts information from the environment regarding the actual state of the system. The sensor then produces a signal that is compared to the referent standard (desired state) via the comparator mechanism. If an error is detected, the system is motivated to eliminate this error. In order to eliminate the error, the system must make a decision between: a) initiating some action in order to alter the environment via the effector function, or b) cognitively changing the referent. According to the theory, regardless of which decision is made, the system will attempt to align the existing condition with the desired condition (the referent standard). In the interest of clarity, the component names used by Campion and Lord (i.e., referent standard, comparator, sensor, decision mechanism, effector) will be used throughout the remainder of this paper.

These models (Campion & Lord, 1982; Carver & Scheier, 1982; Miller, et al., 1960) provide somewhat different versions of the self-regulation process. The differences between these models have been discussed elsewhere (Klein, 1989) and are not the central focus of this paper. Although these models are somewhat different in their depiction of self-regulation procedures, the basic processes remain the same. All of the models suggest that the environment is monitored via some sensor

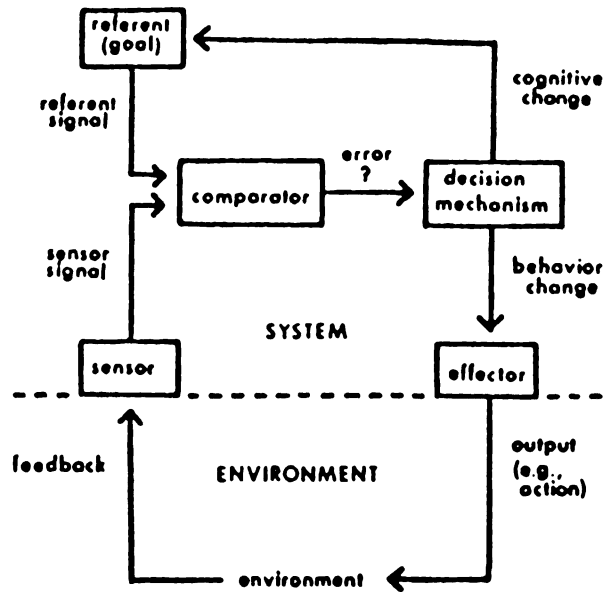


Figure 3. Campion and Lord (1982) Control Theory Model

function, that some comparison between the sensor signal and the referent standard occurs, and that a discrepancy triggers some activation on the part of the system in order to reduce this discrepancy.

An important feature of the control theory perspective is its dynamic nature. This perspective suggests that a self-attentive system is continually monitoring the environment and making adjustments in order to establish or maintain an alignment between existing and desired conditions. It has been suggested that advances in work motivation research will occur only if theories become more dynamic in nature (Kanfer, 1989).

Applications of Control Theory

Control theory has been applied to several specific issues in the field of organizational behavior. Campion and Lord (1982) and Hollenbeck and Williams (1987) have applied control theory to the goal setting area and have empirically tested the resulting predictions. Taylor, et al., (1984) have provided a control theory framework to previous research on performance feedback. Hollenbeck (1989) and Hollenbeck and Brief (1987) have used control theory to investigate affective and behavioral reactions to work. Finally, Klein (1989) has used a control theory framework for the development of a general motivational model, which integrates previous theoretical work in this area. Each of these applications of control theory will be discussed in more detail below.

Control Theory and Goal Setting Theory

Campion and Lord (1982) suggested that previous research has not answered the question of why goal setting works, and they pointed to three primary factors limiting the ability of researchers to expand their knowledge of the goal setting process. First, goal setting researchers have not shown enough interest in feedback research, and have not integrated these two areas. Second, they suggested that most goal setting research focuses on static models of motivation. Finally, they suggested that the goals used in goal setting research are typically static, specific, and isolated. The authors contended that the integration of control theory and goal setting theory provides a way of overcoming these limitations.

The authors pointed out that the linkage between goal setting, feedback, and control systems was first suggested by Powers (1973). As previously discussed, control theory postulates a process in which a referent value is compared (via a comparator) to environmental information, and discrepancies between the two activate the system in order to diminish the discrepancy. Powers suggested that the referent value in this process could be thought of as a goal, and the environmental information could be thought of as feedback information.

Campion and Lord (1982) suggested that control theory can be used to explain many of the findings central to goal setting theory. Researchers in the goal setting area have suggested that both goals and performance information are essential in order for performance to be affected positively (Erez, 1977; Locke et al., 1981), and Campion and Lord suggested that this finding is predictable from control theory. In

control theory, the comparator must monitor both the referent value (goal) and sensor information (feedback) in order to activate any self-correcting responses. Both goals and feedback, therefore, are necessary components of the process. Control theory also can be used to explain the goal setting principle which suggests that specific, difficult goals lead to higher performance. In relation to specificity, ambiguous goals would not provide clear referent standards. If the referent standard is unclear, the comparison process central to control theory would be unable to consistently detect discrepancies between the referent and sensor information and, therefore, self-correcting responses would not be consistently activated. It is likely, therefore, that ambiguous goals would lead to greater variance in performance because of the increased latitude provided in the comparison process.

Control theory is also useful in explaining previous research findings which suggest that difficult goals lead to higher performance than do easy goals. Campion and Lord (1982) suggested that difficult goals are more likely to trigger a discrepancy between the referent standard and the sensor signal than are easy goals (i.e., the referent and the sensor signal are more likely to be discrepant if the referent standard is high than if it is comparable to average performance levels). The goal setting literature also suggests that goals must be accepted in order to be effective. Campion and Lord pointed out that control theory accounts for this finding by suggesting that goal acceptance indicates an individual's decision to use a goal as a referent standard. If no referent standard is established, the goal will not influence subsequent effort.

In their study, Campion and Lord examined students' academic performance on tests and in the course from a control theory perspective. One hundred eighty-eight undergraduates enrolled in a psychology course were asked to set goals at the beginning of the 10-week term and after each of four exams during the term. Student effort toward the goal was measured by five factors: a self-report of effort expended on each test, a self-report of the number of hours spent studying for each test, a record of the number of hours spent studying each day (collected via a daily log which students were required to keep), a self-report of the expected amount of effort exerted for the next exam, and the number of classes missed during the two weeks prior to each exam. Performance was measured by the exam and course grades. Past performance was measured by previous overall grade point average and by grade point average for the previous term. Scholastic ability was measured by the American College Test (ACT) scores in English, Mathematics, Social Science, Natural Science, and the composite ACT score.

The authors found that performance impacted on later goals set by students. Specifically, initial grade goals were positively and significantly related to both ability and past performance. In addition, students showed a positive past performance-future grade goal discrepancy for all time periods (except for those students who received an A on the previous exam). That is, students consistently set goals at a level somewhat higher than that of their past performance. The authors predicted that small discrepancies (one letter grade or less) between goals and performance on classroom exams would not significantly affect future goals, while larger discrepancies would lead to lowered

goals. This hypothesis was not supported for exam goals, but supplementary analyses provided some support for this hypothesis for course grades. The results also suggested that successful students were more likely to increase than to decrease subsequent goals, while unsuccessful students both increased and decreased subsequent test goals (although they were more likely to decrease subsequent course goals).

Campion and Lord (1982) also examined the impact of past performance on subsequent effort. Specifically, the results showed that the magnitude of failure was positively associated with subsequent increases in effort. The frequency of failure, however, was not clearly associated with subsequent increases in effort or subsequent lowering of goals (i.e., only partial support was found for both of these relationships). Finally, the study found that the proportion of students who decreased their grade goals increased with consecutive failures. In sum, the data from the study conducted by Campion and Lord were supportive of the control theory model.

Hollenbeck and Williams (1987) also addressed the relationship between goal setting theory and control theory. They focused upon areas of control theory which were not addressed by Campion and Lord (1982). Specifically, they examined the role of goal importance and the role of individual self-focus in a control theory model of the goal setting process. The authors pointed out that the self-regulation process, as described by Powers (1973) and Carver and Scheier (1982, 1981), allows for the existence of multiple goals organized in an hierarchical priority system. The construct of goal importance, therefore, provides some insight into this priority system by specifying how closely one

goal is being regulated compared to others in the hierarchy. Second, the authors suggested that self-focus should play an important role in investigations of control theory. Self-focus is construed as a relatively stable individual difference construct indicating the extent to which an individual tends to direct his or her attention inward toward the self, versus outward toward the environment (Carver & Scheier, 1981; Fenigstein, Scheier, & Buss, 1975). Previous research (Carver, 1974, 1975; Scheier & Carver, 1980a, 1980b; Scheier, Fenigstein, & Buss, 1974) has shown that high self-focus individuals show stronger goal-performance relationships than do low self-focus individuals.

In the Hollenbeck and Williams (1987) study, three hypotheses were tested in a sample of 88 retail salespersons. First, it was hypothesized that task performance would be a function of goal level, self-focus, and perceived goal importance (with performance being highest for those individuals with difficult goals, high self-focus, and high goal importance perceptions). Second, goal level was expected to be a function of perceptions of past performance, self-focus, and perceived goal importance (with goal level being highest for those individuals with high past performance, high self-focus, and high goal importance perceptions). Finally, it was hypothesized that perceptions of past performance would be a function of actual past performance, self-focus, and goal importance perceptions (such that perceptions of past performance would be more accurate for individuals with high self-focus and high goal importance perceptions).

The results supported the first two hypotheses. That is, a significant interaction between goal level, self-focus, and goal importance was found, such that individuals with difficult goals, high self-focus, and high perceptions of goal importance tended to be higher performers. In addition, the results also showed a significant interaction between past performance, self-focus, and perceived goal importance, with individuals high in self-focus and goal importance perceptions showing stronger past performance-goal level relationships. Hollenbeck and Williams (1987) provided evidence of the importance of two individual difference variables (goal importance and self-focus) in control theory investigations.

Control Theory and Performance Feedback

Control theory was used by Taylor, Fisher, and Ilgen (1984) as a framework for examining individuals' responses to performance feedback in organizational settings. This conceptual review integrated previous findings regarding performance feedback into the control theory framework. Taylor, et al. focused on three processes inherent in control theory: 1) the establishment of referent standards, 2) the comparison of actual behavior to the standard, and 3) responses to feedback. Each of these areas will be discussed below.

The authors suggested that behavioral standards originate from three primary sources. First, behavioral standards may develop from the individual's values or attitudes. For example, an individual may ascribe to a value such as the Protestant work ethic, and this value will have implications for the behavioral standards set by the individual. Secondly, standards may also be obtained from others

through observation or via direct communication. For example, a supervisor may establish a certain performance level which a subordinate must meet and this level may serve as the individual subordinate's standard. Finally, standards may be derived from higher-level standards. As mentioned earlier, previous researchers (Carver & Scheier, 1982, 1981; Scheier & Carver, 1982) have suggested that standards are organized into hierarchies, with higher-level standards having implications for lower-level standards.

The authors also discussed the comparison process in which the actual behavior is compared to the established standard. They proposed that two factors are important in this process. The first was the frequency of this comparison. Based upon previous research, frequency of comparison was hypothesized to be a function of three factors: 1) the degree of self-focus of the individual, 2) the individual's degree of certainty regarding ability to attain the standard, and 3) the importance of the standard to the individual. The authors cite moderate support for the suggestion that individuals who are high in self-focus (i.e., individuals who attend to information originating from and concerning the self) will make more frequent comparisons (Carver & Scheier, 1981). A second factor that is hypothesized to affect the frequency of testing behavior is the individual's degree of certainty regarding his or her own ability to meet the standard. The authors cite previous research that provides indirect evidence in support of the hypothesis that increased uncertainty is associated with increased testing behavior (Brief, Aldag, & VanSell, 1977; Weiss, Ilgen, & Sharbaugh, 1982). The final factor that is hypothesized to influence

testing frequency is the importance of the standard to the individual, with more frequent testing being associated with more important standards. Although at the time of their review there were no direct empirical tests of this hypothesis, recent research by Hollenbeck and Williams (1987) suggests goal importance as a critical variable, both in the establishment of goal level and in individual performance.

A second factor that is important in understanding the process by which performance feedback is compared to standards is the conscious versus unconscious nature of the process. Previous research suggests that individuals, when confronted with certain situations that have occurred frequently in the past, are able to automatically and unconsciously process information regarding this situation (Logan, 1979; Shiffrin & Schneider, 1977). When, however, individuals are confronted with situations with which they have little experience (i.e., they have not developed expectations regarding such situations), information is more likely to be processed consciously and in a systematic, controlled manner. Taylor, et al. suggested that these previous research findings relate to the processing of performance feedback information. Specifically, they hypothesize that feedback consistent with the expectations of the recipient has a lower probability of being consciously processed by the individual. They also suggest that feedback that is processed unconsciously is more likely to reflect the subjective expectations of the recipient (i.e., their assessment of the situation based on past experience), rather than an objective assessment. Based on previous research, they further hypothesize that conscious processing is more likely to occur when: a) individuals are

unfamiliar with a situation (Bargh, 1982); b) the performance feedback received is inconsistent with the recipient's expectancies (Weiss, et al., 1982), and c) others cue the individual to consciously search for feedback (Bargh, 1982). The authors also suggest that conscious processing leads to more accurate information being obtained because:

- a) feedback seeking behavior (Ashford & Cummings, 1982) increases;
- b) increased feedback seeking leads to greater attention to the feedback received; and
- c) individuals may weight the feedback received according to its perceived accuracy.

The third general area discussed by Taylor, et al., (1984) relates to the individual's response to feedback. The authors suggest three categories of responses: a) cognitive, b) behavioral, and c) affective.

An individual's behavioral response to feedback cannot be predicted solely on the basis of the objective content of the feedback received (Ilgen, et al., 1979). Cognitive responses reflect the individual's perception of the feedback information and are more directly related to his or her behavioral response to the feedback. Cognitive responses are influenced by various factors. The individual's perception of the accuracy of the feedback, his or her perception of the credibility of the source of feedback, and his or her perception of the fairness of the feedback system all influence cognitive responses to feedback. In addition, the individual's beliefs regarding whether the standard is attainable has an influence on cognitive response. Carver and Scheier (1982) have suggested that a discrepancy between the referent and the sensor signal leads an individual to reassess the probability that he or she will ever be able to reach the standard. These beliefs, termed

expectancy beliefs, are likely to be affected by both personal characteristics (such as self esteem and locus of control) and situational factors. Situational factors which influence expectancies include causal attributions for past performance on similar tasks. For example, if past success is attributed to a stable cause (such as ability), the individual is likely to expect that he or she will succeed again in the future. If past success is attributed to an unstable cause (such as effort or luck), he or she is less likely to believe that success will occur again in the future (Weiner, Nierenberg, & Goldstein, 1976). In addition to causal attributions, Taylor, et al., (1984) suggest that two other situational determinants of expectancy beliefs are persuasion and modeling (Bandura, 1977). They suggest that persuasion and modeling are likely to be more important to the development of expectancies when the individual has had no previous experience with the task at hand.

Taylor, et al., (1984) also suggested that an individual's decision regarding whether to change the behavioral standards established in the past is an important determinant of cognitive response to feedback. An individual can react to a discrepancy between performance feedback and the established standard by changing the level or the nature of the standard in order to bring it more in line with the feedback information received. Taylor, et al., (1984) suggested that standards may increase, decrease, stay the same, or change in nature in response to either positive or negative performance feedback. The valence of the goal to the individual appears to be of importance here. Campion and Lord (1982) suggest that commitment is a function of the valence of the goal.

An individual who highly values the established standard (goal) would not be expected to change this goal easily (i.e., he or she is committed to the standard). In their research, Mento, Cartledge, and Locke (1980) found that goal valence was a determinant of initial goal acceptance. Changing behavioral standards is one cognitive response available to individuals, however Campion and Lord (1982) suggest that this response is a longer term solution and will occur less readily in the short term than will the behavioral and affective responses discussed below.

Taylor, et al., (1984) suggest that behavioral responses to performance feedback are determined by the cognitive changes in expectancies and behavioral standards discussed above. Specifically, they suggest four behavioral responses: 1) changing the direction of behavior, 2) altering effort, 3) changing the degree of persistence, and 4) responding against the feedback system. These behavioral responses are hypothesized to be influenced by three factors: initial performance standards, expectancies, and perceptions of reward contingencies. The authors provide a detailed discussion of how the individual's perceptions of performance standards, expectancies regarding future performance, and perceptions of rewards will influence his or her decision regarding whether to change the direction of behavior, alter effort, persist, and/or react against the system.

Finally, Taylor, et al., (1984) suggest that individuals may respond to discrepancies between performance feedback information and established standards with a change in affect. Factors that impact on the individual's affective response to feedback include the sign of feedback (Ilgen & Hamstra, 1972; Locke, 1967; Locke, Cartledge, & Knerr,

1970; Morran & Stockton, 1980), the consistency between the feedback information and the individual's expectations (Bernstein & Lecomte, 1979; Ilgen & Hamstra, 1972), and the amount of feedback received (Kim & Schuler, 1979). In addition, several researchers have suggested that affective responses to feedback are dependent upon causal attributions (Carver & Scheier, 1981; Weiner, 1982). For example, an individual who attributes success to an internal cause (such as ability or effort) is likely to feel pride and/or achievement, while an individual who attributes success to an external cause (task difficulty or luck) would be more likely to feel gratitude.

Control Theory and Individual Motivation

Klein (1989) employed control theory as a framework for the integration of existing theories of individual work motivation. He suggested that a control theory model of motivation could incorporate a variety of existing theories of individual motivation, including goal setting theory, expectancy theory, attribution theory, and social learning theory. He proposed that an integration of these theories based on control theory was useful because of the emphasis which the control theory framework places on the cognitive processes underlying motivation, as well as for reasons of parsimony.

Klein's model is presented in Figure 4. The author suggested that his model incorporates the work of other control theorists such as Carver, Scheier, Lord, Taylor, and Hollenbeck (Campion & Lord, 1982; Carver, 1979; Carver, Blaney, & Scheier, 1979; Carver & Scheier, 1981, 1982; Hollenbeck, 1989; Hollenbeck & Brief, 1988; Hollenbeck & Williams, 1987; Lord & Hanges, 1987; Taylor, et al., 1984). In his model, goals

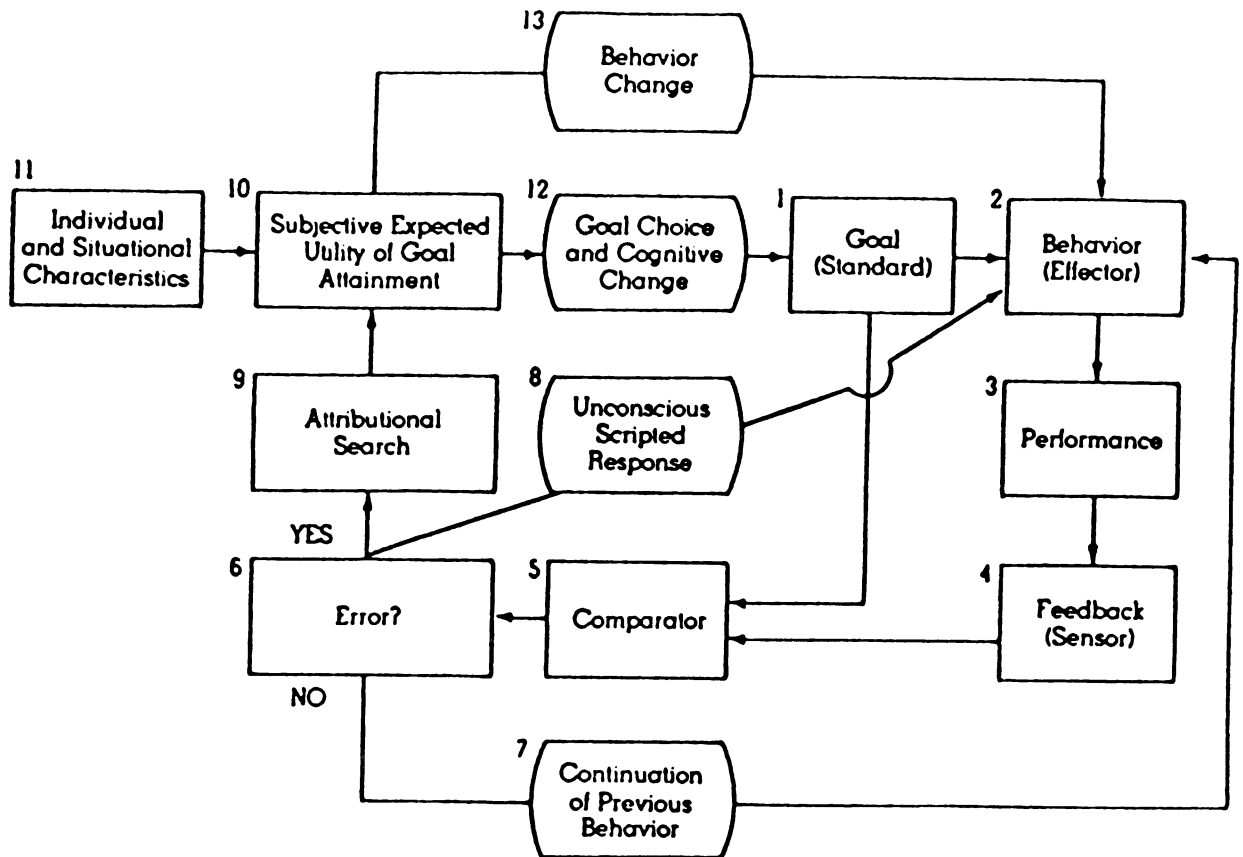


Figure 4. Klein (1989) Model of Individual Motivation

are equated with the referent component, as defined by Campion and Lord (1982), behavior with the effector component, feedback with the sensor component, and the comparator component remains the same as described by Campion and Lord (1982). As in previous models, the central focus in Klein's model is on the negative feedback loop. Performance feedback (Box 4) is compared with the goal (Box 1) and the resulting equality or discrepancy is expected to have implications for the cognitive and behavioral responses of the individual. This model, however, extends previous control theory models by focusing on the cognitive processes occurring between the comparator and behavior (i.e., the effector).

Inspection of the model shows that it incorporates the goal setting proposition which suggests that goals are the immediate determinants of behavior (Locke, et al., 1981; Mento, Steel, & Karren, 1987). Specifically, the goal (Box 1) is hypothesized to influence behavior (Box 2), which influences performance (Box 3), and performance results in performance feedback (Box 4). The model also recognizes the control theory proposition which suggests that behavior is activated by a perceived discrepancy between the actual and the desired state of the system. That is, feedback information is compared to the goal in Box 5, the comparator.

In the model, there are three possible outcomes of the comparator mechanism (Box 6). The individual may perceive that he or she is on target, behind schedule, or ahead of schedule. If the individual is on target, no discrepancy exists and he or she will most likely continue previous behavior (Box 7). If, on the other hand, the individual is behind schedule or ahead of schedule, a discrepancy does exist. This

model suggests two alternative paths following the perception of a discrepancy. The choice between these paths depends upon whether the discrepancy is processed consciously or unconsciously, and whether the individual's response is conscious or unconscious.

Research in the area of cognitive psychology suggests that information processing can occur in an automatic or a controlled manner (Shiffrin & Schneider, 1977). Klein's model reflects these two alternatives. He suggests that discrepancies between the goal and performance feedback may be construed consciously or unconsciously, depending upon the salience of the error (Taylor & Fiske, 1978) and whether or not the feedback itself was consciously processed (Taylor, et al., 1984). Similarly, responses to discrepancy can occur in a conscious or unconscious manner, depending upon whether the discrepancy was consciously perceived (Taylor, et al., 1984) and upon the individual's familiarity with the situation (Lord & Hanges, 1987).

Responses of which the individual is relatively unaware are expected to be driven by cognitive scripts, which are overlearned performance programs that drive an individual's actions in familiar situations (Lord & Kernan, 1987; Schank & Abelson, 1977). Behavior, therefore, may be activated automatically and unconsciously by cognitive scripts. It has been suggested that scripts may be tied to goals (Lichtenstein & Brewer, 1980; Lord & Kernan, 1987). One possible path following a discrepancy between the individual's goal and performance feedback, therefore, is an unconscious, automatic, scripted behavioral response (Box 8).

The second path stemming from a perceived discrepancy (Box 9) suggests a conscious awareness on the part of the individual. If no behavioral script exists for a particular situation, the individual must engage in conscious decision making (Carver & Scheier, 1981). The individual must assess the probability that he or she will attain the established goal. In order to do this, the individual is likely to search for causal explanations for the discrepancy (i.e., engage in an attributional search). Weiner (1985) suggested that individuals engage in causal searches in order to better understand and manage their environments and proposed that causal ascriptions are central to individual motivation. Previous research suggests that individuals do undertake attributional searches and that these searches are most likely to occur when unexpected situations are confronted (Pyszczynski & Greenberg, 1981; Wong & Weiner, 1981).

The causal attributions made by an individual influence his or her expectations regarding goal attainment (Carver & Scheier, 1981). The dimension of central interest in the determination of outcome expectancies is stability (McMahan, 1973). If a perceived negative discrepancy is attributed to a stable cause, such as lack of ability, the expectation that the goal will be reached in the future is likely to be very low. On the other hand, if the individual attributes the negative discrepancy to an unstable cause, such as bad luck, his or her expectancy regarding goal attainment is likely to remain high. Other factors, in addition to attributions, which are likely to influence outcome expectancies are past performance, locus of control, and social influence (Carver & Scheier, 1981).

Klein (1989) suggested that the subjective expected utility of goal attainment (Box 10) is a multiplicative function of the expectancy that the goal may be attained and the attractiveness of goal attainment. The subjective expected utility, in turn, is partially determined by individual characteristics (such as ability and past experience) and situational characteristics (such as social comparisons and performance constraints), as presented in Box 11.

The individual's perception of the subjective expected utility of goal attainment determines the individual's choice of response. If the subjective expected utility is high (i.e., if he or she expects that the goal is attainable), the individual will continue in his or her efforts toward the goal. If the subjective expected utility is low, however, the individual is expected to react to this low expectancy, either through a behavioral response or a cognitive response.

The individual may cognitively respond (Box 12) by altering either his or her goal commitment, the level of the goal, or the goal itself (Campion & Lord, 1982; Taylor, et al., 1984). For example, an individual who expects that goal attainment is impossible will likely feel decreased commitment to the goal, will decrease the level of goal he or she is striving toward, and/or will decide that the goal is not appropriate and establish a new goal.

Alternatively, the individual may respond behaviorally. This behavioral response may or may not be a result of some earlier cognitive change. Several researchers (Carver & Scheier, 1981; Lord & Hanges, 1987; Taylor, et al., 1984) have suggested that there are two primary ways in which behavior may be changed: the intensity of effort may

change, or the direction of behavior may change. Klein (1989) suggested that the choice between these two is likely to be dependent upon causal ascriptions for previous performance.

Klein's (1989) control theory model of work motivation incorporates existing theories of motivation in order to explain previous empirical findings in this area. The model parallels previous control theory models, but provides an explanation of the cognitive processes which may occur between the comparator mechanism and the response mechanism.

Control Theory and Affective Responses

Hollenbeck and Brief (1987) suggested that the negative feedback loop described in control theory applies only to situations in which the individual is able to exert self-corrective action when a discrepancy is detected. However, they pointed out that there are times when the individual may be unable to initiate these self-corrective actions, or when the actions are ineffective in reducing the discrepancy. In such circumstances, an adaptive individual must recognize that continued efforts toward discrepancy reduction are not beneficial. The authors presented an extended model of the basic negative feedback loop in order to explain such situations. This model is presented in Figure 5. The model is hypothesized to apply to individuals who are high in self-focus.

The dotted line in this figure represents the situation in which the individual is unable to reduce the discrepancy between his or her standard and the feedback received (a situation referred to as an "interruption"). It is hypothesized that such an interruption triggers a cognitive process aimed at discovering the reason for the individual's

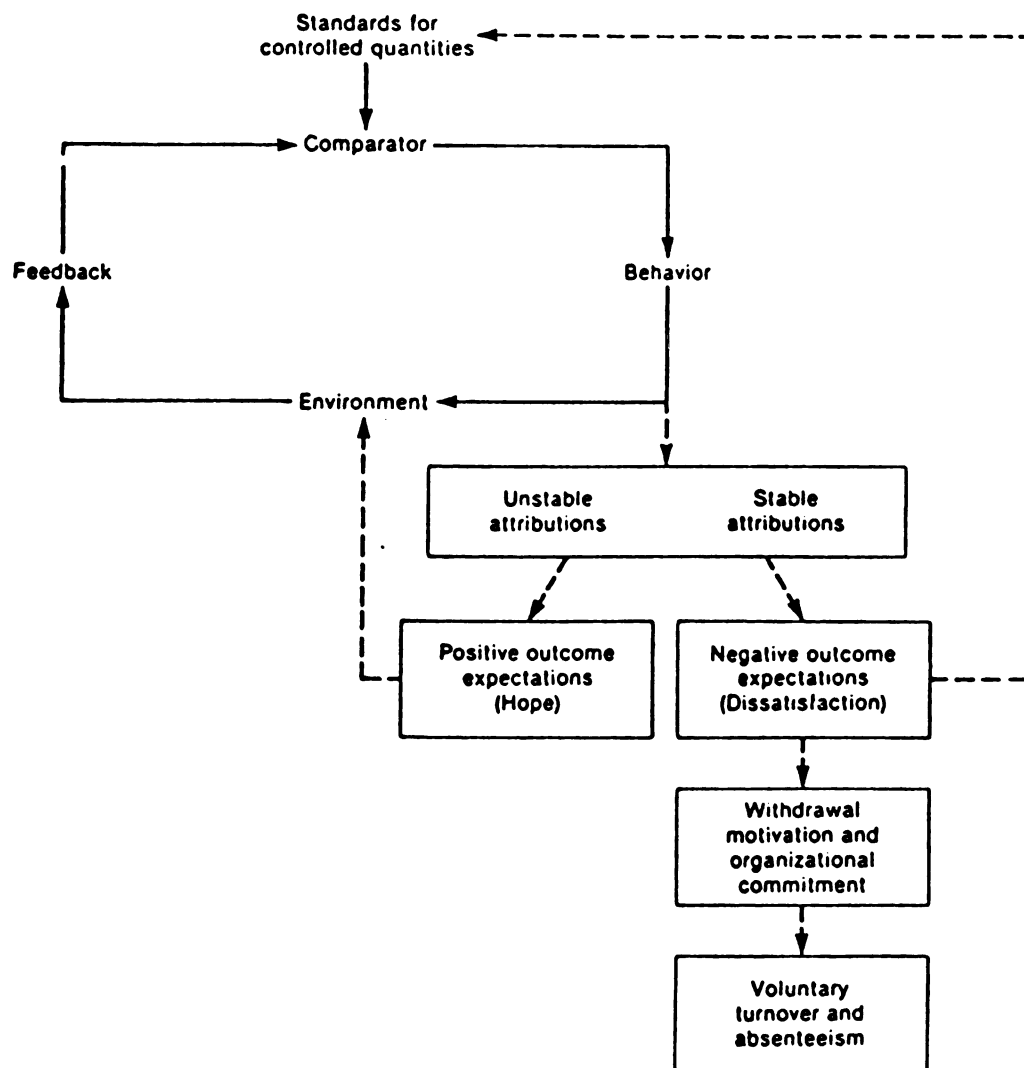


Figure 5. Hollenbeck and Brief (1988) Control Theory Model

inability to reduce the discrepancy (an attributional search). If the individual attributes the failure to unstable causes which could be expected to change in the future (for example, lack of effort or bad luck), he or she is expected to generate positive outcome expectancies, and to persist at discrepancy reduction efforts. The model also predicts that the individual will feel increased arousal, which will be experienced as hope or anticipation.

The second possibility is for the individual to attribute the discrepancy-reduction failure to stable causes (for example, lack of ability or task difficulty), in which case the individual is expected to experience negative outcome expectancies. The authors suggest that one possible outcome of the negative expectancy is behavioral and/or mental withdrawal (e.g., decreased commitment). A second possibility is for the individual to change the existing standard. The affective reaction hypothesized to occur in this situation involves increased arousal, experienced by the individual as dissatisfaction.

Hollenbeck (1989) suggested that there has been little attention directed toward examining either affective work reactions or behavioral work withdrawal from a control theory perspective. He presented a model of affective and behavioral reactions, which appears in Figure 6. Essentially, the model suggests that the relationships between perceived discrepancies and affective reactions, and between outcome expectations and affective reactions (job satisfaction and commitment in this study) are stronger for high self-focus individuals. In addition, the model proposed similar relationships for behavioral withdrawal responses (organizational and job turnover, in this study).

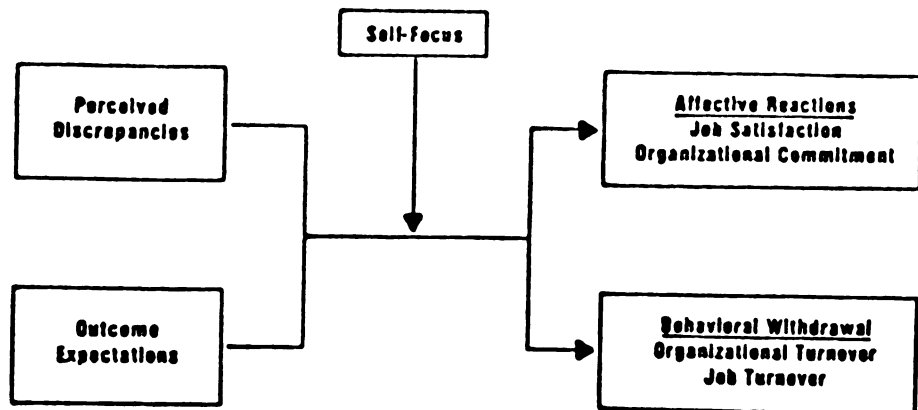


Figure 6. Hollenbeck (1989) Model

The model was tested using 140 retail salespeople. The results provided support for the part of the model dealing with outcome expectations. That is, the model suggested that individuals who are high in self-focus show a stronger relationship between negative expectations and negative attitudes, and between negative expectations and withdrawal behaviors than do individuals who are low in self-focus.

Summary of Control Theory Applications

The major applications of control theory to the organizational behavior literature were discussed in the previous sections. This discussion focused on control theory applications to four general areas: goal setting theory, feedback systems, general individual motivation, and individual affect. While these models differ somewhat in emphasis, they share a focus on several key components of control theory. First, all of the models described in the previous sections (Campion & Lord, 1982; Carver & Scheier, 1982; Carver & Scheier, 1981; Hollenbeck, 1989; Hollenbeck & Brief, 1988; Hollenbeck & Williams, 1987; Klein, 1989; Taylor, et al., 1984) incorporated a comparison process in which a standard is compared to input information. Second, all models suggested that the existence of a discrepancy leads to a self-correcting motivation, which results in the system taking some action to eliminate the discrepancy. Several authors (Campion & Lord, 1982; Hollenbeck & Brief, 1988; Taylor, et al., 1984) pointed out that this action may take the form of behavior, or may involve a change in the referent standard itself. Hollenbeck and Brief (1988) and Hollenbeck (1989) expanded the discussion of reactions to discrepancy by focusing upon affective reactions to discrepancies and discrepancy-reducing behaviors. Third,

all models incorporated an input function, although this component was given different labels by different authors ("input function" by Carver and Scheier, 1981, and by Hollenbeck, 1989; "sensor signal" by Campion and Lord, 1982; "feedback" by Taylor, et al., 1984, by Klein, 1989, and by Hollenbeck & Brief, 1988). Taylor, et al., (1984) placed the most emphasis on this component in their presentation of feedback issues from a control theory perspective. A fourth key component of control theory is the referent standard. Again, all authors incorporated some form of this component. Taylor, et al., (1984) provided a detailed discussion of the origins of standards, as did Carver and Scheier (1981). Campion and Lord (1982) equated referent standards with goals in their empirical investigation, and Hollenbeck and Williams (1987) placed special emphasis on the referent standard by investigating the effect of goal importance on performance and goal level. A final central component of control theory has received relatively less research attention. Self-focus, an individual difference variable discussed by Carver and Scheier (1981), has been investigated primarily by Hollenbeck (Hollenbeck, 1989; Hollenbeck & Williams, 1987).

The components of control theory reviewed above are central to the development of a control theory model of motivation. These components will be discussed in relation to the proposed model of motivation in groups which will be presented in the next chapter.

Model

The present chapter has presented and discussed various individual level control theory models and applications. The next chapter will describe a model of group motivation, using control theory as a

framework. This model will incorporate existing knowledge regarding control theory, such as that described in this chapter. The model will also incorporate research findings in the social psychological literature related to group functioning. As the model is described, the empirical hypotheses resulting from the model will be presented.

