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THE IMPACT OF GENDER CONTEXT ON BEHAVIOR IN SMALL GROUPS

City University of New York

PH.D. 1985

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**THE IMPACT OF GENDER CONTEXT ON
BEHAVIOR IN SMALL GROUPS**

by

JOY ALICE SCHNEER

**A dissertation submitted to the Graduate
Faculty in Business in partial fulfillment
of the requirements for the degree of**

**Doctor of Philosophy
The City University of New York
1985**

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

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Abstract

THE IMPACT OF GENDER CONTEXT ON BEHAVIOR IN SMALL GROUPS

by

Joy Alice Schneer

Adviser: Professor Abraham Korman

The recent entrance of women into occupations that were previously the domain of men has generated interest as to women's managerial capabilities. Inconsistent findings from previous studies on sex differences in leadership behavior suggest the necessity to examine the impact of gender context on behavior. Gender context is defined as the relative proportion of a group's members that can be identified as male versus female. Women in managerial positions find themselves a minority in the domain of men. If women are found to not be as effective leaders as men, is it due to their sex or due to the gender context within which they work? Would men also be less effective leaders if they were working primarily with members of the opposite sex?

A theory and model of gender context was developed which propose that gender context determines numerical dominance and the lower one's numerical dominance, the lower one's power and prestige within the group. Power and prestige in turn determines task behavior as high

power individuals are given more opportunity to participate in the group task, make more task contributions, more often have their contributions evaluated positively, and have greater influence than low power persons. Two additional independent variables were also considered in the model -- master status characteristic of sex and individual difference variables.

A free simulation technique was utilized to examine the effects of gender context on behavior. The sample was composed of 379 senior BBA students divided into teams for participation in a computerized business decision-making game. A number of instruments were administered to measure the dependent variables. A variety of statistical procedures were conducted to test the hypotheses. The results tend to support the theory and model of gender context presented.

The findings of the study have implications for both the academic and business spheres. The results of past and future organizational research on sex differences should be reexamined to account for gender context. Similarly, performance information for managers in organizations must be reviewed in light of the gender context within which the managers work.

Acknowledgement

There are a number of people I would like to thank for their help in my quest for a Ph.D. The road to my degree has been long, winding and somewhat bumpy. Many people were there along the way to guide me through the twists, hills, monotonous stretches and road blocks. Throughout my journey my family served as road markers, ever helping me to move onward. Friends who were on the same path picked me up when I stumbled, while others cheered me on from the sidelines. Several faculty members also helped me to find my way. Professor Abraham Korman, chairperson of my dissertation committee, has been a mentor to me over the years and has helped me to develop and grow into a professional who can navigate both the smooth roads and the bumpy ones. I also benefited from the help given me by the other committee members. Professor Michael Chanin has been a great source of knowledge and strength who showed me the paths to research and publishing. Professor Cecilia Falbe was instrumental in working through the nitty gritty of data collection. Professor Frieda Reitman was a source of helpful suggestions, constant encouragement and reassurance throughout the dissertation process. I would also like to thank the faculty members who allowed me to use their classes for my dissertation research.

Joy Alice Schneer
August 1985

To the memory of my father

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CHAPTER 1

INTRODUCTION

Numerous factors impact on the behavior of individuals in small groups including the size of the group, cohesiveness of the group and intelligence of group members. One factor of potential major importance has not received adequate theoretical or empirical attention -- group composition. Group composition refers to the relative proportion of a group's members that can be identified as belonging to different social or cultural types. It is our intention to demonstrate and explain the belief that a person's behavior in a group is influenced by the composition of that group. In this paper, the type of group composition we will be focusing on is gender context. However, it should be realized that gender is only one of a number of potential bases for group composition (e.g. race, religion).

There are three basic reasons for our emphasis on gender context. First, of the limited empirical and theoretical work that does exist on group composition, almost all of it investigates gender as the composition factor. Second, and perhaps the basis for the first reason, is that there has been much interest and concern as to whether women can exhibit the same group behavior as

men. More and more women are joining the work force and no longer are they only being attracted to typically female occupations. Women are entering occupations that were previously the domain of men. The integration of women into management and leadership positions has generated much concern and criticism. Thus researchers have undertaken the job to determine whether there really are sex differences in male versus female leadership capabilities and behavior.

The third reason, perhaps of the greatest importance, is that the concern over sex differences in leadership ability has not taken into account gender context. Despite the fact that the number of women joining all facets and types of organizations has increased, the number of women at the top is still very small. A recent survey by Korn/Ferry International located only 600 females in major companies who qualified as top managers (e.g. vice president, senior vice president). This is certainly up from five years earlier when a survey of top women executives couldn't be conducted due to insufficient sample size. However, women are still relegated to the lower and middle management jobs and those that do make it into top management do so in the "softer" fields (e.g. banking and consumer products companies). Thus women in managerial and leadership positions in organizations still find themselves a minority in the domain of men. If women are found to not be as effective leaders as men, is

it due to their sex or due to the gender context within which they work? Would men also be less effective leaders if they were working primarily with members of the opposite sex? The purpose of this research is to try and answer these questions by developing and testing a theory of the impact of gender context on behavior in groups.

Gender Context

Gender context can be defined as the relative proportion of a group's members that can be identified as male versus female. Gender context can be divided into two broad categories - homogeneous and heterogeneous. These two categories can further be divided into five types. There are two forms of homogeneous gender contexts - all male (M) and all female (F). The heterogeneous category of gender context consists of groups containing both male and female members. This can be thought of as a continuum with the two homogeneous types serving as asymptotes (see fig. 1). The heterogeneous context can

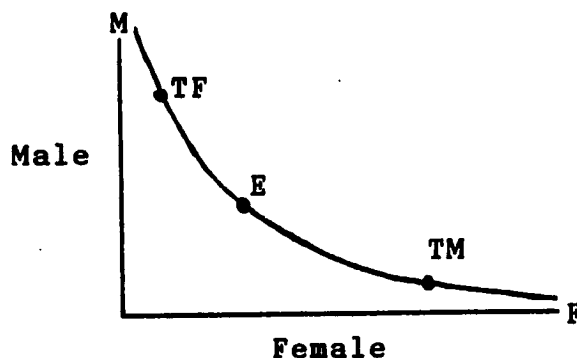


figure 1. Asymptotic heterogeneity continuum

range from almost all male to almost all female. We will identify three types of heterogeneous gender context to represent three points on the heterogeneity continuum. The first type is a token female/majority male (TF) gender context where there is a preponderance of males and only a few females. The second type is an equal (E) gender context where there are approximately an equal number of males and females in the group. The third type is a token male/majority female (TM) gender context where there is a preponderance of females and only a few males. This leads to the five types of group gender contexts within the two categories:

M	TF	E	TM	F
homogeneous	heterogeneous			homogeneous

The major hypothesis of the study is that the gender context of a group generates a power and prestige order which influences the behaviors and roles engaged in by group members. Additional hypotheses examine alternative sources of power and prestige in groups. The first alternative source of power and prestige, hypothesized to have an impact on task behavior, is the master status characteristic of sex. The second alternative source of power and prestige, hypothesized to have an impact on behavior, is individual differences in ability and need strength.

Chapter 2 will review the theoretical and empirical literature on gender context. The development of a comprehensive theory and model of gender context will be presented in Chapter 3 along with the research hypotheses. Chapter 4 will discuss the research methodology of the study, including the sample characteristics and measurement instruments. The results of the research will be covered in Chapter 5. Finally, Chapter 6 will contain the discussion of the findings, implications, and directions for future research.

CHAPTER 2

LITERATURE REVIEW

There is a dearth of theoretical literature on the impact of gender context on behavior. The most decisive theoretical work was presented by Rosabeth Kanter in her article entitled "Some effects of proportions on group life" (1977b). Her paper opens with the proposal that the

relative numbers of socially and culturally different people in a group are critical in shaping interaction dynamics...Groups with varying proportions of people of different social types differ qualitatively in dynamics and process. This is not merely a function of cultural diversity or 'status incongruence'; it reflects the effects of contact across categories as a function of their proportional representation in the system (p.965).

She then goes on to define four different types of groups and their proportions: uniform 100:0, skewed 85:15, tilted 65:35, balanced 50:50. Although Kanter does not adequately demonstrate the bases for her categories or the origins of the proportions given, her presentation up to this point is impressive. Unfortunately, she does not go on to explain the relationship between these different groups types and group behavior, instead she turns all her attention to one group type -- skewed (token female/majority male). She then presents a very detailed explanation of the type of dynamics that occur in a skewed group.

According to Kanter (1977b), tokenism leads to certain perceptual phenomena within the group which determine the interaction and result in typical dominant group members' and token member's behavior. These perceptual phenomena include increased visibility of the token, polarization -- the exaggeration of differences between the token and the dominants, and assimilation -- the distortion of token individual's behavior to fit the social stereotypes. Visibility is felt to lead to performance pressures for the token which results in either overachievement or a low profile response. Polarization leads to boundary heightening with the token either accepting isolation or trying to become an insider. Assimilation leads to role entrapment where the token undergoes self distortion to fit into one of the accepted stereotyped categories of behavior.

Kanter (1977b) has thus presented only a theory of token female/majority male gender context. This theory though provocative, is rather difficult to test as hypotheses are not direct. For example, being in a token situation may lead to overachievement or underachievement, isolation or becoming an insider, depending upon how the token decides to handle the pressures. In addition, some of the phenomena are very difficult to operationalize and study. The empirical studies of Kanter's theory have thus tended to be observational and anecdotal in nature and have examined only those variables that are more readily

operationalized (e.g. isolation). Despite some significant findings, it is unclear if Kanter's theory is actually supported due to the bidirectional nature of her hypotheses and the problems with operationalization. In addition, there could be alternate explanations for the isolation or poor performance of tokens, other than those given by Kanter.

Little research has been undertaken to determine how gender context actually is related to behavior in groups. The majority of the research on gender context has been field surveys of occupations that traditionally were homogeneous as to sex and have attracted a token number of the opposite sex (e.g. medicine-Wolman & Frank, 1975; nursing-Segal, 1962 and Fairhurst & Snavely, 1983a; law-Spangler et al., 1978; sales-Kanter, 1977a). All but one of the studies found the token members (whether male tokens or female tokens) to be stigmatized as deviant and cut off from informal and formal group communications. This process of isolation was felt to lead to an inability to function efficiently and effectively in the organization due to exclusion from important learning situations (Kanter, 1977b).

Fairhurst and Snavely (1983a) in their field survey of nursing students found no differences between male and female subjects in a sociometric measure of isolation. Wolman and Frank (1975), however, in their study of psychiatric resident groups found female subjects to hold

a deviant or isolate position in their groups. Spangler et al.'s (1978) study of law students also revealed that female subjects were more isolated, had poorer performance, thought more of withdrawal and more often selected "feminine" practice areas than male subjects.

Additional research has examined sex differences in group behavior without addressing the issue of gender context directly. These studies can be grouped as to the central topic: coalitions, conflict-handling, appointed leader behavior, emergent leader behavior and conformity. Researchers have been puzzled over the inconsistent and often conflicting findings on each of these topic areas. For example, some coalition studies find women adopt an anticompetitive norm and attempt to reach egalitarian solutions (Uesugi & Vinacke, 1963; Bond & Vinacke, 1961) while others find both men and women adopt the same competitive behavior (Lirtzman & Wahba, 1972). Similarly, conflict-handling studies report that women use more accommodative modes for handling conflict while men use more competitive modes (Baxter & Shepherd, 1978) while other studies find that men and women exhibit the same mode preferences (Renwick, 1977; Shockley-Zalabak, 1981; Zammuto, 1979). In appointed leader behavior research, some findings indicate men are more task-oriented, more effective, and engender more subordinate satisfaction than women (Eskilson & Wiley, 1976; Jacobson & Effertz, 1974; Rice et al., 1980) while

other findings indicate no significant differences between male and female leaders (Bartol, 1975; Day & Stogdill, 1972; Maier, 1970; Stitt et al., 1983). Emergent leader studies find both no difference in the proportion of male versus female emergent leaders (Schneier, 1978; Schneier & Bartol, 1980; Wood, 1981) and a greater proportion of men emerging as leaders (Lockheed & Hall, 1976; Aries, 1976). In terms of conformity as well, some studies find women conform more than men (Reitan & Shaw, 1964; Whittaker, 1965) and other studies find no sex difference in conformity behavior (Goldberg, 1974; Sistrunk & McDavid, 1971; Whittaker & Meade, 1967).

One possible explanation for the inability to find a clear pattern of results in the research on sex differences in leader behavior may well be the fact that the gender context of the groups varied both within and between studies. Some researchers compared the behavior of men and women in homogeneous groups and others compared their behavior in various types of heterogeneous groups (equal, token/majority, or unspecified proportions). If as we suspect, gender context has a strong impact on behavior then it is no wonder that the results of these studies are contradictory and difficult to interpret. For example, Rice et al. (1980) studied appointed male versus female leader behavior in four person task groups and found that male led groups attained higher performance than female led groups. However, what they fail to point

out is that all the followers were male thus they are actually comparing the performance of token female groups and all male groups which confounds the female versus male leader independent variable.

A few of the studies of sex differences in leader behavior did examine both homogenous and heterogeneous groups. However, the degree of heterogeneity was generally not considered to be of importance. In addition, most of the results were examined with sex as the between group factor and gender context the within group factor. The major concern of this paper is of course the reverse analysis. Despite these problems, these studies do allow some exploration into whether the gender context of a group does have significant impact on behavior. Aries (1976) found men initiated and received more activities than women only when in heterogeneous groups. Similarly, Lockheed and Hall (1976) found that men exhibited greater task related behavior than women in heterogeneous groups (equal) but not in homogeneous groups.

Eskilson and Wiley (1976) also examined leader activity and behavior in homogeneous and heterogeneous groups. However, they examined two types of heterogeneous groups (token male/majority female and token female/majority male). They found that female leaders exhibit differing degrees of activity and leader-like behavior depending upon the gender context of their group,

with the highest activity and leader-like behavior in homogeneous groups followed by token male/majority female groups followed by token female/majority male groups. Male leaders also exhibit differential activity and behavior levels depending on the gender context of the group with the ordering identical to the female leaders'. Another study that considered two heterogeneous groups (token female/majority male and equal) was conducted by Yerby (1975). Yerby studied followers' impressions instead of leader behavior and found satisfaction with female leaders and satisfaction with the ability to express ideas and opinions in the group to depend upon the gender context of the group with the most positive responses occurring in equal groups and homogeneous groups and the least positive responses occurring in the token female/majority male groups. One conformity study also examined gender context. Reitan and Shaw (1964) found that conformity was higher for both men and women when they were in equal as opposed to homogeneous groups.

The above examination of the sex difference research in terms of gender context does seem to indicate that the relative proportion of each sex in a group somehow influences the behavior of the group members. Sex differences in leadership activity levels were noted in heterogeneous (equal) groups but not in homogeneous groups (Aries, 1976; Lockheed & Hall, 1976). Similarly, both male and female leaders exhibit greater degrees of

leadership activity in homogeneous groups as opposed to token/majority groups (Eskilson & Wiley, 1976). In addition, followers are more satisfied with their female leaders in homogeneous versus token/majority groups (Yerby, 1975) and both men and women conform more in equal versus homogeneous groups (Reitan & Shaw, 1964). The purpose of this research undertaking is to develop a theoretical framework for this impact of gender context and to examine it more closely in a study designed expressly for that purpose.

CHAPTER 3

THEORETICAL MODEL AND RESEARCH HYPOTHESES

What will now be presented is a theory of the impact of gender context on behavior which attempts to comprehensively cover all levels of gender context and generate clear direct hypotheses that are parsimonious and can be readily tested. The starting point for this theory is the notion of numerical dominance. Numerical dominance is a form of power whereby persons with high relative proportions of same sex group members have greater ability to alter the attitudes and behaviors of others. Fairhurst and Snavely (1983b) acknowledge the existence of numerical dominance in their statement that in token/majority groups, "deviation from the majority confers a lower status on tokens, and because status is usually correlated with power, tokens have less power (p. 293)." Numerical dominance thus determines the power and prestige order within a group.

The theory of status characteristics and expectation states (Berger et al., 1977) elaborates on the importance of the power and prestige order. The power and prestige order in the group is said to determine task behaviors. High power individuals are given more opportunities to participate in the group task, make more task contributions, more often have their contributions

evaluated positively by group member, and have greater ability to influence, than low power persons. A direct relationship would suggest that the lower the proportion of one's sex in a group, the lower one's power and prestige in the group. A model of the impact of gender context on behavior can be seen in figure 2.

The gender context of the group determines numerical dominance. Numerical dominance generates a power and prestige order in the group and group members behave in accordance with this hierarchy. Thus contributions of persons high in the power hierarchy are highly valued, solicited by other members, and evaluated positively. These behavioral outcomes can be grouped into four categories of behavior - action opportunity, performance output, reward action, and influence. Action opportunity refers to the requests for action by other group members. Performance output refers to the actual task contributions or activities of the individual. Reward action is the positive evaluations of the individuals performance output by other group members. Finally, influence refers to the degree to which the individual can alter other group members' evaluations and behaviors. These four behaviors determine the group structure. Group structure is the established pattern of relationships among the differentiated parts of the group (Shaw, 1981). The group structure reflects the power and prestige order and also reinforces the order.

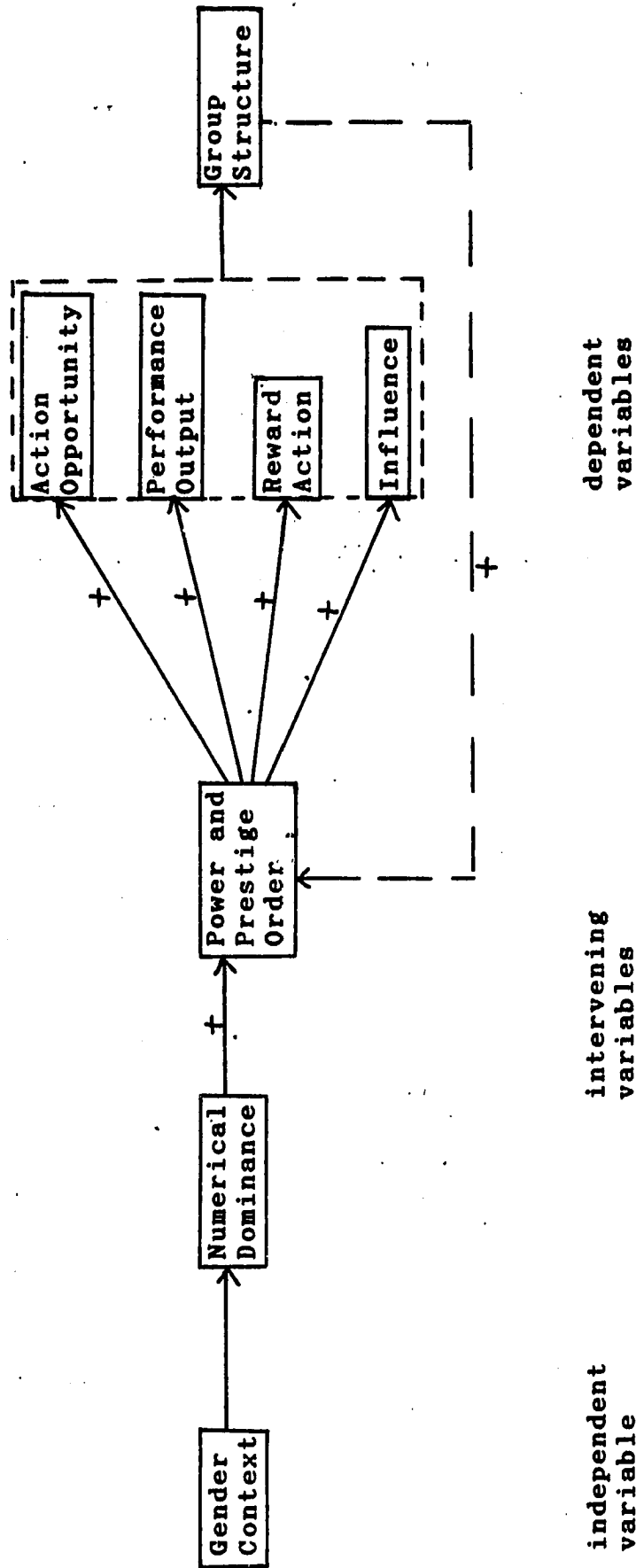


figure 2. Model of the impact of gender context on behavior.

From this simple theory and model of gender context the following hypothesis can be generated:

- H1. The lower the proportion of one's sex in a group the weaker one's action opportunity, performance output, reward action and influence.

The question we need to address now is whether this simple model can account for the past research on the impact of gender context on behavior. The results of the token studies clearly can be accounted for by this model. Token group members were found to be more isolated (Kanter, 1977b; Wolman & Frank, 1975; Spangler et al., 1978) and poorer performers (Kanter, 1977b; Spangler et al., 1978) than majority group members. This can easily be explained by this theory as tokens have the lowest numerical dominance and thus low power and prestige. Therefore tokens are not given opportunities to contribute and have low performance output (isolation) and their output is negatively evaluated (poor performance). Spangler et al.'s study (1978) allows further examination of our theory as the exact proportions of women to men in the two law schools examined differed. As the model would suggest, Spangler et al. found that the differences between the tokens and the majority in terms of the degree of isolation and level of performance was more extreme for the school with the smaller percentage of women.

The research finding on gender context from the studies of sex difference also appear to be consistent with the theory. Eskilson and Wiley (1976) found female

leaders exhibited the greatest amount of activity and leader like behavior in the homogeneous group (highest numerical dominance) followed by the majority female group (second highest numerical dominance) followed by the token female group (lowest numerical dominance). Male leaders also exhibited greater activity and leader like behavior in the homogeneous group (highest numerical dominance) than in the majority male (second highest numerical dominance) and token male (lowest numerical dominance) groups. The conformity research revealed that both men and women exhibit greater conformity in equal as opposed to homogeneous groups (Reitan & Shaw, 1964). This follows from the gender context theory since persons with higher numerical dominance are less easily influenced and persons in homogeneous groups have higher numerical dominance than those in equal groups.

One major finding that this simple theory of gender context cannot account for is sex differences in leader activity in equal groups. As expected from the theory, Aries (1976) and Lockheed and Hall (1976) found no difference in the leadership activities of male and female subjects in homogeneous groups. However, they did find differences in the activities of the male and female subjects in the equal groups. According to the theory, the males and females in equal groups are accorded equal numerical dominance and thus should exhibit the same level of action opportunities and performance outputs. Thus

there appear to be some other determinants of power and prestige order operating which should be added to the model to make it comprehensive. Another indication that the theory is incomplete stems from Fairhurst & Snavely's study (1983a) where male nursing students did not seem to experience any impact of being tokens. It appears that we need to examine potential alternate determinants of the power and prestige order and incorporate them into our theory and model.

Alternate Sources of Power and Prestige

Our simple theory needs to be expanded to include alternate factors that influence the power and prestige order and thereby affect behavior in the group. Berger et al. (1977) in their status characteristics and expectation states theory propose that master status characteristics such as sex, carry with them a set of assumptions about auxiliary characteristics and appropriate behaviors (Hughes, 1944; Kanter, 1977b; Berger et al., 1977). Master status "provides a basis for beliefs about one's competence and value across a fairly wide range of situations. Persons at one level or 'state' of such a characteristic are highly valued, and person at another level or 'state' are less highly valued (Eagly, 1983, p.975)." This process is clearly exhibited in our cultures sex role stereotypes. Women, just by virtue of being women, are accorded lower status than men in a business group task situation. In this society, the master characteristic of "female" is accorded lower status than "male" (Eskilson & Wiley, 1976; Meeker & Weitzer-O'Neill, 1977).

