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SEX DIFFERENCES IN TASK BEHAVIORS, SOCIAL BEHAVIORS
AND INFLUENCE AS A FUNCTION OF SEX COMPOSITION OF
DYADS AND INSTRUCTIONS TO COMPETE OR COOPERATE

A Dissertation Presented

By

LINDA LORENE CARLI

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

February 1984

Department of Psychology

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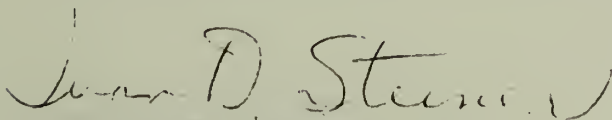
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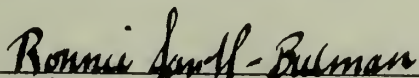
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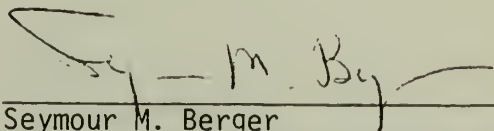
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ABSTRACT

Sex Differences in Task Behaviors, Social Behaviors
and Influence as a Function of Sex Composition of
Dyads and Instructions to Compete or Cooperate

February, 1984

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Sex differences in small-group behaviors have been attributed to the higher status of males. This argument suggests that sex differences should be larger in mixed-sex interactions, when sex acts as a diffuse status characteristic. Another explanation is that males and females modify their behavior so that it corresponds to the behavior they expect from other group members. This hypothesis predicts larger sex differences in same-sex interactions. In this study, same- and mixed-sex dyads discussed topics on which the members of the dyads disagreed. Videotapes of their behavior were used to measure task and social contributions and disagreements. Self-reports of opinions were used to measure attitude change. The results showed sex differences in behavior and influence only when men and women were placed in same-sex dyads. Women were more social and exhibited greater attitude change; men were more task-oriented and engaged in more disagreements. When subjects were instructed to try

to influence their partners, they became more disagreeable only when interacting with a male partner. Both male and female subjects were more influential when they engaged in few disagreements and many agreements.

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CHAPTER I

INTRODUCTION

Researchers observing differences in the behavior of men and women in groups have traditionally argued that these differences are due to sex role socialization; females are trained to be nurturant and sociable with a greater interest in people and relationships while males are socialized to be instrumental or task oriented with a greater interest in objects and work (Bales & Slater, 1955; Cartwright & Zander, 1968; Garai, 1970; Garai & Scheinfeld, 1968; Strodbeck & Mann, 1956; Zelditch, 1955). This explanation developed from Bales' (1951) research on group structure. He observed two distinct roles in his all-male discussion groups, that of the "instrumental" or task leader and that of the "best liked" or social leader. Task leaders directed the discussion, answered questions, and made suggestions. Social leaders relieved tensions in the group and helped to maintain a harmonious interaction among group members. Presumably, all small groups, including families, have both a task and a social leader (Parsons, 1955; Zelditch, 1955). Since women bear and nurse children and are primarily responsible for raising them, they presumably act as social or emotional specialists; men, lacking these biological functions, spend their time working outside the home and act as task specialists (Parsons, 1955).

More recent evidence has shown that all small groups do not necessarily have role specialists and, when they do emerge, the roles they perform are not necessarily mutually exclusive (Bonacich & Lewis, 1973). Sex role specialization in task and social behaviors does not necessarily occur in families (Leik, 1963). Nevertheless, the sex role argument has been applied, often post hoc, to explain sex differences that have emerged in such group behaviors as conformity (eg., Crutchfield, 1955), coalition formation (eg., Bond & Vinacke, 1961), reward allocation (eg., Austin & McGinn, 1977), as well as style of group interaction (eg., Strodbeck & Mann, 1956).

If it is true, as suggested by Bales and his colleagues (Bales & Slater, 1955; Zelditch, 1955), that the behaviors of men and women in groups are a function of trait differences due to biological differences, then stereotypical sex differences would be expected to occur in a wide range of settings. Females, when compared with males, would be expected to express predominantly social traits and behaviors.

The research addressing the question of whether women are generally more social and men more task oriented has revealed mixed results. Studies of personality differences show no sex differences in dependency, nurturance or dominance (Maccoby & Jacklin, 1974), but show that women are better able to decode nonverbal cues (Hall, 1978). Reviews of sex differences in empathy have revealed contradictory results, that women are more empathetic (Hoffman, 1977) and that the sexes do not differ (Maccoby & Jacklin, 1974).