CHAPTER THREE: A CONTROL THEORY MODEL OF MOTIVATION IN GROUPS

Overview

Previous discussions of control theory in the organizational behavior area have examined its operation at the individual level. This chapter outlines a control theory model of group motivation, building upon the work of previous control theorists who have focused exclusively upon individuals (Campion & Lord, 1982; Carver & Scheier, 1982; Carver & Scheier, 1981; Hollenbeck, 1989; Hollenbeck & Brief, 1987; Hollenbeck & Williams, 1987; Klein, 1989; Taylor, et al., 1984). The model maintains the basic components of control theory that were discussed previously (i.e., the negative feedback loop, the referent standard, the sensor information, the comparator, the effector). In addition, the model incorporates cognitive variables and variables unique to group situations which expand and modify the operation of the basic negative feedback cycle. Each of the elements of the model will be described in detail. In addition, the hypotheses resulting from the various components of the model will be presented. First, however, a general overview of the model is provided in Figure 7.

In the model it is suggested that group standards impact on group performance level and that group performance is evaluated via group performance feedback. After group performance is evaluated and reported to the group by means of group performance feedback, a comparison process between the group's standard and the group feedback is expected to occur within the perceptions of each individual group member. Based on this comparison, the individual group member decides whether there is a discrepancy between the group standard and group performance

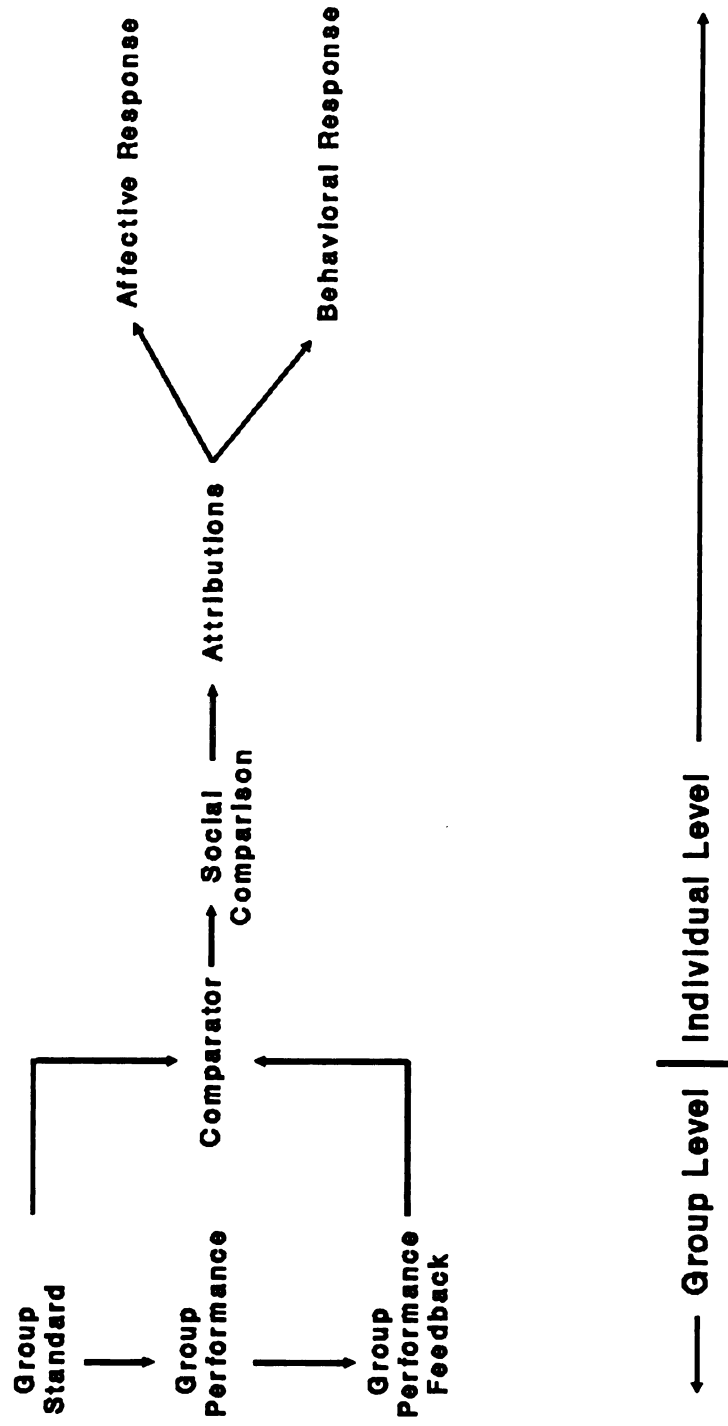


Figure 7. Overview of control theory model of motivation in groups.

(i.e., did the group performance level approximate its established standard?). Once this decision is made, the individual is expected to be concerned with the question of "why" the group was successful or unsuccessful. A social comparison process is expected to occur, in which the group member assesses his or her contributions in relation to those of other group members. This assessment process is expected to have implications for the degree of responsibility the individual feels for the group's success or failure. The responsibility perceptions of the individual are expected to influence the individual group member's causal attributions regarding the group's performance, and these attributions are expected to influence the individual's affective and behavioral responses. Figure 7 outlines the central processes of the model that are presented in more detail in Figure 8. Figure 8 will be discussed in detail in the remainder of this chapter.

Group Referent Standard

At the individual level, the basic principles of control theory suggest that when individuals begin a behavioral cycle they hold predetermined referent standards for behavior that are useful in self-regulatory activities. Similarly, referent standards could be said to be relevant at the group level. Zander (1971) has pointed to the necessity of group goals for the effective functioning and, ultimately, survival of work groups. Essentially, what Zander has emphasized is the importance and existence of referent standards in groups. Referent standards at the group level are inherently more complex than those at the individual level. Zander (1980) has suggested that, when dealing at the group level, there are at least four different types of goals

operating. First, the group has a goal for itself. Second, each individual group member may have a goal for the group. Third, a goal may be set for each individual group member by the group and, finally, each individual group member may have a goal for him- or herself. The interplay between these different goal types and goal levels has been discussed elsewhere (Ilgen, et al., 1987; Nadler, 1979; Zander, 1971; Zander, 1980), and is not a primary focus of this paper. This paper will focus upon referent standards for the group (i.e., the first type of goal discussed above).

The fact that the model presented here addresses goals at the group level raises an important question. If, as Zander has suggested, a group holds a goal for itself the question arises as to where the goal exists. It would appear that the goal can exist only in the perceptions of individual group members. A group has no common information processing component which can hold perceptions independently of individual group members. It is likely, however, that the perceptions of individual group members overlap in regard to the group goal. For example, members of a sales team who are committed to achieving a group sales volume goal are likely to have common perceptions of the goal of the group. It is probable that these perceptions overlap a great deal, assuming that the goal has been well communicated and that individual group members perceive the goal relatively accurately. For the purposes of this model, therefore, it is assumed that a group goal exists because individual group members perceive the goal and share similar perceptions of the group's goal. In other words, group goals will be assumed to exist when a high degree of consensus exists among the group members as

to the level and nature of the group's goal.

Group Performance

The model presented in Figure 8 suggests that the group referent standard influences group performance. Support for this proposition stems from the goal setting literature. At the individual level, goal setting proponents have shown that goals (referent standards) direct attention, mobilize effort, and sustain the persistence of effort (Locke, et al., 1981). It has also been suggested that goals are the direct precursors of behavior (Locke, et al., 1981; Mento, Steel, & Karren, 1987). Previous research on goal setting at the group level (Buller & Bell, 1986; Ivancevich, 1974; Latham & Locke, 1975; Lawrence & Smith, 1955; Pearson, 1987; Smith, Locke, & Barry, 1989; Weingart & Weldon, 1988) has shown that the existence of a difficult group goal does result in higher levels of group performance.

Group Performance Feedback

Because individuals frequently work in groups, evaluative feedback on group performance is often provided by organizations. Austin and Bobko (1985) suggested that most work in organizations is performed in groups, or at least in group settings. In addition, they pointed out that often only aggregate, group performance information is available for use as performance feedback. Therefore, much of the feedback information received by individuals is received at the group level (i.e., as group performance feedback). In the model in Figure 8, group level performance feedback is presumed to result primarily from group level performance (although it is recognized that situational variables may moderate the relationship between group performance and group

feedback).

The Comparator

At the individual level, the negative feedback loop outlined by control theory involves the comparison of the referent standard and performance feedback (sensor information). This process is represented by the comparator component. Control theory principles, when extended to the group level, would suggest a similar process. Specifically, this model proposes that individuals compare the group level referent standard to the group level performance feedback received. Zander (1971) made a similar prediction, although he did not specifically apply control theory. He suggested that group members use the group's level of aspiration (i.e., their referent standard) as their criterion for assessing the performance of the group.

It is important to note that the model outlined in Figure 8 transfers from a group level of analysis to an individual level of analysis at the point of this comparison between the group referent standard and the group performance feedback. This is a necessary transition. The referent standard and sensor information of the group necessarily exist at the group level. The comparison between the referent standard and sensor information, however, cannot be made by the group. This comparison is a cognitive function which occurs within the perceptions of individual group members and drives their behavioral and affective reactions. It might be argued that the comparison process could occur at the group level via some group discussion (e.g., group members meet and, as a group, compare the group referent standard to the group performance information). The result of such a discussion would

be a group consensus that reflects the comparison process. The group consensus, however, would not necessarily have direct implications for the behavioral and affective reactions of the individual group members. For example, any individual group member might disagree with the group consensus regarding the comparison and, therefore, his or her behavior may not be predictable from the group consensus. It is suggested here that it is only through examination of the comparison processes of individuals that understanding and prediction of group member behavior and affect can occur. This model, therefore, is concerned with group level phenomena (group referent standards, group performance feedback) but operates primarily at the individual level. In addition, it is presumed that the transition from a group level of analysis to an individual level of analysis occurs at the point of comparison between the predetermined referent standard of the group and the group performance feedback which has been received. This comparison process is comparable to the process which occurs within the comparator component described in control theory models at the individual level.

The outcome of the comparison process between the group referent standard and group sensor information suggested by this model is a decision (made by each individual group member) regarding the degree of discrepancy which exists between the two. In other words, the individual group member assesses whether the group has succeeded or failed in its attempts to attain the group's referent standard. The individual group member who decides that there is no discrepancy between the group referent standard and the actual performance of the group is likely to perceive that the group has been successful. In other words,

the referent standard represents the performance level toward which the group is striving, and attainment of that performance level (i.e., group performance at a level comparable to the desired level) is perceived as a group success. On the other hand, the individual group member who decides that there is a discrepancy between the group's referent standard and the actual performance of the group is likely to perceive that the group has been unsuccessful.

The Social Comparison Process and Felt Responsibility

Nadler (1979) suggested that the feedback information received by groups is different than that received by individuals for two primary reasons. First, individual group members are constrained in their ability to act on the group feedback information received (Steiner, 1972). Second, any individual group member will have difficulty determining the extent to which the feedback information reflects his or her own performance, because the feedback information received by the group is a function of the actions of other group members. In addition, previous research that examines group motivational effects, such as social loafing and free-riding (Albanese & VanFleet, 1985; Harkins & Petty, 1982; Kerr, 1983; Kerr & Bruun, 1983; Kerr & MacCoun, 1985; Latane, Williams, & Harkins, 1979; Price, 1987; Williams, Harkins, & Latane, 1981), implies that individual group members compare their efforts and performance to that of other group members in order to determine their degree of responsibility for the successful or failed outcome. Underlying all of this research is the presumption that individuals operating within groups engage in a social comparison process when assessing performance and interpreting group performance

feedback.

The model of group motivation presented here suggests that, after determining whether a discrepancy between the referent and the sensor information exists, the individual group member engages in a social comparison process. This process establishes, within the individual's own perceptions, the manner in which responsibility for the outcome is distributed among group members. Nadler (1979) suggested that group feedback has motivational effects that influence the effort expended by individual group members. It is assumed here that before individual group members decide whether their effort should increase or decrease, they must assess their past effort and performance in relation to that of other group members (who were also partially responsible for the group performance feedback received). Equity theory (Adams, 1965) suggests that individuals engage in social comparisons between their own and a referent other's inputs (e.g., effort) and outcomes (e.g., performance feedback), and that the result of this comparison determines the individual's motivation. In the group, it appears likely that individual group members will engage in social comparison processes because of the importance of knowledge of others' performance to the evaluation of their own performance. In individual level control theory models of motivation there is no equivalent to the social comparison process that takes place in groups. As Nadler (1979) pointed out, individuals working alone are not presented with the dilemma which is faced by individuals working within groups; that is, performance feedback received is not confounded by the performance of other individuals and it is more clear to the individual that the performance

information received is relevant to his or her own performance.

The outcome of the social comparison process described above, in conjunction with group standard attainment, will determine the individual's perception of the source of responsibility for the group performance feedback. For example, the individual who is a member of a successful group (i.e., high group standard attainment) and who perceives that his or her individual performance level was high is likely to feel more responsible for the group's success than is the individual whose performance level was low. On the other hand, the individual who is a member of an unsuccessful group (i.e., low group standard attainment) and who perceives that his or her individual performance level was low is likely to feel more responsible for the group's failure than is the individual whose performance level was high.

The assignment of responsibility is also likely to be influenced by the type of task in which the group is engaged. For example, if the task is such that all group members are expected to contribute equally (additive task; Steiner, 1972), the individual's assignment of responsibility for success will be different than if the task requires one individual to contribute more than others (conjunctive or disjunctive tasks; Steiner, 1972). The model described in Figure 8, however, is applicable to all types of tasks. Because the test of this model described in the next chapter involves a task wherein all members of the group have some responsibility for group performance, the individual's perception of felt responsibility for group performance is expected to be related to his or her previous individual performance.

Based upon the above discussion, the following hypothesis is presented. The proposed interaction is shown in Figure 9.

HYPOTHESIS 1: Self performance perceptions and group standard attainment will interact to affect felt responsibility perceptions such that the relationship between self performance perceptions and felt responsibility will be positive for high group standard attainment individuals and negative for low group standard attainment individuals.

Attributions

Attribution theory, which is rooted in the work of Heider (1958), suggests that individuals act as "naive psychologists" who are motivated to determine the causes of specific events. This motivation is based on a need to develop a cognitive understanding of the environment. Attribution theory suggests that individuals develop and maintain sets of beliefs (schemas) regarding how causes and effects are related (Kelley & Micela, 1980). Kelley (1967) suggested that people use three types of information in their causal attributions: consistency, consensus, and distinctiveness. Consistency information relates to the stability of performance over time, while consensus information involves comparing the performance of several individuals, and distinctiveness information represents the degree to which present performance is different from performance on other tasks.

Weiner (1972) initially suggested that individuals in achievement situations assign causality primarily to four sources (effort, ability, task difficulty, and luck). In addition, he suggested that these sources vary along two primary dimensions: internal versus external,

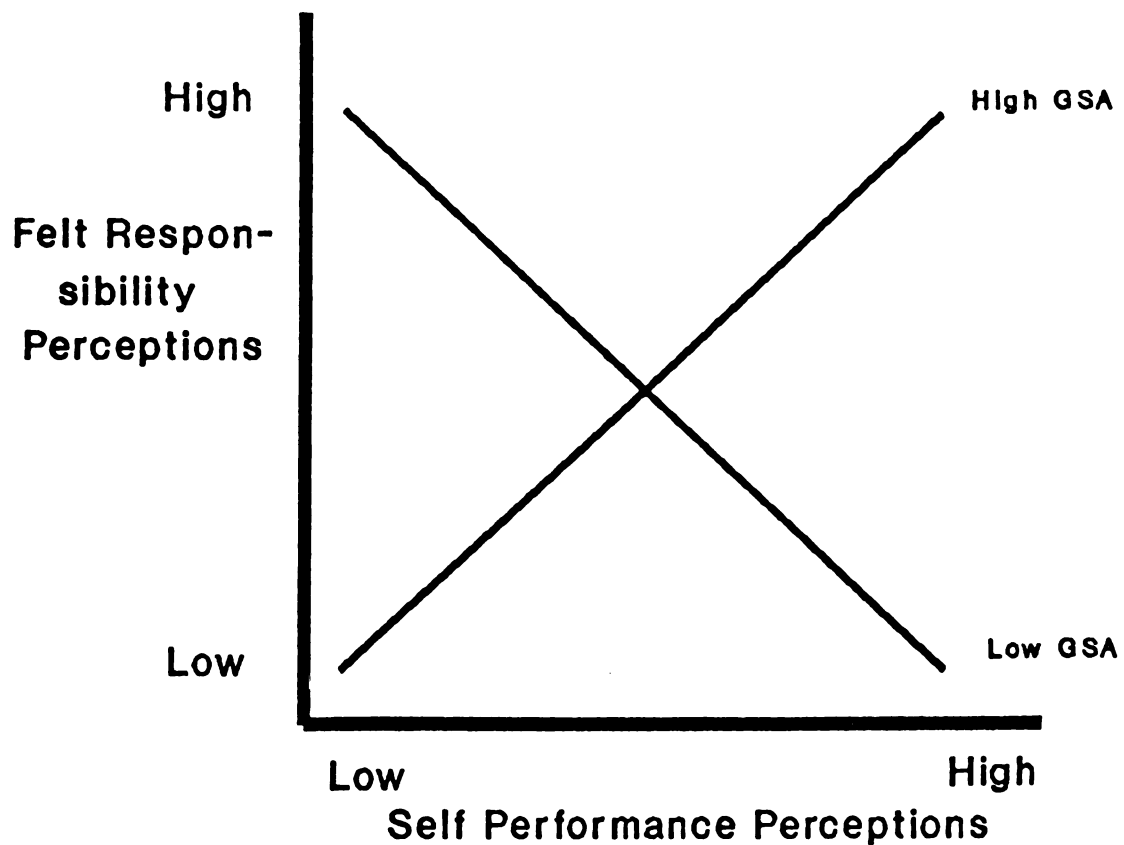


Figure 9. Hypothesized interaction effect of group standard attainment and self performance perceptions on felt responsibility perceptions.

and stable versus unstable. Attributions to effort and ability are presumed to be internal (i.e., the causes of behavior are within the person), while attributions to task difficulty and luck are external (i.e., the causes of behavior are centered in factors in the environment). Attributions to ability and task difficulty are presumed to be stable (i.e., relatively unchanging over time), while attributions to effort and luck are expected to be unstable (i.e., relatively variable over time). Although additional dimensions have been suggested since Weiner's 1972 article (Weiner, 1979; Weiner, 1985), the two dimensions described here (internal/external, stable/unstable) have received the most research attention and are the most relevant to the current discussion.

At the group level, causal attributions are more complex than at the individual level. As discussed above, attributions can be made to four sources at the individual level: ability, effort, task difficulty, luck. At the group level, however, additional sources are applicable. It seems reasonable that an individual who is attempting to discern the cause of the group's performance might attribute performance to his or her own ability or effort, but it is also possible that he or she will attribute performance to the overall ability or effort of the group as a whole. For example, an individual who is a member of a successful group may attribute the success primarily to the overall ability of the other group members, rather than to his or her own ability. As at the individual level, task difficulty and luck are viable attributional options for individuals searching for the cause of group performance. At the group level, therefore, this model suggests that there are six

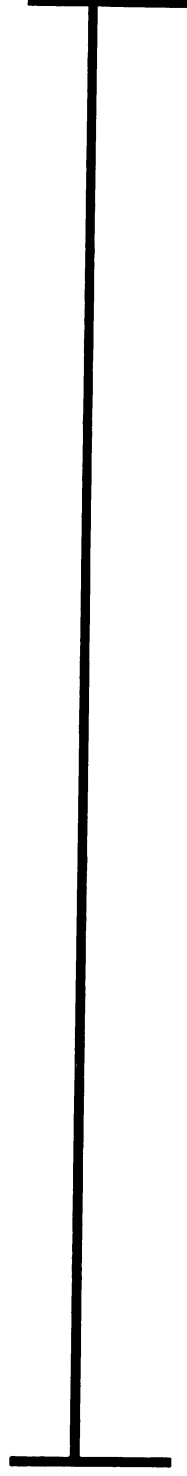
important attributional sources: self-ability, self-effort, group-ability, group-effort, task difficulty, and luck.

As discussed above, at the individual level a group member may attribute success to internal factors (effort, ability) or to external factors (task difficulty, luck; Weiner, 1972). However, at the group level the internal/external distinction is less clear. An individual who attributes success to his or her group (i.e., to all group members) is not ascribing causality to factors internal to him- or herself. On the other hand, this individual is also not attributing causality to a purely external cause, because the individual values the group's goal and may be able to exert some control over other group members regarding the attainment of this goal. Although previous research has not addressed this issue, at the group level it seems reasonable to view internal and external attributions as two poles on a continuum. Within this framework, attributions to self (effort, ability) might be placed at the extreme "internal" pole, attributions to factors outside the self and group (task difficulty, luck) might be placed at the extreme "external" pole, and attributions to the set of individuals who make up the group might be expected to fall between the extremes. It is suggested here that the internality continuum may be represented as depicted in Figure 10. This distinction is in accord with the discussion by Schlenker and Miller (1977) who suggested that individuals, when making attributions for group performance, may view other group members as either environmental variables, or as extensions of the self.

It is suggested here that the stability dimension could also be represented as a continuum which encompasses the six group level

**EXTERNAL
ATTRIBUTIONS**

**INTERNAL
ATTRIBUTIONS**



**Task Difficulty
Luck**

**Group-effort
Group-ability**

**Self-effort
Self-ability**

Figure 10. Locus of causality of group level attributions.

attributions. Weiner (1972) suggested that attributions to ability and task difficulty are relatively stable, while attributions to effort and luck are relatively unstable. Both group-ability and self-ability sources, therefore, are likely to represent stable attributional sources. It could be argued, however, that the group-ability source is more stable than the self-ability source because it represents multiple stable factors, rather than a single stable factor (i.e., the self-ability source). The most stable end of the continuum is likely, therefore, to be anchored with group-ability attributions, followed by self-ability attributions. The next most stable attributional source would appear to be self-effort. While both effort sources (self-effort and group-effort) are considered less stable than ability sources, self-effort is less likely to change in the future than group-effort because group-effort will change if any one of a number of individuals shows a change in effort level, while self-effort will change only if the focal individual shows a change in effort level. In agreement with Weiner (1972), luck represents a highly unstable attributional source and therefore is assigned to the unstable end of the continuum. It is expected here that the stability of task difficulty attributions depends upon the type of task faced. In some cases, the task could be expected to remain relatively stable, while in others the task is highly changeable. For this reason, task difficulty attributions are not included in the stability continuum outlined in Figure 11.

In summary, the model presented here suggests that individuals use performance information to make causal attributions to six sources: self-ability, self-effort, group-ability, group-effort, task difficulty,

**UNSTABLE
ATTRIBUTIONS**

**STABLE
ATTRIBUTIONS**

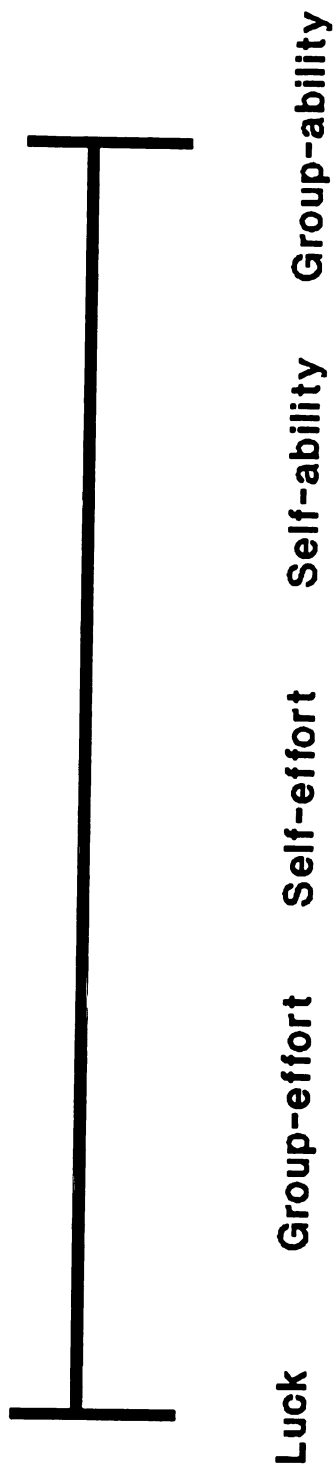


Figure 11. Stability of group level attributions.

and luck. The presumption that performance information influences causal attributions is supported by several researchers. Nadler (1979) pointed to the importance of feedback for helping group members develop attributions regarding the relative contributions of individual group members to group performance. In addition, previous empirical research has shown that individuals use performance outcome information as a primary cue for making causal attributions (Downey, Chacko, & McElroy, 1979; Staw, 1975). Further research (Chacko & McElroy, 1983), supports the relationship between performance information and causal attributions by showing that knowledge of results has a stronger impact on attributions than on goal aspirations (i.e., the individual's report of the effort he or she will exert in order to reach the goal). In addition, the control theory model of individual motivation presented by Klein (1989) included an attributional search process.

Based on the above discussion, the following predictions are presented:

HYPOTHESIS 2: An individual's perception of his or her responsibility for the group's performance will be significantly positively correlated with self attributions.

HYPOTHESIS 3: An individual's perception of his or her responsibility for the group's performance will be significantly negatively correlated with group attributions.

HYPOTHESIS 4: An individual's perception of his or her responsibility for the group's performance will be significantly negatively correlated with task difficulty attributions.

HYPOTHESIS 5: An individual's perception of his or her responsibility for the group's performance will be significantly negatively correlated with luck attributions.

Self-Serving Bias

One attributional option is for the individual to ascribe the cause of the group's successful performance to him or herself (i.e., either to self-ability or self-effort). Previous research (Forsyth & Schlenker, 1977; Johnston, 1967; Schlenker, 1975; Wolosin, Sherman, & Till, 1973) suggests the existence of a self-serving bias (i.e., individuals assigning more responsibility to self for a group success than for a group failure). Other research places boundaries on the existence of the self-serving bias. For example, Schlenker and Miller (1977) suggested that group cohesiveness might moderate the extent to which group success was attributed to self. Other moderating variables (individual need for achievement and self-esteem) have been suggested as well (Adler, 1980; Fitch, 1970; Kukla, 1972). Miller and Ross (1975) reviewed the relevant literature and suggested that there is some evidence that individuals engage in self-enhancing attributions under successful conditions, but that individuals do not engage in self-protective attributions under conditions of failure. The question of the existence of a self-serving bias in attributions for success is far from resolved. However, it is important to recognize that the existence of a self-serving bias could influence the model by making it more likely that individual group members would make self attributions for successful group performance and external attributions for failed group performance. Support for a self-serving bias would be evidenced by a

significantly positive correlation between group standard attainment and self attributions.

Affective Reactions

The model suggests that individuals' causal attributions for the group's performance have implications for their affective reactions. Specifically, it is predicted below that group members' satisfaction with their own performance and satisfaction with the group will be influenced by the causal attributions they have made. Previous authors (Carver & Scheier, 1981; Hollenbeck & Brief, 1987; Taylor, et al., 1984; Weiner, 1982, 1985) have suggested that affective responses to performance feedback are dependent upon causal attributions. The direction of this affective reaction (i.e., whether it is positive or negative), however, is expected to depend upon the degree of the group's success in attaining its referent standard as well as upon the attributions made by the individual.

Weiner (1985) suggested that causal attributions play a central role in the emotion process (Figure 12 outlines his cognition-emotion model of motivation). Specifically, he suggested that outcome evaluation influences causal attributions and that the dimensions underlying these attributions (locus of causality, stability, controllability) determine which emotional response results. In other words, each attributional dimension is expected to be associated with a unique set of emotions. Weiner also proposed that the success of the outcome is important in the determination of emotional reactions. In his model, different emotional reactions are associated with success and failure.

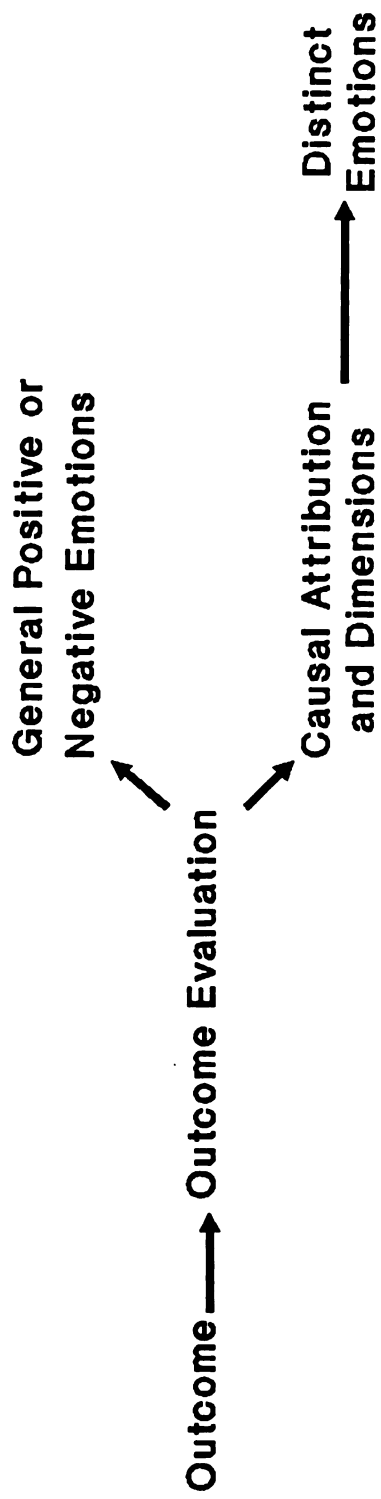


Figure 12. Weiner's model of the cognition-emotion process.

When dealing with the attributions of individuals in an achievement situation, Weiner suggested that locus of causality determines the impact of these ascriptions on self-related emotions. Specifically, he proposed that the attribution of success or failure to internal causes (ability, effort) is associated with changes in the individual's feeling of self-esteem. Following the same reasoning, Weiner suggested that attributions for success or failure to causes outside the self (i.e., "external" causes such as task difficulty and luck) would not influence self-related emotions. These predictions are based upon the logic that attitudes toward the source of the outcome are influenced by the direction (i.e., success/failure) of the outcome. Weiner provided research support for his propositions (Stipek, 1983; Weiner, Russell, & Lerman, 1978, 1979).

As mentioned earlier, there has been little previous discussion of the causal attributions which result from group level outcomes. It appears, however, that Weiner's line of reasoning regarding the impact of locus of causality on emotional reactions could be extended to the group level. If the attribution of causality to internal sources leads to changes in self-related emotions, then it seems likely that group-related emotions would be influenced by attributions to causes associated with the group. While not addressed by Weiner, this prediction is based upon the logic he presented in relation to attributions for individual performance.

Figure 10 presented a continuum which is expected to represent the locus of causality dimension when individuals make attributions regarding group outcomes. This continuum is useful at this point for

predicting affective reactions to causal attributions.

Attributions to External Factors. As suggested by Weiner (1985), attributions to external factors (task difficulty, luck) are not expected to influence self-related emotions because the locus of causality is perceived to be external to the focal individual. Following the same logic, attributions to external factors are not expected to influence group-related emotions. In other words, individuals who make attributions to either task difficulty or luck are not expected to show changes in either satisfaction with self performance or satisfaction with the group.

Attributions to Self. Weiner (1985) cited previous research which supports the proposition that individuals who attribute success or failure to internal sources (self-ability, self-effort) will show changes in self-related emotions. In other words, the individual who attributes a success to him- or herself is likely to show an increase in self-esteem, while the individual who attributes failure to him- or herself is likely to show a decrease in self-esteem. In the study to be described in the next chapter, satisfaction with self-performance rather than general self-esteem is measured in order to more directly measure affect related to the focal task.

Weiner's (1985) predictions regarding the impact of causal properties on emotional responses were based upon individuals making attributions for individual performance. Given that the present model addresses the group as well as the individual level of analysis, Weiner's line of reasoning must be extended. In other words, it is important to ask what impact attributions to internal factors

(self-ability, self-effort) have on group-related emotions.

Previous research in the social psychology literature is helpful in making predictions regarding the influence of internal attributions on group-related emotions. Kerr (1983) examined the situation in which one individual group member feels primarily responsible for successful group performance and termed it the "sucker" effect. Kerr found empirical evidence of a sucker effect such that individuals who feel that other capable group members are "free-riding" on their efforts showed decreased effort and task motivation. The author attributed the sucker effect to the fact that people find it aversive to play this role and, therefore, subsequently reduce their efforts. Although research on the sucker effect has not specifically addressed affective reactions, the presumption that it is due to aversive feelings on the part of the individual implies that a group-related affective reaction has occurred. It seems likely, therefore, that individuals who attribute group success primarily to their own efforts or ability are likely to experience a decrease in positive feelings toward the group.

Predictions regarding the group-related affective response of the individual group member who attributes poor group performance (i.e., group performance that does not meet the referent standard) primarily to him- or herself are uncertain. Following the logic of Weiner's (1985) reasoning, an attribution to an internal source (i.e., the self) should not influence emotional responses to more external sources (i.e., satisfaction with the group). On the other hand, previous research (Kerr, 1983) suggests that attributions to internal sources can influence group-related emotional reactions. Although there is clearly

uncertainty associated with this issue, it is predicted (in line with Weiner, 1985) that attributions for poor group performance to the self are not expected to influence group-related affect.

Attributions to the Group. Another option is for the individual to attribute the group's performance to the other members of the group. Following the logic of Weiner's (1985) cognition-emotion model, it is hypothesized here that attributions to the group are expected to influence group-related emotions.

Previous research supports this prediction. Staw (1975) suggested that members of high performing groups were likely to attribute positive characteristics to the group. He found that individual members of high performing groups rated their group as more cohesive, more open to change, more motivated, having better communication, having higher ability, having higher satisfaction, and having higher role clarity. Similarly, Downey, et al., (1979) found that group performance influenced individual group members' perceptions of group characteristics. Specifically, members of high performing groups rated their group as: more cohesive, having higher quality communication; having greater openness; having group members with higher ability, motivation, satisfaction, and role clarity; having greater enjoyment in working together; having a higher degree of confrontation. Still other research suggests that members of groups that receive positive performance feedback will feel more satisfied with their membership in the group than will individuals who are not members of successful groups (Schlenker, Soraci, & McCarthy, 1976). Additional research suggests that group performance feedback, via its effect on self-evaluation,

plays an important role in the development of interpersonal attitudes (Lott & Lott, 1966, 1960) and group morale (Berkowitz & Levy, 1956). This research suggests that group success is associated with increased positive affect toward the group on the part of group members.

On the other hand, if the individual perceives that other group members are the cause of the group's failure to reach the referent standard, it is expected that he or she will experience decreased positive affect toward the group. This, again, represents an extension of the reasoning presented by Weiner (1985) which suggested that if causal ascriptions are made to a particular source, emotional responses to this source are influenced.

Again following Weiner's (1985) logic, attributions to the group (group-ability, group-effort) are not expected to influence self-related emotions. In other words, the individual who believes that others in the group are responsible for the success or failure of the group is not expected to show a change in satisfaction with self performance.

Summary and Hypotheses. The discussion presented in the previous sections leads to the following predictions.

HYPOTHESIS 6: The locus of causality of attributions and group standard attainment will interact to affect satisfaction with self performance such that the relationship between locus and satisfaction with self performance will be positive for high group standard attainment individuals and negative for low group standard attainment individuals. (See Figure 13.)