A person's master status influences expectations about performance capabilities which in turn determine the power and prestige order and ultimately regulates the persons behavior. Persons with high status are expected to make more valuable contributions and the other group members will defer to them thereby establishing a hierarchy of

power and prestige. Eagly discusses this as a self-fulfilling prophecy where "people have expectations about their own and other's competence, based on these characteristics, and consequently behave in ways that confirm these expectancies (1983, p.975)," thereby reinforcing the power and prestige order.

An additional factor that influences the power and prestige order is performance feedback. Feedback as to individual task performance should influence performance expectations and thus either support or alter the power and prestige order. The nature of the power and prestige order may thus change over time. At first the salient features such as gender context and master status characteristics will dictate the order. However, once feedback as to group members' performance is available, group members will incorporate the performance expectations so generated, into their power and prestige order. Maccoby and Jacklin (1974) note this same relationship in their statement that

a man's generally higher status would lead him to adopt a dominant role, and a woman to accept and even encourage this, in the early stages of group formation...with continued association, the relative competence of the individual group members in skills that are important to the group's objectives should weigh more heavily, so that whenever a woman group member possesses these skills, her dominance should increase, if lack of formal status does not prevent it.

These additional variables and relationships have been added to our model of the impact of gender context on

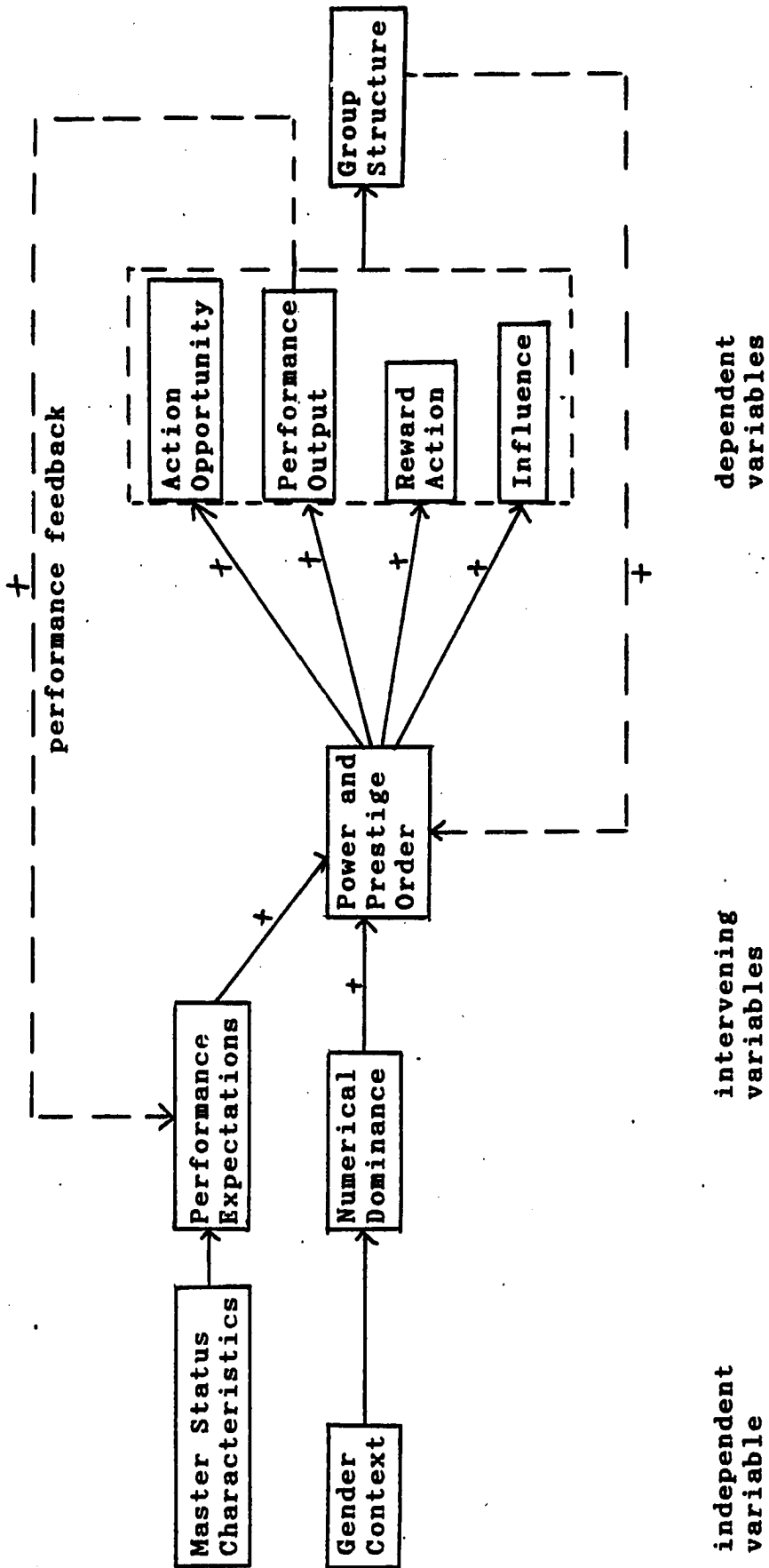


figure 3. Model of the impact of gender context on behavior including alternate sources of power and prestige.

behavior (see figure 3). This model clearly shows that the power and prestige order, and consequently task-related behavior, is not solely determined by gender context. Fairhurst and Snavely (1983b) are in agreement with our theoretical extension as they state that being numerically dominant is only one source of power and control within the organization. Laws (1975) labelled female tokens "double deviants" as they deviate from the preferred status held by their male coworkers on two relevant dimensions, sex and workgroup majority while male tokens are only "single deviants" as their high status in society's sex hierarchy is at odds with their low numerical dominance. Fairhurst and Snavely (1983b) cite this as the reason for their findings that male tokens did not experienced Kanter's token pressures.

The finding of sex differences in leader activity in equal groups (Aries, 1976; Lockheed & Hall, 1976) can now easily be explained. In our society, the master status characteristic of "male" is accorded higher status than "female" and persons with high status are expected to make more valuable contributions in group situations (Eskilson & Wiley, 1976; Fairhurst & Snavely, 1983b; Meeker & Weitzer-O'Neill, 1977). Thus, although men and women in equal groups have equal numerical dominance, their actual power and prestige is not equal due to their master status characteristics.

Our new hypotheses with the additional variables and relationships are as follows:

- H1. Within each sex, the lower the proportion of one's sex in a group the weaker one's action opportunity, performance output, reward action and influence.
- H2. Within each gender context, males will exhibit greater action opportunity, performance output, reward action and influence than females.
- H3. Performance feedback will be related to future levels of action opportunity, performance output, reward action and influence.

It is clear that two different types of hypotheses are now involved. The first hypothesis is between gender context within sex. H1 is concerned with the difference in the behavior of women in token female, equal, majority female and all female gender contexts, as well as, the difference in the behavior of men in token male, equal, majority male and all male gender contexts. It proposes that the smaller the proportion of one's sex in one's group, the less one's participation is solicited, the fewer one's actual contributions, the more these contributions are poorly evaluated, and the weaker one's influence over others.

The next hypothesis is between sex within gender context. H2 is concerned with the differences in the behavior of men in token male gender contexts versus women in token female gender contexts, men versus women in equal gender contexts, men in majority male gender contexts versus women in majority female gender contexts, and men

versus women in homogeneous gender contexts. H2 proposes that across all four of these comparisons, men's participation will be solicited more than women's, they will actually contribute more than women with their contributions evaluated more positively, and they will have greater influence than women.

The third hypothesis relates to the notion that once group members have actual individual performance information available, they will use this new information to reevaluate the power and prestige order. They will then alter the order and their behavior, where necessary, to reflect the performance information. However, we must note that this assumes that the performance feedback information is objective, not distortable, and clearly related to ability.

Deaux (1976) found that a person's sex influenced expectations and subsequent attributions concerning task performance. According to attribution theory, task-relevant behavior can be attributed to a combination of factors (luck, effort, ability, task difficulty) (Heider, 1958). Deaux and Emswiller (1974) found women's success to be attributed to external factors (e.g. luck), while male's success was attributed to internal factors (e.g. ability). Goldberg's classic study (1968) of the evaluation of articles "written by" a man versus a woman found that female college students regarded the articles more highly when the "author" was male. Paludi and Bauer

(1983) recently replicated Goldberg's study. 360 college students evaluated academic articles on politics, psychology and education. Fifteen years later the results are the same, if the "author" was female the articles was evaluated less positively than when the "author" was male regardless of the subject area.

Past research suggests that there may be an interaction between performance feedback and sex, where positive feedback leads to higher performance expectations for men as it is attributed to ability, but not so for women where the positive feedback is attributed to luck. However, due to the objective, non distortable, ability related nature of the feedback (test scores) it is felt that this differential attribution process will not occur.

Of course, it is also possible that there is an interaction between performance feedback and gender context. Attributions are very sensitive to interaction effects between the characteristics of the stimulus persons and their environment (Jones & Davis, 1965). Unfortunately the sex-role context of attributions regarding women and men has not been adequately explored. The most obvious determinant of the sex-role context of the stimulus person's behavior (the sexes of the others who are immediately present) has not been directly examined (Rose, 1978). It is possible that positive performance feedback of women will be attributed to ability if their numerical dominance is equal to or

greater than that of the men. However, if the women have a low numerical dominance (token), their performance may be attributed to luck or to the ability of the men in the group who showed them the ropes. Again, due to the nature of the performance feedback it is unlikely that it will be attributed to anything other than ability.

Homogeneous Versus Heterogeneous Groups

It must be noted that our use of homogeneous groups as an approximation of one extreme of the heterogeneity continuum may be problematic. The continuum of heterogeneity is actually asymptotic, it gets closer and closer to 100% of one sex type and 0% of the opposite sex type, but it never reaches it because once it does, the group is no longer heterogeneous. Past research has found significant differences between homogeneous and heterogeneous groups. While Aries (1976) and Lockheed and Hall (1976) found men to exhibit greater leadership activity than women in heterogeneous groups, no such differences were found with homogeneous groups. One might ask why the same sex differences do not hold for homogeneous groups since numerical dominance is the same for the men and women but men are accorded higher master status. This question addresses the distinction between the status theory of sex differences and the sex role socialization theory.

According to the status theory, the master status characteristic is not activated as a power differentiating factor unless two or more different levels of the characteristic are identifiable within the group (Berger et al. 1977). Both men and women comprise the equal group with men identified as the more valuable contributors to the task, thus the women should defer to them. Only one level of the master status characteristic is represented in the homogeneous groups, thus it should be inoperative and the men and women in their separate groups engage in similar levels of leadership activity.

According to sex role socialization theory however, men and women carry with them a set of norms as to appropriate behavior for each sex. If it is this socialization process that dictates men's and women's behavior, then the differences should arise whether or not the opposite sex is present. Fennel et al. (1978) identify the findings that the differences in task-related initiation and total activity between males and females disappear with all female and all male groups as evidence of the operation of status processes.

Gender context may also be inoperative in homogeneous groups in the same way master status is believed to be inoperative in such groups. Homogeneous groups do not involve relative proportions as only one social type is present, thus there are no low proportion group members for basis of comparison. Persons in homogeneous groups by

necessity must compare themselves with members of like social type and identical proportions in determining the power and prestige order of the group. Other factors that influence differentiation of behavior in small groups will therefore determine the relative positions of the group members. These other factors are individual difference variables or personal characteristics.

Shaw (1981) reviewed the literature on the impact of personal characteristics on group member behavior and a number of significant relationships were reported. Intelligence was positively related to activity and effective leadership and negatively related to conformity. Dominance was positively related to leadership, activity level and assertiveness. Similarly Stogdill (1948) in his review of leadership trait studies found these two traits to be the most consistently related to leadership emergence. McClelland's leader motive pattern (moderate to high need for power, low need for affiliation and high activity inhibition) has also been found to be associated with leader success in longitudinal studies (McClelland & Boyatzis, 1982). In addition, need for achievement was associated with success at lower organizational levels where individual contributions are more important than the ability to influence people. Thus one's need strengths (dominance, affiliation, achievement) as well as one's general ability level are likely to influence behavior in task group situations.

These individual difference variables combine to determine the power and prestige order in a homogeneous group. Both sex and gender context may not be operative in such a single sex group. Thus homogeneous groups may not be appropriate as approximations of the low end of the heterogeneity continuum as they are qualitatively different. There are two potential ways to handle this problem. The first way is to simply use the token group as the extreme of low heterogeneity and thus eliminate the need to form homogeneous groups thereby increasing the sample size per group type and maintaining the focus on the set of variables related to the degree of heterogeneity question. However, we lose valuable information about the functioning of homogeneous groups. An alternative solution is to include the homogeneous groups and investigate whether sex and gender context are operative and also examine these individual difference variables to gain some understanding as to how they influence behavior in homogeneous versus heterogeneous groups. This method has the advantage of including the homogeneous groups and thus garnering greater information as to behavior in homogeneous versus heterogeneous groups. Although this method does have certain disadvantages of complicating the primary focus of the research, increasing the number and type of variables, and necessitating the formation of homogeneous groups, it is considered preferable due to its potential contributions.

In order to take these homogeneous/heterogeneous distinctions into account, our model must be expanded (see figure 4). Individual difference variables must be added as additional independent variables that impact on member behavior. The heterogeneity/homogeneity dichotomy moderates the degree to which each of the three independent variables are operative. With homogeneous groups only the individual difference variables are expected to be operative in determining the power and prestige order leading to member behavior and group structure. With heterogeneous groups, both gender context and master status are operative in determining the power and prestige order. The individual difference variables probably have some impact on the behavior of heterogeneous group members, but the highly salient sex type and numerical dominance information may well override or minimize it. Megargee's study (1969) suggests that this is the case as dominant women took the leadership position over less dominant women, but took the subordinate position with less dominant men. Carlonell (1984) recently replicated Megargee's study and found the same results. Dominance predicted leadership in same sex pairs but not in pairs with a dominant female and a less dominant male. Even when the task was made to appear more "female" in nature, only slightly more than half of the dominant females took the leader position over less

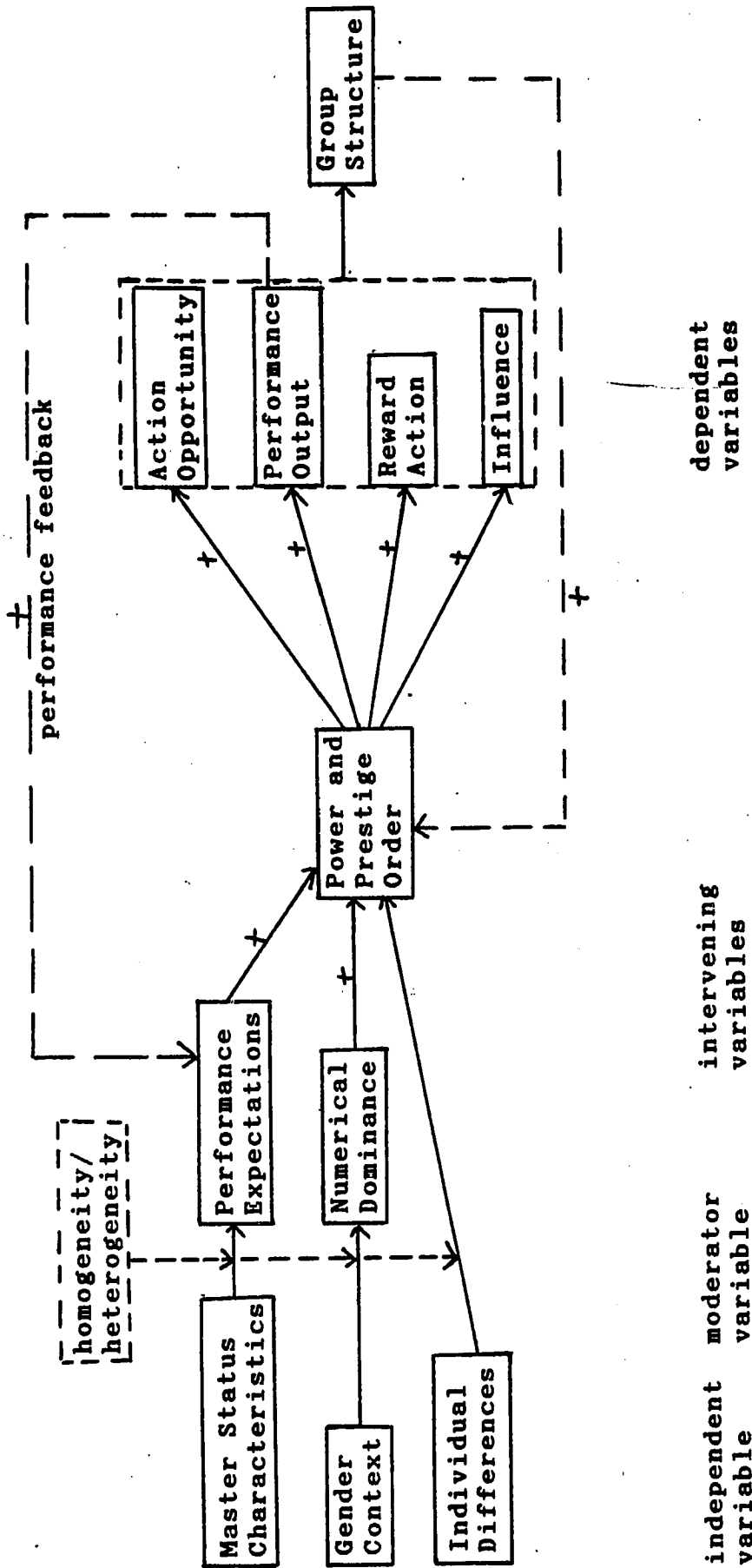


figure 4. Model of the impact of gender context on behavior including alternate sources of power and prestige and the homogeneity/heterogeneity moderator.

dominant males, while 75% of the dominant males took the leader position over less dominant females.

Revised final hypotheses including the distinction between homogeneous and heterogeneous groups are as follows:

- H1. Within each sex, the lower the proportion of one's sex in heterogeneous gender contexts the weaker one's action opportunity, performance output, reward action and influence.
- H2a. Within each heterogeneous gender context, males will exhibit greater action opportunity, performance output, reward action and influence than females.
- H2b. No differences in action opportunity, performance output, reward action and influence will be found between males and females in homogeneous gender contexts.
- H3a. Individual difference variables of general ability, dominance and need for achievement will be positively related to action opportunity, performance output, reward action, and influence.
- H3b. Individual difference variable of need for affiliation will be negatively related to action opportunity, performance output, reward action, and influence.
- H4. Individual difference variables will have more impact on behavior in homogeneous than heterogeneous groups.
- H5. Performance feedback will be related to future levels of action opportunity, performance output, reward action and influence.

The first hypothesis is the same between gender context within sex hypothesis, however; it is now restricted to heterogeneous gender contexts. It has been determined that homogeneous gender contexts may not be adequate as representative of the low extreme of the

heterogeneity continuum as they are qualitatively different. H1 is thus concerned with the differences in the behavior of women in token female, equal and majority female gender contexts, as well as, the differences in the behavior of men in token male, equal and majority male gender contexts. It proposes that the smaller the proportion of one's sex in a heterogeneous gender context, the less one's participation is solicited, the fewer one's actual contributions, the more these contributions are poorly evaluated, and the weaker one's influence over others.

The between sex within gender context hypothesis has been split in two along the heterogeneity/homogeneity dimension. H2a covers heterogeneous gender contexts and is concerned with the differences in the behavior of men in token male gender contexts versus women in token female gender contexts, men versus women in equal gender contexts, and men in token female gender contexts versus women in token male gender contexts. H2a proposes that across all three of these comparisons, men's participation will be solicited more than women's, men will actually contribute more than women with their contributions evaluated more positively, and they will have greater influence than women.

The second between sex within gender context hypothesis (H2b) covers homogeneous gender contexts and is concerned with the differences in the behavior of men

versus women in homogeneous gender contexts and proposes no significant differences in behavior. This hypothesis is based on status characteristics theory (Berger et al., 1977) that states that a status characteristic becomes salient only if it is known or believed to differentiate members of the group. Berger et al. (1977) expanded their saliency assumption with an alternative condition requiring that the characteristic can also become salient if it is known or believed to be related to the group task. This expansion clouds the distinction between the status theory of sex differences and the sex role socialization theory. Although our hypotheses stem from original status theory, we will try to investigate the possibility that sex role socialization leads to expectation that sex is related to ability to perform the task and thus might result in sex differences even within homogeneous gender contexts.

The third set of hypotheses indicate the nature of the relationships between the individual difference variables and behavior. H3a predicts the higher one's general ability, dominance and need for achievement the more one's participation is solicited, the greater one's actual contribution which are positively evaluated, and the greater one's influence. H3b predicts that the higher one's need for affiliation, the less one's participation is solicited, the fewer one's actual contributions, the

more these contributions are poorly evaluated, and the weaker one's influence.

The fourth hypothesis illustrates the third moderating effect of the heterogeneity/homogeneity dichotomy. It is proposed that individual difference variables will have more impact on behavior in homogeneous than heterogeneous groups. Due to the salience of the other two independent variables (master status characteristics and gender context) in heterogeneous groups, the impact of the individual difference variables will be minimized.

The fifth hypothesis relates to the notion that once group members have actual individual performance information available, they will use this new information to reevaluate the power and prestige order. They will then alter the order and their behavior, where necessary, to reflect the performance information. As noted earlier, differential attribution may lead to an interaction between performance feedback and master status characteristics and between performance feedback and gender context. Due to the objective, unalterable and ability related nature of the performance feedback such interactions are not anticipated.

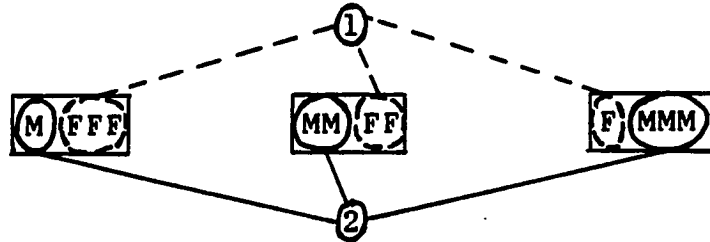
A visual representation of H1 and H2 with four person groups can be seen in figure 5. From the visual one can see that the hypotheses presented are very different than in past studies. H1, the gender context hypothesis, is concerned with differences in the behavior of same sex

Five gender contexts:

<u>All Male</u>	<u>Token Male</u>	<u>Equal</u>	<u>Token Female</u>	<u>All Female</u>
MMMM	MFFF	MMFF	FMMM	FFFF

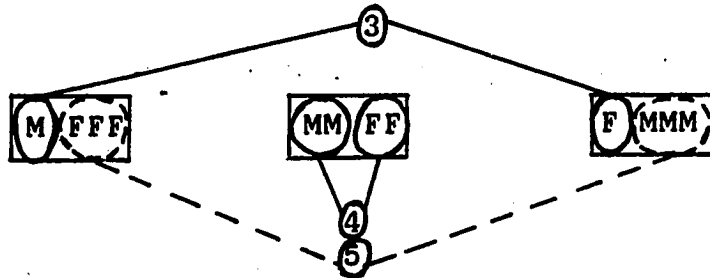
H1. Within each sex, the lower the proportion of one's sex in a heterogeneous gender context the weaker one's action opportunities, performance outputs, reward actions and influence.

Comparison 1 - token F < equal F < majority F.
Comparison 2 - token M < equal M < majority M.



H2a. Within each heterogeneous gender context, males will exhibit greater action opportunities, performance outputs, reward actions and influence than females.

Comparison 3 - token male > token female.
Comparison 4 - equal male > equal female.
Comparison 5 - majority male > majority female.



H2b. No differences in action opportunities, performance outputs, reward actions and influence will be found between males and females in homogeneous gender contexts.

Comparison 6 - homogeneous female = homogeneous male.

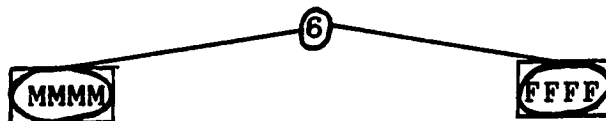


figure 5. A visual representation of H1 and H2.

group members when confronted with different gender contexts. Even the sex difference hypotheses (H2) are dissimilar than traditionally examined as they control for gender context. It is not hypothesized that under any and all conditions men will have greater behavior outputs than women. Only given the same heterogeneous gender context will men exhibit more active behavior. It is the gender context that is hypothesized to have the major impact on behavior and thus can no longer be ignored.

CHAPTER 4

METHOD

In a recent article, Fairhurst and Snavely (1983b) state that future research is needed to generate a greater understanding of the gender context dynamic. The past research into gender context has been minimal, and at best lends us a framework within which to work. The studies tended to focus on one particular type of gender context (token), studied incomparable samples, and relied on anecdotal data. Although the past investigations of sex differences in group behavior generated interesting data on gender context, this was only of secondary interest and thus the studies were not designed for this purpose, data are sketchy, and the analyses are post hoc. In addition, the majority of the past research in both of these areas was conducted over ten years ago and it is unclear, due to the rapid changes in our society, that the findings are applicable to behavior in the mid 1980's.

The purpose of this present study is to investigate the effects of gender context on behavior and test the theory and model presented. The type of study selected for this investigation is a cross between a field and a laboratory experiment -- free simulation technique. Free simulation is defined by Fromkin and Streufert (1976) as a research method:

- "1)where participants are placed in a complex environment which represents the criterion environment as much as possible;
- 2)where participants are generally free to behave within the boundaries of established rules and the interaction of simulation paramaters, participants' own past behavior, and the past behavior of others with whom participants are interacting;
- 3)where participants attempt through their actions to cope with (change) environmental characteristics or the behavior of other participants;
- 4)where ongoing events are determined by the interactions between experimenter-determined parameters and the relatively free behavior of all participating groups (p. 423)".

This research method exposes subjects to a large number of real-world-like events simultaneously, subjects remain in the simulation setting for considerable periods of time, and subjects shape the events that occur during the simulation by their own behaviors. According to Fromkin and Streufert "one might say that experimenters who use this research method are creating field research in the laboratory (1976, p. 423)."

Experimental Design

The free simulation used in the study is The Business Management Laboratory (Jensen & Cherrington, 1984). The Business Management Laboratory is a fairly complex computer simulation of several of the major decision-making functions found in the domestic flatware manufacturing industry. The simulation covers both the essentials of the industry and of the simulated individual

firms within the industry. The emphasis is on the firm and its interaction with other firms in the industry. While most of the variation in company performance is a function of the decisions which are made by the firm members, some exogenous factors have an impact as well -- general economic conditions, seasonal fluctuations, competitors' decisions.

The simulation was not set up for experimental purposes but rather was an integral part of the undergraduate business curriculum. Subjects anticipated participating in the simulation as part of the requirements for the capstone BBA Business Policy Course and had no idea that an experiment was being conducted. Students were randomly assigned to firms and required to make strategic and operational decisions for their firms over a two year simulation period (3 months in actual time). The firms were domestic flatware manufacturers with two products and one market. Each quarter the firm members decided on over thirty different business factors -- product prices, advertising budgets, sales commissions, first and second shift production, stage one and two maintenance, quality control budgets, research and development budgets, second shift capacity, plant expansion, size of sales force, number of sales trainees, purchase of raw material futures, sales of stocks and bonds, short term loans, short term portfolio investments, factoring accounts receivable, dividend disbursement, and

engineering studies. Firms' decisions were entered into the computer and the firms received outputs revealing the status of the firm as a result of the decision. These outputs included information on conditions in the industry as a whole, competitors' pricing and profits, and the company's sales information, income statement and balance sheet.

This simulation meets all the properties noted by Drabeck and Haas (1967) as necessary in order for group research methods to produce realistic simulations:

- 1)utilization of a real group or an artificial group that is assembled long enough to become real;
- 2)realistic task characteristics that are familiar to the group;
- 3)a realistic ecological environment;
- 4)interactions with the environment (e.g. input information, feedback);
- 5)avoidance of subjects' awareness that they are participating in an experiment.

Like field research, the simulation task is complex and not contrived with subjects performing as "real" groups over a three month period where the performance has important consequences for the subjects (Anderson & Schneier, 1978, Schneier & Bartol, 1980). Like a laboratory experiment, the simulation allows the creation of certain combination of group memberships not found in real life situations along with randomization and control (Shaw, 1981). In the business world one would not find a

situation where within the same position both token female and token male groups exist. Thus we control the threats to internal validity through the control and randomization within the simulation while also controlling the threats to external validity through the simulation of the criterion environment.

Sample

The total sample was composed of 492 senior BBA students enrolled in a business policy course during the Fall Semester of 1984 at Bernard M. Baruch College, The City University of New York. The sample was approximately evenly divided between males (N=248) and females (N=244) and the majority of the sample was between the ages of 20 and 24. All 16 sections of the course, 10 day and 6 evening sections, were utilized in the present study. The students in each section were randomly assigned to seven or eight four-person teams for participation in the "two year" business simulation. Each section functioned as one industry and each team functioned as one firm within that industry. Team members were required to develop, agree upon, and implement strategic and operational decisions for their firm. The process of selecting and allocating subjects into sections and teams was random except that a certain minimum number of teams with each of the group sex compositions were to be created: 8 homogeneous female (FFFF), 8 homogeneous male (MMMM), 30 token male/majority

female (MFFF), 15 equal male and female (FFMM), and 30 token female/majority male (FMMM). The reason for this constellation is that it generates a minimum of thirty subjects of each sex within each gender context for data analysis purposes. In order to generate a balanced representation of gender context within each industry, the teams were set up to match the pattern shown below:

FFFF	MMMM
MFFF	MFFF
FFMM	FFMM
FMMM	FMMM

Unfortunately, due to variation in course registration, late registration and attrition, 14 five-person teams, 16 three-person teams and 2 two-person teams were created. This left us with only 92 four-person teams. It was determined that it was best not to include the five-, three-, or two-person teams in the study because it was unclear as to which gender context they belonged. For example, should a three person group with two males and one female be considered a token female/majority male gender context? And what about a five-person group with two females and three males? However, we wished to have at least 25 individuals of each sex in each type of gender context and this left us with 32 men and 32 women in homogeneous gender contexts, 81

women and 66 men in majority gender contexts, 54 men and 54 women in equal gender contexts, and 27 men in token gender contexts, but only 22 women in token gender contexts. On a group level this corresponds to 8 homogeneous male and 8 homogeneous female groups, 27 equal groups, 27 token male/majority female groups, and 22 token female/majority male groups. The small N of women in token gender contexts led us to decide to include three five-person groups with four men and one woman. The gender context for these three groups was clearly token female/majority male.

The response rate for the 383 subjects in the sample was 98%. The first and second questionnaires were completed by all but nine subjects. Despite this exceptional response rate, one team had to be dropped from the study as three of its members were those that did not complete the second questionnaire and one of its members did not complete the first questionnaire. This team unfortunately was one of the four-person token female/majority male groups. Thus, the actual sample consisted of 379 subjects, 188 male and 191 female. The individual gender contexts were 32 homogeneous men, 32 homogeneous women, 81 majority women, 75 majority men, 54 equal men, 54 equal women, 27 token men, and 24 token women. This corresponds to 8 homogeneous male groups, 8 homogeneous female groups, 27 equal groups, 27 token male/majority female groups, and 24 token female/majority male groups.

The demographic characteristics of the sample can be seen in Table 1. The majority of the subjects were in the age range of 20 to 24 (59%) followed by the 25 to 29 range (22%) with a mean age of 25 and a mode of 22. A vast majority of the subjects were employed with 48% in part-time jobs and 36% in full-time jobs. Almost half of the sample (49%) consider themselves to be white, with the other half comprised of Blacks (21%), Hispanics (10%), Orientals (14%) and other races (5%). The largest percentage of the sample were marketing majors (33%), followed by accounting majors (20%), management majors (17%), statistics and computer science majors (15%) and finance majors (10%).

Table 1
Demographic characteristics of the sample

	Age						
	<u>20-24</u>	<u>25-29</u>	<u>30-34</u>	<u>35-39</u>	<u>40-44</u>	<u>45+</u>	<u>?</u>
Frequency	223	84	28	19	8	3	14
Percent	59	22	7	5	2	1	4

	Employment			
	<u>Parttime</u>	<u>Fulltime</u>	<u>None</u>	<u>?</u>
Frequency	182	137	51	9
Percent	48	36	14	3

	Race					
	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Oriental</u>	<u>Other</u>	<u>?</u>
Frequency	185	81	36	51	18	8
Percent	49	21	10	14	5	2

	Major						
	<u>Mktg</u>	<u>Mgmt</u>	<u>Acctg</u>	<u>Fin</u>	<u>CompSci</u>	<u>Other</u>	<u>?</u>
Frequency	125	63	75	38	58	12	8
Percent	33	17	20	10	15	3	2

Variables

Independent variables

Gender context was the major independent variable actually manipulated by the experimenter. There are four different gender contexts for each sex as follows: homogeneous, majority, equal, and token. The four person teams were formed so as to create the desired number of subjects within each gender context as described in the sample section.

Master status characteristics of sex was the second independent variable. In this society, being male is accorded higher status than being female. "Feminine" activities generally are considered less prestigious than "masculine" activities (Meeker & Weitzer-O'Neill, 1977) and performance outputs produced by a man are rated higher than the same outputs thought to be produced by a woman (Goldberg, 1968).

Individual difference variables composed the third independent variable. General ability level and need strengths are expected to influence behavior in groups. Three needs were examined -- nAch, nAff, nDom. The first is the need for achievement (nAch) which is defined as the need to strive for success or accomplish difficult tasks. Second is the need for affiliation (nAff) which is defined as the need to secure and maintain friendly associations. Last is the need for dominance (nDom) which is defined as the need to command others and control one's environment.

Dependent variables

A number of variables were investigated as potentially dependent upon gender context. The four major dependent variables as presented in our model are:

- 1) action opportunity -- the request for action by other group members,
- 2) performance output -- actual task activities,
- 3) reward action -- positive evaluation of the performance output by other group members, and
- 4) influence -- the ability to alter other group members evaluations or behaviors.

In addition to the four behavioral outcome variables two other dependent variables were studied.

- 5) group structure -- the established pattern of relationships among the differentiated parts of the group.
- 6) satisfaction -- the degree to which subjects are satisfied with their group.

Intervening variables

Three intervening variables are presented in our model.

- 1) numerical dominance -- the power derived from the proportion of one's sex in one's group.
- 2) power and prestige order -- one's power position within one's group.
- 3) performance expectations -- the anticipated level of behavior group members hold for you.

Moderator variable

Heterogeneity/homogeneity -- whether a group consists of members of both sexes or only one sex is hypothesized to moderate the impact of the three independent variables.

Feedback variable

Performance feedback -- individual feedback as to one's ability in simulation decision-making is hypothesized to influence performance expectations and thus impact on the power and prestige order and behavior of group members.

Measures

This section will describe the measures used to assess each of the variables presented above. A copy of the questionnaires containing the measurement instruments can be found in Appendix A. In addition, Table 2 lists the variables, their measures, and their location in the questionnaires.

Independent variables

Gender context was determined via the manipulation of the number of males and females in each team. Master status characteristic for each subject was determined through direct observation and the subjects indicating their sex on the questionnaire. Students' grade point averages (GPA) were used as a measure of general ability. GPA is a numerical representation of students' grades in all of their courses. The numerical value of each grade is as follows: A=4.0, A-=3.7, B+=3.3, B=3.0, B-=2.7, C+=2.3, C=2.0, C-=1.7, D+=1.3, D=1.0, F=0.0. These values are determined for each course and then an average is computed.

Table 2
Independent and dependent variables and their measures

	Measure	Questionnaire and page	
<u>Independent Variables:</u>			
Master Status Char.	Biographical data	Q1	p.151
Individual difference need for dominance	CPI Do scale	Q1	p.149-150
	MNQ nDom scale	Q1	p.143-4
need for achievement	MNQ nAch scale	Q1	p.143-4
need for affiliation	MNQ nAff scale	Q1	p.143-4
ability	GPA	Q1	p.151
<u>Dependent Variables:</u>			
Action Opportunity			
advertence received	IPA Checklist	Q2	p.157-8
advising rank	Peer ranking	Q2	p.156
Performance Output			
leader-like behavior	IPA Checklist	Q2	p.157-8
activity rank	Peer ranking	Q2	p.156
contribution	Peer eval. form	Q2	p.159
participation	# of individual decisions		
Reward Action			
positive affect rec'd	IPA Checklist	Q2	p.157-8
value rank	Peer ranking	Q2	p.156
bonus award	Peer eval. form	Q2	p.160
future teammate	Peer eval. form	Q2	p.159
Influence			
influence rank	Peer ranking	Q2	p.156
conformity (-)	Individual vs group decision		
conflict modes			
collaborating	Rahim conflict	Q2	p.154-155
avoiding (-)	"		
accommodating (-)	"		
competing	"		
compromising (-)	"		
conflict dimensions			
assertive	"		
cooperative (-)	"		
distributive	"		
integrative	"		
Group Structure			
emergent leader	Sociometric choice	Q2	p.159
emergent secretary	"		
Satisfaction			
group atmosphere	Fiedler scale	Q2	p.153
satisfaction	Sat. scale	Q2	p.160

Two measures were used to assess the need strengths -- nAch, nAff, nDom. The first measure used to assess need strengths was the Manifest Needs Questionnaire (Steers & Braunstein, 1976). The rationale for selecting this particular instrument was that it makes use of behaviorally-based scales with specific reference to work settings and thus does not generate anxiety in the subjects about aspects of their personality being tapped. In addition, it could be administered relatively unobtrusively due to the small number of items. The instrument is composed of twenty 7-point Likert-type items and measures four needs (nAch, nAff, nAut, nDom). Each need is scored from 1 to 7 with a one indicating low need strength and seven, high need strength. Steers and Braunstein (1976) report acceptable test-retest reliability coefficients of .72, .75, .77, and .86 respectively for each of the four needs. Coefficient alphas (.66, .56, .61, .83) also indicate acceptable internal consistency reliability.

The alpha coefficients generated from our sample however, were not as favorable (.67, .54, .41, .06). We thus chose to do a factor analysis in order to determine if a stronger scale structure could be established. The factor loadings and eigenvalues can be seen in Table 3. Except for nDom, the new factors generated do not correspond to those presented by Steers & Braunstein (1976). Four items load on three of the factors and five

Table 3
Manifest Needs Questionnaire item factor loadings

	<u>Do</u>	<u>nAch</u>	<u>nAff</u>	<u>nAut</u>
MNQ4	.68			
MNQ12	.60			
MNQ16	.55			
MNQ20	.74			
MNQ3		.39		
MNQ5		.46		
MNQ10		.54		
MNQ17		.45		
MNQ19		.50		
MNQ2			.46	
MNQ6			.42	
MNQ14			.35	
MNQ15			.58	
MNQ7				.44
MNQ11				.55
MNQ13				.44
MNQ21				.46
Eigenvalue	2.44	1.37	1.19	1.24

items load on the fourth factor. The alpha coefficients for these new scales of nDom, nAch, nAff, and nAut (.74, .59, .51, .50) are all at or above Nunally's (1967) .50 criterion for measurement instruments used for research purposes, indicating acceptable internal consistency reliability. The fact that these coefficients are on the low side is not unexpected as they are based on scales comprised of only four or five items. Due to the weakness of Steers and Braunstein's original scales it was determined that these new scales should be utilized.

The need for dominance was also assessed via the Dominance scales (Do) from the California Psychological Inventory (Gough, 1957). This scale was selected due to its strong reputation as well as its positive approach to dominance. Persons who score high on the Do scale are seen as influencing others toward achievement of group goals via rational and moral actions. The Inventory is made up of 46 statements to which a true/false response is requested. Items in each scale are assigned unit weights (0-1), and summed to yield score from 0 to 46 with a 0 indicating low dominance and a 46 indicating high dominance. The reviews of this scale have been very positive (Buros, 1965) and report adequate validity and reliability. The scale exhibits adequate internal consistency reliability for the sample studied ($r=.73$).

The measures of need strength exhibit adequate construct validity evidenced by the relationships between

the scales. Intercorrelations between the need strength measures are presented in Appendix B. As expected, the two measures of dominance, Do and nDom are highly correlated ($r=.44$, $p<.0001$). Both measures also exhibit anticipated correlations with other needs. The Do scale measures a prosocial form of dominance and is therefore positively correlated with nAff ($r=.13$, $p<.05$). The nDom scale, on the other hand, measures an antisocial form of dominance and is therefore positively correlated with nAch ($r=.38$, $p<.0001$).

Dependent variables

A number of instruments were used to measure the dependent variables. The types of measures included peer-ratings, checklists, rankings, self-ratings and objective data. The first measure was a behavioral checklist which consists of Bales' Interaction Process Analysis (IPA) (1950). The IPA is a method for studying small group interaction patterns and content. Twelve types of interaction are identified on the checklist:

- A { 1) Gives support, raises other's status, gives help, reward;
- 2) Is cheerful, jokes, laughs, shows satisfaction;
- 3) Agrees, shows passive acceptance, understands, concurs, complies;
- B { 4) Gives suggestions, direction, implying autonomy for others;
- 5) Gives opinions, evaluation, analysis, expresses feeling, wish;
- 6) Gives orientation, information, repeats, clarifies, confirms;

- C { 7) Asks for orientation, information, repetition, confirmation;
- 8) Asks for opinions, evaluation, analysis, expression of feeling;
- 9) Asks for suggestions, direction, possible ways of action;
- D { 10) Disagrees, shows passive rejection, formality, withholds help;
- 11) Shows signs of tension, asks for help, withdraws out of field;
- 12) Shows antagonism, deflates other's status, defends or asserts self.

These twelve interaction types can be divided into four different categories as indicated above. Category A involves positive affect while category D involves negative affect. Category B is labelled attempted answers or leader-like behavior while category C is considered advertence or follower-like behavior.

The peer report method of interpersonal process analysis was selected over Bales' observer method in order to have the evaluator be blind to the research hypotheses as well as to make the measurement process unobtrusive. This peer report method was developed by Schneier and Bartol (1980) who had subjects indicate on a checklist the behaviors exhibited by their teammates. They found substantial agreement among the group members as to an individual's utilization of the twelve behaviors.

In the current study, subjects were also asked to assess their own behavior as well as their peers'. Scores on the IPA were determined for each of the four categories

of interaction -- leader-like behavior, positive affect, follower behavior, negative affect. The scores were the number of behaviors checked off in each of the four areas. Thus the scores range from 0 to 3 with a zero indicating no behavior of that type and a three indicating substantial behavior of that type.

A peer evaluation form contained a number of other dependent measures. Subjects were asked to divide a \$100,000 bonus among the team members and indicate which team member was the leader and the secretary of the firm. Subjects were also required to indicate on a five-point Likert-type item the level of contribution of each team member. A series of four peer rankings was also utilized. Subjects were asked to rank the team members on each of the four behavioral outcome variables -- influence, performance output (activity), action opportunities (advising), and reward action (value). Rank scale scores were calculated for each dependent variable by taking the average of the rankings the subject received from the teammates. The scores range from 1 (low) to 4 (high). Interrater reliability coefficients for the four rank scales were .83 for influence, .84 for activity, .79 for value and .67 for advising.

The measures discussed thus far relate to the dependent variables as follows. Action opportunity was measured by the level of advertence behaviors directed at the individual by the other group members. This was

calculated by summing the IPA follower behavior scores each subject attributed to his or her teammates. The scale scores thus indicate the degree to which the subject was approached by his or her teammates for information, answers and suggestions. The scores range from 0 to 9 with zero indicating that no advertence behavior was directed at the subject and a nine indicating that a great deal of advertence behavior was directed at the subject. Internal consistency reliability for this scale was .64. A second measure of action opportunity was the advising rank scale. From the intercorrelation matrix for the dependent variable measures in Appendix B, we can see that, as expected, the two measures of action opportunity are significantly positively correlated ($r=.13$, $p<.01$), albeit low.

Performance output was measured by the leader-like behavior exhibited by the individual. This was calculated by summing the IPA leader-like behavior scores that each subject received from his or her teammates. The scale scores thus indicate the degree to which the subject was perceived by teammates to have given information, answers or suggestions. The scores range from 0, no leader-like behavior to 9, a great deal of leader-like behavior. Interrater reliability for this scale was marginal ($r=.42$). A second measure of performance output was the activity rank scale. A third measure of performance output was obtained directly by asking group members to

indicate on a five-point Likert type scale each member's level of contributions. The contribution score was calculated by taking an average of the peer ratings of the subject's contributions. The scores ranged from 1 to 5 with a one indicating little contribution and a five indicating major contribution. Acceptable interrater reliability was exhibited ($r=.81$). A fourth measure of performance output used objective participation data. The participation score was the number of individual decision forms that a subject completed. The scores range from 0, no individual decisions submitted, to 8, all individual decisions submitted. From the intercorrelation matrix in Appendix B, we can see that the measures of performance output are all associated. Leader-like behavior is significantly positively correlated with activity rank ($r=.13$, $p<.01$), contribution ($r=.37$, $p<.0001$) and participation ($r=.12$, $p<.05$). Similarly, contribution and participation are positively correlated with activity rank ($r=.71$, $p<.0001$ and $r=.20$, $p<.0001$, respectively) and with each other ($r=.25$, $p<.0001$)

Reward action was measured by the total group positive affect directed at the individual. This was calculated by summing the IPA positive affect scores that the subject attributed to each teammate. The scale scores thus indicate the degree to which the subject received support, agreement and cheerfulness from his or her teammates. The scores range from 0, no reward action, to 9, a great deal

of reward action. Internal consistency reliability for this scale was acceptable ($r=.59$). A second measure of reward action was the value rank scale. The amount of the bonus each person was awarded by his or her teammates constituted a third measure of reward action. The bonus scale was calculated by taking an average of the bonus awarded the person by each of his or her teammates. Interrater reliability for this scale was acceptable (.72). A fourth measure of reward action was whether or not teammates would want to have the subject on their team if they were to participate in the business simulation again. The number of teammates that wished to have the subject on their team in the future was calculated for this purpose. The scores ranged from 0, no nominations, to 3, unanimous nomination. From the intercorrelation matrix in Appendix B, we can see that the measures of reward action are related as expected. Value rank is significantly positively correlated with bonus ($r=.70$, $p<.0001$) and future teammate ($r=.51$, $p<.0001$). Future teammate is also significantly positively related to bonus (.64, $p<.0001$) and positive affect ($r=.11$, $p<.05$). However, we must note that positive affect is not significantly correlated with value rank or bonus.