The interaction outlined in Figure 13 predicts that individuals who perceive the cause of group success (i.e., high group standard

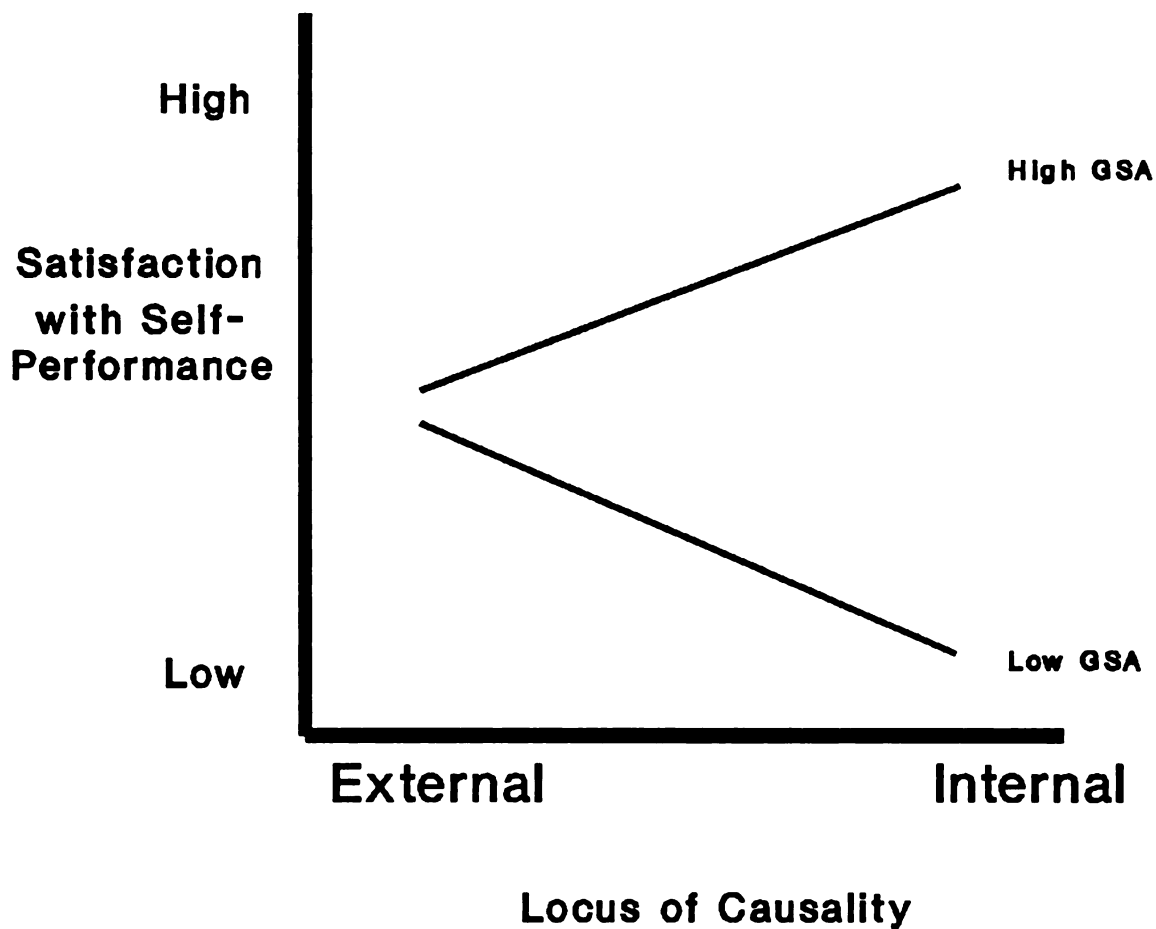


Figure 13. Hypothesized interaction effect of group standard attainment and locus of causality of attributions on satisfaction with self performance.

attainment) as primarily internal will show greater satisfaction with their own performance than will individuals who perceive the cause of group success as more external. In addition, the interaction predicts that individuals who perceive the cause of group failure (i.e., low group standard attainment) as primarily internal will show less satisfaction with their own performance than will individuals who attribute group failure to more external factors.

It is further expected that the locus of causality of attributions will interact with group standard attainment to influence satisfaction with the group as follows:

HYPOTHESIS 7: The locus of causality of attributions and group standard attainment will interact to affect satisfaction with the group such that the relationship between locus of causality and satisfaction with the group will be negative for high group standard attainment individuals and positive for low group standard attainment individuals.

Figure 14 presents the proposed interaction. The interaction predicts that individuals who make highly internal attributions (to self-ability or self-effort) for group success (i.e., high group standard attainment) are expected to show less satisfaction with the group (as predicted by research dealing with the "sucker" effect) than are individuals who attribute group success to more external sources. On the other hand, individuals who make more external attributions (i.e., attributions to the group) for group failure (i.e., low group standard attainment) are expected to show less satisfaction with the group than are individuals who attribute group failure to internal

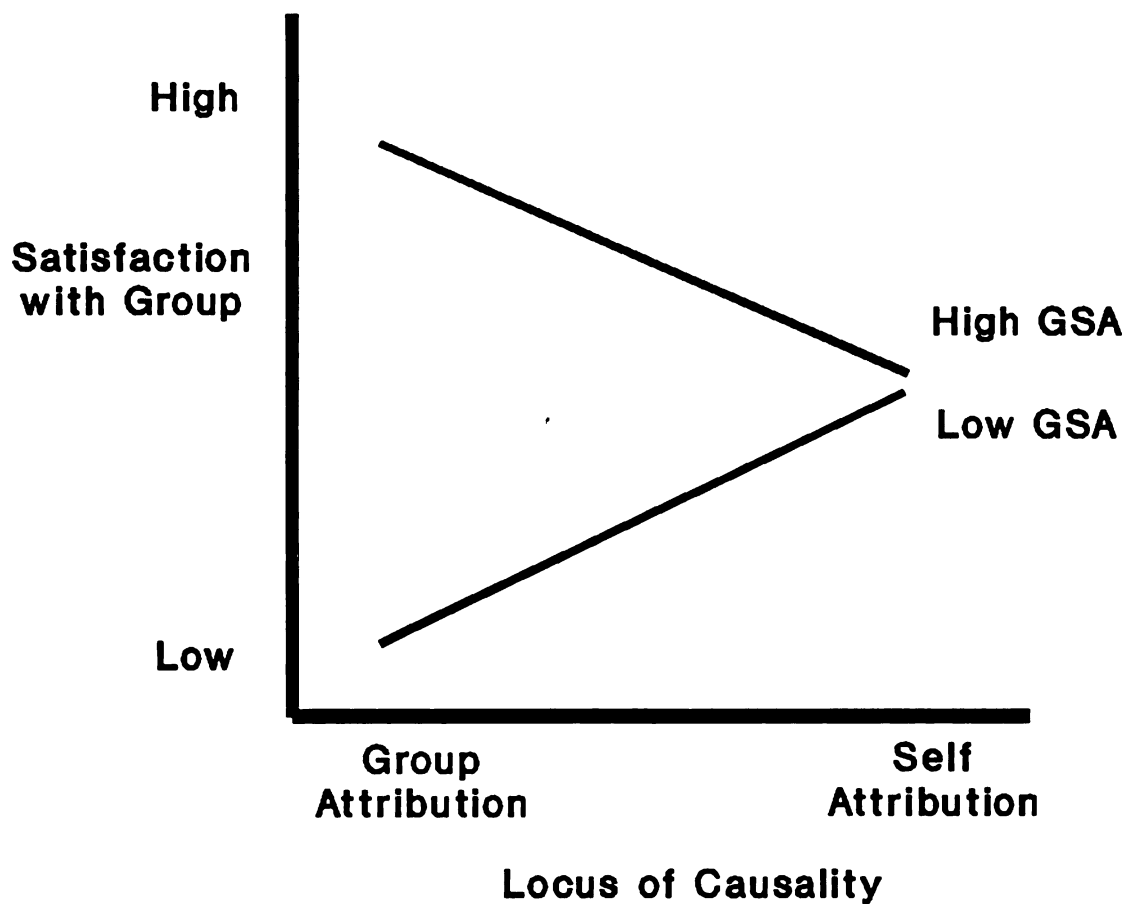


Figure 14. Hypothesized interaction effect of group standard attainment and locus of causality of attributions on satisfaction with the group.

sources.

Commitment to the Group Goal

Carver and Scheier (1981) suggested that individuals who are uncertain about whether they will be able to reach their referent standard will engage in an assessment process, the result of which is an outcome expectancy. In addition, Klein (1989) used a subjective expected utility concept (Edwards, 1961) in his control theory model of individual work motivation. Subjective expected utility was defined as the product of the individual's expectancy regarding the goal and the valence of this goal. Hollenbeck and Klein (1987) integrated goal setting theory (Locke, et al., 1981) and expectancy theory concepts (Vroom, 1964) through their conceptualization of goal commitment. These authors presented a model of goal commitment that viewed this construct as a factor composed of expectancy and valence judgments. The model presented here suggests that the individual's commitment to the group goal is influenced by the individual's causal attributions. This assumption is consistent with the propositions of Carver and Scheier (1981), as these authors proposed that attributions are one of several factors influencing outcome expectancies, and goal commitment beliefs entail expectancy judgments.

It is important to note that in this model goal commitment is a belief which exists at the individual level (i.e., within the perceptions of the individual group member). It would be impossible for a group to develop a collective goal commitment belief for the same reason that the comparison process between the group standard and group performance feedback (discussed earlier) could not be carried out at the

group level. Groups do not have perceptual capabilities that exist outside of the perceptual abilities of individual group members. A goal commitment belief, therefore, represents an individual group member's judgment regarding the probability that the group standard can be reached in the future and his or her perception of the attractiveness of this standard.

The group level of analysis complicates the assessment of the expectancy that the standard may be achieved in the future. At the individual level, any individual may hold expectations regarding the probability of reaching a standard that depend upon his or her causal attributions for past performance. For example, the individual who attributes past individual performance success to effort must assess the likelihood that he or she will exert this level of effort in the future. However at the group level the effort component is multidimensional. The individual must base expectancy judgments about the likelihood of goal attainment on his or her own efforts as well as the efforts of other group members. The same logic holds true for ability attributions. While these judgments are more complex than at the individual level, the model assumes that the individual group member is capable of developing such judgments and cumulating them into an overall expectancy perception.

The valence component of the goal commitment variable reflects the individual group member's desire to reach the group's standard. This component must also exist at the individual, rather than the group, level. Note that the standard may be attractive to the group as a whole and that this may drive the individual group member to view the standard

as attractive. In this case, the opinion of the group is a possible reason for the individual's perception that the standard is attractive, however the perception still occurs at the individual level.

McMahan (1973) suggested stability as the dimension of central importance in the determination of outcome expectancies and, as mentioned earlier, stability (i.e., consistency) of performance is believed to be one of the primary sources of performance attribution information (Heider, 1958). In order to predict an individual's perception of the expectancy that the group can reach the goal in the future (one component of the goal commitment construct), it is also important to know the level of the group's previous performance (i.e., did the group attain its referent standard?). Assuming a constant valence for the goal, goal commitment is expected, therefore, to be a function of the interaction of previous group standard attainment and the stability of attributions for previous group performance. Possible combinations of these variables and their effect on an individual's commitment to the group referent standard will be discussed below. The proposed interaction is presented in Figure 15.

Stable Attribution for Successful Performance. An individual group member who attributes the cause of the group's previous successful performance to stable factors should hold a high expectancy that the group can be successful in the future (assuming that task difficulty does not change). Such individuals are expected, therefore, to hold high levels of goal commitment (given a stable valence).

Unstable Attributions for Successful Performance. An individual group member who attributes the cause of the group's previous successful

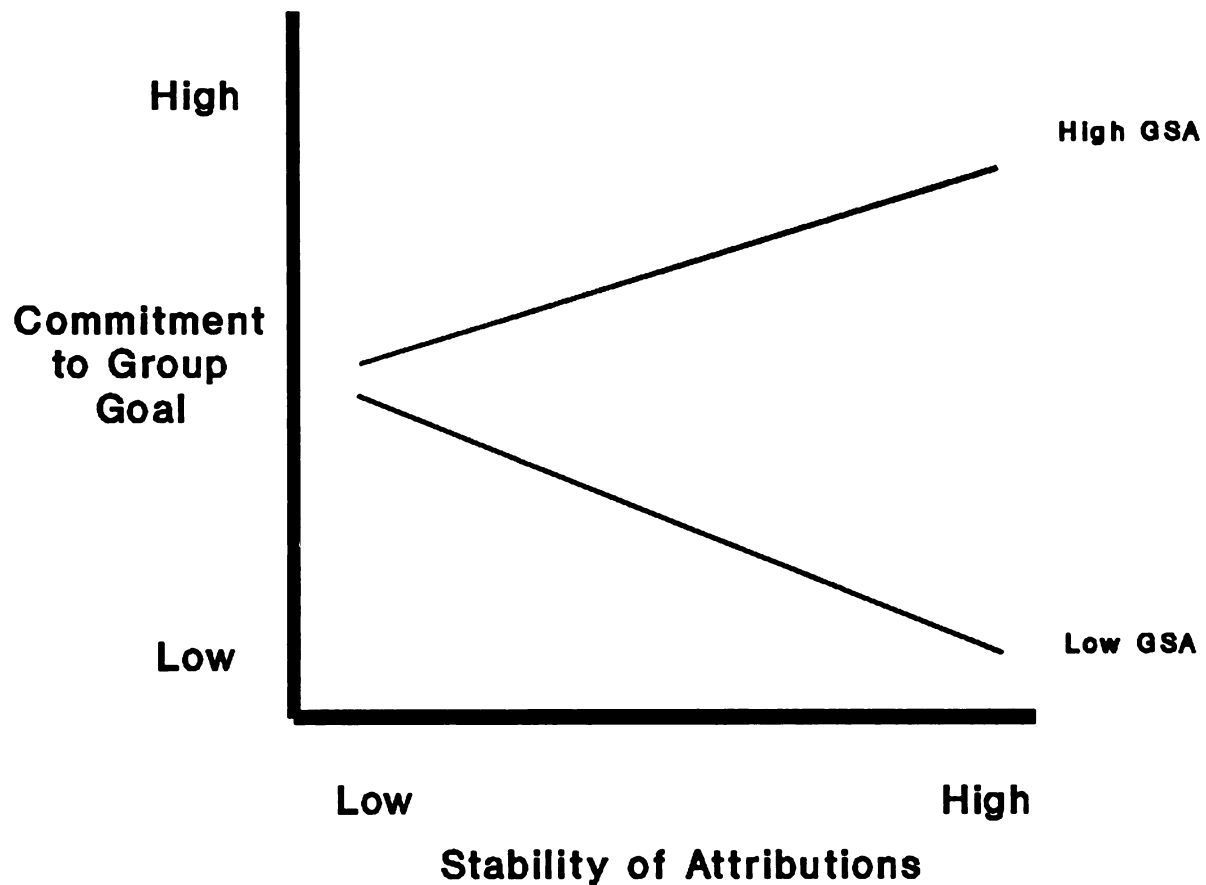


Figure 15. Hypothesized interaction effect of group standard attainment and stability of attributions on commitment to the group's standard.

performance to unstable factors should hold a low expectancy that the group can achieve its standard in the future (given that task difficulty remains stable). If the expectancy judgment is low, the individual's commitment to the group's goal should also be low given a stable valence.

Stable Attributions for Unsuccessful Performance. An individual who is a member of a group that has failed to attain its standard is expected to hold a low expectancy that the group can attain this standard in the future if the individual attributes the failure to a stable cause (given a stable level of task difficulty). If the expectancy belief of the individual is low, it is expected that the individual's commitment to the group's goal will also be low given a stable level of valence for the goal.

Unstable Attributions for Unsuccessful Performance. If an individual group member attributes previous group failure to attain its goal to an unstable cause, the individual is expected to hold a high expectancy that the goal can be reached in the future. If the individual's expectancy judgment is high, commitment to the goal is expected to be high (assuming a stable level of valence for the goal).

As mentioned in the above discussion, commitment to the group's goal is also likely to be influenced by the difficulty of the task presently faced by the group. Because task difficulty is not always stable, it is important to recognize the potential impact of task difficulty level on the individual's expectancy judgment and, therefore, upon his or her commitment to the group's goal. Holding task difficulty constant, the following hypothesis is generated from Figure 15:

HYPOTHESIS 8: Group standard attainment and attribution stability will interact to affect goal commitment such that there will be a positive relationship between attribution stability and goal commitment for high group standard attainment individuals and a negative relationship between attribution stability and goal commitment for low group standard attainment individuals.

The model also posits a relationship between an individual group member's perception of the difficulty of the group's task on the next performance trial and commitment to the group's goal on the next performance trial. Task difficulty is expected to influence commitment via its effect on expectancy judgments. For example, if the group member perceives that the task will be very difficult to perform in the future, his or her expectancy that the group can reach its goal (standard) will be low, leading to lower commitment.

Individual Performance

The individual's goal commitment beliefs are expected to have implications for his or her subsequent behavior. Carver and Scheier (1981) suggested that favorable expectancies lead to a continuation of previous behavior and that unfavorable expectancies result in an impetus to withdraw from further efforts toward the referent standard (unless withdrawal itself is associated with aversive consequences). Previous research on goal commitment at the individual level (Hollenbeck & Klein, 1987; Hollenbeck, Williams, & Klein, 1987; Locke, et al., 1981) points to the importance of the goal commitment construct for predicting performance in a goal setting context. This research suggests that

goals do not have a positive influence on individual performance unless the individual is committed to the goal. This model, therefore, predicts that the level of the group standard and commitment to the standard will interact to influence individual performance. In the test of the model described in the next chapter the level of the group standard remains constant and, therefore, the following hypothesis is presented:

HYPOTHESIS 9: There will be a significant positive relationship between commitment to the group standard and individual performance level.

While the model posits that commitment to the group goal influences individual performance, it also recognizes that commitment is not the only determinant of individual performance. The difficulty of the task faced by the group, as well as the experience and ability of group members on this task is expected to be related to individual performance. In addition, individual group members' self-set goals regarding the task at hand are also expected to influence individual performance.

Social Loafing and Free-Rider Effects

It is important to address social loafing and free-rider effects, group-level phenomena which have been investigated in the social psychology literature (Albanese & VanFleet, 1985; Harkins & Petty, 1982; Kerr & Bruun, 1983; Latane, Williams, & Harkins, 1979; Price, 1987; Williams, Harkins, & Latane, 1981). Social loafing is a phrase that refers to the possibility that individuals exert less individual effort when working in groups than when working alone, while free-riding refers

to the possibility that an individual group member who perceives that the group will succeed without his or her efforts will decrease individual effort toward the group goal.

Social loafing and free-riding provide further explanation of the effects hypothesized in an earlier section. The previous discussion suggested that individuals who attribute previous successful group performance to stable factors will hold positive expectancies that the group's goal may be attained in the future by maintaining present levels of performance. Note that this present level of effort may, for any one individual, represent either high or low performance. An individual may perceive that he or she performed poorly individually on the task but also perceive that the group was successful in reaching its goal despite this poor individual performance. In this case, the social loafing research suggests that the individual has little incentive to increase his or her individual performance level, because the valued goal has been attained without increased performance. Latane, Williams, and Harkins (1979) found empirical evidence that individuals who performed physical tasks in groups exerted less individual effort than did individuals performing alone. Williams, Harkins, and Latane (1981) suggested identifiability of individual performance as a boundary condition for the social loafing phenomenon, however, by showing that the effect occurred only if an individual's outputs were unidentifiable. Harkins and Petty (1982) provided empirical evidence to suggest that identifiability was not the sole boundary variable. They found that subjects who felt that they were making a unique contribution to the group endeavor were less likely to engage in social loafing than

individuals who felt that their efforts were redundant. In addition, groups members operating within a group which faced a difficult task were less likely to engage in social loafing than members of groups with easier tasks. Kerr and Bruun (1983) and Albanese and VanFleet (1985) have suggested that as group size increases, free-riding behavior increases. Price (1987) found that type of task moderated the relationship between identifiability and social loafing. Specifically, identifiability did decrease social loafing behavior when individuals were asked to express an opinion, but did not impact social loafing behavior when individuals were asked to make a decision. Most research, therefore, assumes the existence of social loafing and free-rider effects in some circumstances.

Research on social loafing and free-rider effects in groups points to the importance of the expectancy judgment (part of the goal commitment variable) for understanding individual behavior. An individual who perceives that the group has been successful in the past despite his or her low level of effort may not feel that his or her individual contribution is required in order for the group to succeed in the future. Such an individual appears to value attainment of the group's referent standard, but to hold a high expectancy that the group will be able to reach the referent standard without his or her efforts. This individual, therefore, might choose to engage in social loafing and free-ride on the efforts of other group members. On the other hand, an individual who values the goal, but does not expect that the group will be able to reach the goal without his or her efforts would be unlikely to free-ride. This is evidenced by research which found that

individuals who perceived that the task was difficult or that their individual contributions were required to reach the group's goal were unlikely to engage in free-riding behavior (Harkins & Petty, 1982).

Feedback Loops

The model presented in Figure 8 suggests two feedback loops. The first feedback loop is represented by the relationship between individual performance and felt responsibility. As suggested in Hypothesis 1, individual performance is expected to be positively correlated with felt responsibility perceptions. Second, individual performance is expected to influence subsequent group performance, because the performance level of the group depends upon the performance level of individual group members. It is important to note that this second feedback loop involves a transition from the individual level of analysis to the group level of analysis. As discussed at the beginning of this chapter, the referent standard, group performance, and feedback which drive this model exist at the group level, while the cognitive processes described occur at the individual level. Once these cognitive processes have occurred, however, the behavioral reaction which results is expected to influence the group's subsequent performance (via the performance of individual group members). This feedback loop, therefore, involves a transition from the individual level to the group level.

The model also suggests that group performance may influence subsequent group standards. This relationship is supported by previous research dealing with level of aspiration (Forward & Zander, 1971; Zander, Forward, & Albert, 1969; Zander & Medow, 1963; Zander & Newcomb,

1967). Although an examination of the processes through which group standards are established is beyond the focus of this paper, the influence of such processes is recognized in the model (by the multidirectional arrow shown between group performance and group standard).

An additional feedback loop should be mentioned at this point, although it is not included in the model. Previous control theorists (Campion & Lord, 1982; Hollenbeck & Brief, 1987; Klein, 1989; Taylor, et al., 1984) have suggested that individuals may respond to a discrepancy between group performance and the group referent standard via a behavioral change (which has already been discussed) or by means of a cognitive change in the referent standard itself. It is important to note that this second option is not directly available to individuals operating within group settings. In most cases any one group member does not have the power to change the group's referent standard. It is possible that an individual group member may succeed in changing the group standard if he or she is able to convince other group members to agree to the change. This change, however, is expected to occur over a much longer time period than is the change in the referent standard which occurs at the individual level.

It is likely, however, that the individual group member's feelings toward the group may influence his or her feelings about the group's goal. If the individual is very dissatisfied with his or her group, it is less likely that he or she will greatly value the group's referent standard. From the perspective of Hollenbeck and Williams (1987), the individual may experience a change in goal importance. This negative affect toward the group's referent standard may, over time, influence

the level or nature of the referent standard. If enough group members decrease their commitment and efforts toward the group referent standard, the standard will have to be changed if the group ever hopes to attain it. Dissatisfaction with the group may, therefore, eventually lead to actual changes in the nature or level of the goal. However, because this relationship is expected to be neither direct nor short-term, it is not depicted in Figure 8.

Model Assumptions

It is important to note that the control theory model presented in the previous sections departs from traditional control theory specifications. Previous presentations of control theory have suggested that when there is no discrepancy between the standard and the sensor information, the system continues its previous actions without interruption. However, the control theory model presented here suggests that even when the standard has been attained, the individual will engage in a self-regulatory assessment process which has implications for affect and behavior. The reason that the present model differs from previous models involves the fact that the model presented here focuses on group standards and feedback information. As Nadler (1979) suggested, feedback information received by groups is different than that received by individuals in that the group members may have difficulty in determining the extent to which the feedback information reflects their individual performance. Therefore, in order to determine the relevance of group feedback to themselves, individual group members must engage in the social comparison and attribution processes described in this model even when there is no discrepancy between the referent

standard and performance feedback. In addition, as discussed previously, individual group members are constrained in their ability to directly change group referent standards. For these reasons, it is expected that the processes which occur at the group level are inherently more complex and involve more cognitive processing than those occurring at the individual level. Consistent with this expectation, Taylor, et al. (1984) suggested that individuals engage in more frequent monitoring behavior when they are uncertain about their ability to meet the desired standard. Individuals who are operating in groups, compared to individuals functioning alone, are more likely to be uncertain about their ability to meet the standard (because of the uncertainty regarding the performance of other group members). This suggests that individuals working in groups are more likely to engage in conscious monitoring than are individuals who are working alone.

The model described above makes several assumptions. First, the model assumes that individuals initially value the group referent standard. Second, the model is descriptive of only situations involving evaluative feedback information. Finally, following the work of Hollenbeck (Hollenbeck, 1989; Hollenbeck & Brief, 1987; Hollenbeck & Williams, 1987), the processes described here are assumed to be more descriptive of individuals high in self-focus than of individuals low in self-focus.

Group Goal Setting Research and the Control Theory Model

An explanation of the proposed model of motivation in groups (shown in Figure 8) has been provided in this chapter. In addition to an explanation of the model, however, it is also important to establish the

relationship between the proposed model and research findings dealing with group motivation. Previous research on group goal setting will now be presented and related to the proposed model.

Empirical research on goal setting in groups can be divided into four general types: 1) research which examines the group goal difficulty-group performance relationship, 2) research which examines the group goal specificity-group performance relationship, 3) research dealing with how groups establish goals, and 4) research focusing upon the effects of group attributes on the goal setting process. Each of these areas will be discussed and related to the model presented in Figure 8.

Several research studies have examined the relationship between group goal difficulty and group performance. Becker (1978) compared the energy conservation behavior of families in the following experimental treatments: 1) those assigned difficult conservation goals, 2) those provided with feedback on their conservation performance, 3) those assigned difficult conservation goals and provided with performance feedback, and 4) those who were neither assigned conservation goals nor provided with performance feedback. The results of this study indicated that the families that were most successful in conserving energy were those that were assigned difficult goals and provided with performance feedback. Research conducted by Klein and Mulvey (1988) on the group performance of undergraduate students working on a class project found that goal level was positively related to group performance. Recent research by Smith, Locke, and Barry (1990) examined the performance of two types of groups working on a longitudinal business simulation:

1) eight groups assigned specific and moderately difficult goals, and
2) eight groups not assigned such goals. Their results indicated that the existence of group goals was positively associated with performance and the quality of work plans that the groups developed. Research by Latham and Locke (1975) found that as time restrictions were placed on the activities of logging crews (a restriction that might be equated with increasing the difficulty of the goals of these crews), rate of output increased. Further research, which examined the performance of garment workers, indicated that groups that set production goals (and were encouraged to set these goals at levels higher than their present production levels) showed significantly higher subsequent performance than did groups which did not set production goals (Lawrence & Smith, 1955). In addition, a recent investigation by Pritchard, Jones, Roth, Stuebing, and Ekeberg (1988) involved the setting of group goals in five organizational units at a U.S. Air Force base. Their results indicated that the setting of group goals (along with the provision of performance feedback) was associated with an increase in group performance of approximately 75% over baseline. The authors encouraged the organizational units to set difficult goals by making the goals nonreportable to higher management. Finally, research by Ivancevich (1974) which examined the impact of a Management by Objectives program in a manufacturing corporation suggested that the institution of a formal goal setting program was associated with higher subsequent departmental performance.

The above research provides support for the proposition that group goal difficulty is positively associated with group performance. The

model presented in Figure 8 is able to account for this relationship via its suggestion that individual performance is related to group performance directed toward group goal attainment. The model suggests that individual performance will be directed toward group goal attainment (via group performance) as long as the individual members of the group are committed to the group goal. If the group's goal is set at a higher (more difficult) level and the individual group members are committed to attaining the group goal, group performance directed toward achieving this goal should be higher than if the group's goal is set at a lower (easier) level. Evidence in support of this position is provided by Matsui, Kakuyama, and Onglatco (1987). These authors found that subjects working in two-person groups showed the most performance increase when they received feedback suggesting that their performance was below both the group goal level and their individual goal level (compared with individuals receiving feedback indicating that their performance was: above standard on individual goals but below standard on group goals, below standard on individual goals but above standard on group goals, and above standard on both individual and group goals). In addition, high ability subjects who had already achieved their individual goal continued to exert effort aimed at achievement of the group goal.

One previous study addressed the relationship between group goal specificity and group performance. In an investigation of groups of sewing machine operators, Koch (1979) found that the assignment of specific goals and performance feedback was associated with higher group performance. It should be noted, however, that these assigned goals

appeared to be both specific and difficult for the majority of work groups. The goals were assigned by management at a level equal to that of the most productive groups, suggesting that this goal was moderately difficult for those who were members of average work groups. The finding that goal specificity, when combined with goal difficulty, might be associated with higher group performance is also predictable given the model outlined in Figure 8. More specific goals allow individual group members to make more accurate and consistent comparisons between the group's goal and group performance and, therefore, to target their individual performance toward group goal attainment in a more efficient manner.

Research by Raven and Rietsema (1957) suggested that greater goal clarity was associated with higher perceptions of group involvement and higher attraction to the group's task. While attraction to the group task is not a variable addressed in the model, the finding regarding feelings toward the group is explainable from the model in Figure 8. The model suggests that the comparator component is related to the individual's affective responses to the group. If the goal is unclear, individuals will be unable to make consistent comparisons between the group standard and group performance, and affective reactions toward the group would not be predictable.

The third major area of group goal setting research involves the determination of how group goals are established. Zander and his colleagues have provided the bulk of the research in this area. Zander and Medow (1963) examined the goal setting behavior of high school boys working on a motor skills task in order to determine whether previous

findings regarding level of aspiration applied to groups as well as individuals. They found that both groups and solo individuals raised their aspirations following a performance success, but that groups more often lowered their aspirations following a performance failure. In addition, they found that individual group members tended to judge their own performance less harshly in the group failure than in the individual failure condition. Zander and Newcomb (1967) examined the levels of aspiration of United Fund campaign teams. Their findings suggested that teams that failed to reach their goals tended to set future goals at a higher level (compared to previous goals) than did teams that succeeded in reaching their campaign goals. A follow-up study by Zander, Forward, and Albert (1969) examined the reasons for this finding. The authors concluded that failed groups tended to show a greater dislike for lowering the campaign goal, tended to be more conscious of the needs of the community which they represented, and tended to place pressure upon themselves to meet these needs. A third study by Forward and Zander (1971) focused upon further explaining this phenomenon by conducting a laboratory study involving high school boys which explored three possible reasons for the previous findings: 1) group failure arouses strong dispositions among members to avoid the negative consequences of failure and failed groups therefore make the goal irrelevant as a criterion for group achievement, 2) the goal failure highlights unmet needs, so members are hesitant to set low goals because they indicate a lesser need for community welfare, and 3) external pressures force the setting of a higher goal despite failure. The authors found that all three alternatives had additive parts in explaining the phenomenon. A

final study in this area was conducted by Pearson (1987) who compared the performance of groups involved in participative goal setting with a control group. He found that participation in goal setting was associated with higher group performance and with greater job satisfaction.

The above research addresses the factors which contribute to the establishment of group goal levels. While the model in Figure 8 does recognize that previous group performance is one variable involved in the setting of future goals (represented by the multidirectional arrow between group performance and group standard), the model is not concerned specifically with where the group referent standard comes from. In other words, the model is assumed to operate given an established group standard (group goal); determination of the reasons why this standard was chosen are beyond the focus of this paper.

A final area which has received attention in the group goal setting research is the influence of various group attributes on the goal setting process. For example, in their investigation of groups of undergraduates working on a class project, Klein and Mulvey (1988) found that group cohesion was positively associated with both goal level chosen and goal commitment. In addition, the authors found that group performance norms were positively associated with goal level chosen and goal commitment. A study by Medow and Zander (1965) which examined the perceptions of high school boys working on a simple group task found that individuals who perceived themselves to be more central to the group felt more responsible for group performance than did peripheral members when the group failed but not when the group succeeded in

reaching its goal. In addition, central members rated the group's performance more favorably regardless of whether the team failed or succeeded.

These findings related to the influence of various group attributes on the goal setting process are not directly addressed by the model. For example, the findings of Klein and Mulvey (1988) regarding the relationships between group cohesion, group norms, and group goal level are relevant to the establishment of group goal standards, however the model presented in Figure 8 is not intended to address how group goals are established. Klein and Mulvey's (1988) findings which suggest that group cohesion and group norms are positively related to group goal commitment are not inconsistent with the model presented in Figure 8. The two independent variables involved in the Klein and Mulvey study (group cohesion, group norms) are not, however, variables of central interest in an initial test of this model. The findings of Medow and Zander (1965) which suggest that central and peripheral group members hold different perceptions of responsibility for group performance is easily incorporated by the model in that central and peripheral members could be assumed to perceive differing levels of felt responsibility.

Empirical Investigation

The propositions presented in this chapter will be investigated in an empirical study described in the following chapter. The research is longitudinal in nature (i.e., there are multiple performance trials) and deals with evaluative feedback information only (i.e., descriptive feedback is not considered). The investigation utilizes sports teams in order to examine motivation in groups. The suggestion that goal setting

programs may operate in sports teams and work groups in similar ways was made by Locke and Latham (1985), and previous research on goal setting at the individual level has examined motivation in sports teams (Anderson, Crowell, Doman, & Howard, 1988). The procedures and measures involved in this investigation will be described in the following chapter.

CHAPTER FOUR: METHOD

The groups used to test the model presented in the previous chapter were college men's intramural basketball teams. Sports teams were chosen because they represented a group of individuals working together toward a common group goal (i.e., winning the game), and because the task faced by these teams involved interdependence of the efforts of individual team members.

Power Analysis

As suggested by Cohen (1977), a power analysis was conducted to determine the sample size necessary to acquire a desired level of power for the statistics used to test the hypotheses presented in the previous chapter. The analysis requiring the greatest statistical power is that which tests the hypotheses suggesting moderated regression.

Assuming that the standardized regression coefficient for the moderator explains at least 5% of the variance in a complete regression equation that explains a small amount of variance ($R^2 = .10$; Cohen, 1977) 114 subjects would provide a power of .80 at the .10 level. Assuming that seven players per sports team would be involved in this research, a sample of 114 subjects would require the participation of sixteen teams. The participation of twenty teams was solicited to insure against loss of power due to attrition.

Sample

The final sample consisted of 19 college men's intramural basketball teams at Michigan State University (one team decided at the last moment not to participate). There were two intramural leagues: a competitive league which played to a final league playoff tournament, and a

non-competitive league which did not include a playoff. Only teams from the competitive intramural league were included in the study in order to ensure that subjects were committed to winning the team's games. A total of 153 subjects were involved in the research. The subjects were all male and ranged in age from 18 to 36 years. Almost all (98%) of the subjects had previous experience playing on basketball teams.

Procedure

The team managers were asked during an organizational meeting to volunteer the team to participate in the study. Over ninety team managers expressed interest in the study and twenty were chosen with preference given to those teams that had played together in the past (on average, teams had been together for almost two years), and those teams that had between six and ten players (in order to ensure some player consistency across games). In exchange for their participation, each team was paid \$75, and provided with game statistics (information on points, rebounds, and assists) following each of the games in which data were collected. For their part, team members were asked to take time prior to the first game, and after each of their first three games to complete a series of short (15-20 minute) questionnaires. Player responses were seen by no one other than the experimenter and her assistant.

The group goal was to win each of the games played. Game statistics were collected by a trained rater during each game, and these statistics served as a measure of individual performance. In order to check the reliability of these statistics, a second trained rater was sent to a subsample of the games and asked to collect statistics

independently. Raters were recruited from an undergraduate management class, and ten individuals were hired. All raters had previous experience either as basketball coaches, basketball statisticians, or basketball referees. A local high school basketball coach was hired to provide a one hour training session to these raters, in which the scoring of statistics was explained and videotapes were viewed and scored. The coach who trained the raters was paid \$50, and raters were paid \$15 per game for their services. One rater failed to attend the training session and was therefore not further involved in the research.

Prior to the first game, players completed a questionnaire collecting information on demographics and the Russell Causal Dimension Scale (1982), which will be described below. Immediately following each of their first three games, players also completed a second questionnaire that focused on their perceptions of events in the game they had just played. This second questionnaire was collected by the trained raters. This procedure was repeated for each of the three games. Therefore, three types of information were collected: 1) game statistics, 2) questionnaire data from each team member prior to the first game, and 3) questionnaire data from each team member following each of the first three games.

Pilot Study

A pilot study was conducted with 139 college juniors and seniors who had been working in groups as part of a management class. The questionnaire used in the pilot study is provided in Appendix A. The pilot study was conducted to check the reliabilities of the scales to be used in the test of the model described above. The results of this

study indicated satisfactory alphas for all scales, with the lowest equal to .71. The scales were refined based upon these results, and certain items dropped if their deletion did not result in significant decreases in the reliability of the scale. The resulting scales, which were used in the actual test of the model, are presented in Appendix B.

Measures Used in the Sample of Intramural Basketball Teams

Table 1 provides a summary of the measures used in this study, as well as the timing of completion of the measures. This section provides specific information on these scales.

Information Collected Prior to First Game. Players were asked to provide the following information on a one-time-only basis. Team members were asked to arrive one half hour early to their first game in order to provide the following information:

Demographic Information. Subjects were asked to provide general demographic information (age, student number, team name, and year in college).

Self-focus. The Fenigstein, Scheier, and Buss (1975) scale was used to assess the self-focus of individual team members. The scale contains items such as "I reflect about myself a lot," and "I'm constantly examining my own motives," and is rated on a 5 point scale ranging from "Strongly Disagree" to "Strongly Agree."

Experience. Each player was asked to indicate the number of previous seasons he had played on a basketball team (pre-high school, high school, intramural, college, or other).

Ability. Each player was also asked to provide a rating, on a 5-point scale ranging from "Very Poor" to "Very Good," of each other

Table 1: Timing of Measures

	<u>Prior to First Game</u>	<u>After Game #1</u>	<u>After Game #2</u>	<u>After Game #3</u>
Demographic Information	X			
Self-focus	X			
Experience	X			
Ability	X			X
Russell Causal Dimension Scale	X			
Self Performance Ratings		X	X	
Felt Responsibility Ratings		X	X	
Attributions (Likert & Ipsative)		X	X	
Task Difficulty ₁		X	X	X
Task Difficulty ₂		X	X	
Self-set Goals		X	X	X
Satisfaction with Self Performance		X	X	
Satisfaction with Group		X	X	
Commitment to Group Standard		X	X	
Group Standard Attainment		X	X	X
Individual Performance		X	X	X

player on the team. These ratings were then averaged for each player to arrive at an estimate of the ability of each player. Because some players had difficulty rating other members of the team at the beginning of the season, players were asked to provide a second rating of ability after their third game.

Russell Causal Dimension Scale (1982). Players were asked to provide ratings of the locus of causality and stability of six attributional sources (self ability, self effort, team ability, team effort, task difficulty, and luck). The locus of causality of each source was measured with three items, each involving a 9-point rating scale. Similarly, subject perceptions of the stability of each attributional source was determined via three items, each involving a 9-point rating scale.

Information Collected At Each Game. Team members were asked to complete a questionnaire immediately following each game. Each team member was asked to provide ratings on the following dimensions:

Self Performance Ratings. After each game, 3 items assessed each team member's perceptions of his own performance compared to that of others on the team. All questions were answered on a 5-point Likert scale, with anchors ranging from "Strongly Disagree" to "Strongly Agree."

Felt Responsibility Ratings. Each player completed 5 items designed to measure perceptions of his own responsibility for the team's performance. All questions were answered on a 5-point Likert scale with anchors ranging from "Strongly Disagree" to "Strongly Agree."

Attributions - Likert Scale. For each goal, team members completed items related to six categories of attributions: self ability (4 items), self effort (5 items), team ability (5 items), team effort (5 items), task difficulty (3 items), and luck (3 items). All items were rated on a 5-point "Strongly Disagree" to "Strongly Agree" scale.

Attributions - Ipsative Scale. Team members were asked to allocate 100 percentage points across the six attributional sources, indicating the importance of each to the team's performance outcome in the game that was just played.

Task Difficulty₁. 3 items assessed team member perceptions of the ability of the team just played, in order to provide a measure of the difficulty of the task just completed. All items were rated on a 5-point scale ranging from "Strongly Disagree" to "Strongly Agree."

Task Difficulty₂. Team members responded to 2 items designed to measure their perceptions of the ability of the team which would be played in the next game, in order to provide a measure of the difficulty of the team's next task. Again, items were rated on a 5-point scale ranging from "Strongly Disagree" to "Strongly Agree."

Self-Set Goals. Each player was asked to indicate whether he had set a goal related to each of the three performance dimensions (points, rebounds, assists) prior to the game just played. If a goal had been set, the player was asked to indicate the level of that goal.

Satisfaction with Self Performance. Each player answered 4 questions related to his satisfaction with his own performance in the game just played. All questions were in the form of a 5-point Likert scale, with anchors ranging from "Strongly Disagree" to "Strongly

Agree."

Satisfaction with Group. 6 items assessed the team member's satisfaction with his team. A five point Likert scale, with anchors ranging from "Strongly Disagree" to "Strongly Agree" was used. Items related to three dimensions of satisfaction with the team:

1) satisfaction with the skill level of the team, 2) satisfaction with the effort level of the team, and 3) general satisfaction associated with being a member of the team.

Commitment to Group Standard. Commitment to the group's standard (i.e., commitment to winning the next game) was measured with the seven item version of the Hollenbeck, Klein, O'Leary, and Wright (1989) goal commitment scale, adapted to the group level.

Group Standard Attainment. Group standard attainment was represented by the outcome of the game (i.e., win or loss). A team win was scored as "1" while a team loss was scored as "2."

Individual Performance. The performance of individual team members was measured by raters trained to collect performance statistics during the games. Information on three performance dimensions was collected during each game: 1) number of points scored, 2) number of rebounds, and 3) number of assists.

Analysis

Two types of analyses were used to test the nine hypotheses presented in Chapter Three. Hypotheses #2, #3, #4, #5, and #9 presented similar predictions. All hypothesized correlational associations between two variables. The statistic used to test these hypotheses was a Pearson Product Moment correlation, calculated for each hypothesis for

both Games #1 and #2. Support for the hypotheses would be represented by a significant correlation in the predicted direction.

For Hypotheses #2 through #5, two correlations were examined. The first related to the relationship between felt responsibility and attributions measured using a Likert scale measurement method. The second indicated the relationship between felt responsibility and attributions measured using an ipsative method of attribution measurement.

The remaining hypotheses (#1, #6, #7, and #8) tested the interactive effect of two variables on a dependent variable. The analysis used to test these predictions was moderated regression.

For Hypothesis #1, a moderated regression analysis was conducted for each game. In this analysis, felt responsibility perceptions were regressed on group standard attainment (i.e., team win or loss), self performance perceptions and their interaction. Support for this hypothesis would be indicated by a statistically significant beta coefficient corresponding to the interaction variable.

Hypotheses #6 and #7 both involved three moderated regression analyses per game. Because the locus of causality variable (an independent variable in both Hypothesis #6 and #7) is a linear composite of the locus of causality of the individual attributional sources (self ability, self effort, team ability, team effort, task difficulty, luck), and because no previous research has addressed the manner in which these sources should be weighted in order to arrive at a locus of causality value, three different weighting schemes were used. The first method weighted the individual attributional sources according to the

theoretical a priori framework predicted in Figure 10. The second method used the subject's responses on the Russell Causal Dimension Scale (i.e., their perception of the internality/externality of each source) as weights for each attributional source. The final method involved the empirical derivation of the best (i.e., least squares) weights corresponding to each attributional source (determined by regressing the relevant dependent variable on the attributions to each of the six attributional sources, and using the resulting beta coefficients as weights).

Hypothesis #6 was tested by regressing satisfaction with self performance on group standard attainment, the locus of causality of attributions (measured via the three different methods discussed above), and their interaction. Support for this hypothesis would be represented by a significant beta coefficient for the interaction variable.

Hypothesis #7 was tested by regressing satisfaction with group performance on group standard attainment, the locus of causality of attributions (again measured via the three different methods discussed above), and their interaction. The locus of causality of attributions involved only the self ability, self effort, team ability, and team effort attributional sources. Support for this hypothesis would also be represented by a significant beta coefficient for the interaction variable.

The testing of Hypothesis #8 involved the use of "stability of attributions" as an independent variable. The stability of attributions variable is a linear composite of the stability of individual attributional sources and the manner in which stability of attributions

should be measured is not well established. Therefore, stability of attributions was measured in three ways: 1) using the a priori theoretical framework depicted in Figure 11, 2) using responses on the Russell Causal Dimension Scale to weight the individual attributional sources, and 3) using empirically derived (least squares) weights (determined by regressing commitment to the group's goal on the six individual attributional sources). Hypothesis #8 was tested using three moderated regression analyses per game, each regressing commitment to the group's standard on group standard attainment, the locus of causality of attributions (measured in one of the three ways), and their interaction. Support for Hypothesis #8 would be provided by a significant beta coefficient for the interaction variable.

CHAPTER FIVE: RESULTS

The internal consistencies of all measures were determined by calculating the coefficient alphas corresponding to each scale. These values are provided in Table 2. All alphas were acceptable (all greater than .70; Nunnally, 1978), with the lowest value equal to .75. The means and standard deviations of these variables are presented in Table 3 (sample sizes vary across scales because there were varying numbers of team members attending each game), and intercorrelations among the key variables in the model are presented in Table 4.

In 10 of the 57 games in which data were collected, two trained raters provided ratings of individual performance. The interrater reliability across these two raters was equal to .99 for number of points, .98 for number of rebounds, and .59 for number of assists, leading to an average interrater reliability across performance dimensions equal to .86.

Hypothesis #1

Hypothesis 1 predicted a significant interaction between group standard attainment and self performance perceptions in the prediction of felt responsibility perceptions. Table 5 contains the results of two moderated regression analyses used to test this hypothesis. The first regression analysis related to Game #1 and regressed felt responsibility perceptions on group standard attainment (i.e., team win or loss), self performance perceptions, and their interaction. The second analysis related to Game #2 and regressed felt responsibility perceptions on group standard attainment, self performance perceptions, and their interaction. For both Game #1 and Game #2, the interaction of group

Table 2: Internal Consistencies of Measures

GAME #1		
<u>Scale</u>	<u>Alpha</u>	<u>Number of Items</u>
Self Performance Perceptions	.90	3
Felt Responsibility	.75	5
Self Ability Attributions	.89	4
Self Effort Attributions	.85	5
Team Ability Attributions	.90	5
Team Effort Attributions	.91	5
Task Difficulty Attributions	.82	3
Luck Attributions	.84	3
Satisfaction with Self Performance	.94	4
Satisfaction with Team Performance	.87	6
Perceptions of Task Difficulty ₁	.85	3
Perceptions of Task Difficulty ₂	.97	2
Goal Commitment ₂	.83	7

GAME #2		
<u>Scale</u>	<u>Alpha</u>	<u>Number of Items</u>
Self Performance Perceptions	.91	3
Felt Responsibility	.82	5
Self Ability Attributions	.90	4
Self Effort Attributions	.91	5
Team Ability Attributions	.87	5
Team Effort Attributions	.91	5
Task Difficulty Attributions	.85	3
Luck Attributions	.93	3
Satisfaction with Self Performance	.97	4
Satisfaction with Team Performance	.89	6
Perceptions of Task Difficulty ₁	.88	3
Perceptions of Task Difficulty ₂	.94	2
Goal Commitment ₂	.84	7

Table 3: Means and Standard Deviations of Variables in the Model

GAME #1			
<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>N</u>
Group Standard Attainment	1.31	.46	148
Self Performance Perceptions	2.65	.82	138
Felt Responsibility	3.25	.70	137
Self Ability Attributions	2.72	.75	139
Self Effort Attributions	2.82	.67	139
Team Ability Attributions	3.80	.68	139
Team Effort Attributions	3.76	.72	139
Task Difficulty Attributions	2.89	.85	139
Luck Attributions	2.30	.93	139
Self Satisfaction	3.06	.99	137
Group Satisfaction	3.76	.76	137
Commitment to Group Standard	4.23	.61	137
Individual Performance	11.58	9.08	139

GAME #2			
<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>N</u>
Group Standard Attainment	1.51	.50	155
Self Performance Perceptions	2.55	.86	135
Felt Responsibility	3.17	.77	135
Self Ability Attributions	2.76	.80	134
Self Effort Attributions	2.94	.76	134
Team Ability Attributions	3.60	.63	134
Team Effort Attributions	3.68	.60	134
Task Difficulty Attributions	3.06	.81	134
Luck Attributions	2.16	1.05	134
Self Satisfaction	3.04	1.03	135
Group Satisfaction	3.56	.77	135
Commitment to Group Standard	4.08	.69	135
Individual Performance	10.96	8.63	135

Means and Standard Deviations are divided by the number of items in the scale.

GSA = Group Standard Attainment
 SP = Self Performance Perceptions
 FR = Felt Responsibility Perceptions
 SA = Self Ability Perceptions
 SE = Self Effort Perceptions
 TA = Team Ability Perceptions
 TE = Team Effort Perceptions
 TD = Task Difficulty Attributions
 LCK = Luck Attributions
 SELF SATISF = Satisfaction with Self Performance
 GROUP SATISF = Satisfaction with Group Performance
 COMMITMT TO STD = Commitment to Group Standard
 PERF = Individual Performance

Table 4

Intercorrelations Among Variables in the Model

	GSA	SP	FR	SA	SE	TA	TE	TD	LCK	SELF SATISF	GROUP SATISF	COMMITMT TO STD	PERF
GSA	1.0	-.19**	.14*	.00	-.14*	-.54**	-.52**	-.26**	.28**	-.53**	-.57**	-.15**	-.18**
SP	-.13*	1.0	.32**	.49**	.47**	.06	.05	.12*	-.10	.57**	.19**	.04	.42**
FR	-.08	.43**	1.0	.64**	.50**	-.15**	-.03	-.19**	.12*	.02	.05	.05	.21**
SA	-.23**	.58**	.70**	1.0	.76**	.00	.04	-.05	.04	.26**	.08	.04	.19**
SE	-.26**	.54**	.72**	.85**	1.0	.12*	.15**	.10	-.08	.42**	.23**	.06	.19**
TA	-.39**	.08	-.02	.17**	.15**	1.0	.70**	.28**	-.35**	.47**	.49**	.08	.07
TE	-.34**	.07	.08	.16**	.17**	.72**	1.0	.05	-.20**	.38**	.53**	.08	.30**
TD	.03	.14*-	-.22**	-.10	-.16**	.20**	.14*	1.0	-.26**	.31**	.14*	.03	.02
LCK	.43**	.00	.08	-.02	-.08	-.23**	-.27**	.00	1.0	-.32**	-.33**	-.19**	-.02
SELF SATISF	-.32**	.68**	.47**	.62**	.57**	.21**	.24**	.03	-.15**	1.0	.57**	.08	.26**
GROUP SATISF	-.47**	-.14*	.21**	.24**	.27**	.48**	.44**	.07	-.10	.34**	1.0	.23**	.26**
COMMITMT TO STD	-.24**	.09	.10	.01	.06	.16**	.13*	-.05	-.16**	.07	.24**	1.0	.09
PERF	-.16**	.35**	.34**	.52**	.42**	.09	.03	-.04	.06	.25**	.09	.11	1.0

Correlations above the diagonal correspond to Game #1 and correlations below the diagonal correspond to Game #2

* p .10

** p .05

GSA is scored such that 1 = Team Win, and 2 = Team Loss

Table 5: Regression Results for Felt Responsibility Perceptions

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1.	Group Standard Attainment ¹	.850	.140	.012	.012
2.	Self Performance Perceptions	.970	.381	.132	.120**
3.	GSA X Self Perf. Perceptions	-.824	.436	.171	.039**

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1.	Group Standard Attainment	.504	.075	.002	.002
2.	Self Performance Perceptions	.995	.431	.174	.172**
3.	GSA x Self Perf. Perceptions	-.741	.463	.196	.022**

* p < .10

** p < .05

¹Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

standard attainment and self performance perceptions explained a significant amount of additional variance in felt responsibility perceptions. These effects are presented in Figures 16 and 17, and show that the interactions are different than predicted. Contrary to the interaction hypothesized, for members of both successful and unsuccessful teams there was a positive relationship between self performance perceptions and felt responsibility perceptions, however this relationship was stronger for high group standard attainment individuals than for low group standard attainment individuals.

Hypothesis #1 was also tested by examining the interactive effect of group standard attainment and actual individual performance level on felt responsibility perceptions. Individual performance levels for number of points, number of rebounds, and number of assists were converted to z-scores and z-scores were summed across these three performance dimensions to yield one standardized performance score per individual per game. Felt responsibility perceptions were then regressed on group standard attainment, the standardized performance score, and the interaction of group standard attainment and the standardized performance score for both Game #1 and Game #2. As shown in Table 6, the group standard attainment by standardized performance score interaction did not explain a significant amount of additional variance in either Game #1 or Game #2.

To summarize, a significant interaction was found when felt responsibility perceptions were predicted via group standard attainment and self performance perceptions, although the form of this interaction was different than predicted. A significant interaction was not found,

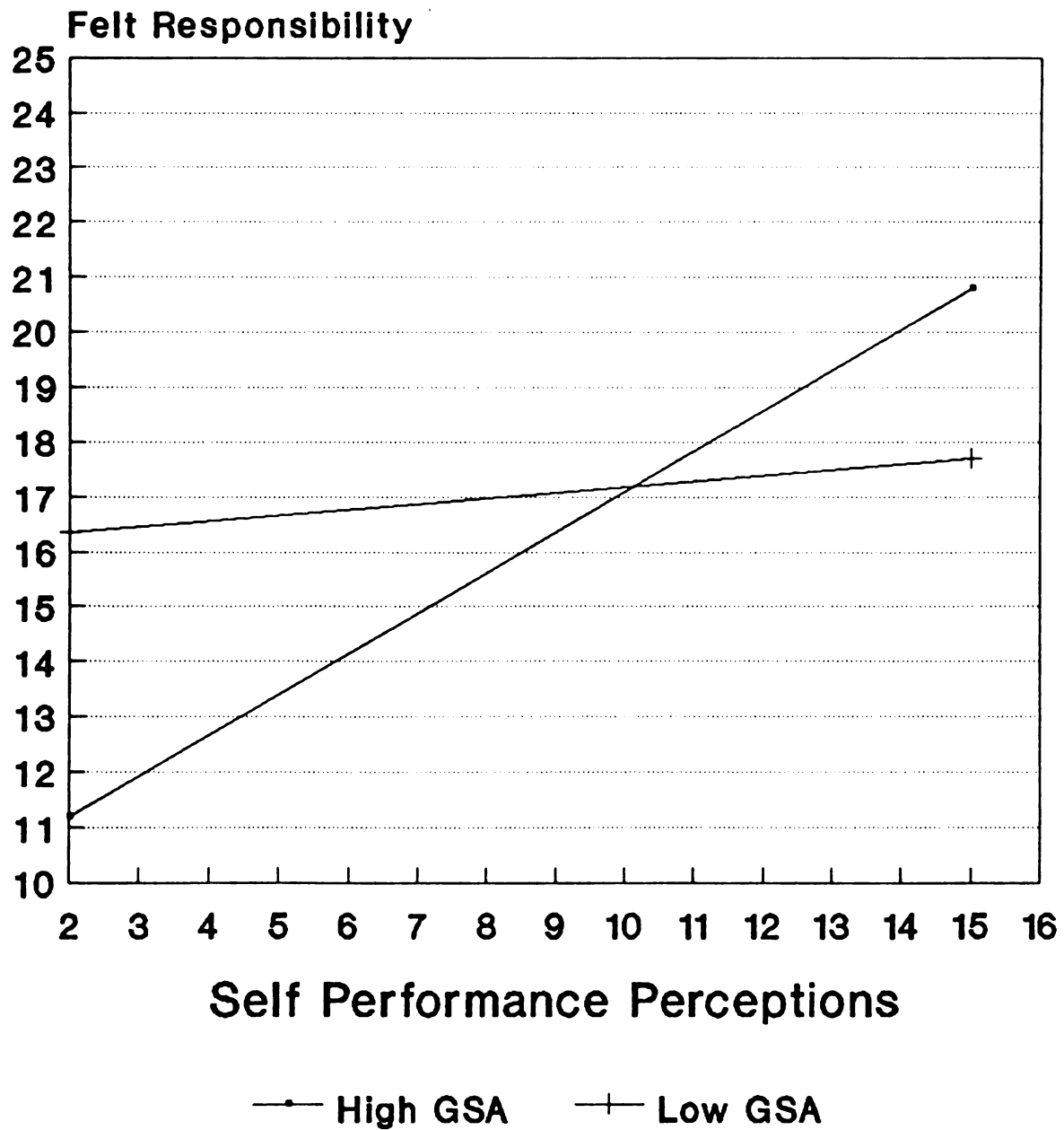


Figure 16. Regression Results for Felt Responsibility Perceptions (Game #1)

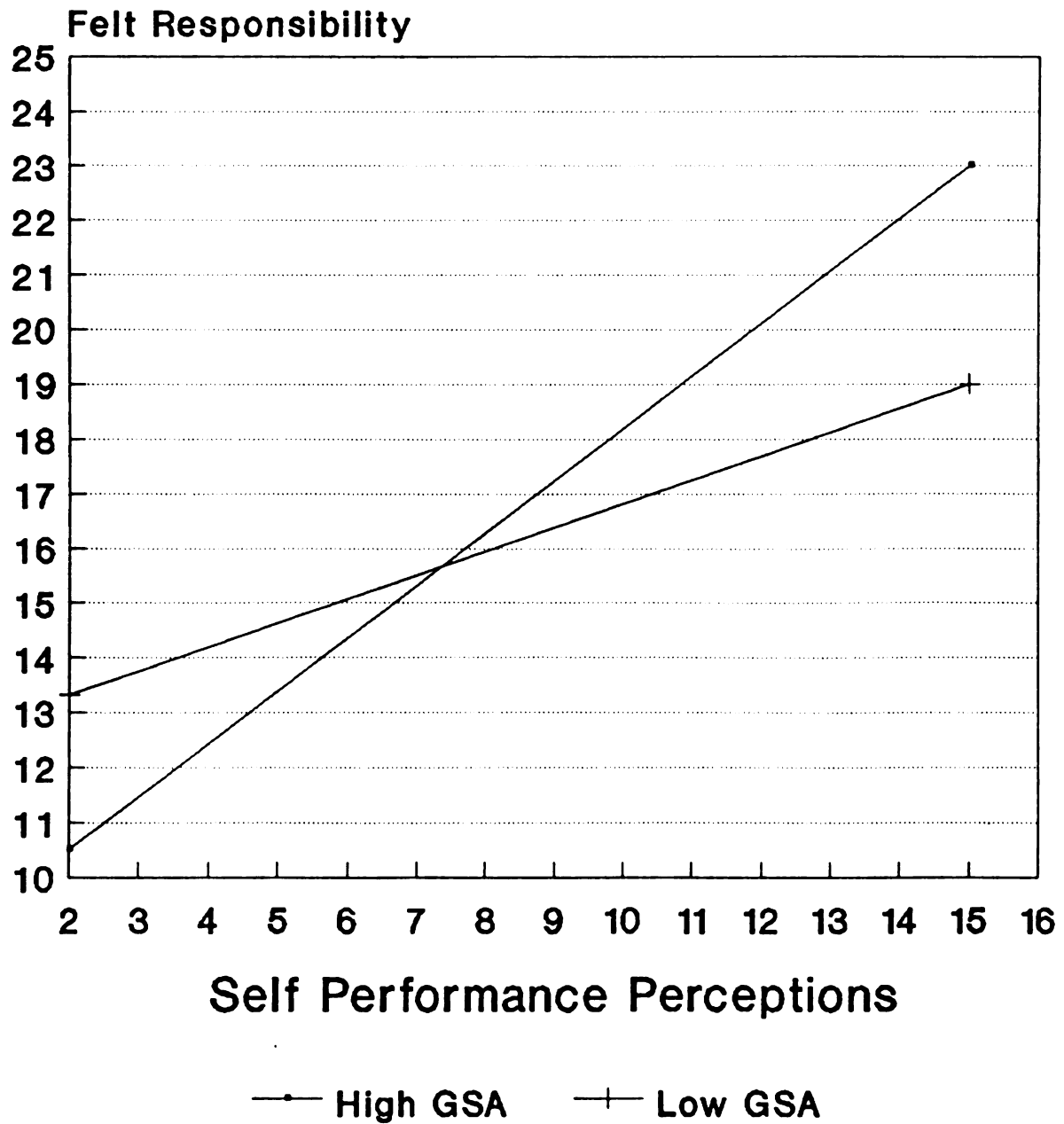


Figure 17. Regression Results for Felt Responsibility Perceptions (Game #2)

Table 6: Regression Results for Felt Responsibility Perceptions

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1.	Group Standard Attainment ¹	.179	.140	.012	.012
2.	Standardized Performance	.303	.279	.063	.051**
3.	GSA x Standardized Performance	-.062	.279	.056	-.007

GAME #2					
Step	Variable	Beta	R	R ²	R ² Change
1.	Group Standard Attainment	-.023	.075	.002	.002
2.	Standardized Performance	.259	.342	.104	.102**
3.	GSA x Standardized Performance	.083	.343	.097	-.007

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

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

however, when felt responsibility perceptions were predicted via group standard attainment and actual individual performance, suggesting that felt responsibility is more predictive from self performance perceptions than from actual performance levels.

Hypothesis 2 through Hypothesis 5 predicted correlational associations between felt responsibility perceptions and various attributional sources. Attributional sources were measured in two different ways in each of these hypotheses. First, six different Likert scales were used to assess the extent to which individuals attributed group outcomes to each of the six attributional sources (i.e., self ability, self effort, team ability, team effort, task difficulty, luck). Second, subjects were asked to indicate the importance of each attributional source to the group's outcome by allocating 100 percentage points across the six attributional sources (i.e., an ipsative scale).

Tables 7 and 8 present the intercorrelations among attributional sources measured via these two different methods in each of the games. There was a significant correlation between the two measures for all but the team effort attributions in Game #1, and all but the team ability attributions in Game #2. Despite the fact that most correlations were significant, the values of these correlations were relatively low given that the two scales were measuring the same construct (the highest correlation was equal to .481). The correlations were especially low for team attributions (team ability and team effort), suggesting that the method used to measure attributions has an influence on the attributions made.

Table 7: Correlations Between Likert Scale Measures of Attributions and Ipsative Scale measures of Attributions for Game #1

		LIKERT SCALE					
		Self Ability	Self Effort	Team Ability	Team Effort	Task Difficulty	Luck
I P S A T I V E S C A L E	Self Ability	.395**	.372**	-.086	-.018	.006	.067
	Self Effort	.260**	.276**	-.041	-.034	.013	-.044
	Team Ability	-.210**	-.204**	.186**	.148**	-.016	-.091
	Team Effort	-.046	-.042	.058	.089	-.019	-.113*
	Task Difficulty	-.211**	-.174**	.046	-.175**	.291**	-.078
	Luck	.018	-.075	-.342**	-.183**	-.160**	.481**

* $p < .10$

** $p < .05$

Table 8: Correlations Between Likert Scale Measures of Attributions and Ipsative Scale Measures of Attributions for Game #2

		LIKERT SCALE					
		Self Ability	Self Effort	Team Ability	Team Effort	Task Difficulty	Luck
I P S A T I V E S C A L E	Self Ability	.395**	.377**	-.122*	-.083	-.101	.030
	Self Effort	.293**	.388**	-.011	-.122*	-.196**	.051
	Team Ability	-.214**	-.224**	.108	.098	.053	-.201**
	Team Effort	-.189**	-.116*	.270**	.291**	-.073	-.014
	Task Difficulty	-.208**	-.258**	-.133*	-.130*	.275**	-.014
	Luck	.067	-.020	-.295**	-.222**	-.101	.430**

* $p < .10$

** $p < .05$

Hypothesis #2

Hypothesis 2 predicted a significant positive relationship between felt responsibility perceptions and attributions to the self. Table 9 presents the findings related to this hypothesis when attributions were measured using the Likert scales. The Pearson Product Moment correlations between felt responsibility perceptions and attributions to self ability were significant for both games ($r = .635$ and $r = .699$, $p < .001$ for Games #1 and #2 respectively). The correlations between felt responsibility perceptions and self effort attributions were also significant ($r = .501$ and $r = .715$, $p < .001$ for Games #1 and #2 respectively). Felt responsibility perceptions were therefore significantly positively related ($r = .602$, $p < .001$ for Game #1; $r = .735$, $p < .001$ for Game #2) to the total attributions to the self (created by adding self ability and self effort attributions).

The correlations between felt responsibility perceptions and self ability and self effort attributions as measured using an ipsative scale also revealed significant positive correlations (see Table 10). Specifically, felt responsibility perceptions were significantly correlated with attributions to self ability ($r = .346$, $p < .001$ for Game #1; $r = .288$, $p < .001$ for Game #2), attributions to self effort ($r = .215$, $p < .01$ for Game #1; $r = .176$, $p < .05$ for Game #2), and total attributions to the self ($r = .337$, $p < .001$ for Game #1; $r = .266$, $p < .001$ for Game #2). The data provide strong support for Hypothesis #2, regardless of the method used to measure attributions (Likert scale versus ipsative scale).

Table 9: Correlations Between Felt Responsibility Perceptions and Self Attributions (Measured on Likert Scale)

GAME #1	
Variable	Correlation With Felt Responsibility Perceptions¹
Self Ability Attributions	$r = .635$ ($p < .001$)
Self Effort Attributions	$r = .501$ ($p < .001$)
Sum of Self Ability and Self Effort Attributions	$r = .602$ ($p < .001$)
GAME #2	
Variable	Correlation With Felt Responsibility Perceptions²
Self Ability Attributions	$r = .699$ ($p < .001$)
Self Effort Attributions	$r = .715$ ($p < .001$)
Sum of Self Ability and Self Effort Attributions	$r = .735$ ($p < .001$)

¹ $n = 137$

² $n = 134$

Table 10: Correlations Between Felt Responsibility Perceptions and Self Attributions (Measured on Ipsative Scale)

GAME #1	
Variable	Correlation With Felt Responsibility Perceptions¹
Self Ability Attributions	$r = .346 \quad (p < .001)$
Self Effort Attributions	$r = .215 \quad (p < .01)$
Sum of Self Ability and Self Effort Attributions	$r = .337 \quad (p < .001)$
GAME #2	
Variable	Correlation With Felt Responsibility Perceptions²
Self Ability Attributions	$r = .288 \quad (p < .001)$
Self Effort Attributions	$r = .176 \quad (p < .05)$
Sum of Self Ability and Self Effort Attributions	$r = .266 \quad (p < .001)$

¹ $n = 134$

² $n = 135$

Hypothesis #3

Hypothesis 3 proposed a significant negative correlation between felt responsibility perceptions and attributions to the group. Table 11 presents the findings related to this hypothesis. When attributions were measured with Likert scales, there was little support for this hypothesis. Specifically, the correlation between felt responsibility perceptions and group ability attributions was significant for Game #1 ($r = -.147$, $p < .05$), but not for Game #2 ($r = -.018$, $p > .10$). The relationship between felt responsibility perceptions and group effort attributions was nonsignificant for both games ($r = -.025$, $p > .10$ for Game #1; $r = .083$, $p > .10$ for Game #2). The correlation between felt responsibility perceptions and total attributions to the group (created by adding attributions to group ability and attributions to group effort) was not significant for either Game #1 ($r = -.092$, $p > .10$) or Game #2 ($r = .034$, $p > .10$).

When group attributions were measured using an ipsative scale, a significant negative correlation between felt responsibility perceptions and group ability attributions was found for Game #1 ($r = -.185$, $p < .05$) and a marginally significant correlation was found for Game #2 ($r = -.141$, $p < .10$). However, felt responsibility perceptions were not significantly correlated with attributions to group effort for either game ($r = -.081$, $p > .10$ for Game #1; $r = -.110$, $p > .10$ for Game #2). When felt responsibility perceptions were correlated with total attributions to the group (created by adding group ability and group effort attributions), a significant negative correlation was found in both games ($r = -.205$, $p < .01$ for Game #1; $r = -.175$, $p < .05$ for Game

Table 11: Correlations Between Felt Responsibility Perceptions and Team Attributions (Measured on Likert Scale)

GAME #1	
Variable	Correlation With Felt Responsibility Perceptions¹
Group Ability Attributions	$r = -.147$ ($p < .05$)
Group Effort Attributions	$r = -.025$ ($p > .10$)
Sum of Group Ability and Group Effort Attributions	$r = -.092$ ($p > .10$)
GAME #2	
Variable	Correlation With Felt Responsibility Perceptions²
Group Ability Attributions	$r = -.018$ ($p > .10$)
Group Effort Attributions	$r = .083$ ($p > .10$)
Sum of Group Ability and Group Effort Attributions	$r = .034$ ($p > .10$)

¹ $n = 137$

² $n = 134$

#2). Table 12 presents the results related to this hypothesis.

Hypothesis #4

Hypothesis 4 proposed a significantly negative relationship between felt responsibility perceptions and attributions to task difficulty. This hypothesis was strongly supported (see Table 13). The correlations between felt responsibility perceptions and task difficulty attributions (measured with Likert scales) were significant for both Game #1 ($r = -.189, p < .05$) and Game #2 ($r = -.225, p < .01$). As shown in Table 14, these correlations were also significant when measured using ipsative scales ($r = -.176, p < .05$ for Game #1; $r = -.186, p < .05$ for Game #2).

Hypothesis #5

Hypothesis #5 predicted a significantly negative relationship between felt responsibility perceptions and attributions to luck. This hypothesis was not supported. As shown in Table 15, the correlation between felt responsibility perceptions and luck attributions measured using Likert scales was significant and positive for Game #1 ($r = .119, p < .10$), and nonsignificant for Game #2 ($r = .076, p > .10$). As presented in Table 16, the correlation between felt responsibility perceptions and luck attributions measured using ipsative scales was nonsignificant for both Game #1 ($r = .061, p > .10$) and Game #2 ($r = .087, p > .10$).

Attributions

A principle axes factor analysis of the 25 Likert scale items measuring attributions produced the rotated factor structure presented in Table 17 for Game #1 and Table 18 for Game #2. As shown in Table 17,

Table 12: Correlations Between Felt Responsibility Perceptions and Team Attributions (Measured on Ipsative Scale)

GAME #1	
Variable	Correlation With Felt Responsibility Perceptions¹
Group Ability Attributions	$r = -.185$ ($p < .05$)
Group Effort Attributions	$r = -.081$ ($p > .10$)
Sum of Group Ability and Group Effort Attributions	$r = -.205$ ($p < .01$)
GAME #2	
Variable	Correlation With Felt Responsibility Perceptions²
Group Ability Attributions	$r = -.141$ ($p < .10$)
Group Effort Attributions	$r = -.110$ ($p > .10$)
Sum of Group Ability and Group Effort Attributions	$r = -.175$ ($p < .05$)

¹ $n = 134$

² $n = 135$

Table 13: Correlations Between Felt Responsibility Perceptions and Task Difficulty Attributions (Measured on Likert Scale)

GAME #1	
Variable	Correlation With Felt Responsibility Perceptions ¹
Task Difficulty Attributions	$r = -.189 \quad (p < .05)$

GAME #2	
Variable	Correlation With Felt Responsibility Perceptions ²
Task Difficulty Attributions	$r = -.225 \quad (p < .01)$

¹ n = 137

² n = 134

Table 14. Correlations Between Felt Responsibility Perceptions and Task Difficulty Attributions (Measured on Ipsative Scale)

GAME #1	
Variable	Correlation With Felt Responsibility Perceptions ¹
Task Difficulty Attributions	$r = -.176 \quad (p < .05)$

GAME #2	
Variable	Correlation With Felt Responsibility Perceptions ²
Task Difficulty Attributions	$r = -.186 \quad (p < .05)$

¹ n = 134

² n = 135

Table 15: Correlations Between Felt Responsibility Perceptions and Luck Attributions (Measured on Likert Scale)

GAME #1	
Variable	Correlation With Felt Responsibility Perceptions ¹
Luck Attributions	$r = .119$ ($p < .10$)

GAME #2	
Variable	Correlation With Felt Responsibility Perceptions ²
Luck Attributions	$r = .076$ ($p > .10$)

¹ $n = 137$

² $n = 134$

Table 16: Correlations Between Felt Responsibility Perceptions and Luck Attributions (Measured on Ipsative Scale)

GAME #1	
Variable	Correlation With Felt Responsibility Perceptions ¹
Luck Attributions	$r = .061$ ($p > .10$)

GAME #2	
Variable	Correlation With Felt Responsibility Perceptions ²
Luck Attributions	$r = .087$ ($p > .10$)

¹ $n = 134$

² $n = 135$

Table 17: Rotated Factor Loadings for Principal Axis Factor Analysis of Attribution Items Related to Game #1

<u>Item</u>	<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>	<u>Factor 4</u>	<u>Factor 5</u>
25	.875	.078	.008	.025	-.124
19	.854	.046	-.112	-.004	.001
17	.801	.138	-.177	.058	.098
23	.781	-.075	-.174	.110	.060
4	.741	-.089	-.013	-.104	-.043
10	.718	.034	-.087	.106	.368
12	.701	.040	-.164	.104	.439
22	.674	.016	.012	.062	-.319
15	.593	.046	-.121	.052	.397
6	.577	.072	-.164	.094	.382
18	-.054	.846	.004	-.055	-.032
11	.044	.819	-.014	.048	-.131
14	-.010	.816	.022	-.022	-.112
16	-.040	.801	.097	-.066	-.007
20	.002	.771	-.099	.105	.057
1	-.000	.725	.026	-.057	-.037
8	.156	.688	-.032	.007	.204
2	-.027	.664	.102	.059	.054
5	.254	.585	-.249	.079	.102
24	-.118	.027	.923	-.006	-.142
21	-.131	-.007	.793	-.135	-.018
13	-.194	-.001	.747	-.152	-.063
3	.115	-.032	-.128	.832	-.009
9	.032	.090	-.129	.790	.274
7	.057	-.033	-.102	.264	.405

Self Ability Items - (1, 11, 16, 18)

Self Effort Items - (2, 5, 8, 14, 20)

Team Ability Items - (6, 10, 12, 15, 23)

Team Effort Items - (4, 17, 19, 22, 25)

Task Difficulty Items - (3, 7, 9)

Luck Items - (13, 21, 24)

Table 18: Rotated Factor Loadings for Principal Axis Factor Analysis of Attribution Items Related to Game #2

<u>Item</u>	<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>	<u>Factor 4</u>
14	.848	.069	-.005	.026
2	.840	.029	-.028	-.069
18	.839	.100	.054	.039
11	.833	.120	.001	-.038
16	.831	.031	.036	-.078
8	.816	.036	-.077	-.057
20	.806	.149	-.106	-.104
1	.806	.067	.000	.015
5	.732	.119	.011	-.178
22	.084	.777	-.093	.078
10	.114	.757	-.082	.112
12	.175	.735	-.126	.017
19	.120	.727	-.012	.113
17	.095	.715	-.146	.085
23	-.025	.695	-.105	.146
25	.102	.692	-.072	.067
15	.060	.656	-.071	.021
6	.012	.634	.013	.003
4	-.009	.578	-.108	-.026
21	-.004	-.235	.927	-.004
24	.020	-.153	.872	.007
13	-.062	-.161	.800	.029
9	-.033	.109	-.010	.944
7	-.065	.151	.019	.631
3	-.133	.077	.015	.609

Self Ability Items - (1, 11, 16, 18)
 Self Effort Items - (2, 5, 8, 14, 20)
 Team Ability Items - (6, 10, 12, 15, 23)
 Team Effort Items - (4, 17, 19, 22, 25)
 Task Difficulty Items - (3, 7, 9)
 Luck Items - (13, 21, 24)

the attributional items were represented by five factors for Game #1. The first factor represented team attributions (including both team ability and team effort attributions), the second factor represented self attributions (including both self ability and self effort attributions), the third factor corresponded to luck attributions, and the fourth and fifth represented task difficulty attributions. These five factors accounted for 62.9% of the variance.