Influence was measured by the influence rank scale. A second objective measure was obtained which looked at individual versus group decisions. By comparing each group member's preliminary individual quarterly decisions

to the group's ultimate quarterly decisions, we could determine the degree to which the individual was able to influence the group to adopt his or her own decisions. The decision we chose to examine was product one price. Scores were computed by taking the average percentage difference between the individual's price and the group's price over the eight game decisions. The formula is presented below.

$$\sum \frac{\text{Individual Price} - \text{Group Price}}{\text{Group Price}} / N$$

The scores indicate the level of conformity or the degree to which subjects were forced to alter their decisions. It is thus actually opposite to influence. The scores range from 0 to 30% with a 0 indicating no conformity (high influence) and a 30 indicating high conformity (low influence).

Conflict-handling behavior was used as a third measure of influence. A classification scheme for conflict-handling initially presented by Blake and Mouton (1964), and further developed by Kilmann and Thomas (1975) identifies five conflict-handling modes:

competing -- forcing one's viewpoint at the expense of others;

collaborating -- confronting disagreement directly in a problem-solving fashion;

compromising -- searching for a middle ground solution;

avoiding -- withdrawal from the conflict situation;

accommodating -- smoothing over differences and focusing on areas of agreement.

Persons with a high degree of influence would tend to compete or collaborate as they can alter other group member's views to totally satisfy their own concerns, while persons with a low degree of influence would tend to avoid, accommodate or compromise as they know they cannot win their position.

Kilmann and Thomas (1975) identified four underlying dimensions of conflict. The first dimension is cooperative which reflects the degree to which one attempts to satisfy the other parties' concerns. Second is the assertive dimension which reflects the degree to which one attempts to satisfy one's own concerns. The third dimension, distributive, represents a give-and-take continuum, and can be thought of as "how one divides the pie." The integrative dimension is last and it represents the "size of the pie" available to all parties. The relationship between the five conflict-handling modes and the four conflict-handling dimensions can be seen in figure 6. From the proposed relationships between influence and the conflict-handling modes, we can see that a person with little influence would be likely to be cooperative and giving, while a person with great influence would be likely to be assertive and taking with the potential to be integrative.

Rahim recently developed a measure of conflict-handling behavior -- The Rahim Organizational Conflict Inventory II (ROCI-II, Rahim, 1983). It was designed on

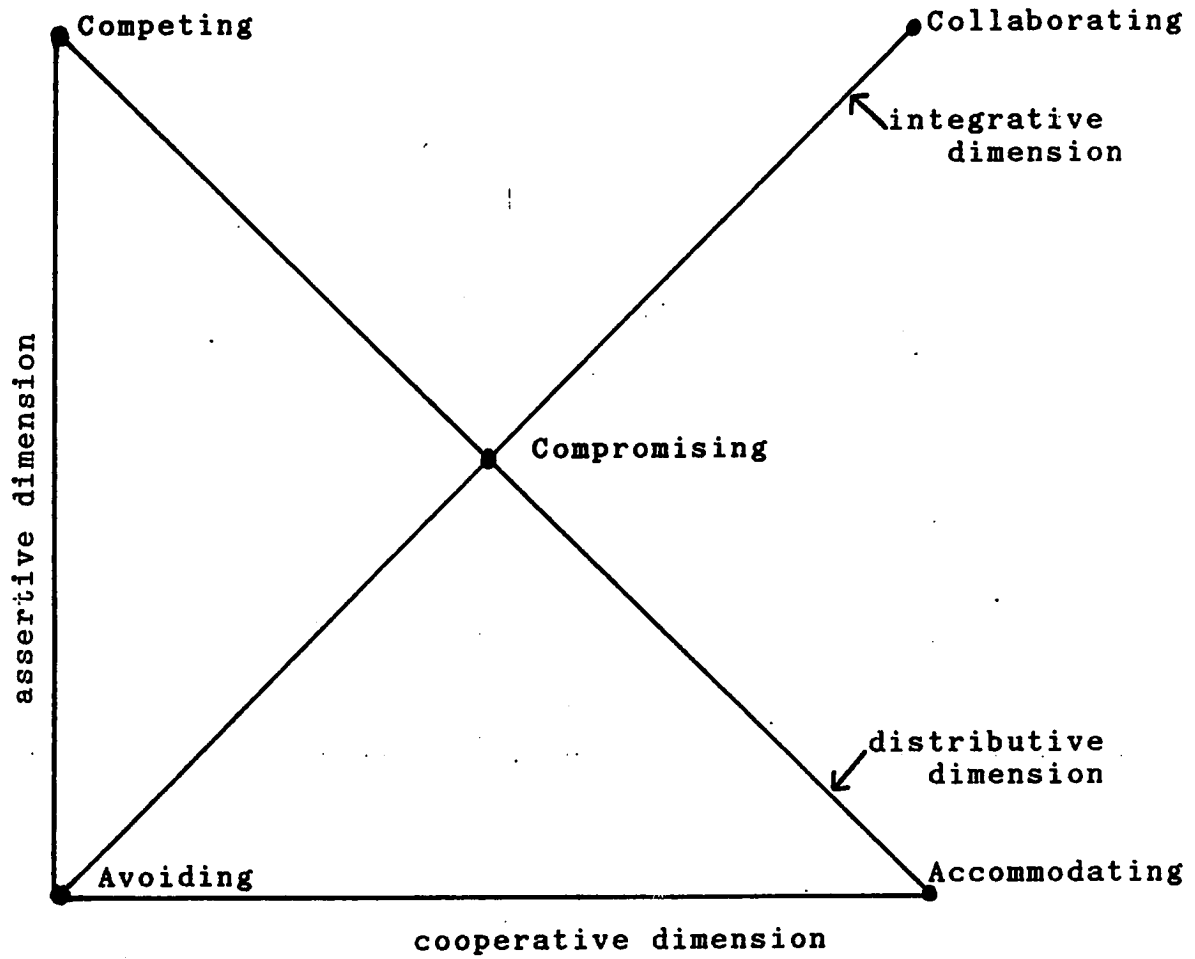


figure 6. Five conflict-handling modes, plotted according to the four conflict-handling dimensions.

(adopted from Kilmann & Thomas, 1975)

the basis of lengthy and repeated feedback from the subjects and factor analyses of various sets of items. The scale consists of 28 5-point Likert-type items. Test-retest reliability coefficients are acceptable (collaborating .83, accommodating .81, competing .76, avoiding .79, compromising .60). Internal consistency reliability estimates are also adequate (.77, .72, .72, .75, .72, respectively). These compare quite favorably with the reliability estimates of the alternate measure of conflict-handling behavior (e.g. Hall, 1969, Lawrence & Lorsch, 1967, Thomas & Kilmann, 1974). The alpha coefficients from our sample indicate even stronger internal consistency reliability (.87, .78, .82, .81, .74) and factor analysis revealed the identical factor structure.

The conflict-handling modes are scored as the average of the scale items with a 1 indicating little use of the mode and a 5 indicating great use of the mode. Indices for the four conflict-handling dimensions were derived from the scores on the five modes as follows:

$$\text{assertive index} = (\text{competing} + \text{collaborating}) - (\text{avoiding} + \text{accommodating})$$

$$\text{cooperative index} = (\text{collaborating} + \text{accommodating}) - (\text{competing} + \text{avoiding})$$

$$\text{distributive index} = \text{competing} - \text{accommodating}$$

$$\text{integrative index} = \text{collaborating} - \text{avoiding}$$

As can be seen from the intercorrelation matrix in Appendix B, the correlations between the measures of

influence follow the anticipated pattern. The influence rank is significantly positively correlated with the competing mode ($r=.29$, $p<.0001$), assertive dimension ($r=.35$, $p<.0001$), distributive dimension ($r=.31$, $p<.0001$) and integrative dimension ($r=.21$, $p<.0001$) and significantly negatively correlated with the the conformity scale ($r=-.10$, $p<.05$), avoiding mode ($r=-.25$, $p<.0001$), accommodating mode ($r=-.15$, $p<.001$) and the cooperative dimension ($r=-.08$, $p<.10$). Conformity is also significantly negatively associated with the competing mode ($r=-.10$, $p<.05$), assertive dimension ($r=-.08$, $p<.10$) and distributive dimension ($r=-.08$, $p<.10$).

Group structure was measured by the emergent roles of group members -- leader and secretary. The person with the greatest action opportunity, performance output, reward action and influence was likely to emerge as group leader. Emergent leadership was measured by a sociometric nomination technique where group members were asked to indicate who the leader of the group was. Leader scores ranged from 0, no nominations as leader, to 4, unanimous nomination as leader. Past research indicates that this sociometric technique is an adequate way to identify the group leader as group members are able to independently and unanimously identify one individual as the group leader (Anderson & Schneier, 1978; Schneier & Bartol, 1980; Wood, 1981). In this study, 60 of the 94 groups were able to unanimously identify one individual as the

group leader. Of the remaining 34 groups, 21 achieved a majority consensus as to the leader of the group. In 13 groups however, there were two individuals designated as leaders. The secretary of the group was also identified with a sociometric nomination technique. The person with the lowest status and power was likely to emerge as the secretary. Secretary scores also ranged from 0, no nominations, to 4, unanimous nomination.

Satisfaction with the group was measured via two instruments. An individual with great action opportunity, performance output, reward action and influence is likely to be satisfied with the group while a person with low levels of the four variables is likely to be dissatisfied. Satisfaction was measured via the Group Atmosphere Scale (Fiedler, 1975). The scale was designed to measure the individual's perception of the climate of the work group with respect to affective relations. It indicates the extent to which the individual feels accepted by his or her teammates and sees the group as relatively tension-free. The scale is composed of ten 8-point semantic differentials. The scale score is the mean of the scores on the ten items and ranges from a low of 1 to a high of 8. Factor analysis revealed all ten items loaded on one factor. Cronbach's coefficient alpha for the scale indicated strong internal consistency reliability ($r=.93$).

The second measure of satisfaction consisted of five five-point Likert type items assessing satisfaction with the group. Three of the items were from the Social Rewards Satisfaction scale from the Michigan Organizational Assessment Questionnaire (Cammann et al., 1979) which measured satisfaction with the way one was treated by group members. The remaining two items assessed general satisfaction with the group and the group leader. Factor analysis revealed that all five items loaded on a single factor. Coefficient alpha for all five items was .90 indicating strong internal consistency. The mean of these five items was computed for use in the analyses with a 1 indicating low satisfaction and a 5 high satisfaction. The two measures of satisfaction are significantly positively correlated ($r=.68$, $p<.0001$).

Intervening variable

The intervening variable of power and prestige order was assessed via asking subjects to rank each team member as to his or her power and prestige. The scale scores were computed by taking an average of the rankings each subject received from his or her teammates. The scores ranged from 1 to 4 with a one indicating the lowest place in the power and prestige order and a four indicating the highest place in the power and prestige order. The interrater reliability for the scale was acceptable ($r=.84$).

Feedback variable

Performance feedback was assessed through objective measures. The measures were the scores subjects received on quizzes that measured ability to make accurate decisions in the business simulation. Each student's quiz grade was standardized for his or her course section in order to render the grading systems of the different instructors comparable. The z-scores were used for data analysis purposes.

Check on measures

As a check on the validity of the self- and peer-ratings, the course instructors were asked to observe each team and rank the team members as to their level of contribution and activity in team decision-making. Subjects received scores of 1 to 4, with a one indicating the lowest activity level and a four indicating the highest activity level. These instructor ratings should be significantly correlated with many of the dependent variables (e.g. the performance output measures and emergent leadership). Table 4 presents the correlations between the instructor ratings and the dependent measures. As can be seen from the table, the instructor ratings are significantly correlated as anticipated with 16 of the 25 dependent measures. In support of the construct validity of our measures, the data reveal that the instructor ratings are significantly associated with the activity rank ($r=.45$, $p<.0001$), the contribution scale

Table 4
Correlation between instructor rating and dependent variables

<u>Dependent Variable</u>	Instructor rating	
	<u>r</u>	<u>p</u>
Action Opportunity		
advertence	.03	.60
advising rank	.36	.0001
Performance Output		
leader behavior	-.01	.86
activity rank	.45	.0001
contribution	.38	.0001
participation	.13	.014
Reward Action		
positive affect	.01	.79
value rank	.42	.0001
bonus	.35	.0001
teammate	.30	.0001
Influence		
influence rank	.46	.0001
conformity	-.04	.47
collaborating	.03	.58
avoiding	-.20	.0001
accommodating	-.13	.014
compromising	.04	.46
competing	.14	.0074
assertive	.24	.0001
cooperative	-.01	.81
distributive	.19	.0003
integrative	.17	.0009
Group Structure		
leader	.39	.0001
secretary	.11	.037
Satisfaction		
group atmosphere	-.03	.58
satisfaction scale	.01	.89

($r=.38$, $p<.0001$), participation ($r=.13$, $p<.05$), emergent leadership ($r=.39$, $p<.0001$), etc. Only one correlation that was expected to be significant was not so (instructor ratings and leader-like behavior). It is possible that no relationship is found because the instructor rating measures all activity and not just leader-like behavior. A total activity score was calculated by summing the total number of checks a subject received from his or her teammates on the Interaction Process Analysis Checklist. This total activity score was in fact significantly positively correlated with instructor ratings ($r=.13$, $p<.05$). Further support of the validity of the measures is evidenced by the strong positive correlation between the instructors ratings and the power order scale ($r=.48$, $p<.0001$).

Procedure

Subjects were randomly divided into their four person teams to meet the gender context specifications. The subjects engaged in one trial decision and eight actual quarterly decisions for their firm. For each decision a record of the group members' individual and group decisions and firm performance records was obtained. Two questionnaire administrations were conducted: after decision four (t1) and decision eight (t2). The questionnaires were administered by the instructor as a part of the business game. The questionnaire was

presented as a means to evaluate the business simulation game by assessing students reactions to the game.

The Interpersonal Process Analysis and the Rahim Organizational Conflict Inventory II were administered at t1 and t2. In addition, at t1 the Manifest Needs Questionnaire and Do Scale were administered and demographical data was collected including information on subjects' sex, race, age, GPA, major and employment. At t2 The Group Atmosphere Scale and satisfaction scale were administered and subjects were also asked to identify the leader and the secretary of their team and how much each member contributed toward group performance. In addition, subjects were asked to rank their team members as to their level of influence, the value of their contributions, their level of activity, the level of advertence they received, and their place in the power and prestige order of the team. They also were asked how they would split a bonus of \$100,000 among the team members. Additional information was collected from the instructors on quiz performance, activity rating, course grades and each firms' game grade.

Statistical analysis

The hypotheses of the study required individual level analyses. A number of different statistical procedures were used to test the hypotheses. This study investigated one major independent variable (gender context), five additional independent variables (sex, ability, dominance, achievement, affiliation), and six dependent variables (action opportunity, performance output, reward action, influence, group structure, satisfaction). Gender context is an ordinal variable with four levels (token, equal, majority, homogeneous). Sex is a nominal variable with two categories (male, female). The dependent variables were measured via 25 approximately interval level scales. The different types of statistics used to test each of the hypotheses are presented below.

Hypothesis One:

Apriori Orthogonal Contrasts

The between heterogeneous gender contexts within sex hypothesis was tested using apriori orthogonal contrasts. If clear contrasts are generated by the hypotheses in a study, apriori contrasts can be set up to test for significant differences. Such contrasts have greater power than screening techniques such as analysis of variance and aposteriori tests of differences between group means such as Scheffe confidence interval tests. The major contrast under examination was between the extreme gender contexts - token versus majority. The

contrasts will examine the hypothesis that for each sex, token subjects should have less action opportunity, performance output, reward action and influence than majority subjects. Where a class variable has three levels, two apriori orthogonal or independent contrasts are feasible. Unfortunately the only contrast that is orthogonal to the major contrast of interest, is a joint comparison of token and majority subjects versus equal subjects. This contrast is clearly not appropriate for this study, thus only the major contrast was examined. The SAS GLM procedure was used for this analysis (SAS Institute Inc, 1982).

Analysis of variance & Scheffe confidence interval test

One-way analysis of variance was also conducted in order to test H1 for differences between the means of the non-extreme gender contexts. The SAS GLM procedure for unbalanced analysis of variance designs was used (SAS Institute, Inc., 1982). The ANOVA's were conducted to test H1 that within each sex token subjects will have less action opportunity, performance output, reward action and influence than equal subjects. Similarly equal subjects should have less of these behavioral outcomes than majority subjects. For each sex separately, ANOVA's were conducted on gender context for each of the dependent variable measures -- received advertence behavior, advising rank scale, leader-like behavior, activity rank scale, contributions, participation, received positive

affect, value rank scale, bonus, future teammate, influence rank scale, conformity scale, collaborating mode, competing mode, compromising mode, accommodating mode, avoiding mode, assertive dimension, cooperative dimension, distributive dimension, integrative dimension, emergent leader nominations, secretary nominations, satisfaction scale, group atmosphere scale. Significant F statistics are hypothesized for both the males and females on all twenty-five measures of the dependent variables. Scheffe confidence interval test for the difference between group means with unequal N's was used to test those variables with significant F statistics to determine if the non-extreme groups differed as hypothesized.

Multivariate analysis of variance

MANOVA's also were utilized because of the multiple measures of each dependent variable. Again testing H1, for each sex separately, MANOVA's were conducted for each of the six dependent variables with their multiple measures. The MANOVA screens for differences between the means in the four gender contexts just like an ANOVA, however, the means examined are the means of a variate generated from the multiple measures. The variate is a created linear combination of the multiple measures that identifies a core underlying common variance within all of the measures.

Hypotheses Two:

T-tests

T-tests were used to test H2a and H2b that males will exhibit greater action opportunity, performance output, reward action and influence than females within heterogeneous gender contexts, whereas no sex differences will be evident in homogeneous gender contexts. T-tests for the differences between the means for males versus females on all 25 dependent measures were conducted for each gender context separately. SAS t-test procedures were utilized to analyze the data (SAS Institute Inc, 1982).

Hypotheses Three:

Pearson product-moment correlation

Pearson correlations were performed to examine Hypothesis 3a that states that subjects with high ability, need for achievement and need for dominance will exhibit greater action opportunity, performance output, reward action and influence than subjects with low ability, need for achievement and need for dominance. The same statistical procedure was used to test Hypothesis 3b which states that subjects with a high need for affiliation have less action opportunity, performance output, reward action and influence than subjects with a low need for affiliation. Correlations between the individual difference variables - nAch, nAff, nDom, Do, GPA, and the twenty five dependent variable measures were conducted

using SAS correlation procedures (SAS Institute Inc, 1982).

Canonical correlation

Hypotheses 3a and 3b were also examined using canonical correlation analysis in order to see the relationship between the set of individual difference variables and the set of dependent variables. Canonical correlation analysis is a multivariate statistic whereby one set of variables is correlated with another set. Canonical variates are created from each of the two sets of variables. These variates are linear combinations of the variables that maximize the relationship between the two sets of variables. After a first canonical variate is generated for each of the variable sets, second canonical variates that are independent of the first variates are created to account for additional variance. The SAS Canonical procedure was utilized to generate the canonical variates, canonical correlation coefficients, and F statistics for the significance of the correlations between the variates.

Hypothesis Four:

Correlation, Fisher t transformation & z tests

In order to test H4 which states that the correlations between the individual difference variables and the dependent variables are stronger for subjects in homogeneous versus heterogeneous gender contexts, the correlations between the individual difference variables

and the twenty-five dependent measures were computed separately for homogeneous and heterogeneous groups. For comparison purposes, these coefficient were converted to t statistics using Fisher's transformation tables. The difference between the t statistics was then examined through z tests. The formula for generating the z statistic is as follows:

$$z = \frac{t_1 - t_2}{\frac{1}{n_1-3} + \frac{1}{n_2-3}}$$

Canonical correlation

In order to reduce the number of comparisons for clearer interpretation of the difference between homogeneous and heterogeneous gender contexts, multivariate statistics were utilized. Canonical correlations between the individual difference variables and dependent variables were calculated separately for subjects in homogeneous and heterogeneous gender contexts. The canonical correlations were compared to test for differences between the two groups.

Hypothesis Five:

Pearson product-moment correlation

The quiz scores were converted to standard scores within each industry in order to render scores from different instructors comparable. The standard scores for quiz performance were correlated with the twenty-five

dependent measures to test H5 concerning the impact of performance feedback on behavior. In order to verify the belief that performance feedback would operate similarly for both males and females, separate correlations were computed for each sex and compared.

CHAPTER 5

RESULTS

This chapter will report the findings of the study. As mentioned in Chapter 4, a number of statistical procedures were used to test the hypotheses. The findings will be presented by hypothesis in order to clearly demonstrate the relationship between the results and hypothesis testing.

Check on Randomization

Before directly testing H1 it was necessary to conduct a check on the randomization procedure to ensure that the subjects assigned to the different gender contexts did not differ as to demographic characteristics. For the three nominal demographic variables - major, employment, and race, chi-square statistics were calculated from the two-way contingency tables of gender context by demographic variable. All three of the chi-square statistics indicated no difference in the demographic variables between the four gender contexts (major $\chi^2=9.08$ $p=.70$, employment $\chi^2=2.86$ $p=.83$, race $\chi^2=8.81$ $p=.72$). An Anova was conducted to check the randomization for the continuous demographic variable - age. The F statistics again indicated no difference in age between the four gender contexts ($F=0.13$ $p=.94$).

Similarly, for individual difference variables, one-way Anova's were conducted to ensure that the randomization process led to even distribution of these personality characteristics between the four gender contexts. As expected, the mean GPA did not differ for the four groups ($F=1.09$, $p=.35$). The need strengths also were evenly distributed among the four gender contexts (Do $F=.59$, $p=.62$; nDom $F=.64$, $p=.59$; nAch $F=.58$, $p=.63$; nAff $F=.24$, $p=.87$). Thus as expected, the randomization procedure evenly distributed the different demographic characteristics over the four gender contexts.

Tests of Hypothesis 1:

Within each sex, the lower the proportion of one's sex in a heterogeneous gender context the weaker one's action opportunity, performance output, reward action, and influence.

Apriori orthogonal contrasts

The first statistic to be performed on the data was apriori orthogonal contrasts. Hypothesis one specified certain relationships between the three heterogeneous gender contexts (token, equal and majority) in advance of the study. The major contrast is between the groups expected to be the extremes - token and majority. Although two orthogonal contrasts are feasible where three group means are involved, the only contrast that would be orthogonal of the first contrast would be a joint comparison of the token and majority group with the equal group and such a contrast has no merit for testing our

hypothesis. Thus, only the extreme group contrast was examined.