For Game #2, a similar factor structure was found. As shown in Table 18, the first factor represented attributions to the self (including both self ability and self effort attributions), the second factor corresponded to team attributions (including both team ability and team effort attributions), the third factor represented attributions to luck, and the fourth corresponded to task difficulty attributions. These four factors accounted for 61.5% of the variance.

In order to determine the degree of similarity among these two factor structures, the correlations between factor scores for Game #1 and Game #2 were determined (Nunnally, 1978). These results are presented in Table 19. As shown in this table, the factors representing team attributions, self attributions, and luck attributions were significantly correlated, indicating high similarity between the factors in Game #1 and Game #2. The correlation between factor scores for task difficulty attributions across the two games, however, was not significant. This was likely due to the fact that task difficulty was represented by two factors in Game #1, but by only one factor in Game #2.

Table 19: Correlations Between Factor Scores for Game #1 and Game #2

	Team Factor	Self Factor	Luck Factor	Task Difficulty Factor
Team Factor	.19**	-.14*	-.06	-.08
Self Factor	.02	.31**	-.04	.01
Luck Factor	-.12	.13	.40**	.20**
Task Diffi- culty Factor (2 items)	.06	-.20**	-.18**	.09
Task Diffi- culty Factor (1 item)	.07	-.18**	.01	.02

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

Figure 10 presented a theoretical a priori view of the way in which the six attributional sources might be aligned along the locus of causality continuum. In this research, the Russell Causal Dimension Scale (1982) was used to measure each subject's perceptions of the way in which these attributional sources are aligned along the locus of causality continuum (the scale asks subjects to indicate their perceptions of the internality/externality of each attributional source). Table 20 presents the mean ratings across subjects, and the resulting alignment of each of the six attributional sources along the locus of causality continuum. When these six attributional sources are combined into the three theoretical categories discussed earlier (self attributions, team attributions, external attributions), they fall along the locus of causality continuum as shown in Table 21. Tables 22 and 23 present t-tests of the differences among the locus of causality means of the attributional sources. There were significant differences between all means. The data, therefore, support the a priori framework for the locus of causality of attributions.

Figure 11 presents the theoretical a priori view of the alignment of the five relevant attributional sources along the stability continuum. The Russell Causal Dimension Scale (1982) was also used to measure subject perceptions of the stability of the attributional sources. The mean ratings across subjects on this scale are provided in Table 24, and the results of t-tests of these means are provided in Table 25. In line with the a priori framework, subjects perceived both self ability and team ability to be stable sources, while they perceived self effort and team effort to be unstable sources. Attributions to

Table 20: Means of Subject Perceptions of the Locus of Causality of Attributions (6 Attributional Categories)

LOCUS OF CAUSALITY					
External			Internal		

Task Difficulty	Luck	Team Ability	Team Effort	Self Ability	Self Effort
8.47	11.20	12.99	13.50	20.20	21.93
n = 144					

Table 21: Means of Subject Perceptions of the Locus of Causality of Attributions (3 Attributional Categories)

LOCUS OF CAUSALITY		
External		Internal

External Attributions ¹	Team Attributions ²	Self Attributions ³
19.63	26.44	41.99

n = 144

¹External Attributions = Task Difficulty Attributions + Luck Attributions

²Team Attributions = Team Ability + Team Effort Attributions

³Self Attributions = Self Ability + Self Effort Attributions

Table 22: T-tests of the Differences Between Mean Perceptions of the Locus of Causality of Attributions (6 Attributional Categories)

<u>Variable</u>	<u>n</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>t Value</u>	<u>2-tail Probability</u>
Self Effort		21.93	4.19		
Self Ability	143	20.17	3.77	-4.53	.000

Self Ability		20.17	3.76		
Team Effort	142	13.50	5.49	12.67	.000

Team Effort		13.57	5.54		
Team Ability	143	12.95	4.59	-1.92	.057

Team Ability		12.96	4.57		
Luck	144	11.17	5.30	3.72	.000

Luck		11.17	5.30		
Task Difficulty	144	8.46	5.45	-5.35	.000

Table 23: T-tests of the Differences Between Subject Mean Perceptions of the Locus of Causality of Attributions (3 Attributional Categories)

<u>Variable</u>	<u>n</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>t Value</u>	<u>2 tail Probability</u>
Self ¹		41.99	6.72		
Team ²	144	26.44	9.43	17.80	.000

Team		26.44	9.43		
External ³	144	19.63	8.86	9.35	.000

¹Self-Self Ability Attributions + Self Effort Attributions

²Team-Team Ability Attributions + Team Effort Attributions

³External-Task Difficulty Attributions + Luck Attributions

Table 24: Means of Subject Perceptions of the Stability of Attributions

STABILITY				
Unstable			Stable	

Team Effort	Self Effort	Luck	Team Ability	Self Ability
10.00	10.36	10.50	11.40	12.44
n = 144				

Table 25: T-tests of the Differences Between Mean Perceptions of the Stability of Attributions

<u>Variable</u>	<u>n</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>t Value</u>	<u>2-tail Probability</u>
Self Ability		12.44	4.67		
Team Ability	143	11.38	5.05	2.72	.007

Team Ability		11.37	5.04		
Luck	144	10.50	6.04	1.60	.113

Luck		10.36	5.73		
Self Effort	144	10.50	6.04	-.23	.816

Self Effort		10.40	5.74		
Team Effort	143	10.00	5.15	1.21	.227

luck, however, were viewed as neither highly stable nor highly unstable, a finding that conflicts with the a priori framework which suggests that luck attributions are highly unstable.

Hypothesis #6

Hypothesis 6 predicted a significant interaction between group standard attainment and the locus of causality of attributions in their effect on satisfaction with self performance. The locus of causality of attributions was measured in three ways, both theoretically and empirically, and the results related to each method of measurement will be discussed below.

One method for determining the locus of causality of attributions was to weight the six attributional sources (self ability, self effort, team ability, team effort, task difficulty, luck) according to the theoretical a priori framework presented in Figure 10. In order to simulate this framework, attributions to the self (self ability, self effort) were assigned a weight of 3.0 to indicate high internality. Attributions to the team (team ability, team effort) were assigned a weight of 2.0 to indicate a moderate level of internality, and external attributions (task difficulty, luck) were assigned a weight of 1.0 to indicate a low level of internality. These three scores (one for self attributions, one for team attributions, and one for external attributions) were then summed for each individual and this sum was used as the subject's locus of causality score. A moderated regression analysis was then conducted, regressing satisfaction with self performance on group standard attainment, the locus of causality of attributions, and their interaction. The findings related to this

analysis are presented in Table 26. The results show that group standard attainment and the locus of causality of attributions did interact to influence satisfaction with self performance, however in a manner different than predicted. The interactions are depicted in Figures 18 and 19. In Game #1 and Game #2, the data suggested a positive relationship between the locus of causality of attributions and satisfaction with self performance for members of both successful and unsuccessful teams, but this relationship was stronger for the former group. In Game #2, this interaction was crossed such that highly external attributions were associated with lower self satisfaction for high group standard attainment individuals than for low group standard attainment individuals.

A second way to determine the locus of causality of attributions involved using subjects' responses to the Russell Causal Dimension Scale (1982) as weights for each attributional source. In Russell's scale, subjects were asked to provide ratings (using 3 items) of the extent to which each of the six attributional sources was considered to be external or internal to the self. The mean (across the 3 items) of the subject's ratings for each attributional source was used as a weight for the source, and the six scores (corresponding to the six attributional sources) were summed to arrive at one value indicating the subject's perception of the locus of causality of attributions. A moderated regression equation then regressed satisfaction with self performance on group standard attainment, the locus of causality of attributions, and their interaction. The results of this regression analysis are provided in Table 27, and provide no support for Hypothesis #6. Main effects

Table 26: Regression of Satisfaction with Self Performance on Group Standard Attainment, Locus of Causality of Attributions, and Their Interaction (With Locus of Causality Measured Using an A Priori Framework)

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment ¹	.521	.533	.279	.279**
2	Locus of Causality	.777	.642	.403	.124**
3	GSA X Locus of Causality	-.853	.654	.415	.012*

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment	.832	.321	.096	.096**
2	Locus of Causality	1.016	.616	.371	.275**
3	GSA x Locus of Causality	-.931	.630	.383	.012*

*p < .10

**p < .05

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

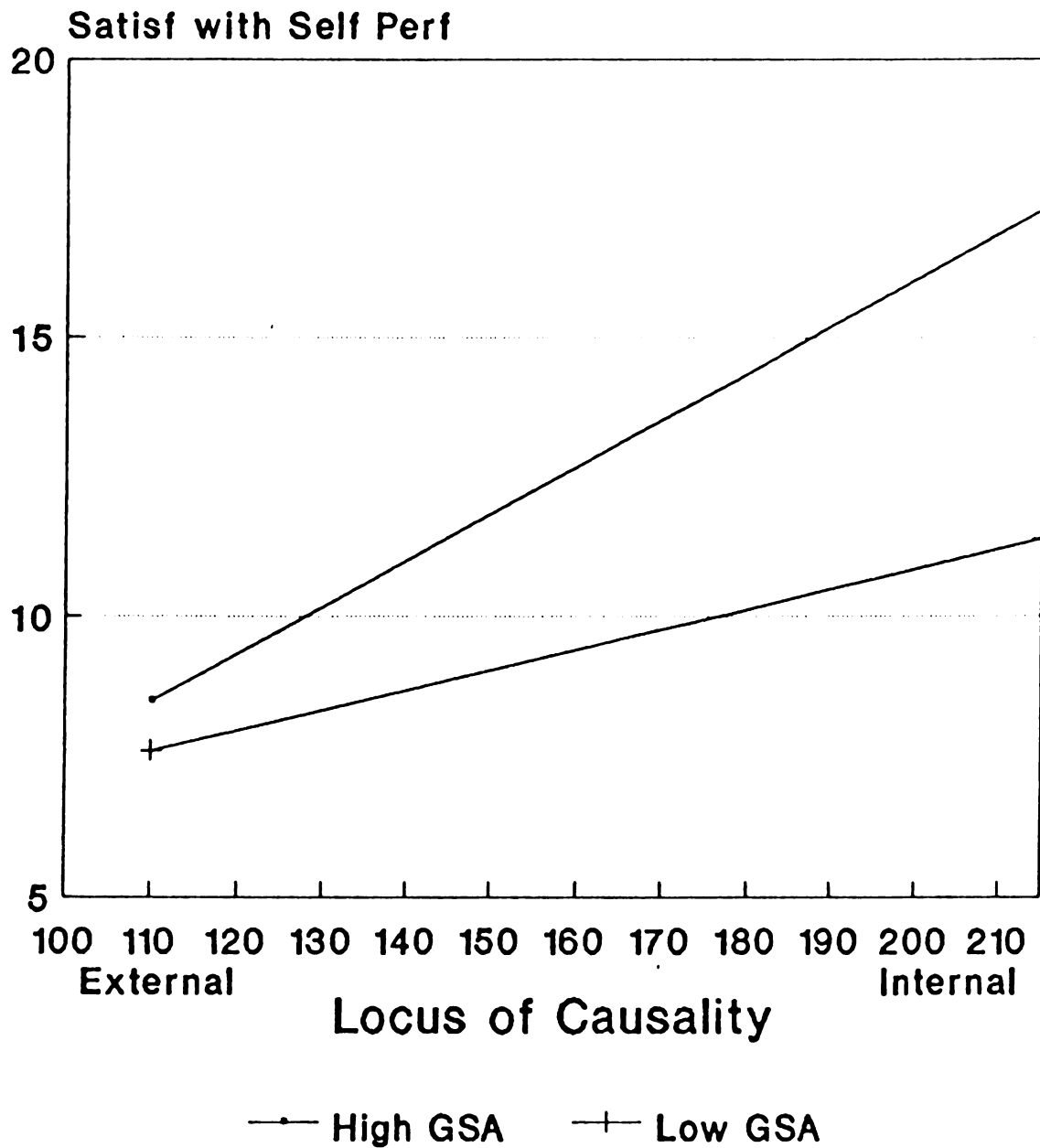


Figure 18. Regression Results for Self Satisfaction (A Priori Weights in Game #1)

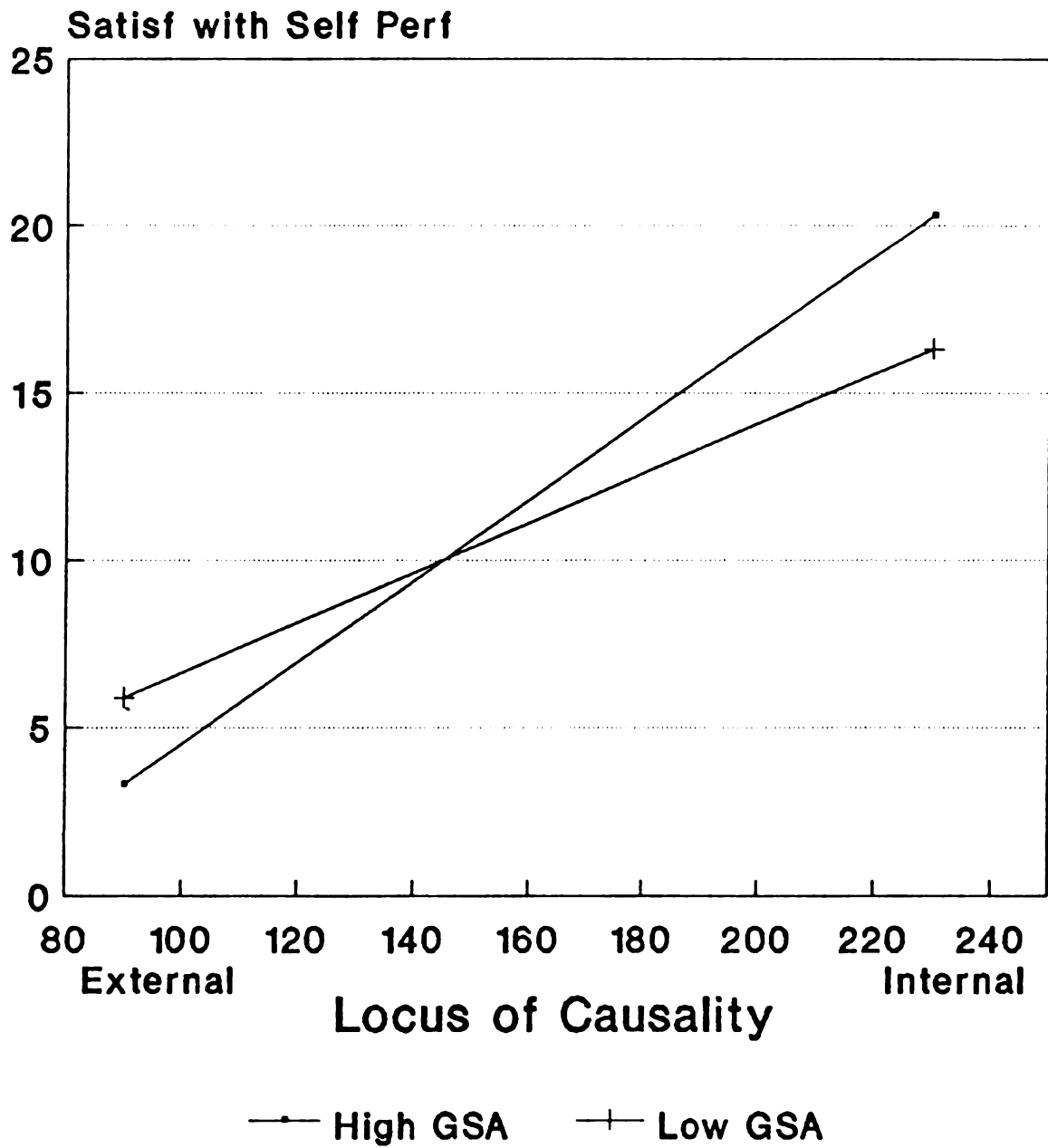


Figure 19. Regression Results for Self Satisfaction (A Priori Weights in Game #2)

Table 27: Regression of Satisfaction with Self Performance on Group Standard Attainment, Locus of Causality of Attributions, and Their Interaction (With Locus of Causality Measured Using Russell Scale)

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment ¹	-.345	.533	.279	.279**
2	Locus of Causality	.296	.568	.312	.033**
3	GSA X Locus of Causality	-.162	.579	.307	-.005

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment	-.122	.321	.096	.096**
2	Locus of Causality	.300	.367	.120	.024**
3	GSA x Locus of Causality	-.173	.369	.114	-.006

*p < .10

**p < .05

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

were found such that high group standard attainment (i.e., team win) was associated with greater satisfaction with self performance than was low group standard attainment (i.e., team loss), and internal attributions for the group's performance outcome were associated with greater satisfaction with self performance than were external attributions.

The third way in which the locus of causality of attributions was calculated involved the empirical determination of the most advantageous weighting scheme, using least squares estimation. In order to do this, satisfaction with self perceptions was regressed on self ability attributions, self effort attributions, team ability attributions, team effort attributions, task difficulty attributions, and luck attributions. The results of this regression analysis are presented in Table 28. The beta coefficients resulting from this analysis were then used as weights for each of the six attributional sources in a moderated regression analysis, in which satisfaction with self performance was regressed on group standard attainment, the locus of causality of attributions (determined using the weights developed in the first regression equation), and their interaction. The results of this analysis are presented in Table 29. These findings suggest support for Hypothesis #6 in both Game #1 and Game #2. The form of these interactions is depicted in Figures 20 and 21. The interactions suggest a positive relationship between the locus of causality of attributions and satisfaction with self performance for both high and low group standard attainment individuals, but a stronger relationship for the former group.

Table 28: Regression of Satisfaction with Self Performance on Six Attributional Sources

GAME #1		
Step	Variable	Beta
1	Self Ability Attributions	.0127
2	Self Effort Attributions	.3311
3	Team Ability Attributions	.2502
4	Team Effort Attributions	.1147
5	Task Difficulty Attributions	.1634
6	Luck Attributions	-.1393

GAME #2		
Step	Variable	Beta
1	Self Ability Attributions	.1684
2	Self Effort Attributions	.1420
3	Team Ability Attributions	.1303
4	Team Effort Attributions	.1369
5	Task Difficulty Attributions	.1194
6	Luck Attributions	.0926

Table 29: Regression of Satisfaction with Self Performance on Group Standard Attainment, Locus of Causality of Attributions, and Their Interaction (With Locus of Causality Measured Using Least Squares Weights)

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment ¹	.466	.533	.279	.279**
2	Locus of Causality	.885	.672	.444	.165**
3	GSA X Locus of Causality	-.656	.683	.454	.010*

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment	.933	.321	.096	.096**
2	Locus of Causality	.996	.589	.336	.240**
3	GSA x Locus of Causality	-1.061	.602	.348	.012*

*p < .10

**p < .05

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

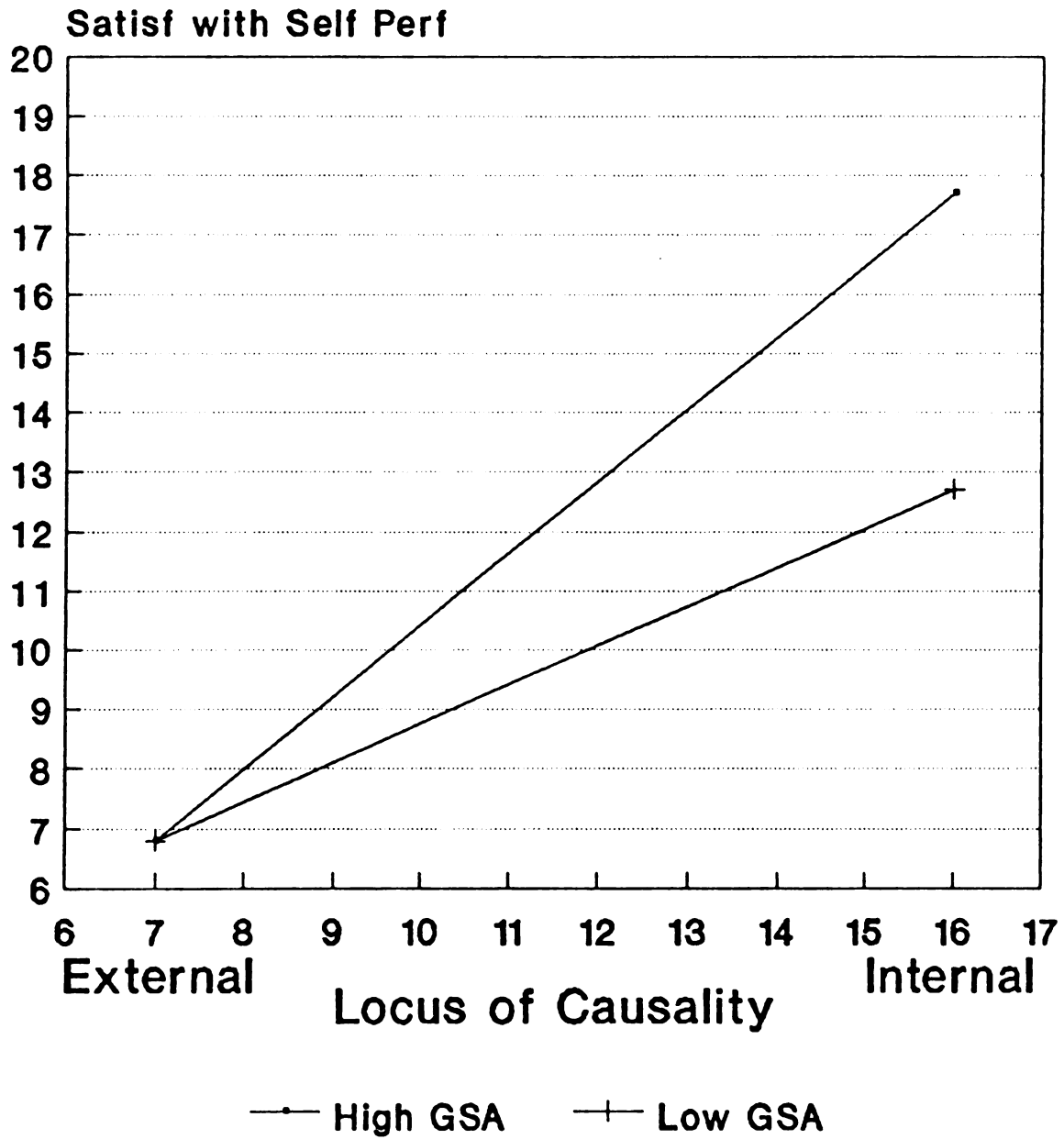


Figure 20. Regression Results for Self Satisfaction (Least Squares Weights in Game #1)

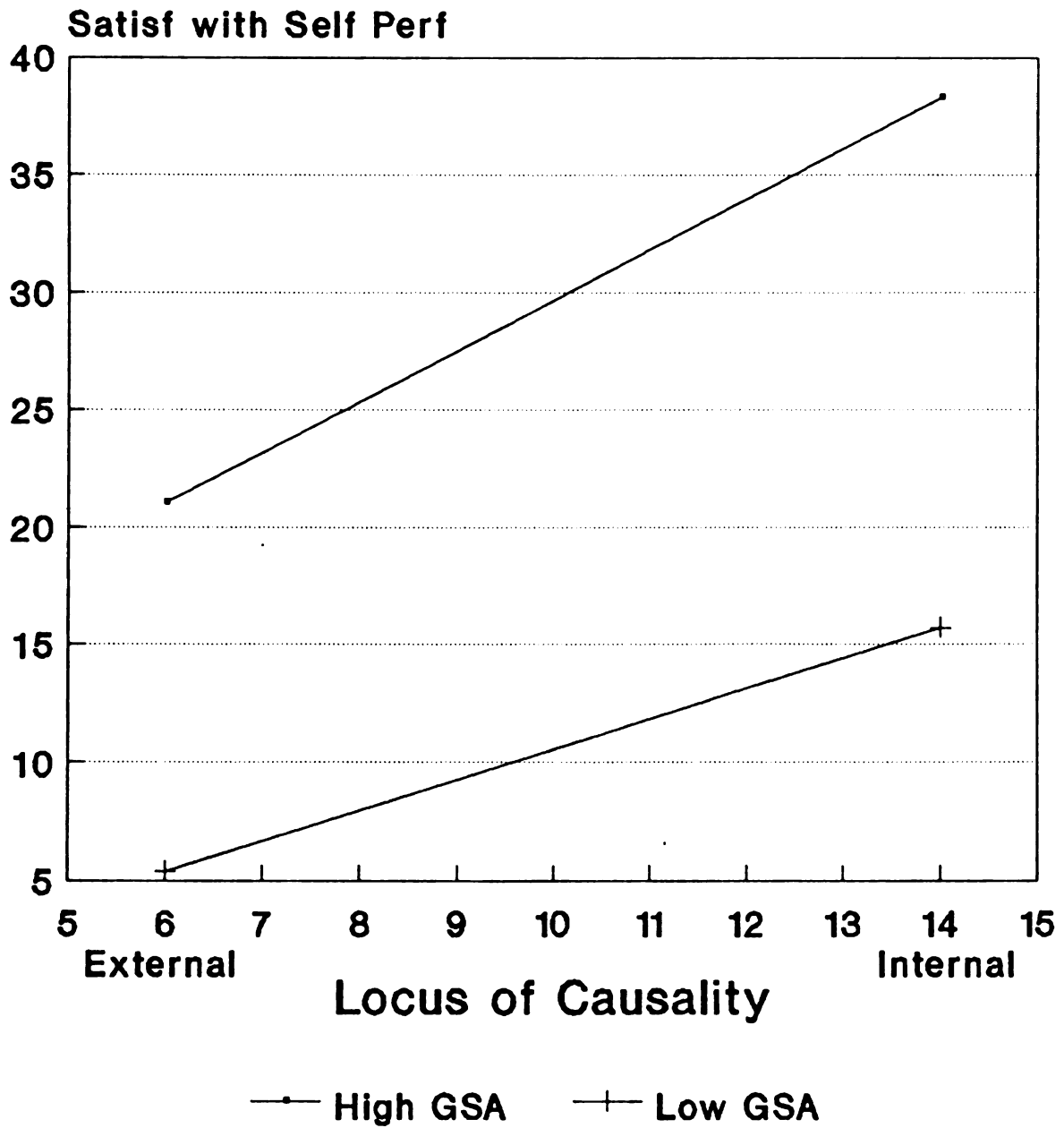


Figure 21. Regression Results for Self Satisfaction (Least Squares Weights in Game #2)

Hypothesis #7

Hypothesis 7 predicted that group standard attainment and the locus of causality of attributions (measured using self and team attributions only) would interact to influence satisfaction with the group. This hypothesis was tested using three separate methods for calculating the locus of causality of attributions, as described in Hypothesis #6 above. Each of these analyses will be discussed below.

The first method for calculating the locus of causality of attributions weighted subject ratings of each of the four relevant attributional sources (self ability, self effort, team ability, team effort) based upon an a priori theoretical framework (see Figure 10). Attributional sources which had been hypothesized to be highly internal (self ability, self effort) were assigned a weight of 3.0 and sources which had been hypothesized to be moderately internal (team ability, team effort) were assigned a weight of 2.0. These four values were then summed to arrive at one value indicating the subject's perception of the locus of causality of attributions. A moderated regression analysis was then conducted, regressing satisfaction with the group on group standard attainment, the locus of causality of attributions, and their interaction. The results of this regression analysis are presented in Table 30. No significant interactions were found. Significant main effects were found across both games for both group standard attainment (with higher group standard attainment associated with higher group satisfaction) and the locus of causality of attributions (with more internal attributions associated with higher satisfaction with the group).

Table 30: Regression of Satisfaction with the Group on Group Standard Attainment, Locus of Causality of Attributions, and Their Interaction (With Locus of Causality Measured Using an A Priori Framework)

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment ¹	.155	.568	.317	.317**
2	Locus of Causality	.552	.610	.362	.045**
3	GSA X Locus of Causality	-.628	.619	.368	.006

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment	-.460	.465	.210	.210**
2	Locus of Causality	.225	.532	.272	.062**
3	GSA x Locus of Causality	.093	.532	.267	-.005

*p < .10

**p < .05

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

A second method used to calculate the locus of causality of attributions, involved the Russell Causal Dimension Scale (1982). The subject's rating of the locus of causality of each of the four attributional sources was used as a weight for the source. The resulting values were summed to arrive at a total locus of causality value. A moderated regression analysis was then conducted, regressing satisfaction with the group on group standard attainment, the locus of causality of attributions, and their interaction. The results of this analysis are presented in Table 31. Evidence for a significant group standard attainment by locus interaction was found only for Game #2, and this interaction is depicted in Figure 22. This interaction suggests that for members of both successful and unsuccessful groups, more internal attributions are associated with higher group satisfaction than are external attributions, but that this association is stronger for members of unsuccessful groups.

The final method used to compute the locus of causality of attributions involved an empirical determination of the "best" (i.e., least squares) attributional weights. An hierarchical regression analysis was conducted, regressing satisfaction with the group on attributions to self ability, self effort, team ability, and team effort. The resulting beta coefficients (shown in Table 32) were used to weight each of the four attributional sources, which were summed to arrive at a total locus of causality value. A moderated regression analysis was then conducted, regressing satisfaction with the group on group standard attainment, the locus of causality of attributions, and their interaction. Significant interaction effects were found for both

Table 31: Regression of Satisfaction with the Group on Group Standard Attainment, Locus of Causality of Attributions, and Their Interaction (With Locus of Causality Measured Using Russell Scale)

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment ¹	-.414	.568	.317	.317**
2	Locus of Causality	.267	.596	.345	.028**
3	GSA X Locus of Causality	-.122	.597	.341	-.004

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment	-1.008	.465	.210	.210**
2	Locus of Causality	-.338	.474	.212	.002
3	GSA x Locus of Causality	.616	.495	.226	.014*

*p < .10

**p < .05

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

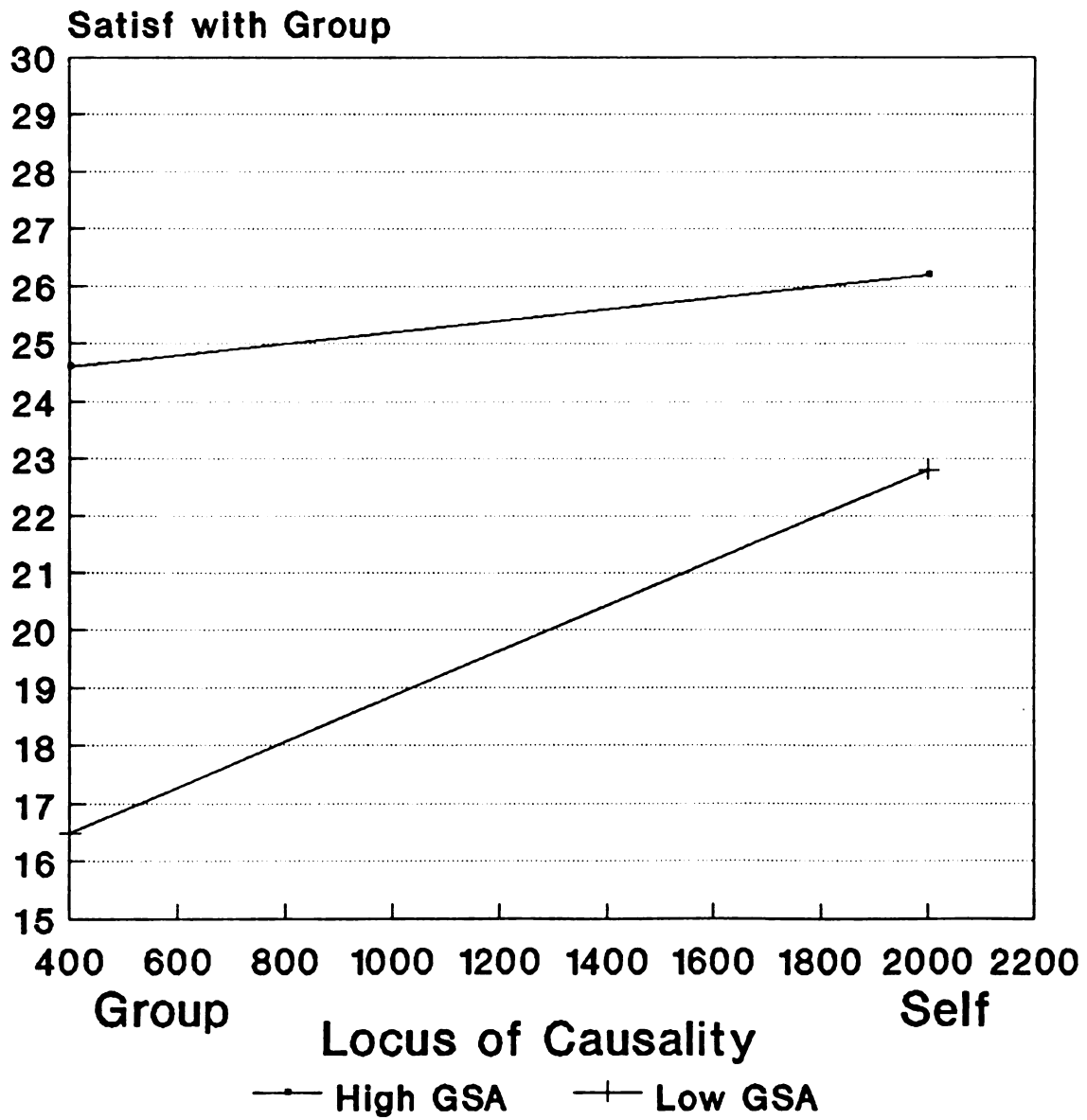


Figure 22. Regression Results for Group Satisfaction (Russell Weights in Game #2)

Table 32: Regression of Satisfaction with Group Performance on Six Attributional Sources

GAME #1		
Step	Variable	Beta
1	Self Ability Attributions	-.1088
2	Self Effort Attributions	.2298
3	Team Ability Attributions	.2213
4	Team Effort Attributions	.3448

GAME #2		
Step	Variable	Beta
1	Self Ability Attributions	.0106
2	Self Effort Attributions	.1790
3	Team Ability Attributions	.3269
4	Team Effort Attributions	.1693

Game #1 and Game #2. The results of these analyses are presented in Table 33 and Figures 23 and 24. In both games a crossed interaction was found such that there was a positive locus-satisfaction with group relationship for members of successful and unsuccessful teams, but a stronger relationship for those in the former group.

In general, there is little consistent support for Hypothesis #7. Significant interaction effects were found in the data, however these effects were not consistent across locus of causality measurement methods (i.e., a priori versus Russell scale versus least squares weighting).

Hypothesis #8

Hypothesis 8 predicted a significant interaction between group standard attainment and the stability of attributions in their effect on commitment to the group's referent standard on the next performance trial. Stability of attributions was calculated using three different methods. Each method and the results associated with it will be discussed below.

The stability of attributions was first calculated using the a priori theoretical framework shown in Figure 11. A weight of 2.0 was assigned to attributional sources that were hypothesized to be highly stable (self ability, team ability), and a weight of 1.0 was assigned to attributional sources that were hypothesized to be highly unstable (self effort, team effort, luck). These weighted attributional scores were then added to arrive at one stability of attributions value. A moderated regression analysis was conducted, regressing commitment to the team's standard on the next performance trial on group standard

Table 33: Regression of Satisfaction with the Group on Group Standard Attainment, the Locus of Causality of Attributions, and Their Interaction (Using Least Squares Estimates to Determine Locus of Causality)

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment ¹	1.254	.568	.317	.317**
2	Locus of Causality	1.228	.647	.409	.092**
3	GSA X Locus of Causality	-1.344	.690	.463	.054**

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment	1.156	.465	.210	.210**
2	Locus of Causality	1.089	.587	.335	.125**
3	GSA x Locus of Causality	-1.304	.611	.359	.024**

*p < .10

**p < .05

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

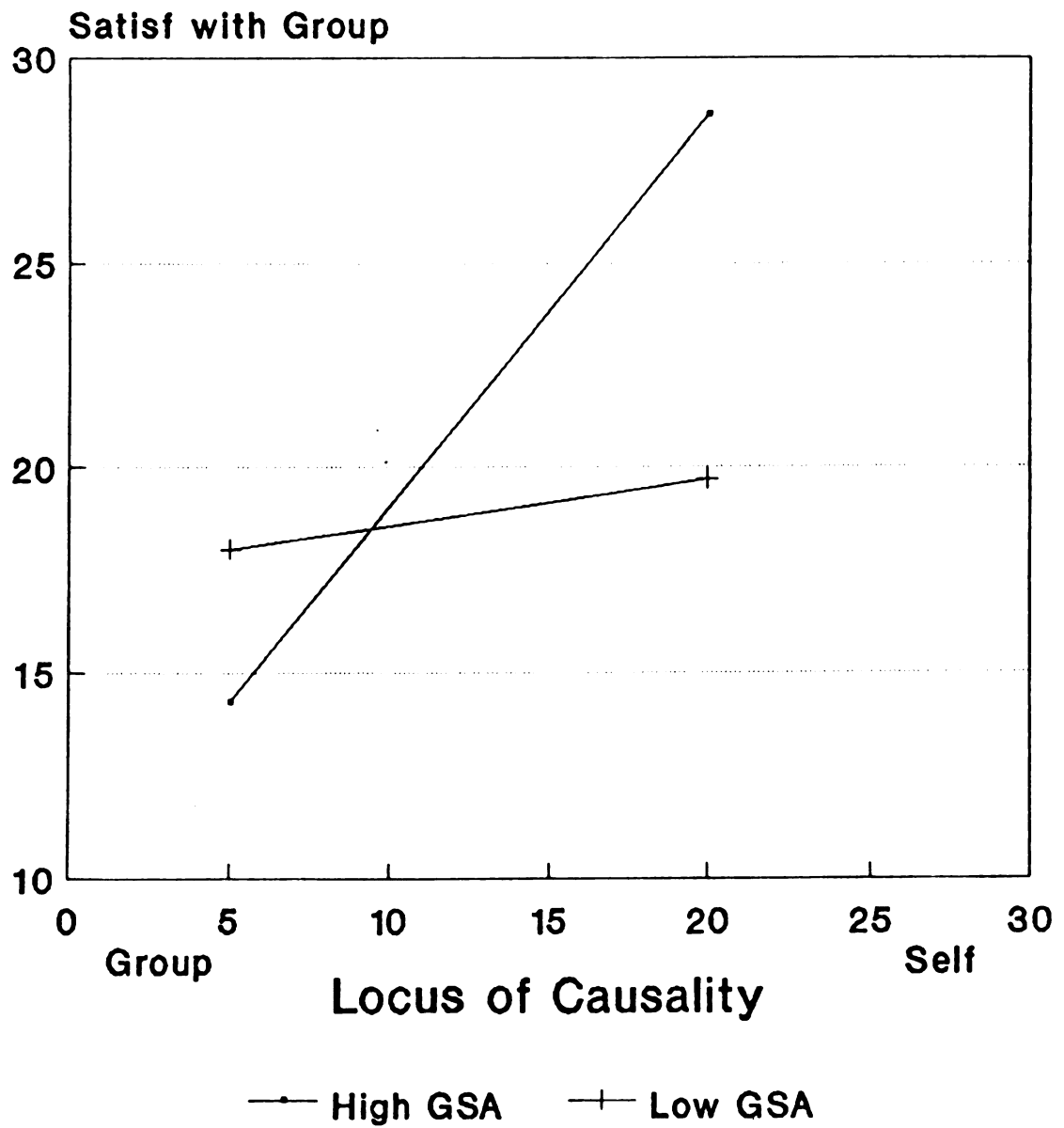


Figure 23. Regression Results for Group Satisfaction (Least Squares Weights in Game #1)

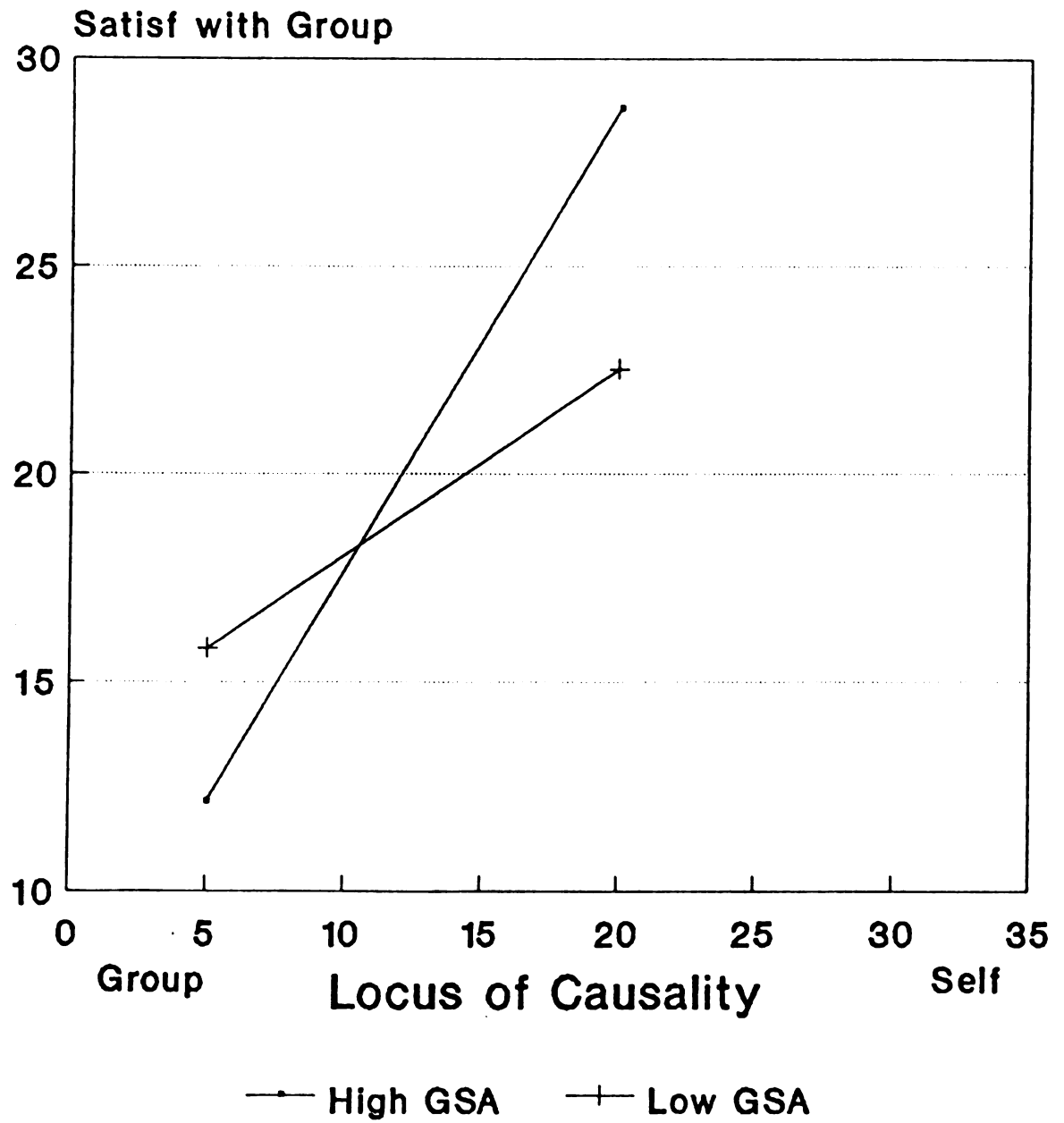


Figure 24. Regression Results for Group Satisfaction (Least Squares Weights in Game #2)

attainment, the stability of attributions, and their interaction. The results of this analysis are shown in Table 34. There was partial support for Hypothesis 8, with a significant interaction found in Game #1 but no evidence of an interaction effect in Game #2. The interaction for Game #1 is presented in Figure 25. This crossed interaction suggests a positive relationship between stability of attributions and commitment to the group's standard for members of successful teams and a negative relationship for members of unsuccessful teams.

A second method for determining the stability of attributions was also employed. Each subject's ratings on the Russell Causal Dimension Scale (1982) regarding the stability of the five relevant attributional sources were used as weights applied to the actual attributions made by subjects, and these values were summed to arrive at an overall stability of attributions score. A moderated regression analysis was then conducted, regressing commitment to the group's standard on the next performance trial on group standard attainment, the stability of attributions, and their interaction. The results of this analysis are presented in Table 35. The data provided evidence of interaction effects for both Games #1 and #2 (see Figures 26 and 27). The interaction found in Game #1 is similar to that found in Figure 25 (i.e., interaction effect when the stability of attributions was measured using the a priori framework). For Game #2 the form of the interaction was reversed; that is, there was a positive relationship between the stability of attributions and commitment to the group's standard for members of unsuccessful teams and a negative relationship for members of successful teams.

Table 34: Regression of Commitment to the Group's Goal on the Next Performance Trial on Group Standard Attainment, the Stability of Attributions, and Their Interaction (With Stability of Attributions Measured Using an A Priori Framework)

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment ¹	1.701	.151	.015	.015*
2	Stability of Attributions	.785	.152	.008	-.007
3	GSA x Stability	-1.725	.293	.064	.056**

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment	-.674	.243	.052	.052**
2	Stability of Attributions	-.198	.243	.045	-.007
3	GSA x Stability	.416	.249	.041	-.004

*p < .10

**p < .05

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

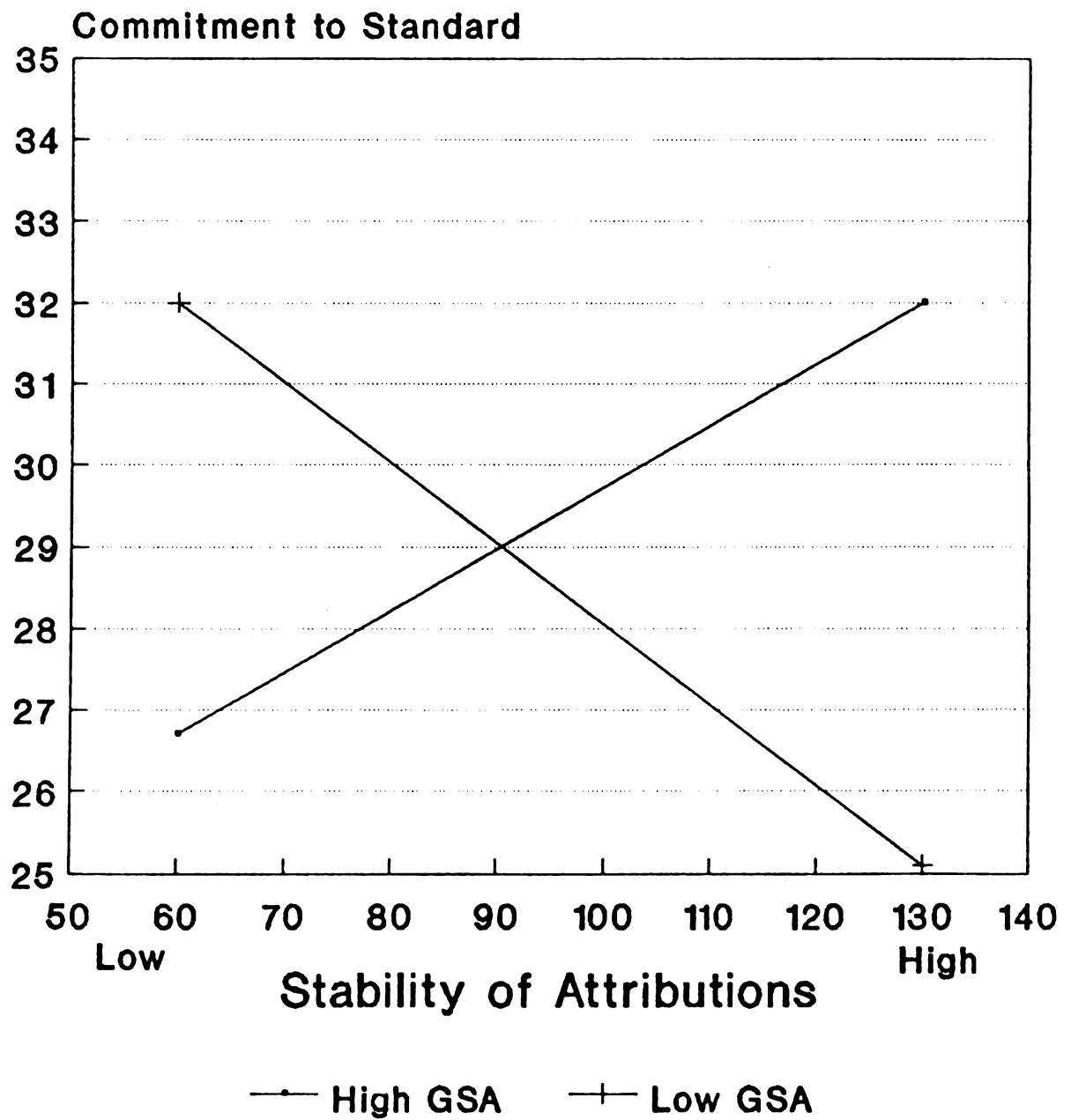


Figure 25. Regression Results for Commitment (A Priori Weights in Game #1)

Table 35: Regression of Commitment to the Group's Goal on the Next Performance Trial on Group Standard Attainment, the Stability of Attributions, and Their Interaction (With Stability of Attributions Measured Using Russell Scale)

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment ¹	.422	.152	.015	.015*
2	Stability of Attributions	.517	.152	.008	-.007
3	GSA X Stability	-.729	.236	.033	.025**

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment	-.660	.243	.051	.051**
2	Stability of Attributions	-.515	.253	.048	-.003
3	GSA x Stability	.584	.297	.065	.017*

*p < .10

**p < .05

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

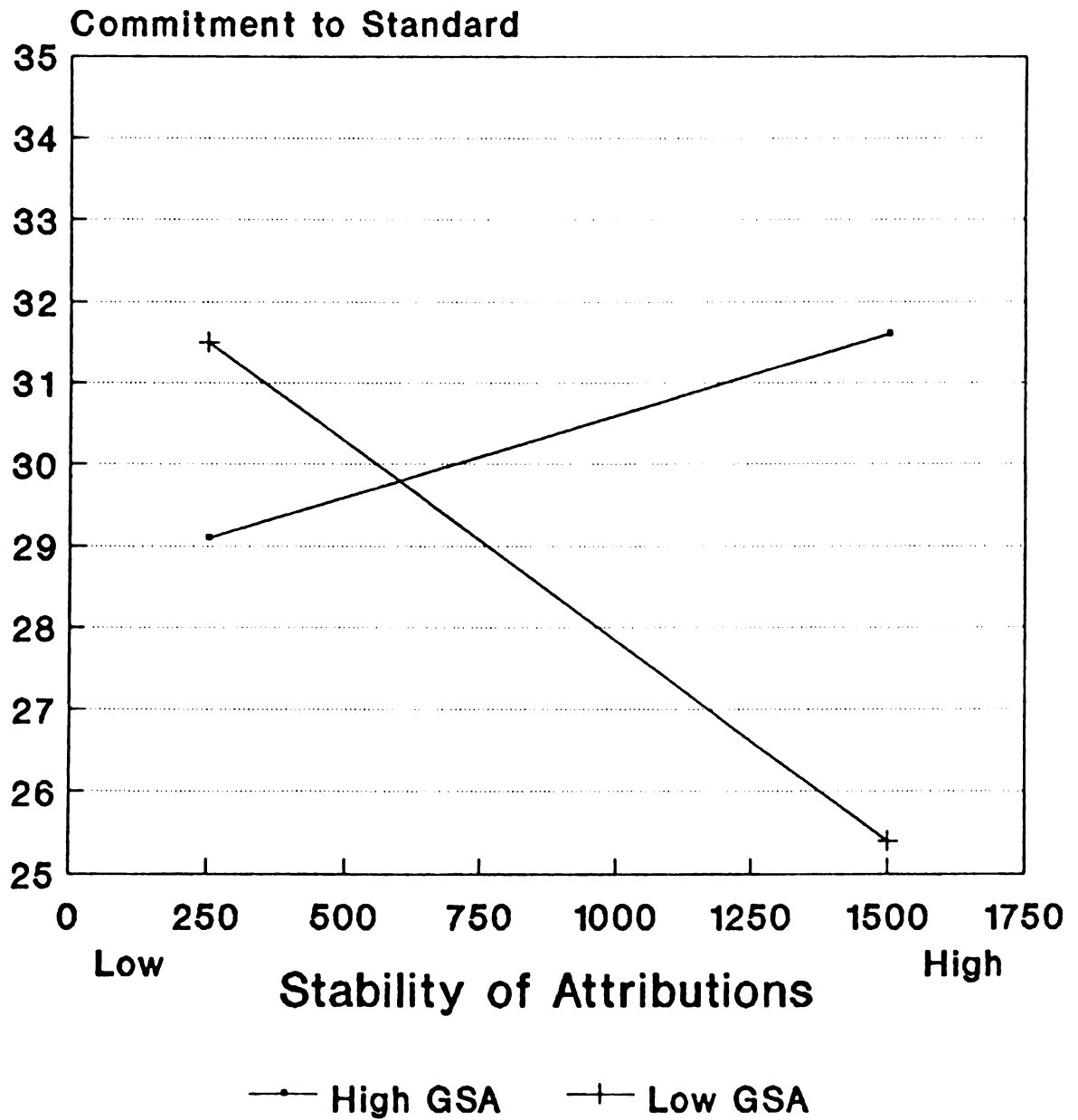


Figure 26. Regression Results for Commitment (Russell Scale Weights in Game #1)

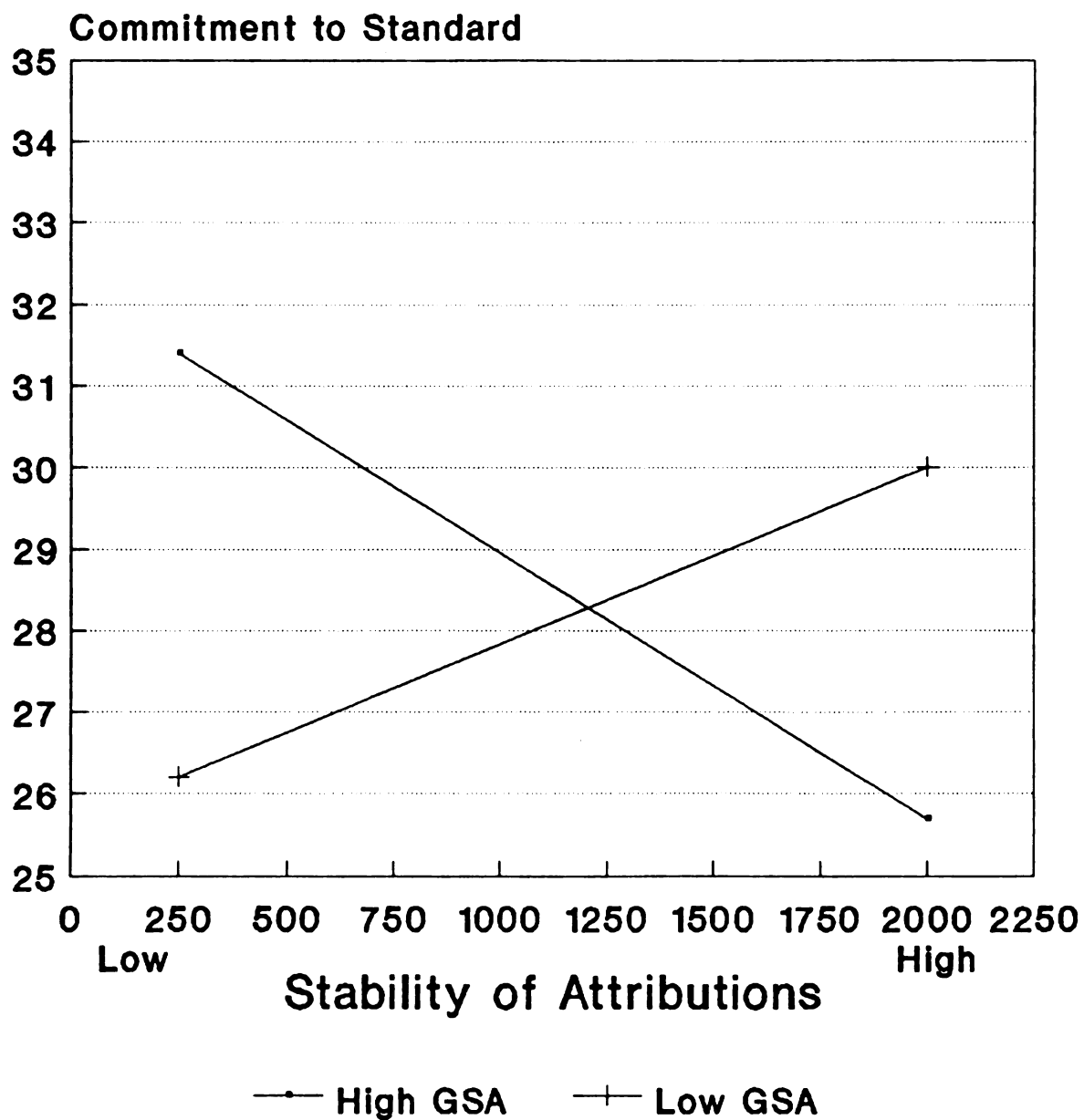


Figure 27. Regression Results for Commitment (Russell Scale Weights in Game #2)

A final method for determining the stability of attributions involved the development of least squares estimates to be used as weights for the attributional sources. In order to do this, each subject's rating of commitment to the group's standard was regressed on self ability attributions, self effort attributions, team ability attributions, team effort attributions, and luck attributions. The resulting beta coefficients (see Table 36) were used as weights applied to the corresponding attributional sources. A total stability score was then computed by summing these five weighted values. A moderated regression analysis was conducted, regressing commitment to the group's standard on the next performance trial on group standard attainment, the stability of attributions, and their interaction. The results of this analysis are provided in Table 37, and show a significant interaction for Game #1 only. This interaction is presented in Figure 28 and suggests a positive relationship between the stability of attributions and commitment to the group's standard for members of successful teams and a negative relationship for members of unsuccessful teams.

In general, there was evidence of a pattern in the interactions across the measurement methods for Game #1, but little evidence of a consistent interaction pattern for Game #2.

Hypothesis #9

Hypothesis 9 predicted a significant positive relationship between individual commitment to the group's goal and individual performance. This hypothesis was not supported for either game. That is, no significant relationship was found between individual commitment and individual performance for either Game #1 or Game #2. There was,

Table 36: Regression of Commitment to the Group's Standard on the Next Performance Trial on Five Attributional Sources

GAME #1		
Step	Variable	Beta
1	Self Ability Attributions	.0206
2	Self Effort Attributions	.0286
3	Team Ability Attributions	-.0230
4	Team Effort Attributions	.0502
5	Luck Attributions	-.1826

GAME #2		
Step	Variable	Beta
1	Self Ability Attributions	-.1337
2	Self Effort Attributions	.1411
3	Team Ability Attributions	.1393
4	Team Effort Attributions	-.0098
5	Luck Attributions	-.1199

Table 37: Regression of Commitment to the Group's Goal on Group Standard Attainment, the Stability of Attributions, and Their Interaction (Using Least Squares Estimates to Stability of Attributions)

GAME #1					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment ¹	-.116	.152	.015	.015*
2	Stability of Attributions	.743	.213	.030	.015*
3	GSA X Stability	-.620	.283	.058	.028**

GAME #2					
Step	Variable	Beta	R	Adj R ²	R ² Change
1	Group Standard Attainment	.335	.243	.052	.052**
2	Stability of Attributions	.657	.264	.056	.004
3	GSA x Stability	-.533	.291	.063	.007

*p < .10

**p < .05

¹ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

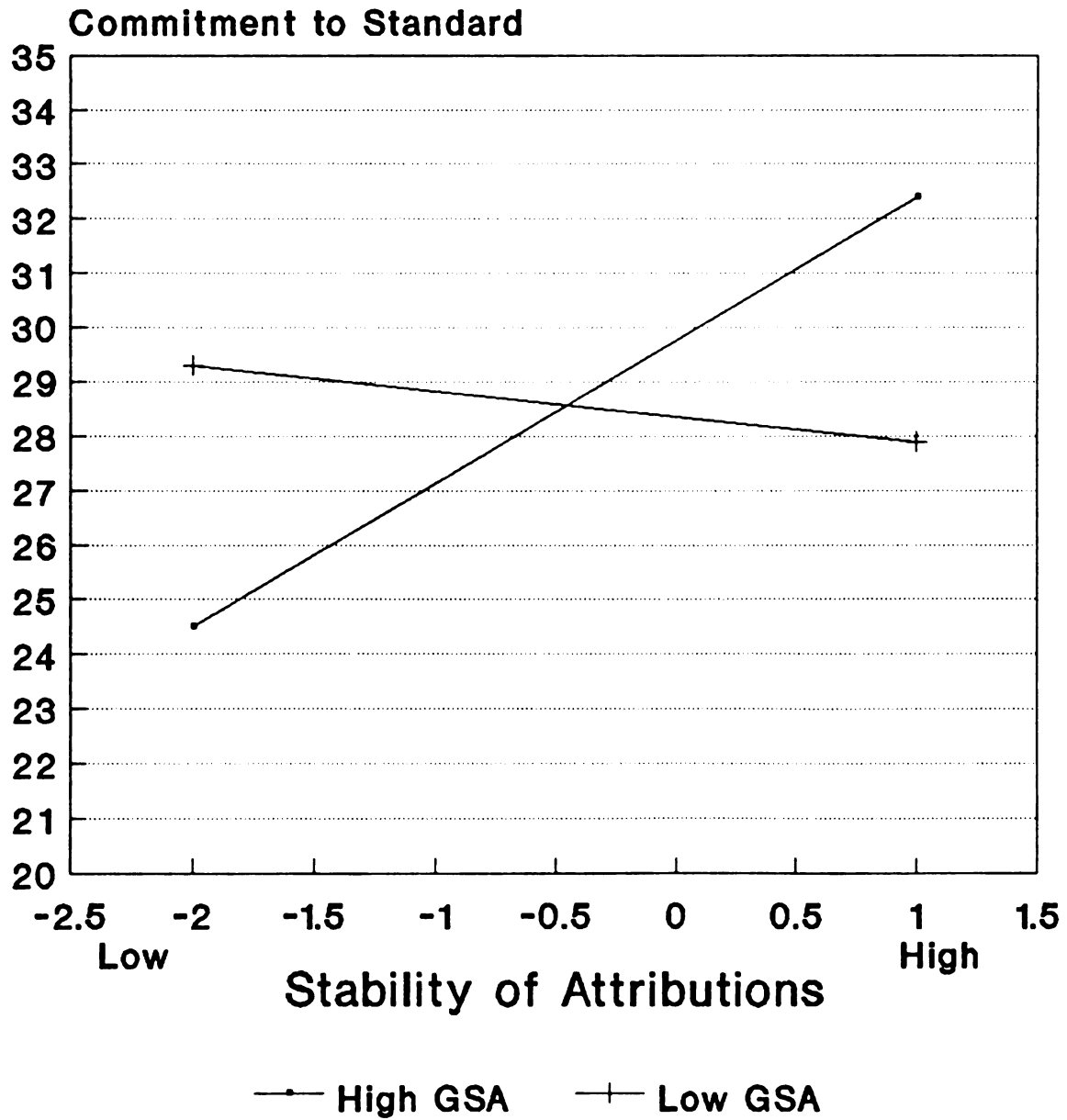


Figure 28. Regression Results for Commitment (Least Squares Weights in Game #1)

however, a significant positive relationship between individual commitment to the group's goal and group standard attainment (which is a measure of group performance). Tables 38 and 39 present the results related to this hypothesis.

Other Hypothesized Relationships

The model presented in Figure 8 also hypothesized that several other variables would be related to individual performance level. The difficulty of the task was expected to be related to individual performance, however a significant correlation between these variables was not found for either Game #1 or Game #2 (see Table 40).

Individual performance was also expected to be significantly related to previous basketball experience and to ability to play basketball (as rated by other players on the team). Experience was not significantly related to performance in either Game #1 or Game #2, however ability was significantly related to individual performance in both games (see Table 40).

The model also predicted that self-set goals would be correlated with individual performance. As shown in Table 40, in Game #1 the correlation between the self-set goal for number of points and individual performance related to number of points scored was significant and equal to .296 ($p < .05$). For Game #2, the correlation between the self-set goal for number of points and individual performance related to number of points scored was also significant ($p < .05$) and equal to .232, as was the correlation related to Game #3 ($r = .241$; $p < .05$). For goals related to number of rebounds, there was a significant correlation between the goal and the performance related to

Table 38: Correlations Between Individual Goal Commitment and Individual Performance

GAME #2			
Variable	Correlation	n	
Number of Points	.024	117	
Number of Rebounds	.070	117	
Number of Assists	.089	117	

GAME #3			
Variable	Correlation	n	
Number of Points	.052	114	
Number of Rebounds	-.004	114	
Number of Assists	-.004	114	

All r's nonsignificant; $p > .10$

Table 39: Correlations Between Commitment to the Group Standard in the Next Game and Group Standard Attainment in the Next Game

	<u>Game #2</u> ¹	<u>Game #3</u> ²
Correlation Between Individual Commitment and Group Standard Attainment ³	$r = -.162$ ($p = .029$)	$r = -.243$ ($p = .002$)

¹ n = 137

² n = 135

³ Group Standard Attainment is scored such that 1 = Team Win and 2 = Team Loss

Table 40: Relationships Among Other Variables in the Model

GAME #1			
<u>Variables</u>	<u>Correlation</u>	<u>n</u>	
Task Difficulty ₁ and Individual Performance	r --.107	139	
Task Difficulty ₂ and Individual Performance	r = .071	120	
Task Difficulty ₂ and Commitment to Group's Standard	r = .058	137	
Experience and Individual Performance	r --.108	139	
Ability and Individual Performance	r = .555**	130	
Self-set Goal for Points and Point Performance	r = .296**	137	
Self-set Goal for Rebounds and Rebound Performance	r = .222**	135	
Self-set Goal for Assists and Assist Performance	r --.008	134	

GAME #2			
<u>Variable</u>	<u>Correlation</u>	<u>n</u>	
Task Difficulty ₁ and Individual Performance	r --.048	135	
Task Difficulty ₂ and Individual Performance	r --.063	114	
Task Difficulty ₂ and Commitment to Group's Standard	r = .082	135	
Experience and Individual Performance	r --.046	120	
Ability and Individual Performance	r = .519**	120	
Self-set Goal for Points and Point Performance	r = .232**	131	
Self-set Goal for Rebounds and Rebound Performance	r = .313**	130	
Self-set Goal for Assists and Assist Performance	r = .260**	132	

GAME #3			
<u>Variable</u>	<u>Correlation</u>	<u>n</u>	
Task Difficulty ₁ and Individual Performance	r --.027	139	
Self-set Goal for Points and Point Performance	r = .241**	123	
Self-set Goal for Rebounds and Rebound Performance	r = .061	122	
Self-set Goal for Assists and Assist Performance	r --.026	121	

* p < .10

** p < .05

rebounds for both Game #1 ($r = .222$, $p < .05$) and Game #2 ($r = .313$, $p < .05$), but not for Game #3 ($r = .061$; $p > .10$). Self-set goals related to number of assists were significantly correlated with performance in relation to assists for Game #2 ($r = .260$, $p < .05$), but not for Game #1 ($r = -.008$, $p > .10$) or Game #3 ($r = -.026$; $p > .10$).

Feedback Loop

The model presented in Figure 8 also hypothesized a feedback loop, with individual performance on each performance trial feeding back to influence perceptions of felt responsibility. In relation to Game #1, a significant correlation was found between individual performance level (summed across performance on points, rebounds, and assists) and felt responsibility perceptions ($r = .212$, $p < .05$). A similar correlation was found for the relationship between individual performance level and felt responsibility perceptions following Game #2 ($r = .341$, $p < .05$). These results are presented in Table 41.

Table 41: Feedback Loop Relationships

GAME #1	
<u>Variables</u>	<u>Correlations</u>
Felt Responsibility Perceptions & Individual Performance	$r = .212^{**}$
GAME #2	
<u>Variables</u>	<u>Correlations</u>
Felt Responsibility Perceptions & Individual Performance	$r = .341^{**}$

* $p < .10$

** $p < .05$

CHAPTER SIX: DISCUSSION

The model describing the motivation of individuals operating in groups which was presented in Figure 8 received general support in the test of the data described in the previous chapters. It appears that individuals who are functioning in groups do undertake a social comparison process aimed at determining their individual responsibility for the group's performance outcome. In addition, the data suggest that these felt responsibility perceptions are related to the attributions which are made, and that attributions do have implications for certain of the individual's affective responses. There was partial support for the prediction that attributions, in combination with group standard attainment (i.e., team win or loss), would influence commitment to the group standard on the next performance trial. Although there was no support for the prediction that commitment to the group's standard would influence performance at the individual level, there was evidence that commitment was associated with group performance. Each of these relationships will be discussed in more detail below.

Predicting Felt Responsibility

The model predicted that self performance perceptions and group standard attainment would interact to influence felt responsibility perceptions such that individuals who were members of winning teams and who perceived that their performance level was high compared to that of other team members would feel more responsible for group success than would individuals who perceived that their performance level was relatively low. For individuals who were members of losing teams, low self performance perceptions were expected to be more highly related to

felt responsibility perceptions than were high self performance perceptions (see Figure 9). This hypothesis was supported in that a significant interaction effect was found; this interaction, however, was of a different form than predicted. The data showed a positive relationship between self performance perceptions and felt responsibility perceptions for members of both successful and unsuccessful teams, although this relationship was stronger in the former group. This interaction suggests that individuals whose groups are successful but whose own individual performance levels are low are able to recognize their own minimal contributions to the group's success. Individual members of unsuccessful groups, however, do not appear to claim higher responsibility for the group's failure when their performance levels are low rather than high.

The interaction effect found in these data has interesting implications. As expected, individuals whose perceived performance levels were high and who were members of successful teams felt highly responsible for the group's success. In addition, as expected, individuals whose perceived performance levels were low and who were members of successful teams felt very little responsibility for the group's success. Such individuals are free-riding on the efforts of other group members; they receive the benefits of belonging to a successful team, without bearing the responsibility of creating that success. The findings of this research make several contributions to previous research on social loafing and free riding.

First, the fact that individuals who are free-riding on the efforts of other group members recognize their own lack of contributions to the

team's success is noteworthy. Previous research on free riding and social loafing has not addressed the perceptions of the free-riding individual (i.e., it has not examined the extent to which the individual is aware that he or she is free-riding). It is interesting that such individuals do not delude themselves into believing that they have made a significant contribution and therefore are responsible for the group's success; rather, they are cognizant of the fact that their contributions were low and that they do not share responsibility for the group's positive outcome. Future research in this area should now address the extent to which such individuals consciously choose to free-ride versus simply recognizing that they have been free-riding on the efforts of others.

This research also adds to the free-riding/social loafing literature because of the type of task used. In previous research in this area, the task faced by the groups has typically been either a physical exertion task in which individuals work alone (blowing air, clapping hands, turning a knob; Kerr, 1983; Kerr & Bruun, 1983; Latane, Williams, & Harkins, 1979; Williams, Harkins, & Latane, 1981), or a task which did not involve group interaction (individuals working alone to generate uses for an object, evaluation of the solution to a business problem; Harkins & Petty, 1982; Price, 1987). The findings reported here show evidence of social loafing in a sample of individuals working on a task in which there is a great deal of group interaction and interdependence.

The fact that individuals who were members of unsuccessful teams felt highly responsible for the group's failure even when they also

perceived their individual performance level to have been high points out the importance of group standards to individuals. Despite the fact that the individual team member had performed well, he continued to feel responsible for group failure. This finding is in line with the research by Matsui, Kakuyama, and Onglatco (1987) which found that individual group members continued to exert effort toward the group's goal even after their own individual goal had been reached.

Perhaps the group standard had such a significant impact on group members' perceptions of felt responsibility in this sample because the group standard was highly volitional and public. Individuals chose of their own volition to belong to the basketball team. In addition, team membership was a highly public event as many team members wore shirts or other clothing that clearly labelled them as team members. Combining this with the fact that the team standard (goal) was also clear and public (all teams wanted to win their games), previous research (Salancik, 1977) would suggest that individual commitment to the group's standard would be very high. It would be interesting to see whether the results obtained here generalize to the situation in which team membership is less volitional and public, or in which the team goal is less public.