The apriori contrast of token versus majority gender contexts for the twenty-five measures of the dependent variables can be seen in Table 5. As can be seen in the table, a number of the contrast are significant for both sexes. The actual means of the dependent variables for all three of the heterogeneous gender contexts can be seen in Table 6. For males, nine of the contrasts are significant or close to significant. The dependent measures of action opportunity and group structure show no differences in the means for token males versus majority males. However, the measures of performance output, reward action, influence and satisfaction all exhibit some significant contrasts. The contrast for leader behavior tends toward significance ($F=2.72$, $p>.10$) with majority males exhibiting greater leader-like behavior than token males. Similarly, the contrast for future teammate is significant ($F=5.05$, $p>.05$) with majority males being chosen as future teammates more often than token males. In addition, both measures of satisfaction have significant contrasts (group atmosphere $F=3.87$, $p>.05$; satisfaction scale $F=5.76$, $p>.05$) with majority males more satisfied with their groups than token males. The various measures of conflict-handling behavior also show significant differences between the token and majority males. In terms of conflict-handling modes, majority

Table 5
 Apriori orthogonal contrasts of token versus
 majority gender contexts for males and females

Variable	Male Contrast		Female Contrast	
	F	P	F	P
Action Opportunity				
advertence	.68	.41	.00	.97
advising rank	.54	.46	5.85	.017*
Performance Output				
leader behavior	2.72	.10+	.35	.55
activity rank	1.84	.18	8.22	.0048**
contribution	2.11	.15	2.61	.10+
participation	.09	.76	.68	.41
Reward Action				
positive affect	.27	.60	.08	.77
value rank	.03	.85	4.86	.029*
bonus	.99	.32	3.90	.050*
teammate	5.05	.026*	.00	.96
Influence				
influence rank	.02	.88	12.37	.0006***
conformity	.09	.77	.03	.85
collaborating	5.44	.021*	.04	.84
avoiding	6.53	.012*	.02	.88
accommodating	.66	.42	1.67	.20
compromising	1.68	.20	.40	.53
competing	.00	1.00	.05	.83
assertive	6.30	.013*	.40	.53
cooperative	3.77	.054+	.64	.43
distributive	.27	.60	1.00	.32
integrative	10.40	.0015**	.00	.98
Group Structure				
leader	.93	.34	3.85	.052+
secretary	.10	.75	4.05	.046*
Satisfaction				
group atmosphere	3.87	.051+	.28	.59
satisfaction	5.76	.018*	.71	.40

+ p<.10
 * p<.05
 ** p<.01
 *** p<.001

Table 6
Means of the dependent variables for each of the
heterogeneous gender contexts

<u>Variable</u>	Male Gender Context			Female Gender Context		
	<u>Token</u>	<u>Equal</u>	<u>Major.</u>	<u>Token</u>	<u>Equal</u>	<u>Major.</u>
Action Opport.						
advertence	6.42	6.64	7.06	6.51	6.28	6.57
advising rank	3.71	3.59	3.58	3.03	3.41	3.45*
Perf. Output						
leader behav.	5.63	5.90	6.60+	7.22	6.35	6.73
activity rank	3.32	3.61	3.59	2.99	3.39	3.57*
contribution	3.80	3.87	4.09	3.77	3.96	4.10+
participation	7.24	7.38	7.17	7.22	7.42	7.39
Reward Action						
positive affect	6.65	6.55	6.43	6.52	5.98	6.25
value rank	3.50	3.58	3.56	3.09	3.42	3.51*
bonus	22.5	23.3	24.2	21.0	24.4	24.1*
teammate	1.61	1.81	2.14*	2.00	2.06	2.00
Influence						
influence rank	3.70	3.74	3.65	2.75	3.26	3.45*
conformity	.017	.030	.016	.018	.030	.019
collaborating	4.00	4.26	4.28*	4.25	4.36	4.23
avoiding	2.83	2.55	2.43*	2.72	2.78	2.69
accommodating	3.29	3.37	3.17	3.23	3.37	3.41
compromising	3.60	3.74	3.79	3.80	4.01	3.88
competing	3.39	3.27	3.39	3.13	3.11	3.09
assertive	1.28	1.62	2.07*	1.43	1.31	1.22
cooperative	1.06	1.81	1.63+	1.63	1.84	1.86
distributive	.109	-.096	.223	-.103	-.262	-.318
integrative	1.17	1.72	1.85*	1.53	1.57	1.54
Group Structure						
leader	1.43	1.15	1.12	.29	.77	.86+
secretary	.44	.53	.52	1.80	1.39	1.09*
Satisfaction						
group atmosph.	6.29	6.37	6.81+	6.66	6.18	6.49
satisfaction	3.98	4.14	4.42*	4.38	4.00	4.21

+ apriori contrast significant at $p < .10$ level

* apriori contrast significant at $p < .05$ level

males are more likely to collaborate ($F=5.44$, $p<.05$) and less likely to avoid ($F=6.53$, $p<.05$) than token males. In terms of the conflict-handling dimensions, majority males are more likely to be assertive ($F=6.30$, $p<.05$), cooperative ($F=3.77$, $p<.10$), and integrative ($F=10.40$, $p<.01$), than token males.

For females, again a number of the contrast are significant. However, the measures that exhibit significant contrast are not those that were significant for the males. Significant contrasts can be seen for measures of action opportunity, performance output, reward action, influence, and group structure. In terms of action opportunity, the contrast for advising rank is significant ($F=5.85$, $p<.05$), with majority females receiving more requests for advise from their teammates than token females. Two of the measures of performance output exhibit significant or close to significant contrasts (activity rank $F=8.22$, $p<.01$; contribution $F=2.61$, $p<.10$). Majority females exhibited more activity and contribution in the group than token females. There is a significant difference between the means for two measures of reward action (value rank $F=4.86$, $p<.05$; bonus $F=3.90$, $p<.05$). Majority females were given a larger bonus and their contributions were more highly valued than token females. The contrast for influence rank was also significant ($F=12.37$, $p<.001$) with majority females considered to have more influence than token females.

Lastly, both measures of group structure show significant or close to significant contrasts (leader $F=3.85$, $p<.10$; secretary ($F=4.05$, $p<.05$). Majority women were more likely to emerge as the leader of the group than token females, while the reverse is true for the role of secretary.

Although not all of the contrasts are significant, and different contrasts are significant for males and females, all but one of the significant contrasts support Hypothesis 1. As hypothesized, majority males exhibit greater leader-like behavior, more teammate nominations, more satisfaction with the group, more collaborating, assertive and integrative conflict-handling behavior and less avoiding conflict-handling behavior than token males. Similarly, majority females exhibit greater and more valuable contribution, greater activity and more influence than token females. Majority females also receive more requests for advice and greater bonus awards than token females and are more likely to emerge as group leader and less likely to emerge as secretary than token females. Unexpectedly, the majority males also exhibited more cooperative conflict-handling behavior than tokens.

From the apriori orthogonal contrasts we can see that a number of the dependent measures support our hypothesis for the difference between extreme gender contexts - majority versus token. However, we still wish to examine the non-extreme gender contexts for differences in the

dependent variables. In order to compare token versus equal subjects and equal versus majority subjects, univariate Anova's and Scheffe confidence interval tests for the difference between group means were conducted.

Anova and Scheffe confidence interval test

The analysis of variance and Scheffe tests can be seen in Table 7. The purpose of these test were solely to determine if there were differences between token and equal gender contexts or equal and majority gender contexts. The extreme contrast of token versus majority was tested using the more powerful apriori contrasts. The Anova was conducted as a screening device to determine which of the measures should be further examined for differences between the means with the Scheffe test. Only one of the Scheffe test for differences between the means of token and equal gender contexts was significant at the .05 level. Equal women exhibited more influence than token women. Three addition contrasts are significant at the .10 level. Equal men exhibited more integrative conflict-handling behavior than token men. For both sexes, subjects in equal gender contexts exhibit greater conformity than subjects in token gender contexts. Only two of the Scheffe tests for differences between the means of equal and majority gender contexts were significant at the .05 level. For both males and females, subjects in equal gender contexts exhibit greater conformity than subjects in majority gender contexts.

Table 7
 Analysis of variance and Scheffe tests for the
 difference between the means of the non-extreme
 gender contexts

<u>Variable</u>	Male				Female			
	<u>Anova</u> <u>F</u>	<u>p</u>	<u>Scheffe</u> <u>TvE</u> <u>EvM</u>		<u>Anova</u> <u>F</u>	<u>p</u>	<u>Scheffe</u> <u>TvE</u> <u>EvM</u>	
Action Opport.								
advertence	.43	.65			.21	.81		
advising rank	.28	.76			3.30	.040		
Perf. Output								
leader-like beh.	1.86	.16			1.29	.28		
activity rank	1.16	.32			4.18	.017		
contribution	1.42	.24			1.49	.23		
participation	.68	.51			.48	.62		
Reward Action								
positive affect	.18	.83			.23	.79		
value rank	.09	.91			2.48	.087		
bonus	.56	.57			2.70	.070		
future teammate	3.17	.045			.17	.85		
Influence								
influence rank	.28	.75			6.19	.003	*	
conformity	5.18	.007	+	*	4.11	.018	+	*
collaborating	2.91	.058			1.12	.33		
avoiding	3.27	.041			.21	.81		
accommodating	1.63	.20			.84	.44		
compromising	.84	.43			1.50	.23		
competing	.48	.62			.03	.97		
assertive	3.68	.028			.22	.81		
cooperative	3.07	.049			.33	.72		
distributive	1.69	.19			.50	.61		
integrative	5.24	.006	+		.03	.97		
Group Structure								
leader	.49	.62			1.95	.15		
secretary	.06	.94			2.16	.12		
Satisfaction								
group atmosph.	3.01	.052			1.27	.28		
satisfaction	3.58	.030			1.93	.15		

+ Scheffe test significant at .10 level

* Scheffe test significant at .05 level

Few of the non-extreme contrasts reached significance. (Of course the larger number of significant Anova F statistics reflect the differences between the extreme gender contexts discussed in the apriori orthogonal contrasts section). As hypothesized, women in equal gender contexts exhibit more influence than women in token gender contexts and men in equal gender contexts exhibit more integrative behavior than men in token gender contexts. Similarly, subjects of both sexes in equal gender contexts exhibit more conformity than subjects in majority gender contexts. The only finding that does not support the hypothesis is the tendency for subjects of both sexes in token gender contexts to exhibit less conformity than subjects in equal gender contexts.

Manova

The multivariate analysis did not reveal significant findings. Only the one-way Manova for the influence measures was significant at a .05 level. The Manova F was 1.88 ($p=.03$) for males and 2.38 ($p=.004$) for females. Examination of the linear combination of the influence measures revealed that the conformity scale was weighted very heavily (2.57 males, .61 females), while the other scales had negligible weights. Thus it appears that this Manova is actually just reiterating the significant univariate Anova for conformity.

Check on sex differences

Before examining the statistics for the between sex within gender context hypotheses, demographic equivalence had to be ascertained. To ensure that no differences existed between male and female subjects in terms of their demographic characteristics, chi-square statistics were calculated from the two-way contingency tables of sex by major, sex by employment and sex by race. All three of the chi-square statistics indicated no sex differences in the demographic variables (major $\chi^2 = 8.42$, $p = .08$; employment $\chi^2 = 3.13$, $p = .21$; race $\chi^2 = 7.63$, $p = .11$). A t-test was conducted to check for sex differences in the continuous demographic variable - age. The t statistic indicated no difference in age for males versus females ($t = -1.85$, $p = .85$).

Similarly, for individual difference variables, t-tests were conducted to ensure that no sex differences exist. Four of the five t-tests were not significant (GPA $t = -1.32$, $p = .19$; Do $t = 1.00$, $p = .32$; nAch $t = 1.28$, $p = .20$; nAff $t = .66$, $p = .51$) indicating no sex differences with regard to these individual difference variables. However, the means for males and females on nDom were significantly different ($t = 4.56$, $p < .0001$) indicating that males had significantly higher need for dominance than females.

Tests of Hypothesis 2a:

Within each heterogeneous gender context, males will exhibit greater action opportunity, performance output, reward action and influence than females.

T-tests

Tables 8a-8c present the means and t-tests for sex differences in the dependent variables within each of the heterogeneous gender contexts separately. As can be seen in Table 8a, males and females in token gender contexts exhibit significant differences on measures of all six dependent variables. In terms of action opportunity, sex differences are evidenced in advising rank ($t=2.97$, $p<.01$) with males receiving more requests for advise from their teammates than females. Similarly, in terms of reward action, sex differences are evidenced in value rank ($t=1.82$, $p<.05$) with males' contributions more highly valued than females'. Two measures of performance output exhibit significant or close to significant t statistics (leader-like behavior $t=-2.36$, $p<.05$; activity rank $t=1.53$, $p<.10$). The signs of these two sex differences are however in opposite directions. Like the findings reported for action opportunity and reward action, males are reported to exhibit greater activity than females. The picture for leader-like behavior is in the opposite direction, with females reported to exhibit greater leader-like behavior than males.

In terms of influence, three of the sex differences are significant or near significant (influence rank $t=4.15$, $p<.0001$; collaborating $t=-1.39$, $p<.10$; cooperative $t=-1.54$, $p<.10$). Again the signs of the t statistics are both positive and negative. Males are reported to have

Table 8a
T-tests for sex differences in the dependent
variables for token gender context

<u>Variable</u>	<u>Mean</u>		<u>T</u>	<u>p</u>
	<u>Male</u>	<u>Female</u>		
Action Opportunity				
advertence	6.52	6.57	-0.07	.47
advising rank	3.71	3.03	2.97	.0024**
Performance Output				
leader-like behavior	5.63	7.22	-2.36	.011*
activity rank	3.32	2.99	1.53	.065+
contribution	3.80	3.77	0.08	.47
participation	7.24	7.22	0.08	.47
Reward Action				
positive affect	6.63	6.46	0.27	.40
value rank	3.50	3.09	1.82	.037*
bonus	22.54	21.02	0.75	.23
future teammate	1.61	2.00	-1.22	.12
Influence				
influence rank	3.70	2.75	4.15	.0001****
conformity	.017	.018	-0.07	.47
collaborating	4.00	4.25	-1.39	.09+
avoiding	2.83	2.72	0.49	.31
accommodating	3.29	3.23	0.35	.37
compromising	3.60	3.80	-1.04	.15
competing	3.39	3.13	1.24	.11
assertive	1.28	1.43	-0.34	.37
cooperative	1.06	1.63	-1.54	.06+
distributive	.109	-.103	0.75	.23
integrative	1.17	1.53	-1.26	.11
Group Structure				
leader	1.43	0.29	3.30	.001***
secretary	0.44	1.80	-3.47	.0006***
Satisfaction				
group atmosphere	6.29	6.67	-0.95	.18
satisfaction scale	3.98	4.38	-1.61	.06+

+ p<.10, one-tail
* p<.05, one-tail
** p<.01, one-tail
*** p<.001, one-tail
**** p<.0001, one-tail

Table 8b
T-tests for sex differences in the dependent
variables for equal gender context

<u>Variable</u>	<u>Mean</u>		<u>T</u>	<u>p</u>
	<u>Male</u>	<u>Female</u>		
Action Opportunity				
advertence	6.69	6.33	0.71	.24
advising rank	3.59	3.41	1.28	.10+
Performance Output				
leader-like behavior	5.90	6.35	-0.94	.17
activity rank	3.61	3.39	1.29	.10+
contribution	3.87	3.96	-0.49	.31
participation	7.38	7.42	-0.20	.42
Reward Action				
positive affect	6.54	6.10	0.94	.18
value rank	3.58	3.42	1.04	.15
bonus	23.29	24.42	-0.77	.22
future teammate	1.81	2.06	-1.26	.11
Influence				
influence rank	3.74	3.26	2.97	.0019**
conformity	.030	.030	0.04	.48
collaborating	4.26	4.36	-0.94	.17
avoiding	2.55	2.78	-1.55	.06+
accommodating	3.37	3.37	0.01	.50
compromising	3.74	4.01	-2.23	.014*
competing	3.27	3.11	1.11	.13
assertive	1.62	1.31	1.04	.15
cooperative	1.81	1.84	-0.10	.46
distributive	-.096	-.262	0.85	.20
integrative	1.72	1.57	0.72	.24
Group Structure				
leader	1.15	0.77	1.42	.08+
secretary	0.53	1.39	-3.26	.0008***
Satisfaction				
group atmosphere	6.38	6.17	0.86	.20
satisfaction scale	4.14	4.00	0.79	.22

+ p<.10, one-tailed
* p<.05, one-tailed
** p<.01, one-tailed
*** p<.001, one-tailed

Table 8c
T-tests for sex differences in the dependent
variables for majority gender context

<u>Variable</u>	<u>Mean</u>		<u>T</u>	<u>p</u>
	<u>Male</u>	<u>Female</u>		
Action Opportunity				
adventence	7.01	6.59	1.08	.14
advising rank	3.58	3.45	1.02	.15
Performance Output				
leader-like behavior	6.60	6.73	-0.41	.34
activity rank	3.59	3.57	0.10	.46
contribution	4.09	4.10	-0.07	.47
participation	7.17	7.39	-1.44	.08+
Reward Action				
positive affect	6.33	6.30	0.06	.48
value rank	3.56	3.51	0.31	.38
bonus	24.22	24.08	0.12	.45
future teammate	2.14	2.00	0.88	.19
Influence				
influence rank	3.65	3.44	1.47	.07+
conformity	.016	.019	-1.10	.14
collaborating	4.28	4.23	0.70	.24
avoiding	2.43	2.69	-2.35	.01**
accommodating	3.17	3.41	-2.45	.008**
compromising	3.79	3.88	-1.06	.15
competing	3.39	3.09	2.77	.0031**
assertive	2.07	1.22	4.08	.0001***
cooperative	1.63	1.86	-1.23	.11
distributive	.223	-.318	3.79	.0001**
integrative	1.85	1.54	2.31	.011*
Group Structure				
leader	1.12	0.86	1.23	.11
secretary	0.52	1.09	-2.80	.0029**
Satisfaction				
group atmosphere	6.80	6.49	1.60	.06+
satisfaction scale	4.42	4.21	1.74	.042*

+ p<.10, one-tailed
* p<.05, one-tailed
** p<.01, one-tailed
*** p<.0001, one-tailed

more influence than females. However, the reverse is true for conflict-handling behavior where females were more likely to collaborate and be cooperative than males. Both measures of group structure exhibit highly significant sex differences (leader $t=3.30$, $p<.001$; secretary $t=-3.47$, $p<.001$). This indicates that males are more likely to emerge as the leader in the group than females while females are more likely to adopt the role of secretary than males. Lastly, the means for the satisfaction scale exhibit close to significant differences for males versus females ($t=-1.61$, $p<.10$) with females more satisfied with their groups than males.

The majority of the significant t tests support H2a. Males exhibit more activity, receive more requests for advice, exert greater influence, are more highly valued, and are more likely to emerge as leader and less likely to take the role of secretary or to exhibit cooperative conflict-handling behavior than females. Three significant or near significant t tests do indicate the reverse of our hypothesis. Females appear to exhibit more leader-like behavior, are more likely to use the collaborating conflict-handling mode, and are more satisfied with their group than males.

Table 8b presents the means and t -tests for sex differences in equal gender contexts. Only three of the t -tests are significant while four tend toward significance. The significant sex differences were found

for measures of influence and group structure. Males exert more influence than females ($t=2.97$, $p<.01$) while females are more likely to handle conflict via compromising ($t=-2.23$, $p<.05$) or avoiding ($t=-1.55$, $p<.10$) than males. The results for group structure are similar to those found for token groups with males more likely than females to emerge as leader ($t=1.42$, $p<.10$) and females more likely than males to take the role of secretary ($t=-3.26$, $p<.001$). No significant sex differences were found for reward action or satisfaction. Two trends of sex differences are exhibited for action opportunity (advising rank $t=1.28$, $p<.10$) and performance output (activity rank $t=1.29$, $p<.10$). Males tend to exhibit greater activity and receive more requests for advice than females. The results support H2a as males were more active, received more requests for advice, exerted more influence, were less likely to avoid conflict or compromise, were more likely to emerge as leader and less likely to emerge as secretary.

The means and t-tests for sex differences in majority gender contexts is presented in Table 8c. As can be seen from the table, no sex differences are evident for measures of action opportunity or reward action. The majority of the significant t-statistics concern measures of influence. Six of the nine measures of conflict-handling behavior are significant. In terms of conflict-handling modes, females are more likely to avoid

($t=-2.35$, $p<.01$) or accommodate ($t=-2.45$, $p<.01$) while males are more likely to compete ($t=2.77$, $p<.01$). In terms of the conflict-handling dimensions, males were more likely to be assertive ($t=4.08$, $p<.0001$), distributive ($t=3.79$, $p<.0001$) and integrative ($t=2.31$, $p<.05$) than females. The t statistic for the influence rank was also close to significant ($t=1.47$, $p<.10$) with males tending to exhibit greater influence than females. As was true for token gender contexts and equal gender contexts, the secretary nomination scale exhibited sex differences ($t=-2.80$, $p<.01$) with females more likely to emerge as secretary than males. The results for satisfaction are the reverse of those found for token groups. Males scored higher than females on the group atmosphere scale ($t=1.60$, $p<.10$) and on the satisfaction scale ($t=1.74$, $p<.05$). In terms of performance output, females tended to participate more than males ($t=-1.44$, $p<.10$).

Most of the significant results for the majority gender context support the hypothesis. Males exhibited more influence, greater satisfaction, greater usage of competing, assertive, distributive and integrative conflict-handling behavior, and lower usage of avoiding and accommodating conflict-handling behavior, and were less likely to emerge as secretary than females. One close to significant result does not support the hypothesis as females tended to participate more than males.

From the tables we can see that significant differences in influence rank and secretary nominations were found across all three gender contexts. However, one should note that the differences diminish as the numerical dominance increases. This pattern is evident over other measures of the dependent variables as well. Only conflict-handling behavior measures seem to exhibit greater sex differences as numerical dominance increases.

Tests of Hypothesis 2b:

No differences in action opportunity, performance output, reward action and influence will be found between males and females in homogeneous gender contexts.

T-tests

Table 9 presents means and t statistics for sex differences in the dependent variables within homogeneous gender contexts. Some of the measures cannot be included in a t-test because the nature of the measure sets the mean and thus no difference could possibly exist when comparing means of entire homogeneous groups. Therefore, only those measures with potential differences in the means for males and females, were tested. The means and t statistics for each of these measures are presented in the table. As hypothesized, all but one of the t statistics are not significant. The only significant difference is in one measure of influence, where females are more likely to use the compromising ($t=-2.50$, $p<.05$) conflict-handling mode than males.

Table 9
T-tests for sex differences in the dependent
variables for homogeneous gender context

<u>Variable</u>	<u>Mean</u>		<u>T</u>	<u>p</u>
	<u>Male</u>	<u>Female</u>		
Action Opportunity adventence	6.87	6.59	0.42	.67
Performance Output leader-like behavior	6.44	6.06	0.68	.50
contribution	4.03	4.06	-0.12	.90
participation	7.56	7.64	-0.46	.65
Reward Action positive affect	6.55	6.06	0.76	.45
future teammate	2.17	1.81	1.38	.17
Influence conformity	.023	.021	0.33	.74
collaborating	4.29	4.46	-1.44	.15
avoiding	2.68	2.64	0.25	.80
accommodating	3.40	3.44	-0.23	.82
compromising	3.58	3.98	-2.50	.016*
competing	3.32	3.13	1.04	.30
assertive	1.51	1.52	-0.03	.98
cooperative	1.69	2.14	-1.38	.17
distributive	-.087	-.306	0.93	.36
integrative	1.60	1.83	-0.95	.35
Satisfaction group atmosphere	6.63	6.62	0.04	.97
satisfaction scale	4.23	4.18	0.26	.80

* $p < .05$, two-tailed

Due to the findings of significant sex differences in the individual difference variable of nDom, additional analyses were conducted. The purpose of the analyses were to determine if the sex differences in task behavior were actually due to the differences in nDom and not differences in sex. nDom was partialled out of the dependent measures to tests for differences in the adjusted mean scores for males and females. Sex differences were still evident in many of the same task behaviors, however, the magnitude and significance of the differences were greatly reduced.