The findings of this study are also interesting in regard to the priorities individuals set regarding individual versus group goals. Recent research is beginning to address the interaction of group and individual goals (Matsui, Kakuyama, & Onglatco, 1987; Mitchell & Silver, 1990). It may be that the priorities established between these two types of goals (i.e., the respective levels of commitment) are partly a

function of the publicness and volition of group membership and of group goals compared to that of individual goals.

This finding also has implications for previous research on the self-serving bias. The interaction found here suggests that individual group members are willing to accept responsibility for group failure, while the self-serving bias suggests that individuals are more likely to accept responsibility for group success than for group failure. A direct test of the existence of a self-serving bias, a t-test between the mean self attribution ratings for individuals who are members of winning versus losing teams, shows a significant ($p < .05$) difference between means for Game #2, but not for Game #1 ($p > .10$). The data provide mixed evidence regarding the existence of a self-serving bias.

It is important to recognize that there may be an alternative explanation for the findings in relation to Hypothesis #1 which necessitates caution when interpreting these results. The model presented in Figure 8 suggested that the individual team member's self performance perceptions would interact with group standard attainment (i.e., the team's performance outcome) to influence his perceptions of his individual responsibility for the team's win or loss. The items which assessed felt responsibility perceptions, however, generally were phrased such that they assessed the individual's feeling of responsibility for the team's performance (rather than for the team's win or loss). Four of the five items used to assess felt responsibility perceptions asked about responsibility related to team performance ("I feel pretty responsible for the team's performance in this game;" "I personally had very little to do with the team's performance in this

game;" "I personally had a lot to do with the team's performance in this game;" "I don't think that I was at all responsible for the team's performance in this game'), while only one item asked about responsibility related to the team's outcome ("If I hadn't performed the way I did, this game would have turned out very differently"). It is impossible to discern whether subjects interpreted these questions in the manner intended (i.e., as expressing perceptions regarding responsibility for the team's win or loss) or whether they interpreted them in an alternative manner (i.e., as expressing perceptions regarding responsibility for the team's performance).

This alternative interpretation of the felt responsibility items may have influenced the results obtained here. For example, a subject who scored 35 of the team's 50 points is likely to feel very responsible for the team's performance (i.e., the 50 points), but may not feel responsible if the team loses the game (i.e., he does not feel responsible for the team's outcome). If subjects were rating their perceptions of their responsibility for the team's performance, then the conclusions drawn in relation to Hypothesis #1 may be incorrect. As mentioned above, a positive relationship was found between self performance perceptions and felt responsibility perceptions for high group standard individuals as predicted. Contrary to predictions, however, a positive relationship was also found for members of low group standard attainment teams. The alternative interpretation of the felt responsibility items discussed above may explain this finding in that individuals who are members of losing teams who feel that their own performance level was high may feel responsible for the team's

performance (for example, the number of points the team scored), but not for the team's outcome (i.e., the loss of the game). The extent to which this alternative interpretation influences the results and conclusions drawn here is not known, however this alternative should be recognized and the findings interpreted with care.

Hypothesis #1 was also tested by using actual performance levels as a substitute for subjects' perceptions of their own performance, and no interaction effect was found between performance and group standard attainment on felt responsibility perceptions. There are several possible explanations for the fact that a significant interaction was found when performance was measured via self performance perceptions, but that none was found when actual performance was used.

First, it may be that a significant effect was found when performance was measured with self performance perceptions solely because of response-response bias. This explanation is unlikely, however, given the interactive effect of group standard attainment and self performance perceptions on felt responsibility perceptions. In other words, a response-response bias would be expected to inflate the correlation between self performance perceptions and felt responsibility, but would not be expected to create a spurious interactive effect.

A second explanation suggests that individual group members' feelings regarding their own performance levels may influence felt responsibility perceptions, but that their self perceptions of performance may not correspond directly to actual performance levels. In other words, individuals may not hold realistic perceptions of their

own performance levels. An examination of mean self performance perceptions and individual ability ratings (as rated by other players on the team) supports this explanation; individuals tended to underrate their performance levels in games ($t = -14.73$, $p < .000$ for Game #1; $t = -14.46$, $p < .000$ for Game 2). It should be recognized, however, that self performance perceptions related to specific games, while ability ratings related to ability in general.

It is also important to note that the model depicted in Figure 8 predicts an interactive effect of self perceptions of performance and group standard attainment on felt responsibility perceptions. The model is concerned with the cognitive processes occurring within the perceptions of individual group members. Therefore, while it is interesting that self perceptions of performance and actual performance levels are not highly related, the lack of a strong relationship between these two variables does not argue against the model. The results related to Hypothesis #1 support the model in suggesting that individuals do hold perceptions regarding their efforts versus those of other group members (social comparison process) and that these perceptions influence felt responsibility perceptions.

Attributions at the Group Level

The predictions made regarding the model depicted in Figure 8 are based upon the premise that, when dealing at the group level, there are at least six important attributional sources: self ability, self effort, group ability, group effort, task difficulty, and luck. A factor analysis of the attributional items used in this research indicates support for at least four attributional sources when

individuals are functioning in group contexts: 1) attributions to self (including both self ability and self effort), 2) attributions to the group (including both group ability and group effort), 3) attributions to task difficulty, and 4) attributions to luck. The results of this factor analysis provide support for the general attributional framework suggested in previous chapters. Although subjects did not make the fine distinctions between self ability and self effort attributions, or between group ability and group effort attributions, they did view attributional sources as being divided along the lines of self, group, task difficulty, and luck.

These results are interesting in that very little research has addressed the types of attributional sources which operate when individuals are functioning within a group context. Based on the results presented here, it appears that individuals do make attributions to sources beyond the traditional four discussed in previous research (i.e., ability, effort, task difficulty, and luck). This supports the suggestions of Weiner (1982) that researchers move beyond the original four sources and consider additional attributional sources which may be specific to the context of the situation. In the case of an individual operating within a group setting, it appears that individuals will make attributions to the group as well as to the other four attributional sources.

The intercorrelations among the six attributional sources were also instructive. Not surprisingly, there was a high correlation between attributions to self ability and self effort, and between attributions to team ability and team effort. Attributions to luck were generally

found to be negatively related to attributions other than self (i.e., luck attributions were significantly negatively related to team ability, team effort, and task difficulty attributions). In other words, individuals who attributed group performance outcomes to sources other than the self tended to make fewer attributions to luck, while there was no significant relationship between luck attributions and attributions to the self. It is not clear why luck attributions were not significantly related to self attributions but were consistently related to other attributional sources. Perhaps luck becomes a more central attributional source for individuals working within groups because they feel a lack of control over group outcomes. Individuals who are working alone are likely to feel stronger control over their individual outcomes, whereas the addition of other group members adds a great deal of uncertainty to the attributional process for group outcomes.

In this research, subjects did not distinguish between either self ability and self effort or group ability and group effort attributions. Individuals were able only to make distinctions between general self and general group attributional categories. There are various explanations for this phenomenon. Effort/ability distinctions may have been more difficult to make in this sample. In sports teams, effort and ability are perhaps more closely entwined than in work settings. Another more interesting explanation might be that when subjects make broad self/group distinctions, they are less likely to make the more specific ability/effort distinctions. In other words, there may be a "level of focus" factor which influences the attributions made by individuals. This possibility would be interesting to explore in a study in which

some subjects were working alone while others were operating in groups, but all were asked to provide attributions in a free-response format. Along the same lines, perhaps the introduction of a relevant other (i.e., the group) as a possible attributional source allows the individual a new, broader scapegoat. In other words, individuals who previously might have made attributions for personal failure to low self effort in order to protect their self esteem (e.g., "My ability level is high enough that I could have performed well if I had wished to, but I didn't want to exert the required effort") now have the option of attributing failure to the relevant other (i.e., the group) in order to protect their self esteem.

Attributions were measured using two different measurement techniques. First, separate Likert scales addressed subject perceptions of each of the six attributional sources. Second, subjects were asked to allocate 100 percentage points across the six attributional sources (i.e., an ipsative scale). The correlations between attributions made using these two different methods were generally significant (only team effort attributions for Game #1 and team ability attributions for Game #2 failed to reach significance). Despite the fact that the correlations tended to reach statistical significance, however, the values of these correlations were low. Given that these two methods were supposedly measuring the same phenomena, the correlations which were found (ranging from .089 to .430) were not impressive. The fact that these two measurement methods are not highly related suggests that care should be taken in the interpretation of results using different measurement methods. Because of the difficulties associated with the

use of ipsative scales (Kerlinger, 1964) and because the ipsative method involved one-item measures, the Likert scale measures of attributional sources were used to test most of the hypotheses in this research.

The relationship between Likert scales and ipsative scales in the measurement of attributions points to an issue which is not resolved in the literature on attributional processes. The Likert scale measurement method assumes that the attributional sources are independent of each other; that is, attributions to one source have no direct implications for attributions to another source. The ipsative measurement method assumes that attributions are dependent; as attributions to one source increase, attributions to another source must decrease. The extent to which attributions should be viewed as independent versus dependent is not resolved in previous literature. It is important to recognize, however, that the ipsative measure forces attributional sources to be dependent while the Likert scale measurement allows for dependence or independence.

Influence of Felt Responsibility Perceptions on Attributions

The model presented in Figure 8 suggested that felt responsibility perceptions would be related to the attributions made by individual group members. In these data felt responsibility perceptions were associated with some, however not all, of the attributions made by subjects.

The data clearly supported the proposition presented in Hypothesis #2, that individual group members who feel highly responsible for the group's performance outcome are likely to attribute this outcome to themselves (either to their own ability or their own effort). This

finding was supported regardless of the measurement method used for determining attributions (i.e., Likert scales or ipsative scales). This result is not surprising in that individuals who feel a responsibility for an outcome are likely to perceive themselves to be the source of that outcome.

Hypothesis #3 suggested that individuals who feel responsible for the group's performance outcome are less likely to make attributions to the group. This hypothesis received no support when group attributions were measured with the Likert scales, but did receive support when group attributions were measured with the ipsative scales. It should be noted that, in the case of an ipsative scale, a negative relationship between felt responsibility perceptions and group attributions is quite likely (although not assured) because of the positive relationship between felt responsibility and self attributions and the ipsative nature of the scale (i.e., as attributions to self increase it is likely, although not certain, that attributions to the group will decrease). In other words, the fact that there was a significant negative relationship between felt responsibility perceptions and group attributions measured via the ipsative scale is not taken as strong evidence that such a negative relationship does in fact exist.

The results of the test of Hypothesis #3 provide interesting questions for future research. The fact that individuals who feel highly responsible for the group's outcome still make attributions to the group suggests that the distinction between self and group attributions is not clearcut (in the same way that responsibility for group outcomes was not clearly a self/group issue in the results

associated with Hypothesis #1). Schlenker and Miller (1977) suggested that some individuals perceive the group to be a direct extension of themselves, while other individuals consider the group to be an environmental variable (i.e., external to the self). Perhaps the individual group member's perceptions regarding the group influences the attributions which are made.

Some evidence for this suggestion is found when the sample is broken down (using the Russell Causal Dimension scale) into: 1) those individuals who reported team attributions (the sum of team ability and team effort attributions) as highly internal to self, and 2) those individuals who perceived team attributions as highly external to self. A comparison of the felt responsibility-team attribution correlations for these subsamples shows the correlation for "internals" (i.e., #1 above) to be nonsignificant for Game #1 ($r = -.13$, $p > .10$), and significantly positive for Game #2 ($r = .31$, $p < .05$). For "externals" (i.e., #2 above), the correlation for Game #1 was marginally significant and negative ($r = -.18$, $p = .104$), while the correlation for Game #2 was significantly negative ($r = -.27$, $p < .10$). These data, therefore, provide some evidence that individuals who perceive attributions to the team as external attributions show a more negative relationship between felt responsibility and team attributions than do individuals who perceive team attributions as internal attributions. Future research might address the influence of additional factors (such as individual perceptions of group cohesiveness and the centrality of individuals in the group) on individuals' perceptions of the locus of causality of group attributions and on the felt responsibility-team attribution

relationship.

Hypothesis #4 suggested a negative relationship between felt responsibility perceptions and attributions to task difficulty. This hypothesis was strongly supported for both the Likert and ipsative scales. It appears, therefore, that as an individual group member's feelings of responsibility for the group's performance outcome increases, his or her likelihood of attributing the group outcome to task difficulty decreases.

Hypothesis #5 suggested that attributions to luck would be negatively related to felt responsibility perceptions. This hypothesis was not supported by the data. As felt responsibility perceptions increased, attributions to luck did not decrease significantly. In this sample, subjects tended to view luck as an attributional source which was closer to team attributions than to highly external attributions on the locus of causality continuum (see Table 20). Attributions to luck may not, therefore, be perceived as highly external attributions as suggested by previous research (Weiner, 1972). Luck attributions appear to be more complicated than previously discussed.

It is interesting to examine these results in association with the locus of causality continuum outlined in Table 20. The data showed that felt responsibility was positively related to the highly internal attributions (self attributions) and negatively related to the highly external attributions (task difficulty attributions). For attributions falling in the middle of the locus of causality continuum (team attributions, luck attributions), no significant relationship with felt responsibility was found. This pattern suggests that more internal

attributions are likely to be positively related to felt responsibility perceptions, while more external attributions are likely to be negatively related to felt responsibility perceptions. Perhaps the extent to which attributions falling in the moderate range along the locus of causality continuum are related to felt responsibility is dependent upon additional variables (e.g., group cohesiveness, centrality of individual in group).

Summary. Hypotheses #2 through #5 addressed the relationship between felt responsibility perceptions and various attributions. There was strong support for the proposition that felt responsibility perceptions are positively associated with self attributions and negatively associated with task difficulty attributions. There was no strong evidence to indicate a negative relationship between felt responsibility perceptions and team attributions or luck attributions. In general, these findings lead to two general conclusions. First, they provide support in a group context for previous research which suggests that performance information influences causal attributions (Chacko & McElroy, 1983; Downey, Chacko, & McElroy, 1979; Nadler, 1979; Staw, 1975). Second, they suggest that the relationship between felt responsibility perceptions and attributions to the group may be influenced by additional group-related variables which were not addressed in this research. Specifically, the extent to which felt responsibility is associated with group attributions may be a function of variables such as group cohesiveness and an individual's centrality in the group.

It should be noted that the tests of the relationship between felt responsibility perceptions and attributions were all correlational. It is not possible, therefore, to determine the causality of these variables. In other words, it is possible that individuals first undertake attributional searches and then make determinations regarding their own degree of responsibility for the group's performance outcome. The order of causality postured here (i.e., that felt responsibility perceptions influence attributional searches and not vice versa) is logic based; in other words, it seems reasonable that individuals would be unable to undergo attributional searches when their own degree of responsibility for the outcome has not yet been determined. The individual who has not yet decided his or her degree of responsibility does not have the necessary tools to make a self attribution. It is possible that attributions might be based on situational cues that have little relationship to actual felt responsibility (for example, a supervisor may instruct an individual to assign causality to a particular attributional source which does not reflect the true cause of the outcome). In this case, however, the model has moved out of the realm of a self-regulating system and additional variables (for example, supervisor perceptions) would need to be incorporated. Given a self-regulating system where individuals are free to undergo their own attributional search, the model suggests the order of causality depicted in Figure 8.

Influence of Attributions on Satisfaction with Self Performance

Hypothesis #6 addressed the interactive influence of group standard attainment and the locus of causality of attributions on satisfaction

with self performance. Because the locus of causality of attributions variable is a linear composite of individual attributional sources and there is not one established manner in which to weight these individual sources, locus of causality was measured using three weighting methods: 1) the a priori framework depicted in Figure 10, 2) the Russell Causal Dimension Scale (1982), and 3) empirically determined (least squares) weights.

A significant interaction between group standard attainment and the locus of causality of attributions was found in both games using the a priori framework and the empirically derived weights. In all cases, there was a positive locus-self satisfaction relationship for members of both successful and unsuccessful teams, although this relationship was stronger for those on the successful teams. This interaction, therefore, is different than predicted for low group standard attainment individuals. For these subjects, satisfaction with self performance was high when attributions were made to more internal, versus external, sources.

The fact that individuals who made internal attributions for group failure were more satisfied with self performance than were individuals who made more external attributions for group failure is interesting. It suggests that individual group members can be satisfied with their own performance despite the fact that they, as individuals, feel primarily responsible for the group's failure. Perhaps there is something inherently positive involved in the process of making internal attributions. That is, individuals recognize their contribution to the group's failed outcome, but feel good about themselves because they were

involved in the process. For example, in the context of the basketball teams used in this research, this phenomenon might take the form of an individual player who recognizes that his skills are lower than those of other players, but who feels good about his performance because he exerted effort in the game and did not give up. In other words, there may be some positive affect associated with being involved in the group which offsets the negative affect associated with a performance failure (a situation which does not exist at the individual level).

Examination of this finding in conjunction with other results of this research are also enlightening. Previous findings (Hypothesis #1) suggested that individual group members who felt that their performance levels were high were still likely to feel responsibility for a group failure. The findings related to Hypothesis #6 suggest that individuals are able to attribute blame for group failure to themselves, but to still feel satisfied with their own performance levels. These two findings together suggest that individuals are able to separate their role as "individual" from their role as "group member." That is, a group member may feel responsible for the group failure even when his or her individual performance level is high, and an individual may be satisfied with his or her own performance level, even when the group has failed.

In one case (a priori weights used in Game #2), a crossed interaction effect was found. The direction of this interaction suggests that individuals who attributed group failure to external factors were more satisfied with their own performance than were individuals who attributed group success to external factors. This finding is interesting in that it suggests that external attributions

may provide some protection for self perceptions. That is, if a team has lost a game and the individual can attribute blame to external factors, satisfaction with self performance does not have to suffer. On the other hand, if external attributions are made for a team win, the individual's satisfaction with self performance may be low because he or she does not feel that his or her performance contributed to the team's win.

As mentioned above, no significant interactive effect of group standard attainment and locus of causality on satisfaction with self performance was found when locus of causality was measured using the Russell Causal Dimension Scale (1982). The fact that a significant interaction was found using other methods of measurement for locus of causality of attributions is not conclusive evidence of a problem with the Russell scale, but does suggest that the scale requires further investigation as a measure of the locus of causality of attributions.

In summary, the results for Hypothesis #6 suggest several conclusions. First, the Russell Causal Dimension Scale (1982) measurement of the locus of causality of attributions was not predictive of satisfaction with self performance, while the two other measurement methods were. This finding suggests the possibility that the Russell scale may be problematic in the measurement of locus of causality. Second, the data show a similar pattern across games using both the a priori measurement method and the empirically determined (least squares) measurement format. For all individuals, satisfaction with self performance is higher when internal (versus external) attributions are made for the group's outcome, however the locus-satisfaction

relationship is stronger for members of successful groups than for members of unsuccessful groups.

Influence of Attributions on Satisfaction With the Group

Hypothesis #7 predicted a significant interaction between group standard attainment and the locus of causality of attributions on satisfaction with the group. Again, the locus of causality of attributions was measured using three different weighting methods (a priori, Russell Causal Dimension Scale, and empirically derived). The results associated with Hypothesis #7 were inconclusive. Significant interaction effects were found in only 3 of the 6 analyses, and the patterns of these interactions depended upon the weighting method used. The individual interaction effects found will be interpreted below.

Significant interactions were evident for both games when the locus of causality of attributions was measured using the empirically derived (least squares) weighting method. These interactions showed a stronger positive relationship between locus of causality of attributions and satisfaction with the group for members of successful versus unsuccessful teams.

The interactions found using the empirically derived weights have several implications. First, they suggest that an individual is more satisfied with the team if he or she attributes the team's success to the self, a finding which is consistent with the results of Hypothesis #6 (where attributions to the self were associated with higher self satisfaction). In other words, there is positive affect associated with making a contribution to the group's success. It is interesting that satisfaction with the group is higher for individuals who attribute the

group's success to the self than for those who attribute the success to the group as a whole. It was predicted here that individuals who perceived the group's success to be a function of the group as a whole would be more satisfied with the group because they perceived that all members of the group were responsible for the group's ability to attain the referent standard. These data, however, suggest that this is not the case. Individuals are more satisfied with their groups if they feel that they are the "stars" of the group (i.e., that they are primarily responsible for the group's success). This points to the importance to the group member of a perception that he or she is a contributing, involved member of the group.

It is interesting to note that the positive affect associated with attributions to the self may extend to attributions made for group failure also. Individuals who attributed the cause of group failure to themselves (versus to the group as a whole) showed higher satisfaction with the group. Again, this is consistent with the findings of Hypothesis #6 (which suggest that attributions to the self for a group failure are associated with higher satisfaction with the self), and suggests that individuals are more satisfied when they perceive that they have contributed to the group's outcome (even when this outcome is negative). It is also possible that individuals are more satisfied with the group when they attribute group failure to themselves because they feel badly about their contribution to group failure. That is, such individuals may recognize that they are among the poorest performers in the group and therefore perceive that other members of the group must be relatively good performers, leading to a higher satisfaction with the

group rating. This suggests that the individual's own performance level may be used as an anchor around which satisfaction with other group members and the group as a whole may be determined.

A significant group standard attainment by locus of causality interaction was found for Game #2 when locus of causality was determined using the a Russell Causal Dimension Scale (1982). This interaction indicated a stronger locus-group satisfaction relationship for members of unsuccessful teams than for members of successful teams. This interaction suggests that if the team is successful, the locus of causality of attributions is less critical to individuals' satisfaction with the group than if the team is unsuccessful. This finding is in line with previous research suggesting that group success is associated with more positive perceptions of the group (Berkowitz & Levy, 1956; Downey, et al., 1979; Lott & Lott, 1966, 1960; Schlenker, Soraci, & McCarthy, 1976; Staw, 1975). The interaction also indicates, consistent with the findings discussed above, that individuals who are members of unsuccessful groups and who attribute this team failure to themselves are more satisfied with the group than are those individuals who attribute the team failure to the group as a whole.

It is important to note that the test of Hypothesis #7 provides no evidence of a "sucker effect." As described in previous chapters, the sucker effect suggests that individual group members who perceive that they are primarily responsible for the group's success tend to show negative reactions to the group because they feel forced to carry responsibility for other group members. These data suggest that individuals who attribute group success primarily to themselves

experience higher group satisfaction, arguing against the "sucker effect." In fact, these data imply that individuals welcome the chance to be central contributors to the group's success, suggesting evidence for a "star effect" which appears to be the opposite of the "sucker effect."

A possible explanation for these conflicting results is found in the type of task used in each of the studies. Earlier evidence of a sucker effect (Kerr, 1983) was based upon a task in which subjects worked independently. In the present study, however, group members worked together on the task. Perhaps this difference in interdependence accounts for the conflicting findings. It may be, therefore, that the existence of a sucker effect is dependent upon the type of task which is faced by the group. If the task encourages a focus upon individual contributions and standards, there may be evidence of a sucker effect; if the task focuses upon group contributions and group standards, however, a sucker effect may be less likely to occur.

There was strong support for the existence of both a group standard attainment main effect and a locus of causality of attributions main effect in the prediction of satisfaction with the group. Across all games and measurement methods (i.e., a priori, Russell scale, empirical) a significant main effect for group standard attainment was found, such that individuals who were members of successful teams also showed higher satisfaction with their teams. This finding is in line with previous research that suggests successful group performance is associated with more positive perceptions of the group (Berkowitz & Levy, 1956; Downey, et al., 1979; Lott & Lott, 1966, 1960; Schlenker, et al., 1976; Staw,

1975).

There was substantial evidence of a significant main effect for the locus of causality of attributions in the prediction of satisfaction with the group. The data suggested that the more internal the attributions made by individual group members, the higher the satisfaction with the group. This effect was found across all games and measurement methods, with one exception (Game #2 when locus of causality of attributions was measured using the Russell scale). This finding suggests that the individual's perception of his or her ability to influence group outcomes has an important impact on satisfaction with the group. The individual team member who perceived that he was able to influence the group's performance outcome felt more positively toward the group. This suggests that group members highly value the ability to influence group outcomes, a finding which is further supported by the interactions discussed above. Future research on attributions at the group level might address this phenomenon more directly.

In general, the relationship between attributions and satisfaction with the group requires further examination. As discussed above, there was strong evidence of main effects for both group standard attainment and the locus of causality of attributions on satisfaction with the group, however the interactive effect of group standard attainment and the locus of causality of attributions was not clear.

Influence of Attributions on Commitment to the Group's Standard

Hypothesis #8 predicted a significant interactive effect of group standard attainment and the stability of attributions on commitment to the group's standard on the next performance trial. The stability of

attributions was measured using three different weighting methods:

1) a priori framework, 2) Russell Causal Dimension Scale (1982), and 3) empirically derived weights. In general, there was support for this hypothesis in Game #1, but not in Game #2.

In Game #1, a significant interaction was found when stability of attributions was measured using the a priori method, the Russell scale measure, and the empirically derived (least squares) method. These interactions suggested that for members of successful teams the more stable the attribution the higher the individual's commitment to the group's standard, while for members of unsuccessful teams the more stable the attribution the lower the individual's commitment to the group's standard.

In Game #2, the predicted interaction between group standard attainment and the stability of attributions on commitment to the group's standard was not supported. For both the a priori and the empirical measurement methods, no significant interaction effect was found. Using the Russell Scale measurement method, a significant interaction was found for Game #2, however the form of this interaction was the opposite of that found in Game #1. This interaction suggested that for members of successful teams, more stable attributions were associated with low commitment to the group's standard, while for members of unsuccessful teams, more stable attributions were associated with high commitment to the group's standard.

It is not clear why there was evidence of an interaction between group standard attainment and the stability of attributions in Game #1 but not in Game #2. If a significant interaction were found for Game #2

but not Game #1, a possible explanation might be that players' knowledge of teammates' abilities and efforts had increased over time and influenced perceptions regarding attributional stability and/or commitment to the standard. This explanation, however, works counter to the results actually found. It is interesting to note that group standard attainment was differentially associated with commitment to the group's standard depending upon the game and the measurement method used. In most cases, a team win was associated with higher commitment to winning the next game in Game #1, while a team loss was associated with higher commitment to winning the next game in Game #2. Perhaps players felt highly motivated by a win in their first game, while in later games (i.e., Game #2) the importance of winning games so as to reach the playoff tournament became more salient and a loss was associated with higher commitment to winning the next game. It may be that this differing view of group standard attainment and commitment depending upon time (i.e., game number) is partly responsible for the differential results related to Hypothesis #8 in Game #1 versus Game #2.

It is also interesting to note that the significant interaction effects found here were crossed interactions. It was hypothesized that when group members made unstable attributions for group success or failure, they would be uncertain regarding whether the group would be successful in the future. The interaction effects found here, however, suggest that when group members make unstable attributions for their team's success or failure they expect the opposite outcome to occur in the future. That is, if the player made an unstable attribution for the team's success in one game, his commitment to the group standard in the

next game was likely to be low (presumably due to a low expectancy of winning the next game). On the other hand, if the player's team lost the last game and he made unstable attributions for this loss, he had higher commitment to the group standard in the next game (presumably due to a high expectancy of winning the next game).

Influence of Commitment to the Group Standard on Performance

Hypothesis #9 predicted a significant correlation between commitment to the group's standard in the next game and individual performance in the next game. The data did not support this prediction for either Game #1 or Game #2. A significant correlation was found, however, between commitment to the group's standard in the next game and the team's performance (i.e., win or loss) in the next game.

The lack of relationship between commitment and individual performance may be due to several confounding factors. Perhaps effort and performance were not highly correlated in this empirical test. In other words, an individual who is highly committed to the group's standard would be expected to exert a great deal of effort in order to attain that standard; it may be, however, that the degree of effort exerted by individuals was not captured in this study. It is possible that the individual performance measure used here did not completely measure effort exerted toward the goal. Individual performance level was determined by summing performance on three dimensions: points, rebounds, and assists. Perhaps the inclusion of additional performance dimensions which were more related to effort level but which were not measured in this research (number of saves, number of steals, number of shots taken, etc.) may have given a more complete measure. It is also

possible that an individual player who exerted a great deal of effort toward reaching the group's goal was unable to translate this commitment into higher individual performance during the basketball game; a player may be highly committed, but not have many opportunities to make points, rebounds, or assists during any one game. In addition, an individual may exhibit citizenship behaviors which contribute to the team's performance, but which do not translate into higher individual performance during the game itself (e.g., the individual who motivates other players, acts as cheerleader on the sidelines, etc.).

As mentioned above, there was a significant relationship between commitment to the group's standard in the next game and group standard attainment in the next game, which suggests that high commitment is related to high group performance. Because higher group performance is possible only through higher individual performance, this finding provides indirect evidence that high commitment is associated with high individual performance.

The model depicted in Figure 8 also suggested that the anticipated difficulty of the winning the next game (task difficulty₂) would influence players' commitment to winning the next game (commitment to the group standard on the next performance trial). There was no evidence of such a relationship. A possible explanation for these null findings relates to the fact that many players were unfamiliar with the skill level of the team they would play next. For this reason, there was a substantial amount of missing data on this variable.

Influence of Other Variables

The model presented in Figure 8 suggested relationships between several additional variables and individual performance. Specifically, task difficulty, experience, and ability were all expected to be positively related to individual performance. The data provided evidence of a significant relationship between only ability and individual performance. The model also predicted that self-set goals would be positively related to individual performance and this prediction was generally supported (there was a significant relationship for goals related to points across all three games, a significant relationship for goals related to rebounds in two games, and a significant relationship for goals related to assists in one game). There was also support for the existence of a feedback loop between individual performance and individual perceptions of felt responsibility for the outcome of the game.

Limitations

There are several limitations to the present research which should be recognized when drawing conclusions about the results obtained here. First, the sample consisted of sports teams, and the extent to which the results of this research can be generalized to other achievement situations is uncertain. Previous research on motivation at the individual level has utilized sports teams and concluded that the processes which occur in this context are very similar to those occurring in work groups (Anderson, Crowell, Doman, & Howard, 1988; Locke & Latham, 1985). Future research should examine the model presented in Figure 8 in work settings, however, before firm conclusions

may be drawn about its applicability to these contexts.

A second possible limitation centers on the type of group standard involved in this research. In this sample, the group's standard (goal) was to win the basketball game. This standard is somewhat unique for two reasons. First, the standard was constant for all groups; that is, all teams were working toward the goal of winning the game. Second, this standard was an "all or nothing" phenomenon. In other words, teams either met the standard (won the game) or did not (lost the game); there was no reward associated with almost reaching the standard, or with surpassing the standard. The extent to which the results associated with this type of goal are generalizable to other types of goals is uncertain and should be addressed in future research.

An additional limitation involves the possibility of response-response bias. This bias is of concern primarily for Hypotheses #2 through #5, which are tested using bivariate correlations. While the possibility of such a bias should be acknowledged, it should also be recognized that this bias can not be eliminated. The model is concerned with the cognitive processes of individual subjects; objective measures of the variables involved are therefore not relevant to the predictions of the model. The existence of response-response bias as an alternative explanation for the findings related to Hypotheses #1, #6, #7, and #9 is less troublesome. The tests of these hypotheses indicated significant interaction effects, for which response-response bias is unlikely to be an alternative explanation.

Finally, it would be instructive to examine these processes over a longer period of time. This research measured individual perceptions

and reactions over three time periods, however the results of some hypotheses (particularly Hypothesis #8) were conflicting depending upon the time of measurement, and a longer term investigation might shed additional light on the "true" nature of the relationships investigated.

Summary of Findings Related to the Model

Previous research in the group goal setting area has supported the idea that group goals (standards) are associated with higher group performance. The manner in which group standards influence group performance via individual performance was explored in this research. While the results provided general support, there were several points in the model which require future research. A revised model, based on the findings of this research, is presented in Figure 29. In this model, the bold lines indicate relationships which were supported in the data collected here, while the narrow lines indicate relationships that require additional research before firm conclusions may be drawn.

Based on previous research (Becker, 1978; Klein & Mulvey, 1988; Latham & Locke, 1975; Lawrence & Smith, 1955; Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1988; Smith, Locke, & Barry, 1990), group referent standards (goals) are expected to influence group performance, and group performance level is expected to be associated with the performance feedback information received by the group. As in the control theory framework, individuals are expected to compare the group's referent standard with the group's performance feedback information and to make a determination regarding whether or not the group has attained its referent standard. In order for this determination to influence later affect and performance, it was expected that cognitive processing aimed

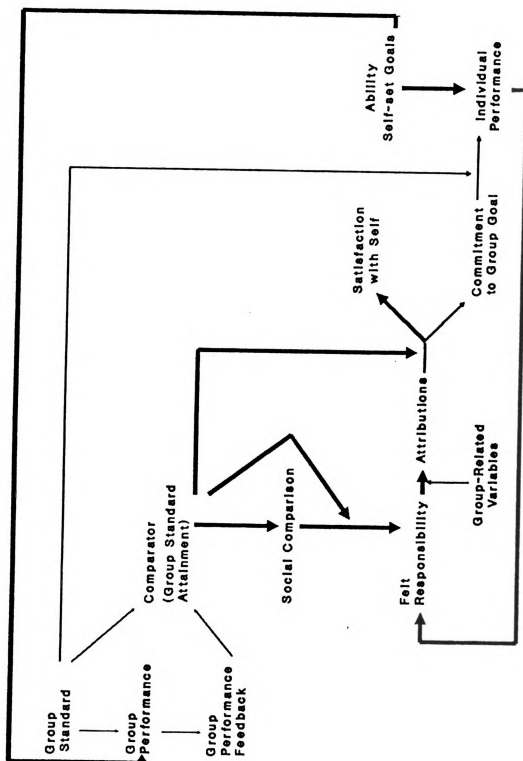


Figure 29. Revised Model of the Motivation of Individuals Operating in Groups

at understanding previous group outcomes would be undertaken by individual group members. This research provides some preliminary evidence regarding the nature of these cognitive processes.

The findings from the research conducted here suggest that individuals undergo a social comparison process wherein they make determinations about their own performance levels as compared to that of other group members. The data also suggest that these performance determinations, combined with group standard attainment influence the individual group member's felt responsibility perceptions.

Felt responsibility perceptions, in turn, were found to be associated with the type of attributions made by the group member. Specifically, individuals who felt highly responsible for the group's success or failure were more likely to make internal (self) attributions, and less likely to make attributions to task difficulty. The relationship between felt responsibility perceptions and attributions to the team appeared to be dependent upon the individual's perceptions regarding the extent to which the team was regarded as an extension of him- or herself versus being regarded as an external factor. These perceptions are likely to depend upon group-related variables such as the group's cohesiveness and the individual's role in the group (i.e., whether he or she is a central figure in the group), and future research should address the influence of these variables. Luck attributions were not related to felt responsibility perceptions in this sample.

There was support for the proposition that locus of causality of attributions and group standard attainment interacted to influence

satisfaction with self performance. There was not, however, conclusive evidence regarding the prediction of satisfaction with the group, and for that reason this variable was not included in the revised model (which is intended to present the findings related to this study). Future research, however, should focus on examination of the variables involved in the prediction of satisfaction with the group.

There was some evidence in these data that the stability of attributions and group standard attainment interacted to determine commitment to the group's referent standard on the next performance trial. The existence of this interaction effect, however, is not firmly established because evidence for it was found in Game #1, but not in Game #2.

Individual commitment to the group's standard was expected to influence individual performance levels. Although there was no significant relationship between individual commitment and individual performance, there was a significant association between individual commitment and group performance on the next performance trial. Because group performance must be a function of individual performance, this provides some indirect evidence that commitment was associated with individual performance. Task Difficulty₂ was not included in the revised model because there was no evidence that the difficulty of the task on the next performance trial was related to the individual team member's commitment to the group standard in that trial.

Self-set (i.e., individual) goals and ability were generally associated with individual performance in this sample. In addition, individual performance level was related to later felt responsibility

perceptions, as predicted. There were, however, no associations between task difficulty and individual performance or between experience and individual performance, and therefore these variables were not included in the revised model.

The purpose of the present research was twofold: 1) to develop a control theory framework which might guide future research on the cognitive processes involved in the motivation of individuals operating in groups, and 2) to provide a first empirical test of this framework. The control theory framework developed here involved the incorporation of existing knowledge in the areas of individual motivation and social psychology. The model of group member motivation received general support in this first test of the model and serves as a useful starting point for future research in this area.

APPENDICES

APPENDIX A

Thank you for agreeing to complete this questionnaire. The purpose of this questionnaire is to gather your feelings regarding your experiences as a member of a work group. As you answer the questions on the following pages, please consider your experiences as a member of a Management 302 group working on the case presentation which was presented orally in class. Please be honest in your responses. NO ONE OTHER THAN THE EXPERIMENTER (ANNE M. O'LEARY) WILL SEE YOUR RESPONSES TO THESE QUESTIONS. Neither your TA nor other members of your group will have access to your responses.

This questionnaire is being prepared for use in a later project, and different types of questions are being tested here. Because of this, many of the questions on the following pages may sound similar. It is important, however, that you carefully read and answer each question. If you don't understand any instructions or individual items, please ask your TA. If you have any comments regarding the format of this questionnaire, please write your comments in the margins.

Please sign your name below, indicating your consent to participate in this project. DO NOT PUT YOUR NAME ANYWHERE ELSE ON THIS QUESTIONNAIRE. Also indicate your Management 302 TA's name and your section number, so that you may be given credit for this project.

THANK YOU FOR YOUR HELP.

Name

TA's Name

Mgt. 302 Section #

Please read each of the following questions carefully and circle the answer which is most indicative of your feelings, using the scale below. MANY OF THE QUESTIONS WILL SOUND SIMILAR, BUT PLEASE CAREFULLY CONSIDER AND ANSWER EACH QUESTION.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1 -----	2 -----	3 -----	4 -----	5 -----
1. I feel pretty responsible for the group's performance on the case presentation.	1	2	3	4 5
2. I'm very happy with the way that most of the other group members performed on the case presentation.	1	2	3	4 5
3. If I hadn't performed the way I did, the case presen- tation would have turned out very differently. . . .	1	2	3	4 5
4. Some of the members of this group were lazy.	1	2	3	4 5
5. I would say that the skill level of this group was way above average.	1	2	3	4 5
6. I personally had a lot to do with the group's performance on the case presentation.	1	2	3	4 5
7. It makes me mad that many members of this group didn't put forth 100% effort on the case presentation.	1	2	3	4 5
8. I personally had very little to do with the group's performance on the case presentation.	1	2	3	4 5
9. Most of the members of this group put forth 100% effort on the case presentation.	1	2	3	4 5
10. I think that I performed very well in regard to the case presentation.	1	2	3	4 5
11. Being a member of this group was very important to me.	1	2	3	4 5
12. I think that I did a good job on the case presentation.	1	2	3	4 5
13. I can't imagine a group that worked harder on a case presentation than our group did.	1	2	3	4 5
14. I think that my performance on the case presen- tation was pretty good.	1	2	3	4 5

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1 -----	2 -----	3 -----	4 -----	5 -----
15. At times, I seriously considered quitting this group.			1 2 3 4 5	
16. I'm sort of disappointed in the skill levels of most of the members of this group.			1 2 3 4 5	
17. I'm very happy with the effort levels of other members of the group on the case presentation. . . .			1 2 3 4 5	
18. I'm proud of how I performed in the case presentation.			1 2 3 4 5	
19. I'm very happy with the skill levels of most of the other members of this group.			1 2 3 4 5	
20. I'm not at all proud of how I performed in the case presentation.			1 2 3 4 5	
21. I feel that being a member of this group was a real honor.			1 2 3 4 5	
22. I couldn't be happier with the performance of the other members of this group on the case presentation.			1 2 3 4 5	
23. I don't think that I was at all responsible for the group's performance on the case presentation.			1 2 3 4 5	
24. I felt very good about being a member of this group.			1 2 3 4 5	

Think about your group's case presentation and the grade that the group received. Did your group receive the grade you personally wanted to receive on this assignment? (Please check one.)

_____ Yes

_____ No

_____ Don't know what grade
we received.

Your group's performance on the case presentation is probably due to many factors. However, please think about the most important reasons why your group received or did not receive the grade you wanted. Write five of these reasons below, IN ORDER OF IMPORTANCE.

Most important reason: 1) _____

2) _____

3) _____

4) _____

5) _____

Think about your group's performance on the case presentation. There are many reasons why your group performed the way it did on this presentation, but we will focus here on six possible reasons. Please think about each of these reasons and show how important you think that each reason was to the group's performance on the case presentation by writing a percentage in the blank. THESE PERCENTAGES MUST ADD TO 100%.

THE GROUP'S PERFORMANCE ON THE CASE PRESENTATION WAS BECAUSE OF:

_____ % My personal ABILITY (i.e., my intelligence and skill level)

_____ % My personal EFFORT (i.e., how hard I tried)

_____ % The ABILITY of other members of the group (i.e., the intelligence and skill level of other members of the group)

_____ % The EFFORT of other members of the group (i.e., how hard other group members tried)

_____ % The DIFFICULTY of the assignment (i.e., how hard the case presentation assignment was)

_____ % LUCK (i.e., factors over which the group had no control)

TOTAL - 100 %

The following questions ask you to think again about the reasons why your group performed the way it did on the case presentation. Specifically, these questions ask you to think about the ABILITY (i.e., intelligence, skill level) and EFFORT (i.e., energy put forth) of yourself and other group members, as well as the DIFFICULTY of the assignment and the influence of LUCK and other chance factors. Please read and answer each question carefully, using the following scale.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1 -----	2 -----	3 -----	4 -----	5 -----
1. I think that our group performed the way we did on the case presentation largely because of MY ABILITY as a student.			1 2 3 4 5	
2. I don't think that LUCK had much to do with our team's performance in regard to the case presentation.			1 2 3 4 5	
3. The group's performance on the case presentation was largely due to MY PERSONAL EFFORT.			1 2 3 4 5	
4. It was pretty likely that our team would get the grade it did on the case presentation because of the TYPE OF ASSIGNMENT that we had.			1 2 3 4 5	
5. I feel that our group's performance on the case presentation was greatly influenced by the EFFORTS of OTHER MEMBERS OF THE GROUP.			1 2 3 4 5	
6. I feel that our group's performance on the case presentation was mostly influenced by HOW HARD I TRIED.			1 2 3 4 5	
7. The ABILITY level of OTHER MEMBERS OF THE GROUP was a major factor in the group's performance on the case presentation.			1 2 3 4 5	
8. MY EFFORT LEVEL had a big impact on the group's performance on the case presentation.			1 2 3 4 5	
9. Our group got the grade it did on the case presentation because of the TYPE OF ASSIGNMENT we had.			1 2 3 4 5	
10. I think that the outcome of the case presentation had a lot to do with the SKILL LEVEL of OTHER MEMBERS OF THE GROUP.			1 2 3 4 5	

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5
11. I think that the outcome of the case presentation had a lot to do with MY SKILL LEVEL.			1 2 3 4 5	
12. The ABILITY of OTHER MEMBERS OF THE GROUP had a big influence on the group's performance on the case presentation.			1 2 3 4 5	
13. The group's performance on the case presentation was mostly due to the EFFORTS of OTHER MEMBERS OF THE GROUP.			1 2 3 4 5	
14. The group performed the way it did on the case presentation largely because of MY EFFORT LEVEL. . .			1 2 3 4 5	
15. The group performed the way it did on the case presentation mostly because of the SKILL LEVELS of OTHER MEMBERS OF THE GROUP.			1 2 3 4 5	
16. MY ABILITY had a big influence on the group's performance on the case presentation.			1 2 3 4 5	
17. The group performed the way it did on the case presentation mostly because of the EFFORT levels of OTHER MEMBERS OF THE GROUP.			1 2 3 4 5	
18. In regard to the case presentation, our group got the grade it did because of the DIFFICULTY level of the assignment.			1 2 3 4 5	
19. MY ABILITY was a major factor in the group's performance on the case presentation.			1 2 3 4 5	
20. I doubt that our group could have done any better than we did on the case presentation because of the DIFFICULTY level of the case presentation assignment.			1 2 3 4 5	
21. The EFFORT level of OTHER MEMBERS OF THE GROUP had a big impact on the group's performance on the case presentation.			1 2 3 4 5	
22. The outcome of the case presentation had a lot to do with MY EFFORT LEVEL.			1 2 3 4 5	
23. Our group performed the way it did on the case presentation mostly because of LUCK.			1 2 3 4 5	

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	
1	2	3	4	5	
24. The group performed the way it did on the case presentation largely because of MY SKILL LEVEL. . . .	1	2	3	4	5
25. I think that our group's performance on the case presentation was largely due to the SKILL LEVEL of OTHER MEMBERS OF THE GROUP.	1	2	3	4	5
26. CHANCE had a lot to do with our group's performance on the case presentation.	1	2	3	4	5
27. I would say that it was mostly FACTORS BEYOND OUR CONTROL that caused our group to perform the way that we did on the case presentation.	1	2	3	4	5
28. The outcome of the case presentation had a lot to do with the EFFORT level of OTHER MEMBERS OF THE GROUP.	1	2	3	4	5

APPENDIX B

List of Items Corresponding to Scales:

Page 214

Self Focus Scale: #1 - #17

Pages 215 - 220

Russell Causal Dimension Scale (1982)

Pages 221-222

Felt Responsibility Scale:	#1, 3, 4, 6, 14
Satisfaction with Group Scale:	#2, 5, 8, 10, 12, 15
Satisfaction with Team Scale:	#7, 9, 11, 16
Social Comparison Scale:	#13, 17, last item on page 222
Ipsative Scale of Locus of Causality:	Page 222

Pages 223-224

Self Ability Attributions Scale:	#1, 11, 16, 18
Self Effort Attributions Scale:	#2, 5, 8, 14, 20
Team Ability Attributions Scale:	#6, 10, 12, 15, 23
Team Effort Attributions Scale:	#4, 17, 19, 22, 25
Task Difficulty Attributions Scale:	#3, 7, 9
Luck Attributions Scale:	#13, 21, 24

Page 225

Task Difficulty at Time 1	#1 - #3
Task Difficulty at Time 2	#1 - #2

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Self Set Goals for Points, Rebounds, Assists	
Goal Commitment Scale:	#1 - #7

THANK YOU FOR AGREEING TO PARTICIPATE IN THIS RESEARCH. THIS IS THE FIRST AND LONGEST OF THE FOUR QUESTIONNAIRES YOU WILL BE ASKED TO COMPLETE OVER THE NEXT FEW WEEKS. PLEASE TAKE THE TIME TO CONSIDER EACH QUESTION CAREFULLY. IF YOU DO NOT UNDERSTAND ANY QUESTIONS, PLEASE ASK FOR AN EXPLANATION. REMEMBER THAT ALL OF YOUR ANSWERS ARE COMPLETELY CONFIDENTIAL.

Please answer the following general questions about yourself.

1. What is your student number? (If you do not know your student number, please provide your initials.) _____
2. What is the name of your team? _____
3. How old are you? _____ years
4. What is your year in college?
 ___ Freshman ___ Sophomore ___ Junior ___ Senior ___ Graduate Student
5. Before joining this team, had you ever played on a basketball team before? (Please check one.)
 ___ Yes ___ No

If so, please indicate here what types of teams you have played on in the past by checking the appropriate categories. Also, for each team that you have played on, please indicate how long you were a member of the team:

FOR HOW LONG?

___ Pre-high school basketball team	___ seasons
___ High school basketball team	___ seasons
___ Intramural basketball team	___ seasons
___ College basketball team	___ seasons
___ Other (please explain: _____)	___ seasons

We are interested in estimating the ability level of each member of your team. Please fill in the names of your team members and provide a rating of this individual's ability to play basketball. Please provide your ratings using the scale provided below. THESE RATINGS ARE FOR RESEARCH PURPOSES ONLY AND WILL NOT BE SEEN BY ANY OF YOUR TEAM MEMBERS. Please be honest in your responses.

Very Poor Player	Poor Player	Average Player	Good Player	Very Good Player
---------------------	----------------	-------------------	----------------	---------------------

1 2 3 4 5

PLAYER NAME:

_____ 1 2 3 4 5

_____ 1 2 3 4 5

_____ 1 2 3 4 5

_____ 1 2 3 4 5

_____ 1 2 3 4 5

_____ 1 2 3 4 5

_____ 1 2 3 4 5

_____ 1 2 3 4 5

_____ 1 2 3 4 5

_____ 1 2 3 4 5

Please rate how strongly you agree or disagree with the following statements, with respect to your life in general. Circle the appropriate number after each item based on the scale below.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
1 -----	2 -----	3 -----	4 -----	5	
1. I'm always trying to figure myself out	1	2	3	4	5
2. I'm concerned about my style of doing things	1	2	3	4	5
3. Generally, I'm not very aware of myself	1	2	3	4	5
4. I reflect about myself a lot	1	2	3	4	5
5. I'm concerned about the way I present myself	1	2	3	4	5
6. I'm often the subject of my own fantasies	1	2	3	4	5
7. I never scrutinize myself	1	2	3	4	5
8. I'm self-conscious about the way I look	1	2	3	4	5
9. I'm generally attentive to my inner feelings	1	2	3	4	5
10. I usually worry about making a good impression	1	2	3	4	5
11. I'm constantly examining my own motives	1	2	3	4	5
12. One of the last things that I do before I leave the house is look in the mirror	1	2	3	4	5
13. I sometimes have the feeling that I'm off somewhere watching myself	1	2	3	4	5
14. I'm concerned about what other people think of me.	1	2	3	4	5
15. I'm alert to changes in my mood	1	2	3	4	5
16. I'm usually aware of my appearance	1	2	3	4	5
17. I'm aware of the way my mind works when I work through a problem	1	2	3	4	5

There are many reasons why a team might win or lose a basketball game. This study is concerned with six causes. You are asked on the remaining pages to answer several questions related to each of these six causes. Please carefully read the definition of the cause which is provided and answer the questions by circling the number which you feel is most appropriate.

Cause #1 - SELF ABILITY: Definition: Your own personal ability as a basketball player may be a primary cause of the team's win or loss.

1. Is SELF ABILITY something that is:

Changeable

Unchanging

1 2 3 4 5 6 7 8 9

2. Is SELF ABILITY something that is:

Variable
Over Time

Stable
Over Time

1 2 3 4 5 6 7 8 9

3. Is SELF ABILITY something that is:

Temporary

Permanent

1 2 3 4 5 6 7 8 9

4. Is SELF ABILITY something that is:

Outside
of You

Inside
of You

1 2 3 4 5 6 7 8 9

5. Is SELF ABILITY something that:

Reflects an
aspect of the
situation

Reflects an
aspect of
yourself

1 2 3 4 5 6 7 8 9

6. Is SELF ABILITY:

Something
about others

Something
about you

1 2 3 4 5 6 7 8 9

CAUSE #2 - SELF EFFORT

Cause #2 - SELF EFFORT: Definition: The amount of effort that you personally exert in a game may be a primary cause of the team's win or loss.

1. Is SELF EFFORT something that is:

Changeable

Unchanging

1 2 3 4 5 6 7 8 9

2. Is SELF EFFORT something that is:

Variable
Over Time

Stable
Over Time

1 2 3 4 5 6 7 8 9

3. Is SELF EFFORT something that is:

Temporary

Permanent

1 2 3 4 5 6 7 8 9

4. Is SELF EFFORT something that is:

Outside
of You

Inside
of You

1 2 3 4 5 6 7 8 9

5. Is SELF EFFORT something that:

Reflects an
aspect of the
situation

Reflects an
aspect of
yourself

1 2 3 4 5 6 7 8 9

6. Is SELF EFFORT:

Something
about others

Something
about you

1 2 3 4 5 6 7 8 9

CAUSE #3 - TEAM ABILITY

Cause #3 - TEAM ABILITY: Definition: The ability of other members of the team to play basketball may be a primary cause of the team's win or loss.

1. Is TEAM ABILITY something that is:

Changeable

Unchanging

1 2 3 4 5 6 7 8 9

2. Is TEAM ABILITY something that is:

Variable
Over Time

Stable
Over Time

1 2 3 4 5 6 7 8 9

3. Is TEAM ABILITY something that is:

Temporary

Permanent

1 2 3 4 5 6 7 8 9

4. Is TEAM ABILITY something that is:

Outside
of You

Inside
of You

1 2 3 4 5 6 7 8 9

5. Is TEAM ABILITY something that:

Reflects an
aspect of the
situation

Reflects an
aspect of
yourself

1 2 3 4 5 6 7 8 9

6. Is TEAM ABILITY:

Something
about others

Something
about you

1 2 3 4 5 6 7 8 9

CAUSE #4 - TEAM EFFORT

Cause #4 - TEAM EFFORT: The amount of effort exerted by other members of the team may be a primary cause of the team's win or loss.

1. Is TEAM EFFORT something that is:

Changeable

Unchanging

1 2 3 4 5 6 7 8 9

2. Is TEAM EFFORT something that is:

Variable
Over Time

Stable
Over Time

1 2 3 4 5 6 7 8 9

3. Is TEAM EFFORT something that is:

Temporary

Permanent

1 2 3 4 5 6 7 8 9

4. Is TEAM EFFORT something that is:

Outside
of You

Inside
of You

1 2 3 4 5 6 7 8 9

5. Is TEAM EFFORT something that:

Reflects an
aspect of the
situation

Reflects an
aspect of
yourself

1 2 3 4 5 6 7 8 9

6. Is TEAM EFFORT:

Something
about others

Something
about you

1 2 3 4 5 6 7 8 9

CAUSE #5 - ABILITY OF OTHER TEAM

Cause #5 - ABILITY OF OTHER TEAM: The ability level of the opposing team may be a primary cause of the team's win or loss.

1. Is the ABILITY OF THE OTHER TEAM something that is:

Changeable

Unchanging

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

2. Is the ABILITY OF THE OTHER TEAM something that is:

Variable
Over Time

Stable
Over Time

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

3. Is the ABILITY OF THE OTHER TEAM something that is:

Temporary

Permanent

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

4. Is the ABILITY OF THE OTHER TEAM something that is:

Outside
of You

Inside
of You

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

5. Is the ABILITY OF THE OTHER TEAM something that:

Reflects an
aspect of the
situation

Reflects an
aspect of
yourself

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

6. Is the ABILITY OF THE OTHER TEAM:

Something
about others

Something
about you

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

CAUSE #6 - LUCK

Cause #6 - LUCK: Luck and other factors beyond the control of the team may be a primary cause of the team's win or loss (for example, things like the referees, the team's schedule, conditions in the gym, etc.).

1. Is LUCK something that is:

Changeable

Unchanging

1 2 3 4 5 6 7 8 9

2. Is LUCK something that is:

Variable
Over Time

Stable
Over Time

1 2 3 4 5 6 7 8 9

3. Is LUCK something that is:

Temporary

Permanent

1 2 3 4 5 6 7 8 9

4. Is LUCK something that is:

Outside
of You

Inside
of You

1 2 3 4 5 6 7 8 9

5. Is LUCK something that:

Reflects an
aspect of the
situation

Reflects an
aspect of
yourself

1 2 3 4 5 6 7 8 9

6. Is LUCK:

Something
about others

Something
about you

1 2 3 4 5 6 7 8 9

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GAME #1

STUDENT NUMBER _____ (If you don't know, fill in your initials)

TEAM NAME _____

Please read each of the following questions carefully and circle the answer which best expresses your feelings about the game you have just played, using the scale below. MANY OF THE QUESTIONS WILL SOUND SIMILAR, BUT PLEASE CAREFULLY CONSIDER AND ANSWER EVERY QUESTION.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5
1. I feel pretty responsible for the team's performance in this game	1	2	3	4 5
2. I'm very happy with the way that most of the other team members performed in this game	1	2	3	4 5
3. I personally had very little to do with the team's performance in this game	1	2	3	4 5
4. If I hadn't performed the way I did, this game would have turned out very differently	1	2	3	4 5
5. In the game we just played, some of the members of this team were lazy	1	2	3	4 5
6. I personally had a lot to do with the team's performance in this game	1	2	3	4 5
7. I think that I performed very well in regard to the game we just played	1	2	3	4 5
8. I'm very happy with the effort levels of other members of the team in this game	1	2	3	4 5
9. I think that I did a good job in this game	1	2	3	4 5
10. After this game, I feel that being a member of this team is a real honor	1	2	3	4 5
11. I'm proud of how I performed in this game	1	2	3	4 5
12. I was very happy with the skill levels of most of the other members of the team in this game	1	2	3	4 5
13. I played better than most of the other members of my team in the game we just played	1	2	3	4 5

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5

14. I don't think that I was at all responsible for the team's performance in this game 1 2 3 4 5
15. After this game, I feel very good about being a member of this team 1 2 3 4 5
16. I think that my performance in this game was pretty good 1 2 3 4 5
17. In the game we just played, I was one of the better players on our team 1 2 3 4 5

Think about your team's performance and the outcome of the game you just played. There are many reasons why your team performed the way it did in this game, but we will focus here on six possible reasons. Please think about each of these reasons and show how important you think that each reason was to the outcome of the game by writing a percentage in the blank. THESE PERCENTAGES MUST ADD TO 100%.

THE TEAM'S PERFORMANCE IN THE GAME WE JUST PLAYED WAS BECAUSE OF:

- _____ % My personal ABILITY (i.e., my skill level)
- _____ % My personal EFFORT (i.e., how hard I tried)
- _____ % The ABILITY of other members of the team (i.e., the skill level of other members of the team)
- _____ % The EFFORT of other members of the team (i.e., how hard other team members tried)
- _____ % The DIFFICULTY of the game (i.e., how good the other team was)
- _____ % LUCK (i.e., factors over which the team had no control such as the referees, the team's game schedule, conditions in the gym, etc.)

TOTAL - 100 %

How would you compare your performance in the game you just played to that of most of the other players on your team? (Please circle below.)

Much Worse Than Others	Worse Than Others	The Same As Others	Better Than Others	Much Better Than Others
1	2	3	4	5

The following questions ask you to think again about the reasons why your team performed the way it did in the game you just played. Specifically, these questions ask you to think about the ABILITY (i.e., skill level) and EFFORT (i.e., energy put forth) of yourself and other team members, as well as the DIFFICULTY of the game and the influence of LUCK and other chance factors. Please read and answer each question carefully, using the following scale.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5
1. I think that our team performed the way we did in this game largely because of MY ABILITY as a basketball player			1 2 3 4 5	
2. The team's performance in this game was largely due to MY PERSONAL EFFORT			1 2 3 4 5	
3. It was pretty likely that this game would turn out the way it did because of the SKILL LEVEL OF THE OTHER TEAM			1 2 3 4 5	
4. I feel that my team's performance in this game was greatly influenced by the EFFORTS OF OTHER MEMBERS OF MY TEAM			1 2 3 4 5	
5. I feel that our team's performance in this game was greatly influenced by HOW HARD I TRIED			1 2 3 4 5	
6. The ABILITY level of OTHER MEMBERS OF MY TEAM was a major factor in my team's performance in this game			1 2 3 4 5	
7. In regard to this game, the game turned out the way it did because of the DIFFICULTY level of the game			1 2 3 4 5	
8. MY EFFORT LEVEL had a big impact on my team's performance in this game			1 2 3 4 5	
9. This game turned out the way it did mostly because of the SKILL LEVEL OF THE OTHER TEAM			1 2 3 4 5	
10. I think that the outcome of this game had a lot to do with the SKILL LEVEL of OTHER MEMBERS OF MY TEAM			1 2 3 4 5	
11. I think that the outcome of this game had a lot to do with MY SKILL LEVEL			1 2 3 4 5	
12. The ABILITY of OTHER MEMBERS OF MY TEAM had a big influence on my team's performance in this game			1 2 3 4 5	

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5
13. I would say that it was mostly FACTORS BEYOND OUR CONTROL (such as the referees, the team's game schedule, the conditions of the gym, etc.) that caused our team to perform the way that we did in this game				
			1	2 3 4 5
14. The team performed the way it did in this game largely because of MY EFFORT LEVEL				
			1	2 3 4 5
15. My team performed the way it did in this game mostly because of the SKILL LEVELS of OTHER MEMBERS OF MY TEAM				
			1	2 3 4 5
16. MY ABILITY had a big influence on the team's performance in this game				
			1	2 3 4 5
17. My team performed the way it did in this game mostly because of the EFFORT levels of OTHER MEMBERS OF MY TEAM				
			1	2 3 4 5
18. MY ABILITY was a major factor in the team's performance in this game				
			1	2 3 4 5
19. The EFFORT level of OTHER MEMBERS OF MY TEAM had a big impact on my team's performance in this game . . .				
			1	2 3 4 5
20. The outcome of this game had a lot to do with MY EFFORT LEVEL				
			1	2 3 4 5
21. Our team performed the way it did in this game mostly because of LUCK (for example, because of things like the referees, the team's game schedule, the conditions in the gym, etc.).				
			1	2 3 4 5
22. My team's performance in this game was mostly due to the EFFORTS of OTHER MEMBERS OF MY TEAM . . .				
			1	2 3 4 5
23. I think that my team's performance in this game was largely due to the SKILL LEVEL of OTHER MEMBERS OF MY TEAM				
			1	2 3 4 5
24. CHANCE (things like the referees, the team's game schedule, the conditions of the gym, etc.) had a lot to do with our team's performance in this game . . .				
			1	2 3 4 5
25. The outcome of this game had a lot to do with the EFFORT level of OTHER MEMBERS OF MY TEAM				
			1	2 3 4 5

Please answer each of the following questions in relation to the team which you have just finished playing.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
----------------------	----------	-------------------------------	-------	-------------------

1 2 3 4 5

1. The team we just played was very good 1 2 3 4 5
2. The team we just played did not present us with much
of a challenge 1 2 3 4 5
3. I would say that the skill level of the team we just
played is very high 1 2 3 4 5

Do you know which team you will play next? Yes No

If you do know which team you will play next, please answer the following two questions by circling the appropriate number.

1. How difficult do you believe that it will be to beat this team?

Very Difficult	Difficult	Somewhat Difficult	Easy	Very Easy
-------------------	-----------	-----------------------	------	--------------

1 2 3 4 5

2. What are your team's chances of winning against this team?

Very Poor Chance	Poor Chance	50%-50% Chance	Good Chance	Very Good Chance
---------------------	----------------	-------------------	----------------	---------------------

1 2 3 4 5

SELF-SET GOALS

Some people set very specific personal goals for themselves before they perform a task. Please answer the following questions related to your personal goals.

BEFORE THE GAME THAT YOU JUST PLAYED, HAD YOU SET A GOAL FOR YOURSELF FOR:

	<u>Yes</u>	<u>No</u>	<u>If Yes, what was the goal?</u>
The number of points you wanted to score? _____	_____	_____	_____points
The number of rebounds you wanted to make? _____	_____	_____	_____rebounds
The number of assists you wanted to make? _____	_____	_____	_____assists

In sports, teams have the goal of winning each game that they play. Assuming that your team's goal is to win the next game that you play, please indicate your feelings below by circling the most appropriate response.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5

IN REGARD TO OUR TEAM'S GOAL TO WIN THE NEXT GAME THAT WE PLAY:

- | | | | | | |
|---|---|---|---|---|---|
| 1. It's hard to take this goal seriously | 1 | 2 | 3 | 4 | 5 |
| 2. It's unrealistic for us to expect to reach this goal | 1 | 2 | 3 | 4 | 5 |
| 3. It is quite likely that this goal may need to be revised, depending on how things go | 1 | 2 | 3 | 4 | 5 |
| 4. Quite frankly, I don't care if we achieve this goal or not | 1 | 2 | 3 | 4 | 5 |
| 5. I am strongly committed to pursuing this goal | 1 | 2 | 3 | 4 | 5 |
| 6. It wouldn't take much to make me abandon this goal | 1 | 2 | 3 | 4 | 5 |
| 7. I think that this goal is a good goal to shoot for | 1 | 2 | 3 | 4 | 5 |

GAME #2

STUDENT NUMBER _____ (If you don't know, fill in your initials)

TEAM NAME _____

Please read each of the following questions carefully and circle the answer which best expresses your feelings about the game you have just played, using the scale below. MANY OF THE QUESTIONS WILL SOUND SIMILAR, BUT PLEASE CAREFULLY CONSIDER AND ANSWER EVERY QUESTION.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	
1	2	3	4	5	
1. I feel pretty responsible for the team's performance in this game	1	2	3	4	5
2. I'm very happy with the way that most of the other team members performed in this game	1	2	3	4	5
3. I personally had very little to do with the team's performance in this game	1	2	3	4	5
4. If I hadn't performed the way I did, this game would have turned out very differently	1	2	3	4	5
5. In the game we just played, some of the members of this team were lazy	1	2	3	4	5
6. I personally had a lot to do with the team's performance in this game	1	2	3	4	5
7. I think that I performed very well in regard to the game we just played	1	2	3	4	5
8. I'm very happy with the effort levels of other members of the team in this game	1	2	3	4	5
9. I think that I did a good job in this game	1	2	3	4	5
10. After this game, I feel that being a member of this team is a real honor	1	2	3	4	5
11. I'm proud of how I performed in this game	1	2	3	4	5
12. I was very happy with the skill levels of most of the other members of the team in this game	1	2	3	4	5
13. I played better than most of the other members of my team in the game we just played	1	2	3	4	5

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5

14. I don't think that I was at all responsible for the team's performance in this game 1 2 3 4 5
15. After this game, I feel very good about being a member of this team 1 2 3 4 5
16. I think that my performance in this game was pretty good 1 2 3 4 5
17. In the game we just played, I was one of the better players on our team 1 2 3 4 5

Think about your team's performance and the outcome of the game you just played. There are many reasons why your team performed the way it did in this game, but we will focus here on six possible reasons. Please think about each of these reasons and show how important you think that each reason was to the outcome of the game by writing a percentage in the blank. THESE PERCENTAGES MUST ADD TO 100%.

THE TEAM'S PERFORMANCE IN THE GAME WE JUST PLAYED WAS BECAUSE OF:

- _____ % My personal ABILITY (i.e., my skill level)
- _____ % My personal EFFORT (i.e., how hard I tried)
- _____ % The ABILITY of other members of the team (i.e., the skill level of other members of the team)
- _____ % The EFFORT of other members of the team (i.e., how hard other team members tried)
- _____ % The DIFFICULTY of the game (i.e., how good the other team was)
- _____ % LUCK (i.e., factors over which the team had no control such as the referees, the team's game schedule, conditions in the gym, etc.)

TOTAL = 100 %

How would you compare your performance in the game you just played to that of most of the other players on your team? (Please circle below.)

Much Worse Than Others	Worse Than Others	The Same As Others	Better Than Others	Much Better Than Others
1	2	3	4	5

The following questions ask you to think again about the reasons why your team performed the way it did in the game you just played. Specifically, these questions ask you to think about the ABILITY (i.e., skill level) and EFFORT (i.e., energy put forth) of yourself and other team members, as well as the DIFFICULTY of the game and the influence of LUCK and other chance factors. Please read and answer each question carefully, using the following scale.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5
1. I think that our team performed the way we did in this game largely because of MY ABILITY as a basketball player				
			1	2 3 4 5
2. The team's performance in this game was largely due to MY PERSONAL EFFORT				
			1	2 3 4 5
3. It was pretty likely that this game would turn out the way it did because of the SKILL LEVEL OF THE OTHER TEAM				
			1	2 3 4 5
4. I feel that my team's performance in this game was greatly influenced by the EFFORTS OF OTHER MEMBERS OF MY TEAM				
			1	2 3 4 5
5. I feel that our team's performance in this game was greatly influenced by HOW HARD I TRIED				
			1	2 3 4 5
6. The ABILITY level of OTHER MEMBERS OF MY TEAM was a major factor in my team's performance in this game				
			1	2 3 4 5
7. In regard to this game, the game turned out the way it did because of the DIFFICULTY level of the game .				
			1	2 3 4 5
8. MY EFFORT LEVEL had a big impact on my team's performance in this game				
			1	2 3 4 5
9. This game turned out the way it did mostly because of the SKILL LEVEL OF THE OTHER TEAM				
			1	2 3 4 5
10. I think that the outcome of this game had a lot to do with the SKILL LEVEL of OTHER MEMBERS OF MY TEAM . .				
			1	2 3 4 5
11. I think that the outcome of this game had a lot to do with MY SKILL LEVEL				
			1	2 3 4 5
12. The ABILITY of OTHER MEMBERS OF MY TEAM had a big influence on my team's performance in this game				
			1	2 3 4 5

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5
13. I would say that it was mostly FACTORS BEYOND OUR CONTROL (such as the referees, the team's game schedule, the conditions of the gym, etc.) that caused our team to perform the way that we did in this game			1	2 3 4 5
14. The team performed the way it did in this game largely because of MY EFFORT LEVEL			1	2 3 4 5
15. My team performed the way it did in this game mostly because of the SKILL LEVELS of OTHER MEMBERS OF MY TEAM			1	2 3 4 5
16. MY ABILITY had a big influence on the team's performance in this game			1	2 3 4 5
17. My team performed the way it did in this game mostly because of the EFFORT levels of OTHER MEMBERS OF MY TEAM			1	2 3 4 5
18. MY ABILITY was a major factor in the team's performance in this game			1	2 3 4 5
19. The EFFORT level of OTHER MEMBERS OF MY TEAM had a big impact on my team's performance in this game . . .			1	2 3 4 5
20. The outcome of this game had a lot to do with MY EFFORT LEVEL			1	2 3 4 5
21. Our team performed the way it did in this game mostly because of LUCK (for example, because of things like the referees, the team's game schedule, the conditions in the gym, etc.).			1	2 3 4 5
22. My team's performance in this game was mostly due to the EFFORTS of OTHER MEMBERS OF MY TEAM . . .			1	2 3 4 5
23. I think that my team's performance in this game was largely due to the SKILL LEVEL of OTHER MEMBERS OF MY TEAM			1	2 3 4 5
24. CHANCE (things like the referees, the team's game schedule, the conditions of the gym, etc.) had a lot to do with our team's performance in this game . . .			1	2 3 4 5
25. The outcome of this game had a lot to do with the EFFORT level of OTHER MEMBERS OF MY TEAM			1	2 3 4 5

Please answer each of the following questions in relation to the team which you have just finished playing.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5
1. The team we just played was very good 1 2 3 4 5				
2. The team we just played did not present us with much of a challenge 1 2 3 4 5				
3. I would say that the skill level of the team we just played is very high 1 2 3 4 5				

Do you know which team you will play next? ☐ Yes ☐ No

If you do know which team you will play next, please answer the following two questions by circling the appropriate number.

1. How difficult do you believe that it will be to beat this team?

Very Difficult	Difficult	Somewhat Difficult	Easy	Very Easy
1	2	3	4	5

2. What are your team's chances of winning against this team?

Very Poor Chance	Poor Chance	50%-50% Chance	Good Chance	Very Good Chance
1	2	3	4	5

SELF-SET GOALS

Some people set very specific personal goals for themselves before they perform a task. Please answer the following questions related to your personal goals.

BEFORE THE GAME THAT YOU JUST PLAYED, HAD YOU SET A GOAL FOR YOURSELF FOR:

	<u>Yes</u>	<u>No</u>	<u>If Yes, what was the goal?</u>
The number of points you wanted to score? _____	_____	_____	_____points
The number of rebounds you wanted to make? _____	_____	_____	_____rebounds
The number of assists you wanted to make? _____	_____	_____	_____assists

In sports, teams have the goal of winning each game that they play. Assuming that your team's goal is to win the next game that you play, please indicate your feelings below by circling the most appropriate response.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5

IN REGARD TO OUR TEAM'S GOAL TO WIN THE NEXT GAME THAT WE PLAY:

- | | | | | | |
|---|---|---|---|---|---|
| 1. It's hard to take this goal seriously | 1 | 2 | 3 | 4 | 5 |
| 2. It's unrealistic for us to expect to reach this goal | 1 | 2 | 3 | 4 | 5 |
| 3. It is quite likely that this goal may need to be revised, depending on how things go | 1 | 2 | 3 | 4 | 5 |
| 4. Quite frankly, I don't care if we achieve this goal or not | 1 | 2 | 3 | 4 | 5 |
| 5. I am strongly committed to pursuing this goal | 1 | 2 | 3 | 4 | 5 |
| 6. It wouldn't take much to make me abandon this goal | 1 | 2 | 3 | 4 | 5 |
| 7. I think that this goal is a good goal to shoot for | 1 | 2 | 3 | 4 | 5 |

GAME #3

STUDENT NUMBER _____ (If you don't know, fill in your initials)

TEAM NAME _____

Please answer each of the following questions in relation to the team which you have just finished playing.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	
1 -----	2 -----	3 -----	4 -----	5	
1. The team we just played was very good	1	2	3	4	5
2. The team we just played did not present us with much of a challenge	1	2	3	4	5
3. I would say that the skill level of the team we just played is very high	1	2	3	4	5

SELF-SET GOALS

Some people set very specific personal goals for themselves before they perform a task. Please answer the following questions related to your personal goals.

BEFORE THE GAME THAT YOU JUST PLAYED, HAD YOU SET A GOAL FOR YOURSELF FOR:

	Yes	No	If Yes, what was the goal?
The number of points you wanted to score? _____	_____	_____	_____ points
The number of rebounds you wanted to make? _____	_____	_____	_____ rebounds
The number of assists you wanted to make? _____	_____	_____	_____ assists

We are interested in estimating the ability level of each member of your team. Please fill in the names of your team members and provide a rating of this individual's ability to play basketball. Please provide your ratings using the scale provided below. THESE RATINGS ARE FOR RESEARCH PURPOSES ONLY AND WILL NOT BE SEEN BY ANY OF YOUR TEAM MEMBERS. Please be honest in your responses.

Very Poor Player	Poor Player	Average Player	Good Player	Very Good Player
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1 2 3 4 5

PLAYER NAME:

[illegible]

LIST OF REFERENCES

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