Tests of Hypothesis 3a:

Individual difference variables of general ability, dominance and need for achievement will be positively related to action opportunity, performance output, reward action and influence.

Pearson product moment correlation

The correlations between the five measures of individual difference and the twenty-five measures of the dependent variables can be seen in Table 10. As can be seen in the table, the majority of the correlations are significant. However, it should be noted that the magnitude of the coefficients is in the low to moderate range. Grade point average exhibits significant correlations with ten of the twenty-five dependent measures. In terms of action opportunity, GPA is positively correlated with advising rank ($r=.31$, $p<.0001$). Similarly, for performance output, GPA is

Table 10
Correlation of individual difference variables
with dependent variables

<u>Variable</u>	<u>GPA</u>	<u>Do</u>	<u>nDom</u>	<u>nAch</u>	<u>nAff</u>
Active Opport.					
advice	.01	.16 c	.08	-.04	.12 a
advising rank	.31 d	.11 a	.31 d	.19 c	-.16 b
Perf. Output					
leader beh.	.05	-.01	-.07	-.04	.05
activity rank	.31 d	.13 b	.28 d	.19 c	-.16 c
contribution	.29 d	.10	.19 c	.11 a	-.10
participation	.07	-.10	-.02	.03	-.05
Reward Action					
positive affect	-.03	.07	-.01	-.09	.16 b
value rank	.32 d	.11 a	.27 d	.22 d	-.16 c
bonus	.27 d	.16 c	.20 d	.11 a	-.11 a
future teammate	.27 d	.12 b	.07	-.01	-.05
Influence					
influence rank	.34 d	.25 d	.42 d	.24 d	-.16 b
conformity	-.17 c	-.09	-.04	.02	.05
collaborating	-.01	.26 d	.09	-.02	.34 d
avoiding	-.05	-.17 c	-.13 b	.03	-.04
accommodating	-.08	-.03	-.11 a	-.02	.17 c
compromising	.03	.16 c	.05	.04	.16 b
competing	.09	.16 c	.38 d	.18 c	-.07
assertive	.10	.28 d	.34 d	.08	.03
cooperative	-.06	.10	-.16 b	-.14 b	.29 d
distributive	.12 a	.14 b	.35 d	.15 b	-.16 b
integrative	.04	.28 d	.15 b	-.04	.21 d
Group Structure					
leader	.33 d	.19 c	.32 d	.13 b	-.16 b
secretary	.05	.09	-.00	-.00	-.03
Satisfaction					
group atmosph.	-.06	.08	-.01	-.09	.24 d
satisfaction	-.03	.08	.01	-.11 a	.19 d

a p<.05, one-tailed
b p<.01, one-tailed
c p<.001, one-tailed
d p<.0001, one-tailed

positively correlated with activity rank ($r=.31$, $p<.0001$) and contribution ($r=.29$, $p<.0001$). Reward action measures are also significantly positively correlated with GPA (value rank $r=.32$, $p<.0001$; bonus $r=.27$, $p<.0001$; future teammate $r=.27$, $p<.0001$). In terms of influence, there are two significant positive correlations and one negative correlation. GPA exhibits a positive relationship with influence rank ($r=.34$, $p<.0001$) and distributive conflict-handling behavior ($r=.12$, $p<.05$), and a negative relationship with conformity ($r=-.17$, $p<.001$). Group structure is also related to GPA as evidenced by the positive correlation between leader nomination and GPA ($r=.33$, $p<.0001$). No relationship is exhibited however, between GPA and the satisfaction measures. All of these results support H3a that the higher one's general ability the greater one's action opportunity, performance output, reward action and influence. As hypothesized, high GPA scores are associated with a high level of activity, contribution, influence, distributiveness, emergent leadership, teammate nominations, bonus awards, valued contributions and requests for advice. High GPA scores are associated with a low level of conformity.

The CPI Do scale is significantly correlated with 15 of the 25 dependent measures. Both measures of action opportunity are positively associated with this prosocial dominance measure (advertence $r=.16$, $p<.001$; advising rank $r=.11$, $p<.05$). In terms of performance output, Do is

significantly positively related to activity rank ($r=.13$, $p<.01$). Three of the measure of reward action are significantly positively correlated with Do (value rank $r=.11$, $p<.05$; bonus $r=.16$, $p<.001$; future teammate $r=.12$, $p<.01$). Influence as well shows a significant relationship with Do. The Do scale is positively correlated with influence rank ($r=.25$, $p<.0001$) and with collaborating ($r=.26$, $p<.0001$), compromising ($r=.16$, $p<.001$) and competing ($r=.16$, $p<.001$) conflict-handling modes, and negatively correlated with avoiding ($r=-.17$, $p<.001$). Three of the conflict-handling dimensions are also positively correlated with Do (assertive $r=.28$, $p<.0001$; distributive $r=.14$, $p<.01$; integrative $r=.28$, $p<.0001$). One measure of group structure is also positively related to Do (leader $r=.19$, $p<.001$).

These results tend to support H3a that the higher one's dominance level the higher one's action opportunity, performance output, reward action and influence. High Do scores were associated with a high level of activity, advertence, influence, bonus award, valued contributions, requests for advice, teammate nominations, collaborating, competing, assertiveness, distributive behavior, integrative behavior and emergent leadership. High Do scores were also associated with low levels of avoiding behavior. One of the results is not in the predicted direction as high Do scores were related to high levels of

compromising behavior instead of low levels. This may be attributable to the prosocial nature of the dominance measured.

The second measure of dominance exhibits statistically significant relationships with 14 of the 25 dependent variables. The dominance scale from the Manifest Needs Questionnaire is positively correlated with one of the measures of action opportunity (advising rank $r=.31$, $p<.0001$). Similarly, nDom is positively correlated with two of the measures of performance output (activity rank $r=.28$, $p<.0001$; contribution $r=.19$, $p<.001$). In terms of reward action, nDom is positively related to value rank ($r=.27$, $p<.0001$) and bonus ($r=.20$, $p<.0001$). nDom is also positively correlated with influence rank ($r=.42$, $p<.0001$) and emergent leadership ($r=.32$, $p<.0001$). The competing conflict-handling mode is significantly positively associated with nDom ($r=.38$, $p<.0001$), while the avoiding and accommodating modes are significantly negatively correlated with nDom ($r=-.13$, $p<.01$; $r=-.11$, $p<.05$). In terms of conflict-handling dimensions, nDom is positively correlated with assertive ($r=.34$, $p<.0001$), distributive ($r=.35$, $p<.0001$) and integrative ($r=.15$, $p<.01$) behavior and negatively associated with cooperative behavior ($r=-.16$, $p<.01$).

All of these results support H3a that the higher one's need for dominance the greater one's action opportunity, performance output, reward action and influence. As

hypothesized, high nDom scores were associated with high level of advising, activity, contribution, value, bonus award, influence, competing, assertiveness, distributive behavior, integrative behavior and leader emergence while associated with low level of avoiding, accommodating and cooperativeness.

The measure of need for achievement is significantly correlated with 11 of the 25 measures of the dependent variables. In terms of action opportunity, nAch is positively correlated with advising rank ($r=.19$, $p<.001$). Similarly, performance output measures of activity rank and contribution are positively correlated with nAch ($r=.19$, $p<.001$; $r=.11$, $p<.05$). Reward action also exhibits positive correlations with nAch (value rank $r=.22$, $p<.0001$; bonus $r=.11$, $p<.05$). In terms of influence, nAch is positively correlated with influence rank ($r=.24$, $p<.0001$), competing ($r=.18$, $p<.001$) and distributive behavior ($r=.15$, $p<.01$) and negatively correlated with cooperative behavior ($r=-.14$, $p<.01$). Emergent leadership is also positively correlated with nAch ($r=.13$, $p<.01$). One measure of satisfaction is significantly negatively associated with nAch (satisfaction scale $r=-.11$, $p<.05$).

All of the significant correlations, except for satisfaction, support H3a that the higher one's level of need for achievement the greater one's action opportunity, performance output, reward action and influence. As

hypothesized, high nAch scores were associated with a high level of advising, activity, contribution, value, bonus award, influence, competing, emergent leadership and distributive behavior. In addition, high nAch scores were associated with a low level of cooperative behavior. It was expected that high nAch scores would be associated with high levels of satisfaction, however the reverse was found.

Tests of Hypothesis 3b:

Individual difference variable of need for affiliation will be negatively related to action opportunity, performance output, reward action and influence.

Pearson Correlation

The need for affiliation is significantly associated with 16 of the 25 dependent measures (see Table 10). In terms of action opportunity, nAff is positively correlated with advertence ($r=.12$, $p<.05$) and negatively correlated with advising rank ($r=-.16$, $p<.01$). One measure of performance output is significantly negatively associated with nAff (activity rank $r=-.16$, $p<.001$). Significant relationships with nAff are also evident for measures of reward action. nAff is positively correlated with positive affect ($r=.16$, $p<.01$) and negatively correlated with value rank ($r=-.16$, $p<.001$) and bonus ($r=-.11$, $p<.05$). In terms of influence, nAff is negatively associated with influence rank ($r=-.16$, $p<.01$) and positively associated with the conflict-handling modes of

collaborating ($r=.34$, $p<.0001$), accommodating ($r=.17$, $p<.001$) and compromising ($r=.16$, $p<.01$). The conflict-handling dimensions also exhibit significant relationships to nAff (cooperative $r=.29$, $p<.0001$; distributive $r=-.16$, $p<.01$; integrative $r=.21$, $p<.0001$). Emergent leadership is negatively correlated with nAff ($r=-.16$, $p<.01$). Both measures of satisfaction are positively associated with nAff (group atmosphere $r=.24$, $p<.0001$; satisfaction scale $r=.19$, $p<.0001$).

These results tend to support H3b that the higher one's need for affiliation the lower one's action opportunity, performance output, reward action and influence. As hypothesized in H3b, the direction of most of the significant relationships with nAff are the reverse of those for the other individual difference variables. High need for affiliation scores were associated with low levels of advising, activity, value, bonus award, influence, emergent leadership and distributive behavior. As expected high nAff scores were also associated with high levels of accommodating, compromising and cooperative conflict-handling behavior. A number of the relationships, however, were not in the predicted direction. High nAff scores were also associated with high levels of advertence, positive affect, collaborating, integrative behavior, and satisfaction with the group.

Cannonical correlation

In order to generate a clearer understanding of the relationship between the individual difference variables and the dependent variables, multivariate analyses were conducted. Cannonical correlations were calculated for the individual difference variable with each of the six sets of dependent variables. The results can be seen in Table 11 including the cannonical variate structure, cannonical correlation coefficients and significance levels. As can be seen from the table, significant cannonical correlations were found for all six of the dependent variables. The variance in the individual difference cannonical variates accounts for 24% of the difference in the action opportunity cannonical variates. Similarly, the variance in the individual difference variate accounts for 22% of the difference in the performance output variate. Twenty-five percent of the variance in the reward action variates is accounted for by the variance in the individual difference variates. The greatest variance is accounted for in the influence variate (54%). The variance in individual difference variate accounts for 22% of the variance in the group structure variate. The smallest variance is accounted for in the satisfaction variate (8%). This supports the hypothesis that individual difference variables influence behavior.

Table 11
 Canonical correlations between the individual
 difference variables and the dependent variables

<u>r</u>	<u>p</u>	
		<u>Action Opportunity</u>
.44	.0000	.57GPA -.14Do +.61nDom +.14nAch -.41nAff -.19advert + 1.0advising
.21	.0031	.03GPA +.76Do +.15nDom -.29nAch +.44nAff +.99advert +.07advising
		<u>Performance Output</u>
.47	.0000	.49GPA +.03Do +.58nDom +.19nAch -.41nAff -.30ldrbeh +.86activity +.21cont -.06part
		<u>Reward Action</u>
.44	.0000	.55GPA -.07Do +.44nDom +.34nAch -.45nAff -.30posaffect +.92value +.10bonus -.09teammate
.25	.0017	.55GPA +.63Do -.23nDom -.40nAch +.35nAff .48posaffect -.43value +.39bonus +.73teammate
		<u>Influence</u>
.59	.0000	.37GPA +.05Do +.66nDom +.15nAch -.48nAff .75influence -.08conform -.26collab +.07avoid -.23accommo +.19compro +.35compet
.44	.0000	.03GPA +.56Do +.16nDom -.10nAch +.70nAff .06influence -.12conform +.88collab -.31avoid +.18accommo -.04compro +.13compet
		<u>Group Structure</u>
.47	.0000	.55GPA +.12Do +.55nDom +.03nAch -.40nAff .99leader +.16secretary
		<u>Satisfaction</u>
.28	.0014	-.16GPA +.30Do -.08nDom -.36nAch +.84nAff .8latmosphere + .25satisfaction

If we examine the variate structure we can see the exact nature of the relationships between the sets of variables. Two sets of canonical variates are exhibited for action opportunity. The correlation is stronger for the first set, but both are significant. Upon examining the canonical weights for action opportunity, it is clear that the emphasis is on advising rank in the first variate and on advertence in the second variate. The first canonical variates for individual difference variables show mixed signs with GPA, nDom and nAch weighted positively and Do and nAff weighted negatively. The emphasis is on GPA and nDom which are positively weighted and on nAff which is negatively weighted. It should be noted that Do appears to act as a suppressor variable. Although it has a negative canonical coefficient, it is positively correlated with the action opportunity variate ($r=+.10$). The signs for the second canonical variate for individual difference variables are also mixed with positive signs for GPA, Do, nDom and nAff and negative signs for nAch. The emphasis is on Do and nAff which are positively weighted and on nAch which is negatively weighted. The first canonical variate for individual difference variables can be thought of as antisocial dominance, while the second is prosocial dominance. Thus we can see that advising is correlated with the antisocial form of dominance ($r=.44$), while advertence is correlated with the prosocial form ($r=.22$).

Examination of the other variates for individual difference reveals that they are either similar to the structure of the prosocial dominance variate or the antisocial dominance variate. For performance output, the individual difference variate resembles the antisocial structure with the emphasis on GPA and nDom which are positively weighted and nAff which is negatively weighted. The performance output variate contains mixed signs with activity rank and contribution positively weighted and leader-like behavior and participation negatively weighted. The emphasis is on activity rank. It must be noted that participation has a very low weight and appear to be a suppressor variable as its weight is negative but its correlation with the individual difference variate is positive. Thus antisocial dominance is significantly correlated with a weighted difference of activity and contribution minus leader-behavior ($r=.47$).

Two sets of significant canonical variates are evidenced for reward action and individual difference variables. For the first set, the antisocial dominance variate is evident. The first reward action variate has mixed signs with negative weights for positive affect and future teammate and positive weights for value rank and bonus. The emphasis is on value rank (positive) and positive affect (negative). Teammate acts as a suppressor variable since it is positively correlated with the antisocial dominance variate ($+.18$) despite the negative

coefficient. Thus a weighted difference of value rank and bonus minus positive affect is correlated with antisocial dominance ($r=.44$). The second individual difference variate is the prosocial dominance type with GPA, Do and nAff positively weighted and nAch negatively weighted. Although nDom is negatively weighted, it appears to be a suppressor variable as it is positively correlated with the reward action variate ($+.01$). The second reward action variate has positive weights for positive affect, bonus and teammate and negative weights for value rank. Value rank appears to be a suppressor variable as it is positively correlated with the opposite variate ($+.05$). Its removal enhances the relationship between the other variables. Thus a weighted sum of received positive affect, bonus and teammate is correlated with prosocial dominance ($r=.25$). The major difference in the two reward action variates is in received positive affect. It follows from expected patterns that a person who engages in the antisocial form of dominance will receive little positive affect from teammates whereas a person who engages in the prosocial form of dominance will receive a great deal of positive affect from teammates.

Two significant canonical correlations are exhibited for influence and individual difference variables. The first influence variate has mixed signs with positive weights for influence rank, competing, compromising and avoiding and negative weights for collaborating,

accommodating and conforming. The emphasis is on influence rank and competing. The individual difference variate is the antisocial dominance form. Thus a weighted sum of the influence rank and competing is related to antisocial dominance ($r=.59$). The second influence variate has positive weight for collaborating, accommodating, competing and influence rank and negative weights for avoiding, conformity and compromising. The emphasis is on collaborating (positive) and avoiding (negative). The second individual difference variate is the prosocial dominance form. The weighted difference of collaborating minus avoiding is significantly related to prosocial dominance ($r=.44$). One may recall from the section on measures that the integrative conflict-handling dimension is an index of collaborating minus avoiding. I stand to reason that a person who engages in the prosocial form of dominance will add to the size of the pie available to all, while a person who engages in the antisocial form of dominance will not.

The group structure variate positively weights emergent leader and secretary with the emphasis on leader. The individual difference variate is the antisocial dominance form. Thus emergent leadership is related to antisocial dominance ($r=.47$). In the final canonical relationship for satisfaction, the structure of the individual difference variate resembles the prosocial dominance type with strong positive weights for nAff and

Do and a strong negative weight for nAch. The weighted sum of group atmosphere and satisfaction with the group is related to prosocial dominance ($r=.28$).

Tests of Hypothesis 4:

Individual difference variables will have stronger relationships with behavior for homogeneous than heterogeneous groups.

Fisher's t transformations and z tests

Table 12a-12e present correlation coefficients of each of the individual difference variables with the dependent variables separately for homogeneous and heterogeneous gender contexts. In addition, for comparison purposes the correlation coefficients were converted to t statistics using Fisher's transformation and the z statistic is presented in the tables along with its significance level. The critical value for z is 1.64 $p<.05$, one-tail and 2.33 $p<.01$, one-tail.

As can be seen from Table 12a, the correlations between GPA and the dependent variables are stronger for homogeneous than heterogeneous groups. Six of the differences are statistically significant. The correlations of GPA with activity rank, value rank, bonus future teammate, influence rank, and compromising are significantly larger for subjects in homogeneous groups as opposed to those in heterogeneous groups. The difference in the correlations for homogeneous versus heterogeneous groups is close to significant for emergent leadership and integrative conflict-handling behavior. Table 12b

Table 12a
Test for difference in correlations between
GPA and dependent variables for homogeneous
versus heterogeneous gender contexts

<u>Variable</u>	<u>Correlation</u> <u>Coefficients</u>		<u>z statistic</u>
	<u>Hetero</u> N=308	<u>Homog</u> N=62	
Action Opportunity			
advertence	.03	-.05	0.56
advising rank	.29	.41	-0.99
Performance Output			
leader behavior	.04	.14	-0.70
activity rank	.26	.53	-2.25*
contribution	.25	.43	-1.41
participation	.07	.10	-0.21
Reward Action			
positive affect	.01	-.20	1.50
value rank	.27	.58	-2.68**
bonus	.23	.49	-2.18*
future teammate	.22	.47	-2.18*
Influence			
influence rank	.30	.53	-1.97*
conformity	-.16	-.22	0.42
collaborating	-.03	.07	-0.70
avoiding	-.02	-.22	1.41
accommodating	-.06	-.20	0.99
compromising	-.02	.25	-1.97*
competing	.10	.02	0.56
assertive	.07	.24	-1.20
cooperative	-.09	.06	-1.06
distributive	.11	.14	-0.21
integrative	-.01	.22	-1.62+
Group Structure			
leader	.30	.49	-1.62+
secretary	.03	.15	-0.85
Satisfaction			
group atmosphere	-.03	-.20	1.20
satisfaction	-.00	-.14	0.99

+ p<.10
* p<.05
** p<.01

Table 12b
 Test of differences in correlations between
 nAch and dependent variables for homogeneous
 versus heterogeneous gender contexts

<u>Variable</u>	<u>Correlation Coefficient</u>		<u>z statistic</u>
	<u>Hetero</u> N=308	<u>Homog</u> N=62	
Action Opportunity			
advertence	-.02	-.11	0.63
advising rank	.15	.42	-2.11*
Performance Output			
leader behavior	-.02	-.18	1.13
activity rank	.17	.27	-0.77
contribution	.07	.33	-1.90*
participation	-.01	.37	-2.82**
Reward Action			
positive affect	-.08	-.13	0.35
value rank	.19	.38	-1.48+
bonus	.08	.28	-1.48+
future teammate	-.01	-.03	0.14
Influence			
influence rank	.24	.26	-0.21
conformity	.02	.03	-0.07
collaborating	-.00	-.08	0.56
avoiding	.04	.01	0.21
accommodating	.00	-.14	0.99
compromising	.03	.07	-0.28
competing	.19	.12	0.49
assertive	.07	.09	-0.14
cooperative	-.13	-.17	0.28
distributive	.14	.18	-0.28
integrative	-.03	-.05	0.14
Group Structure			
leader	.13	.15	-0.14
secretary	-.03	.11	-0.99
Satisfaction			
group atmosphere	-.09	-.05	-0.28
satisfaction	-.13	-.02	-0.77

Table 12c
 Test for differences in correlations between
 nAff and dependent variables for homogeneous
 versus heterogeneous gender contexts

<u>Variable</u>	<u>Correlation Coefficient</u>		<u>z statistic</u>
	<u>Hetero</u> N=308	<u>Homog</u> N=62	
Action Opportunity			
advertence	.11	.14	-0.21
advising rank	-.14	-.26	0.92
Performance Output			
leader behavior	.04	.18	-0.99
activity rank	-.12	-.40	2.18*
contribution	-.07	-.27	1.48+
participation	-.04	-.13	0.63
Reward Action			
positive affect	.13	.27	-1.06
value rank	-.12	-.38	1.97*
bonus	-.09	-.24	1.06
future teammate	-.04	-.12	0.56
Influence			
influence rank	-.12	-.37	1.90*
conformity	.06	-.03	0.63
collaborating	.32	.43	-0.92
avoiding	-.06	.07	-0.92
accommodating	.12	.43	-2.39**
compromising	.19	.00	1.34
competing	-.04	-.22	1.27
assertive	.07	-.18	1.76*
cooperative	.25	.44	-1.48+
distributive	-.11	-.43	2.46*
integrative	.22	.16	0.42
Group Structure			
leader	-.14	-.22	0.56
secretary	.03	-.34	2.25*
Satisfaction			
group atmosphere	.19	.50	-2.54**
satisfaction	.16	.35	-1.48+

Table 12d
 Test for differences in correlations between
 nDom and dependent variables for homogeneous
 versus heterogeneous gender contexts

<u>Variable</u>	<u>Correlation Coefficient</u>		<u>z statistic</u>
	<u>Hetero</u> N=308	<u>Homog</u> N=62	
Action Opportunity			
advertence	.13	-.16	2.04*
advising rank	.33	.20	0.91
Performance Output			
leader behavior	-.08	-.01	-0.49
activity rank	.29	.21	0.63
contribution	.19	.17	0.14
participation	-.03	.05	-0.56
Reward Action			
positive affect	.03	-.17	1.41
value rank	.28	.23	0.42
bonus	.21	.17	0.28
future teammate	.08	.01	0.49
Influence			
influence rank	.45	.27	1.33
conformity	-.06	.04	-0.70
collaborating	.12	-.07	1.33
avoiding	-.11	-.18	0.49
accommodating	-.13	.03	-1.13
compromising	.06	-.04	0.70
competing	.41	.22	1.55
assertive	.36	.18	1.41
cooperative	-.19	-.02	-1.20
distributive	.39	.15	1.83*
integrative	.16	.12	0.28
Group Structure			
leader	.34	.25	0.63
secretary	-.03	-.08	0.35
Satisfaction			
group atmosphere	-.02	.10	-0.85
satisfaction	.02	.04	-0.14

Table 12e
Tests for the differences in the correlations between
Do and dependent variables for homogeneous
versus heterogeneous gender contexts

<u>Variable</u>	<u>Correlation</u> <u>Coefficient</u>		<u>z statistic</u>
	<u>Hetero</u> N=308	<u>Homog</u> N=62	
Action Opportunity			
advertence	.17	.15	0.14
advising rank	.13	.03	0.70
Performance Output			
leader behavior	-.04	.14	-1.27
activity rank	.16	.03	0.92
contribution	.12	-.01	0.92
participation	-.08	-.28	1.48+
Reward Action			
positive affect	.06	.12	-0.42
value rank	.13	.02	0.77
bonus	.17	.09	0.56
future teammate	.11	.15	-0.28
Influence			
influence rank	.29	.11	1.34
conformity	-.10	-.03	-0.49
collaborating	.29	.14	1.13
avoiding	-.15	-.27	0.92
accommodating	-.00	-.14	0.99
compromising	.20	-.00	1.41
competing	.24	-.20	3.10**
assertive	.30	.16	1.06
cooperative	.07	.27	-1.48+
distributive	.19	-.07	1.83*
integrative	.28	.30	-0.14
Group Structure			
leader	.30	.20	0.77
secretary	.03	-.08	0.77
Satisfaction			
group atmosphere	-.03	.10	-0.92
satisfaction	-.00	.04	-0.28

presents the statistics for the need for achievement. Again, the correlations between nAch and the dependent variables are larger for subjects in homogeneous groups than those in heterogeneous groups. However, only the differences in the correlations for advising rank, contribution and participation are significant with trends for value rank and bonus award. Table 12c presents the statistics for the need for affiliation. The correlations in general are stronger for subjects in homogeneous versus heterogeneous groups. Eight of the differences reach significance with stronger negative correlations with homogeneous groups for activity rank, value rank, influence rank, assertive behavior, distributive behavior and secretary nominations than heterogeneous groups and stronger positive correlations with homogeneous groups for accommodating and group atmosphere for subjects than heterogeneous groups. Three close to significant differences were also evident with homogeneous groups having stronger negative correlations for contribution and stronger positive correlations for cooperative behavior and the satisfaction scale than heterogeneous groups.

Table 12d presents the statistics for need for dominance. Unlike the results for GPA, nAch and nAff, the correlations for subjects in heterogeneous groups appear to be stronger than those for homogeneous groups. However, only two of the differences are significant. Need for dominance is significantly positively related to

distributive behavior for subjects in heterogeneous groups, but not for homogeneous groups. Significant difference is evidenced for the correlations of nDom with advertence as well. However, the signs of the two correlations are opposite -- positive for heterogeneous gender contexts and negative for homogeneous gender contexts. Table 12e presents the statistics for the Do scale. No clear pattern is apparent as to which groups' correlations of Do and the dependent variables are stronger. In fact, only two of the differences reached significance. High scores on the Do scale were associated with high levels of distributive behavior for subjects in heterogeneous group but not so for homogeneous groups. High scores on the Do scale were associated with high levels of competing for subjects in heterogeneous groups while associated with low levels of competing for subjects in homogeneous groups. Two trends also support the hypothesis as the correlations between Do and cooperative behavior and between Do and participation are stronger for homogeneous versus heterogeneous groups.

Canonical correlation

Canonical correlations can more clearly illustrate the difference in the level of relationship between the individual difference variables and the dependent variables for subjects in heterogeneous and homogeneous groups. Table 13 presents the canonical correlation coefficients and eigenvalues for the six sets of dependent

Table 13
 Cannonical correlations between individual difference
 variables and dependent variables for homogeneous
 and heterogeneous gender contexts

<u>Variable</u>	Homogeneous		Heterogeneous	
	<u>r</u>	<u>r²</u>	<u>r</u>	<u>r²</u>
Action Opportunity	.61	.37	.42	.18
Performance Output	.75	.57	.45	.20
Reward Action	.77	.60	.38	.15
Influence	.78	.62	.60	.37
Group Structure	.59	.35	.45	.21
Satisfaction	.53	.29	.25	.06

measures and individual difference variables. As can be seen in the table, the canonical coefficients are greater for the subjects in homogeneous groups than for those in heterogeneous groups for all six dependent variables. The variance in the individual difference variate accounts for 37% of the variance in the action opportunity variate with homogeneous subjects, but only 18% with heterogeneous subjects. Similarly, the variance in the individual difference variate accounts for 57% of the variance in the performance output variate with homogeneous subjects, but only 20% with heterogeneous subjects. In terms of the reward action variate, 60% of the variance is accounted for by the variance in the individual difference variate with homogeneous subjects, but only 15% is accounted for with heterogeneous subjects. While for homogeneous subjects, 62% of the variance in the influence variate is accounted for by the individual difference variate, only 15% is accounted for with heterogeneous subjects. For the group structure variate as well, 35% is accounted for with homogeneous subjects, while only 21% is accounted for with heterogeneous subjects. Lastly, the variance in the individual difference variate accounts for 29% of the variance in satisfaction with homogeneous subjects, but only accounts for 6% of the variance with heterogeneous subjects.

Tests of Hypothesis 5:

Performance feedback will be related to future levels of action opportunity, performance output, reward action and influence.

Pearson product moment correlation

Correlations between z-scores of quiz performance and the dependent variables can be seen in Table 14. Quiz performance is significantly correlated with 15 of the 25 dependent variables. In terms of action opportunity, quiz performance is positively correlated with advising rank ($r=.31$, $p<.0001$). Similarly for performance output, quiz performance is positively associated with activity rank ($r=.36$, $p<.0001$), contribution ($r=.27$, $p<.0001$) and participation ($r=.11$, $p<.05$). Three measures of reward action are also positively correlated with quiz performance (value rank $r=.35$, $p<.0001$; bonus $r=.29$, $p<.0001$; future teammate $r=.26$, $p<.0001$). In terms of influence, quiz performance is positively correlated with influence rank ($r=.36$, $p<.0001$), competing ($r=.21$, $p<.0001$) and the assertive ($r=.23$, $p<.0001$), distributive ($r=.20$, $p<.0001$) and integrative ($r=.13$, $p<.001$) conflict-handling dimensions, and negatively correlated with conformity ($r=-.15$, $p<.01$) and avoiding ($r=-.14$, $p<.01$). Lastly, emergent leadership is positively associated with quiz performance ($r=.29$, $p<.0001$).

The results support H5 that states that feedback regarding performance will influence behavior. As hypothesized, high quiz scores were associated with high

Table 14
Correlation between performance feedback and
dependent variables

<u>Variable</u>	<u>Correlation</u>	<u>one-tail p</u>
Action Opportunity		
advertence	.02	ns
advising rank	.31	.0001
Performance Output		
leader behavior	.02	ns
activity rank	.36	.0001
contribution	.27	.0001
participation	.11	.024
Reward Action		
positive affect	-.06	ns
value rank	.35	.0001
bonus	.29	.0001
future teammate	.26	.0001
Influence		
influence rank	.36	.0001
conformity	-.15	.0026
collaborating	.06	ns
avoiding	-.14	.0037
accommodating	-.07	ns
compromising	-.08	ns
competing	.21	.0001
assertive	.23	.0001
cooperative	-.06	ns
distributive	.20	.0001
integrative	.13	.0065
Group Structure		
leader	.29	.0001
secretary	-.04	ns
Satisfaction		
group atmosph.	-.04	ns
satisfaction	.00	ns

levels of advising, activity, contribution, participation, value, bonus award, future teammate nominations, influence, competing, emergent leadership and assertive, distributive and integrative conflict-handling behavior. While high quiz scores were associated with low levels of conformity and avoiding behavior.

Fisher's t transformation and z test

The correlations between performance and behavior were recomputed for males and females separately in order to check that the response to the performance feedback was in fact the same for both sexes. For comparison purposes, Fisher t transformations were performed and z statistics calculated. The critical value at the .05 level, two-tailed for the z statistic was 1.96. The correlations and z statistics can be seen in Table 15. As can be seen from the table, the separate correlations reveal minimal differences. Only one of the z statistics is significant. For males, quiz performance is negatively correlated with use of the compromising conflict-handling mode ($r = -.21$), whereas for females the correlation is in the opposite direction although not significant ($r = .08$). The difference between the correlations for positive affect and quiz performance is close to significant. For females, quiz scores are negatively correlated with receipt of positive affect ($r = -.17$), whereas for males the correlation is in the opposite direction although not significant ($r = .03$). The difference between the

Table 15
Correlation between performance feedback and dependent variables for males and females separately

<u>Variable</u>	<u>Correlation Coefficient</u>		<u>z statistic</u>
	<u>Male</u> N=170	<u>Female</u> N=170	
Action Opportunity			
advertence	.07	-.05	1.09
advising rank	.27	.33	-0.55
Performance Output			
leader behavior	-.02	.07	-0.82
activity rank	.35	.36	-0.09
contribution	.30	.24	0.64
participation	.07	.17	-0.91
Reward Action			
positive affect	.03	-.17	1.82+
value rank	.33	.37	-0.45
bonus	.28	.30	-0.18
future teammate	.22	.31	-0.91
Influence			
influence rank	.36	.34	0.27
conformity	-.15	-.15	0.00
collaborating	-.05	.14	-1.73+
avoiding	-.19	-.09	-0.91
accommodating	-.13	-.01	-1.09
compromising	-.21	.08	-2.64*
competing	.25	.16	0.91
assertive	.25	.19	0.64
cooperative	-.11	.01	-1.09
distributive	.25	.13	1.18
integrative	.12	.15	-0.27
Group Structure			
leader	.35	.22	1.36
secretary	.02	-.06	0.73
Satisfaction			
group atmosph.	.00	-.08	0.73
satisfaction	.04	-.03	0.64

+ p<.10

* p<.05

correlations for collaborating and quiz performance is also close to significant. A significant positive correlation exists for females ($r=.14$), while a negative but insignificant correlation ($r=-.05$) is evidenced for males.

Examination of power and prestige order

In order to examine the influence of the intervening variable power, partial canonical correlations were computed between the individual difference variables and dependent behaviors. If power does serve as an intervening variable, then the relationship between the individual difference variables and the dependent behaviors should decrease significantly when power is partialled out. The results support the model as the partial canonical correlation coefficients were significantly smaller than the non partialled canonical correlation coefficients. The partialled canonical correlation coefficients and eigenvalues can be seen in Table 16.

The variance in the individual difference variate only accounts for 6% of the variance in the action opportunity variate when power is partialled while it accounts for 24% when not partialled. Similarly, the variance in the individual difference variate only accounts for 5% of the variance in the performance output variate when power is partialled, while it accounts for 22% when not partialled. In terms of the reward action

Table 16
 Partial canonical correlations for power and prestige
 order between the individual difference variables
 and the dependent variables

<u>Dependent Variate</u>	<u>r</u>	<u>p</u>	<u>eigenvalue</u>
Action Opportunity	.25	.0029	.06
Performance Output	.23	.036	.05
Reward Action	.31	.0001	.09
Influence	.45 .42	.0000 .0000	.20 .18
Group Structure	.20	.11	.04
Satisfaction	.28	.0015	.08

variate, 9% is accounted for by the variance in the individual difference variate when partialled for power versus 25% when not partialled. Two partial canonical correlations are significant for the influence variables and the individual difference variables. Both sets of individual difference variates account for 38% of the variance in the influence variate while 54% is accounted for when not partialled. The most extreme case is group structure where the partial canonical correlation is not significant while when not partialled for power the variance in the individual difference variate accounts for 22% of the variance in the group structure variate. Thus the relationship is no longer significant when power is removed. The only insignificant result is for the partial canonical correlation of the satisfaction measures and the individual difference variables. The magnitude of the relationship is the same with or without power partialled from the measures. The variance in the individual difference variate accounts for 8% of the variance in the satisfaction variate.

CHAPTER 6

DISCUSSION

Conclusions

In general, the findings of this study support the theory and model of gender context presented in Chapter 3. As proposed in Hypothesis 1, persons with low numerical dominance were given less opportunity to participate in the group task, made fewer task contributions, had their contributions evaluated negatively by group members, had less ability to influence group members, were less likely to emerge as group leader and more likely to emerge as group secretary, and were less satisfied with the group than persons with high numerical status.

The specific results revealed that token males received fewer future teammate nominations, exhibited less leader-like behavior, were less satisfied with the group, and were less likely to utilize collaborative, assertive and integrative conflict-handling behavior, while more likely to avoid conflict than majority males. Similarly, token females received fewer requests for advice, exhibited less activity and contribution, received lower bonus awards with contributions less valued, exhibited little influence, and were less likely to emerge as leader and more likely to emerge as secretary than majority females. As hypothesized, the behavior of the equal

subjects fell between that of the token and majority subjects. However, for many of the behaviors, only the differences between the two extreme gender contexts (token and majority) were large enough to reach significance.

The hypotheses for the alternate sources of power and prestige were also supported. Master status characteristics, according to Bales et al. (1977), influence expectations about performance capabilities which in turn determine the power and prestige order and ultimately regulate behavior. In this society, the master status characteristic of "female" is accorded lower status than "male", thus males should be expected to make greater contributions than females. As proposed in H2a, within each heterogeneous gender context, males had more opportunity to participate in the group task, made more task contributions, more often had their contributions evaluated positively by groups members, had greater ability to influence, more often emerged as group leader, and less often emerged as group secretary than females.

The specific research findings revealed that in token gender contexts, males received more requests for advice, exhibited more activity, had their contributions more highly valued, exerted greater influence, were less likely to exhibit cooperative conflict-handling behavior or emerge as secretary, and more likely to emerge as leader than females. Similarly, for equal gender contexts, males received more requests for advice, exhibited more activity

and influence, were less likely to utilize compromising or avoiding conflict-handling modes and were more likely to emerge as leader and less likely to emerge as secretary than females. For majority gender context as well, males exhibited greater influence, were more likely to utilize competing, assertive, distributive and integrative conflict-handling behavior and less likely to exhibit avoiding or accommodating conflict-handling behavior, were more satisfied with their group and less likely to emerge as secretary than females. One interesting unanticipated trend is that token males were less satisfied with their groups than token females. Perhaps this is because for women, it is not unusual to be in a group with all men, whereas for men, it is an unfamiliar and thus a more adverse situation.

Bales et al. (1977) notion that a master status characteristic is salient only if it is known or believed to differentiate members of the group led to the hypothesis that master status would not be operative in homogeneous groups. As proposed in H2b, insignificant differences were found in the behavior of males and females in homogeneous gender contexts. One difference was significant, with females more likely to utilize the compromising conflict-handling mode than males. These findings lend support to the status theory of sex differences as opposed to the sex role socialization theory.

The second alternate source of power and prestige was individual difference variables. Ability and need strength were suggested to influence behavior in groups (McClelland & Boyatzis, 1982; Shaw, 1981; Stogdill, 1948). The results were not as straight forward as those for gender context and master status characteristic in supporting the hypotheses. Two different patterns of individual difference surfaced from canonical correlations. The two patterns resemble McClelland's two faces of power (McClelland, 1971).

The first pattern identified is similar to McClelland's bad face of power which involves the desire for personal domination over others. This pattern which we labelled antisocial dominance, was a weighted difference of GPA and n_{Dom} minus n_{Aff} (n_{Ach} and Do were also positively associated with this form but minimally). The antisocial form of dominance functioned as hypothesized in H3a and H3b. Persons with high antisocial dominance scores received more requests for advice, exhibited more activity and contributions, had their contributions more highly valued, exerted more influence, were more likely to utilize the competing mode and were more likely to emerge as leader than persons with low antisocial dominance scores. Thus as hypothesized, antisocial dominance was associated with action opportunity, performance output, reward action, influence, and group structure. However, satisfaction with the group

was not higher for persons with high antisocial dominance scores. In addition, antisocial dominance was negatively associated with leader-like behavior, collaborative conflict-handling and received positive affect. As persons who are high in antisocial dominance are solely concerned with controlling others, it is reasonable that such people would not exhibit collaborating conflict-handling behavior, receive positive affect or be seen as giving the group information.

The second pattern of individual difference variables identified is similar to McClelland's good face of power which involves influencing others toward goal and task achievement. This pattern, which was labelled prosocial dominance, was a weighted difference of D_o and $nAff$ minus $nAch$ ($nDom$ and GPA were also positively associated with this form, but less so). Persons with high levels of prosocial dominance received greater advertence behavior and positive affect from their teammates, were more often nominated as future teammates, received greater bonus awards, were more satisfied with the group and were more likely to utilize the collaborating conflict-handling mode and less likely to utilize the avoiding mode than persons with low levels of prosocial dominance. As persons who are high in prosocial dominance are concerned with maintaining friendly relations with group members as well as helping the group to achieve their goal, it is logical that such persons received advertence and positive affect

from their teammates, were desired as future teammates, were awarded large bonuses, were integrative (collaborating minus avoiding) and were satisfied with their groups.

The impact of the homogeneity/heterogeneity moderator variable on the third independent variable of individual differences, was supported by the study. It was hypothesized that individual difference variables would have a stronger impact on homogeneous groups than heterogeneous groups because the other two influencers of behavior (gender context and master status characteristic) are not operative for homogeneous groups. The multivariate findings of the study clearly support Hypothesis 4 as the individual difference variates were more strongly correlated with action opportunity, performance output, reward action and influence variates for homogeneous groups than heterogeneous groups.

The role of the feedback variable was also supported. As proposed in Hypothesis 5, persons with high performance scores received more advertence behavior, exhibited more activity, contributions and participation, had their contributions more highly valued, were awarded larger bonuses, were more often nominated as future teammates, exerted greater influence, exhibited less conformity, were more likely to emerge as group leader and were more likely to utilize competing, assertive, distributive and integrative conflict-handling behavior and less likely to

utilize avoiding behavior than persons with low performance scores. The notion of differential attribution for male success versus female success was not supported as minimal sex differences between the correlations of performance and behavior were evident.

Contributions and limitations

Overall, the theory of gender context was supported by the empirical research. This research represents a contribution to the field as it presented a comprehensive theory of gender context that was supported via a carefully designed study. The free simulation technique utilized in the research offered the benefits of randomization and control in a laboratory experiment while adding the realism of a field study. Of course, it must be noted that despite the close simulation of the criterion business work environment, the participants in the study were business students. It is possible that, despite the controlled context of the simulation, business students do not behave the same as actual working people in the business world.

In addition, due to the small number of subjects per group in the simulation, we were only able to represent homogeneous gender contexts plus three points on the heterogeneity continuum (all male, token female/majority male, equal male and female, token male/majority female, all female). With larger groups one can represent with

greater specificity the continuum of heterogeneous gender contexts. Thus it is unclear whether a truly linear relationship exists between the proportion of one's sex in one's group and action opportunity, performance output, reward action and influence, where each increment in proportion adds an increment in the behaviors, or if there are certain categories of gender contexts (e.g. token, equal, majority) by which the proportions can be grouped and these larger increments of proportion are related to the behaviors. For example, would the effects of being a token be greater for a woman in a group with 9 men (10%/90%) as opposed to a woman in a group with 4 men (20%/80%), or would they both exhibit the same behavior? And how about a group with two women and eight men (20%/80%)? The small group size also leaves questions as to whether the findings would apply to larger groups.

The results generate some further questions. Not all of the measures of the dependent variables functioned as hypothesized. For instance, it is unclear as to why different measures of the dependent variables revealed significant impacts of gender context for males versus females. In addition, a number of the measures revealed insignificant findings and a few revealed findings opposite of those hypothesized. It is possible that the experimental manipulation with only four persons in a group was not powerful enough to generate the expected effects for all of the measures. In addition, the peer-

and self-report measures, although seemingly valid and reliable, may not have been precise enough to capture the effects of gender context.

Future research is needed to further investigate the impact of gender context on behavior. Field studies of actual work groups would help to support the external validity of the findings. Objective measures such as videotaping and content analysis would also be of value. Similarly, groups of varying sizes should be studied to extend the degree of specificity of the gender contexts examined. It would also be of interest to replicate the study both with similar and different simulations in order to clarify the relationships between gender context and behavior for both sexes. Alternate simulations consisting of tasks that are considered "feminine" in nature would be interesting to examine to see if the master status would be reversed and whether the impact of gender context would be altered.

Implications

The findings of the study have major implications for both the academic and business spheres. The results of past organizational research on sex differences should be reexamined to account for gender context and all future research investigating sex differences must take into account the gender context of the study. For example, a study of women's leadership capabilities must compare male and female leaders working in identical gender contexts

(i.e. female leader with three male subordinates versus male leader with three female subordinates). In addition, other group composition factors (i.e. race, religion) should be examined to see if they too lead to numerical dominance and impact on the power and prestige order. If this is found to be the case, then all research on differences in social or cultural types must account for the composition of the groups studied.

The findings of the study also have implications for the business world as many occupations are dominated by one sex. In terms of sex differences, according to the findings of the study, men have the advantage in most positions since their higher master status leads others to have high performance expectations for them resulting in a high standing in the power and prestige order of the work group and thus greater opportunity to contribute with greater actual contributions that are highly valued and the ability to influence other group members. Women, on the other hand, start out with lower master status and thus lower standing in the power and prestige order and less action opportunity, performance output, reward action and influence.

In terms of gender context differences, if the women also have low numerical dominance due to a token gender context, the behavior of these women will be severely curtailed. They will have little influence over others, be given little opportunity to contribute to the group and

any contribution they make will be negatively evaluated by group members. Thus, their actual performance will not be an accurate indication of their abilities in the job. It must be noted that the concentration on women is not to say that gender context does not have severe organizational implications for men. Low numerical dominance for men will also lead to low standings in the power and prestige order and poor action opportunity, performance output, reward action, and influence. However, these negative impacts are tempered by high master status.

Fortunately, the findings also reveal that over time, actual information as to performance capability will supercede the master status and gender context information. Therefore, women and men with expertise will eventually achieve the power and prestige they deserve, even if they have low numerical dominance and/or master status. This, however, may only occur where the performance information is objective, nondistortable and clearly related to ability. If the performance information is vague, Deaux and Emswiller (1974) found that women's success may be attributed to external factors such as luck, while men's success is attributed to internal factors such as ability.

We might also hope that as women prove their ability in all areas, the master status characteristic of "female" will no longer be lower in status than "male." Similarly,

one might hope that as the traditional occupational stereotypes begin to erode and occupations are no longer dominated by one sex or the other, the likelihood of persons encountering very low proportion of same sex co-workers should decrease and thus numerical dominance should level out.

Of course, the ideas expressed above for equal master status for male and female and equally represented occupations are optimistic and will not occur for a long time, if at all. Thus currently, organizational interventions are necessary to remove the impact of gender context (and master status characteristic) on the power and prestige order which influences behavior. One potential intervention suggested above is to give objective, unalterable performance feedback that is clearly related to ability. A second possibility involves alternate sources of power (Mechanic, 1962). For example, granting control of access to critical information may serve to balance out the impact of low numerical dominance and/or low master status.

In summary, this study provides meaningful information about gender context. Gender context appears to be an important construct that needs to be addressed by both the academic and business communities. Further research on the impact of gender context on behavior is needed to corroborate the findings of this study while extending the scope to actual work environments with groups of varying sizes performing a variety of tasks.

Appendix A

Post-Decision Questionnaire

You have just completed four decisions in the new Business Policy game. We are interested in evaluating this new game which was implemented this semester. Your cooperation in carefully completing this questionnaire will help us to determine student reaction to the new game. Your responses to the questions will be kept strictly confidential. Remember, there are no right or wrong answers to these questions. We wish for you to just give your honest opinions and preferences.

In responding to each question, try to think of yourself and your teammates within the framework of the company and executive decision-making, rather than as classmates. In other words, try to divorce yourself from the classroom environment and relate to the environment of the simulated business game and the strategic and operational decisions of your company.

Please carry out this phase of the exercise independently, without any consultation with the members of your firm.

How you answer these questions will not affect your course grade.
We would appreciate your frank and honest responses.

A second questionnaire will be administered after decision eight. In this second questionnaire you will be given the opportunity to evaluate the contributions of your teammates.

Thank you for your cooperation with this project.

Name _____

Industry # _____

Team # _____

PLEASE NOTE:

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These consist of pages:

APPENDIX A: Manifest Needs Questionnaire; 143-144

Gough Inventory; 149-150

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Interaction Process Analysis

Enter the names of your teammates in the places indicated. Think of the first teammate's behavior during quarterly decision-making and place a check mark next to the behavior if he/she typically exhibited that behavior in the group meetings. Then go to the next teammate and check his or her typical behaviors. Repeat this for each of your teammates and then complete the section labelled "Self" for your own behavior.

1. Teammate's name _____

- | | |
|------------------------------------|----------------------------------|
| _____ gave you support | _____ asked you for information |
| _____ was cheerful | _____ asked for your opinion |
| _____ agreed with you | _____ asked for your suggestions |
| _____ gave you suggestions | _____ disagreed with you |
| _____ gave you opinions | _____ showed signs of tension |
| _____ gave you information/answers | _____ was antagonistic |
-

2. Teammate's name _____

- | | |
|------------------------------------|----------------------------------|
| _____ gave you support | _____ asked you for information |
| _____ was cheerful | _____ asked for your opinion |
| _____ agreed with you | _____ asked for your suggestions |
| _____ gave you suggestions | _____ disagreed with you |
| _____ gave you opinions | _____ showed signs of tension |
| _____ gave you information/answers | _____ was antagonistic |
-

3. Teammate's name _____

- | | |
|------------------------------------|----------------------------------|
| _____ gave you support | _____ asked you for information |
| _____ was cheerful | _____ asked for your opinion |
| _____ agreed with you | _____ asked for your suggestions |
| _____ gave you suggestions | _____ disagreed with you |
| _____ gave you opinions | _____ showed signs of tension |
| _____ gave you information/answers | _____ was antagonistic |

4. Teammate's name _____

_____ gave you support

_____ was cheerful

_____ agreed with you

_____ gave you suggestions

_____ gave you opinions

_____ gave you information/answers

_____ asked you for information

_____ asked for your opinion

_____ asked for your suggestions

_____ disagreed with you

_____ showed signs of tension

_____ was antagonistic

Self

Now place a check mark next to the behaviors that you yourself typically exhibited in the group meetings.

_____ gave support

_____ was cheerful

_____ agreed

_____ gave suggestions

_____ gave opinions

_____ gave information/answers

_____ asked for information

_____ asked for opinions

_____ asked for suggestions

_____ disagreed

_____ showed signs of tension

_____ was antagonistic

Rahim Organizational Behavior Inventory

Below are 28 statements describing a number of different ways persons behave when working in groups. Please think about your team and the four previous decisions. Indicate the extent the statement describes your behavior in your team by circling the corresponding number. There are no right or wrong answers as to how one should behave in a group. Thus be frank in your responses as to your actual behavior.

	1	2	3	4	5
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I try to investigate an issue with my teammates to find a solution acceptable to us.	1	2	3	4	5
2. I generally try to satisfy the needs of my teammates.	1	2	3	4	5
3. I attempt to avoid being "put on the spot" and try to keep conflict with my teammates to my self.	1	2	3	4	5
4. I try to integrate my ideas with those of my teammates to come up with a decision jointly.	1	2	3	4	5
5. I try to work with my teammates to find solutions to a problem which satisfy our expectations.	1	2	3	4	5
6. I usually avoid open discussion of my differences with my teammates.	1	2	3	4	5
7. I try to find a middle course to resolve an impasse.	1	2	3	4	5
8. I use my influence to get my ideas accepted.	1	2	3	4	5
9. I use my authority to make a decision in my favor.	1	2	3	4	5
10. I usually accommodate the wishes of my teammates.	1	2	3	4	5
11. I give in to the wishes of my teammates.	1	2	3	4	5
12. I exchange accurate information with my teammates to solve a problem together.	1	2	3	4	5
13. I usually allow concessions to my teammates.	1	2	3	4	5
14. I usually propose a middle ground for breaking deadlocks.	1	2	3	4	5

	1	2	3	4	5
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
15. I negotiate with my teammates so that a compromise can be reached.	1	2	3	4	5
16. I try to stay away from disagreement with my teammates.	1	2	3	4	5
17. I avoid an encounter with my teammates.	1	2	3	4	5
18. I use my expertise to make a decision in my favor.	1	2	3	4	5
19. I often go along with the suggestions of my teammates.	1	2	3	4	5
20. I use "give and take" so that a compromise can be made.	1	2	3	4	5
21. I am generally firm in pursuing my side of the issue.	1	2	3	4	5
22. I try to bring all our concerns out in the open so that the issues can be resolved in the best possible way.	1	2	3	4	5
23. I collaborate with my teammates to come up with decisions acceptable to us.	1	2	3	4	5
24. I try to satisfy the expectations of my teammates.	1	2	3	4	5
25. I sometimes use my power to win a competitive situation.	1	2	3	4	5
26. I try to keep my disagreement with my teammates to myself in order to avoid hard feelings.	1	2	3	4	5
27. I try to avoid unpleasant exchanges with my teammates.	1	2	3	4	5
28. I try to work with my teammates for a proper understanding of a problem.	1	2	3	4	5

Background Information

Please answer the following questions about your background as accurately as possible. Fill-in or check the appropriate blank as indicated. The information will be kept strictly confidential.

a. My major field of study is:

1. _____marketing
2. _____management
3. _____accounting
4. _____finance
5. _____statistics
6. _____computer science
7. _____other(specify_____)

b. My present age is _____ years

c. My grade point average at Baruch is _____

d. My sex is:

1. _____male
2. _____female

e. Do you work?

1. _____yes, part-time
2. _____yes, full-time
3. _____no

f. I can be classified as:

1. _____white
2. _____black
3. _____hispanic
4. _____oriental
5. _____other(specify_____)

g. If your team divided up responsibilities among members, please indicate your position in the firm. (If responsibilities were not officially divided then ignore this question).

1. _____VP Marketing
2. _____VP Finance
3. _____VP Operations/Production
4. _____President

Post-Decision Questionnaire #2

This is the second part of the questionnaire you completed after quarter four. Another year has transpired and a few changes have been made in the game. Your cooperation in carefully completing this questionnaire will help us to evaluate the new game.

Some of the questions will be the same as in the first questionnaire as we wish to see if and how things have changed from the first year of the game to the second year. Please note that your first name, industry number and team number are requested solely so that your answers to this questionnaire can be combined with your answers to the first questionnaire.

Your responses to the questions are strictly confidential and will in no way affect your course grade. In fact, the information in these questionnaires will not even be analyzed until next semester--long after this semester's grades are submitted.

Your frank and honest responses are greatly appreciated.

Name _____

Industry # _____

Team # _____

Group Atmosphere Scale

Please describe the atmosphere of your team by placing a check on the corresponding line for each of the ten word pairs.

Unfriendly	8	7	6	5	4	3	2	1	Friendly
Rejecting	8	7	6	5	4	3	2	1	Accepting
Satisfying	8	7	6	5	4	3	2	1	Frustrating
Enthusiastic	8	7	6	5	4	3	2	1	Unenthusiastic
Productive	8	7	6	5	4	3	2	1	Non-productive
Cold	8	7	6	5	4	3	2	1	Warm
Cooperative	8	7	6	5	4	3	2	1	Uncooperative
Hostile	8	7	6	5	4	3	2	1	Supportive
Boring	8	7	6	5	4	3	2	1	Interesting
Successful	8	7	6	5	4	3	2	1	Unsuccessful

Rahim Organizational Behavior Inventory

Below are 28 statements describing a number of different ways persons behave when working in groups. Please think about your team and the four previous decisions. Indicate the extent the statement describes your behavior in your team by circling the corresponding number. There are no right or wrong answers as to how one should behave in a group. Thus be frank in your responses as to your actual behavior.

	1	2	3	4	5
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I try to investigate an issue with my teammates to find a solution acceptable to us.	1	2	3	4	5
2. I generally try to satisfy the needs of my teammates.	1	2	3	4	5
3. I attempt to avoid being "put on the spot" and try to keep conflict with my teammates to my self.	1	2	3	4	5
4. I try to integrate my ideas with those of my teammates to come up with a decision jointly.	1	2	3	4	5
5. I try to work with my teammates to find solutions to a problem which satisfy our expectations.	1	2	3	4	5
6. I usually avoid open discussion of my differences with my teammates.	1	2	3	4	5
7. I try to find a middle course to resolve an impasse.	1	2	3	4	5
8. I use my influence to get my ideas accepted.	1	2	3	4	5
9. I use my authority to make a decision in my favor.	1	2	3	4	5
10. I usually accommodate the wishes of my teammates.	1	2	3	4	5
11. I give in to the wishes of my teammates.	1	2	3	4	5
12. I exchange accurate information with my teammates to solve a problem together.	1	2	3	4	5
13. I usually allow concessions to my teammates.	1	2	3	4	5
14. I usually propose a middle ground for breaking deadlocks.	1	2	3	4	5

	1 Strongly Disagree	2 Disagree	3 Neither Agree nor Disagree	4 Agree	5 Strongly Agree
15. I negotiate with my teammates so that a compromise can be reached.	1	2	3	4	5
16. I try to stay away from disagreement with my teammates.	1	2	3	4	5
17. I avoid an encounter with my teammates.	1	2	3	4	5
18. I use my expertise to make a decision in my favor.	1	2	3	4	5
19. I often go along with the suggestions of my teammates.	1	2	3	4	5
20. I use "give and take" so that a compromise can be made.	1	2	3	4	5
21. I am generally firm in pursuing my side of the issue.	1	2	3	4	5
22. I try to bring all our concerns out in the open so that the issues can be resolved in the best possible way.	1	2	3	4	5
23. I collaborate with my teammates to come up with decisions acceptable to us.	1	2	3	4	5
24. I try to satisfy the expectations of my teammates.	1	2	3	4	5
25. I sometimes use my power to win a competitive situation.	1	2	3	4	5
26. I try to keep my disagreement with my teammates to myself in order to avoid hard feelings.	1	2	3	4	5
27. I try to avoid unpleasant exchanges with my teammates.	1	2	3	4	5
28. I try to work with my teammates for a proper understanding of a problem.	1	2	3	4	5

Team Member Rankings

You will be asked to rank your team members (including yourself) in terms of their behavior in the group meetings. Please indicate the members' ranks (including your own) by placing the members' first names on the corresponding lines.

Example:

highest level _____ lowest level
of activity 1 2 3 4 5 of activity

1. Rank the team members as to their level of activity in the group decision-making process.

highest level _____ lowest level
of activity 1 2 3 4 5 of activity

2. Rank the team members as to their level of influence over team decisions.

highest level _____ lowest level
of influence 1 2 3 4 5 of influence

3. Rank the team members as to the value of their contributions to group decision-making.

highest level _____ lowest level
of value 1 2 3 4 5 of value

4. Rank the team members as to how frequently they were asked to give advice regarding team decision-making.

highest level _____ lowest level
of advising 1 2 3 4 5 of advising

Interaction Process Analysis

Enter the first names of your teammates in the places indicated. Think of the first teammate's behavior during decision-making in the last four quarters and place a check mark next to the behavior if he/she typically exhibited that behavior in the group meetings. Then go to the next teammate and check his or her typical behaviors. Repeat this for each of your teammates and then complete the section labelled "Self" for your own behavior. Remember, a person may typically exhibit none of the behaviors, all twelve of the behaviors or any number in between!

1. Teammate's name _____

- | | |
|------------------------------------|------------------------------------|
| _____ asked you for information | _____ gave you support |
| _____ asked for your opinion | _____ was cheerful |
| _____ asked for your suggestions | _____ agreed with you |
| _____ disagreed with you | _____ gave you suggestions |
| _____ showed signs of tension | _____ gave you opinions |
| _____ was antagonistic/domineering | _____ gave you information/answers |
-

2. Teammate's name _____

- | | |
|------------------------------------|------------------------------------|
| _____ asked you for information | _____ gave you support |
| _____ asked for your opinion | _____ was cheerful |
| _____ asked for your suggestions | _____ agreed with you |
| _____ disagreed with you | _____ gave you suggestions |
| _____ showed signs of tension | _____ gave you opinions |
| _____ was antagonistic/domineering | _____ gave you information/answers |
-

3. Teammate's name _____

- | | |
|------------------------------------|------------------------------------|
| _____ asked you for information | _____ gave you support |
| _____ asked for your opinion | _____ was cheerful |
| _____ asked for your suggestions | _____ agreed with you |
| _____ disagreed with you | _____ gave you suggestions |
| _____ showed signs of tension | _____ gave you opinions |
| _____ was antagonistic/domineering | _____ gave you information/answers |

4. Teammate's name _____

- | | |
|------------------------------------|------------------------------------|
| _____ asked you for information | _____ gave you support |
| _____ asked for your opinion | _____ was cheerful |
| _____ asked for your suggestions | _____ agreed with you |
| _____ disagreed with you | _____ gave you suggestions |
| _____ showed signs of tension | _____ gave you opinions |
| _____ was antagonistic/domineering | _____ gave you information/answers |

SELF

Now place a check mark next to the behaviors that you yourself typically exhibited in the group meetings.

- | | |
|------------------------------------|--------------------------------|
| _____ asked for information | _____ gave support |
| _____ asked for opinions | _____ was cheerful |
| _____ asked for suggestions | _____ agreed |
| _____ disagreed | _____ gave suggestions |
| _____ showed signs of tension | _____ gave opinions |
| _____ was antagonistic/domineering | _____ gave information/answers |

Student Evaluation Form

The purpose of this questionnaire is to assess the contribution of each one of your teammates to the performance of your group. Under no circumstances will your responses be made available to another student.

- Place your teammates' first names on the lines provided. Please assess the contribution of each one of your teammates to the performance of your group and indicate this assessment by circling the appropriate number to the right of each teammate's name. Then go to the last line labelled "Self" and indicate your own contributions to the group.

Name	very low contribution		moderate contribution		very high contribution
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
<u>SELF</u>	1	2	3	4	5

- A leader is defined as the person having the most influence and power in the group and who was more able than others to have his or her suggestions or opinions consented to by others. Please indicate the one person (either yourself or one of your teammates) you feel was the leader of your team by writing that persons first name on the line provided. (The person you consider to have been the leader need not be the person given the role of President at the start of the game).

Team Leader _____

- Please indicate the one person who most frequently took the meeting minutes and notes for your team by entering that persons first name on the line provided. _____

- If you were to engage in another business game requiring team decision-making, which of your present teammates would you wish to have in your team? Please indicate the teammates you select by placing their first names on the lines provided. (You may select all of your current teammates, none of them, or anywhere in between).

5. Please answer the following questions regarding your dissatisfaction or satisfaction with the game by circling the corresponding number.

How satisfied are you with:	very <u>dissatisfied</u>				very <u>satisfied</u>
a. your team?	1	2	3	4	5
b. the team leader (identified in 2. above)?	1	2	3	4	5
c. the way you are treated by your teammates?	1	2	3	4	5
d. the respect you receive from your teammates?	1	2	3	4	5
e. the friendliness of your teammates?	1	2	3	4	5

6. Please enter the team members' names (including your own) on the lines below. If your team was awarded a bonus of \$100,000 for your work, how do you feel this money should be divided? Please enter the amount of bonus you would give to each team member.

<u>Team member</u>	<u>Bonus \$</u>
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____

7. People command differing levels of power and prestige in a group. Please rank the members of your group (including yourself) as to their power and prestige. Indicate the team members' ranks (including your own) by placing their names on the corresponding lines.

Highest level of power and prestige

- 5 _____
- 4 _____
- 3 _____
- 2 _____
- 1 _____

Lowest level of power and prestige

8. Do you consider yourself to be a member of any ethnic or cultural group in addition to American? If so, please note the ethnic or cultural group with which you identify on the line provided. _____

9. If you have any additional comments about your team, the game or the questionnaires, please feel free to express your ideas on back page.

Instructor Ratings

Industry # _____ Instructor _____

Below is a list of the students in each team.

Please observe the students during team decision-making. For each team, rank the members as to their level of activity in the group decision making process. A "1" is the lowest rank - least active member and a "4" is the highest rank - most active member. Place each member's rank next to their name in the designated column.

<p>TEAM # 1</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 80%;"><u>TEAM MEMBER</u></td> <td style="width: 20%;"><u>RANK</u></td> </tr> <tr><td>-----</td><td>---</td></tr> <tr><td>-----</td><td>---</td></tr> <tr><td>-----</td><td>---</td></tr> <tr><td>-----</td><td>---</td></tr> <tr><td>-----</td><td>---</td></tr> </table>	<u>TEAM MEMBER</u>	<u>RANK</u>	-----	---	-----	---	-----	---	-----	---	-----	---	*	<p>TEAM # 2</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 80%;"><u>TEAM MEMBER</u></td> <td style="width: 20%;"><u>RANK</u></td> </tr> <tr><td>-----</td><td>---</td></tr> <tr><td>-----</td><td>---</td></tr> <tr><td>-----</td><td>---</td></tr> <tr><td>-----</td><td>---</td></tr> <tr><td>-----</td><td>---</td></tr> </table>	<u>TEAM MEMBER</u>	<u>RANK</u>	-----	---	-----	---	-----	---	-----	---	-----	---
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Appendix B
Intercorrelation matrix for the measures of
need strength

	<u>Do</u>	<u>nDom</u>	<u>nAch</u>	<u>nAff</u>
Do	1.00			
nDom	.44 (.0001)	1.00		
nAch	.09 (.09)	.38 (.0001)	1.00	
nAff	.13 (.013)	.08 (.12)	-.02 (.64)	1.00

Intercorrelation Matrix of Dependent Variable Measures

	ADVRT	ADVSE	LEAD	ACTIV	CONTR	PART	AFFECT	VAL	BONUS	TMT	INFL	CONF	COL	AVOID	ACCON	CPRO	CPET	ASSRT	COOP	DIST	INTEG	LDR	SEC	SAT	ATM
ADVRT	1.00																								
ADVSE	0.13	1.00																							
LEAD	0.16	0.12	1.00																						
ACTIVE	0.11	0.79	0.13	1.00																					
CONTR	0.15	0.63	0.37	0.71	1.00																				
PART	0.09	0.17	0.12	0.20	0.25	1.00																			
AFFECT	0.55	-0.05	0.15	-0.04	0.06	0.02	1.00																		
VALUE	0.09	0.02	0.13	0.07	0.67	0.20	-0.03	1.00																	
BONUS	0.14	0.65	0.32	0.74	0.82	0.20	0.00	0.70	1.00																
TMT	0.17	0.50	0.52	0.54	0.71	0.14	0.11	0.51	0.64	1.00															
INFL	0.14	0.81	0.02	0.82	0.64	0.14	-0.03	0.80	0.68	0.95	1.00														
CONF	0.00	-0.07	-0.06	-0.09	-0.13	0.01	-0.08	-0.10	-0.07	-0.09	-0.10	1.00													
COLLAB	0.17	-0.02	0.10	0.02	0.12	0.04	0.17	0.03	0.07	0.09	0.02	-0.03	1.00												
AVOID	-0.05	-0.22	-0.07	-0.25	-0.25	-0.08	0.05	-0.21	-0.21	-0.18	-0.25	0.04	-0.08	1.00											
ACCON	0.05	-0.14	0.08	-0.16	-0.12	0.00	0.05	-0.11	-0.11	-0.15	0.00	0.25	0.41	1.00											
CPRO	0.01	-0.05	0.07	0.02	0.07	-0.01	0.07	0.03	0.06	0.03	-0.02	0.05	0.52	0.13	0.32	1.00									
CPET	0.09	0.23	-0.07	0.20	0.14	-0.03	-0.05	0.18	0.15	0.04	0.29	-0.10	0.03	0.00	-0.02	-0.09	1.00								
ASSRT	0.11	0.29	0.00	0.31	0.29	0.04	-0.01	0.26	0.26	0.19	0.35	-0.08	0.31	-0.73	-0.56	-0.06	0.53	1.00							
COOP	0.07	-0.08	0.16	-0.04	0.06	0.08	0.09	-0.02	0.01	0.07	-0.08	0.02	0.56	-0.44	0.35	0.34	-0.58	-0.01	1.00						
DIST	0.04	0.27	-0.11	0.26	0.18	-0.02	-0.07	0.21	0.18	0.10	0.31	-0.08	-0.14	-0.26	-0.65	-0.27	0.77	0.76	-0.67	1.00					
INTEG	0.13	0.16	0.11	0.21	0.26	0.09	0.05	0.18	0.20	0.19	0.21	-0.05	0.51	-0.84	-0.19	0.18	0.01	0.75	0.65	0.13	1.00				
LDR	0.06	0.61	0.05	0.65	0.47	0.03	-0.06	0.62	0.55	0.31	0.72	-0.07	-0.08	-0.21	-0.13	0.08	0.22	0.25	-0.10	0.25	0.13	1.00			
SEC	-0.04	-0.02	0.13	0.08	0.15	0.08	-0.03	0.06	0.15	0.13	-0.01	0.07	0.04	0.01	0.03	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01	1.00		
SAT	0.36	0.02	0.32	0.06	0.26	0.02	0.36	0.05	0.17	0.27	0.06	-0.14	0.30	-0.10	0.03	0.06	0.02	0.16	0.19	0.00	0.24	0.01	-0.05	1.00	
ATM	0.34	-0.06	0.28	-0.02	0.20	0.04	0.35	-0.04	0.06	0.20	-0.05	-0.14	0.34	-0.06	0.12	0.13	-0.05	0.08	0.26	-0.11	0.23	-0.08	0.00	0.68	1.00

Key
a p<.05
b p<.01
c p<.001
d p<.0001

Appendix .C
Means and standard deviations of all measures

<u>Variable</u>	<u>Mean</u>	<u>Std</u>
Independent:		
GPA	3.00	.38
Do	30.21	5.59
nDom	4.78	.91
nAch	5.27	.70
nAff	5.34	.76
Intervening:		
Power	2.31	.98
Dependent:		
Action Opportunity		
advertence	6.67	2.53
advising rank	2.49	.78
Performance Output		
leader-like behavior	6.40	2.29
activity rank	2.49	.89
contribution	3.99	.95
participation	7.36	.91
Reward Action		
positive affect	6.35	2.44
value rank	2.49	.85
bonus	23.63	7.20
future teammate	1.98	1.05
Influence		
influence rank	2.49	.87
conformity	.022	.024
collaborating	4.27	.51
avoiding	2.64	.75
accommodating	3.33	.61
compromising	3.82	.61
competing	3.23	.73
assertive	1.53	1.43
cooperative	1.74	1.26
distributive	-.106	.96
integrative	1.63	.95
Group Structure		
leader	.963	1.36
secretary	.912	1.38
Satisfaction		
group atmosphere	6.51	1.27
satisfaction scale	4.20	.84

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