Considerable research had been done on sex differences in behavior. A thorough review of the influenceability literature revealed that women are slightly more easily influenced, primarily in group pressure conformity settings (Eagly & Carli, 1981). Although women express a greater need for affiliation (Wagman, 1967) and greater intimacy and involvement in their friendships (Booth, 1972; Maccoby & Jacklin, 1974), males tend to have more friendships than females (Booth, 1972; Maccoby & Jacklin, 1974). In work settings, women rate the quality of social interactions with coworkers to be more important than opportunities for achievement and men rate achievement to be more important (Centers & Bugental, 1966; Crowley, Levitin & Quinn, 1973; Davis, 1963), but this differences may occur only when women lack opportunities for achievement (Crowley, Levitin, & Quinn, 1973; Kanter, 1976). The available evidence shows that women are not more or less likely to help others in need of assistance (Deaux, 1976; Maccoby & Jacklin, 1974); sex differences in this area appear to be due to the sex-typing of the task with women helping more often for "feminine" tasks and men more often for "masculine" tasks (Deaux, 1977).

Research concerned with general sex differences in task or instrumental behaviors such as leadership, achievement, and competition also reveals some inconsistencies. In laboratory settings, women are less likely to choose a leadership role (Megaree, 1969) or to emerge as the leader in mixed-sex groups (Kaess, Witryol, & Nolan, 1961). In a role playing study, appointed male and female

leaders were equally influential in their groups when they were provided with a solution to a group problem; when no solution was supplied, females were less effective and influential (Maier, 1970). Laboratory studies have shown no differences in the effectiveness of male and female leaders (eg., Bartol, 1973).

Some field studies on leadership behavior reveal no differences between men and women (Day & Stogdill, 1972; Doll, 1966; Martin, 1972) while others show males to be more exploitative (Lyle & Ross, 1973) and authoritarian (Denmark & Diggory, 1966). Subordinates report equal satisfaction with the effectiveness of male and female leaders both in the field (Day & Stogdill, 1972; Wexley & Hunt, 1974) and in laboratory studies (Bartol, 1975; Maier, 1970).

Work on need for achievement generally shows weak and inconsistent sex differences (Maccoby & Jacklin, 1974). Both men and women exhibit "fear of success" (Hoffman, 1974; Horner, 1972) which reflects anxiety caused by violating sex-role norms (Alper, 1974) and, more generally, a realistic recognition of the negative consequences of success (Hoffman, 1974).

Although the overall findings suggest that, across many situations, women are not consistently more social and men more task oriented, when sex differences do occur, they almost always are in a direction that supports the conventional hypothesis. Therefore, it seems likely that a real difference exists and that the reported effects are not due to chance.

Possibly, the sex difference along this social-task dimension is

veridical, but weak. In this case, the predicted differences would occur only in a portion of the studies testing for such an effect, those studies with sufficient power to reveal the differences.

Even if the sex difference is real, the traditional explanation for it can be criticized for overemphasizing personality. As the achievement literature clearly demonstrates, attributing behavioral differences between men and women to differences in personality is not always appropriate: both men and women desire achievement only when it seems possible, and it is generally less possible for women (Crowley et al., 1973; Kanter, 1976). According to Kanter (1976), even women with formal power in a leadership position may not be taken seriously, may be treated as tokens, and given stereotypical, demeaning roles. Women may not appear as task oriented as men, and men as social as women, because of social prohibitions or situational constraints.

Alternative theoretical explanations for the sex difference

In response to the traditional task versus social role explanation for sex differences in small groups, a number of researchers have proposed an alternative theory to explain previous findings. It is suggested that sex differences in behavior are due to status differences between men and women; women have lower status than men (Lockheed & Hall, 1976; Meeker & Weitzel-O'Neill, 1977).

According to expectation states theory, members who are expected to make high quality contributions to a group task are assumed to be

more competent; they receive more opportunities to make contributions and more support from the group for doing so (Berger & Fisek, 1974). Expectations about a member's future performance can develop after evaluating his or her previous contributions to the group; such expectations are called specific status characteristics (Berger, Conner, & McKeown, 1974). Expectations about a member's future performance may also be derived from diffuse status characteristics such as sex, race, age, or any other characteristic of a group member that can be used to infer that member's competence (Berger & Fisek, 1974). Diffuse status characteristics can be employed when group members differ with respect to that characteristic and this difference is associated by group members with different specific abilities that are believed to affect competence at the group task (Berger & Fisek, 1974).

When members make task contributions that are then accepted by the group, their status is enhanced (Berger & Conner, 1974). Achieving high status in the group is a function of both the ability to make contributions that receive positive reactions and the ability to influence the opinions of others while resisting their influence (Berger & Conner, 1974).

Lockheed and Hall (1976) argue that sex acts as a diffuse status characteristic in most small group studies because men and masculine traits are evaluated more favorably than women and feminine traits. More important, both sexes believe that men are generally more intelligent and competent than women (Lockheed & Hall, 1976). Since

men would be accorded higher status, they would be expected to make more task contributions, would be given plenty of opportunity to do so, and would receive support for their contributions; women presumably would be less competent and would not be expected to make many task contributions. Contributions by a woman would probably be rejected by group members and this, in turn, would further degrade her status.

Expectation states theory acknowledges the possible role of actual, as well as perceived, competence as a determinant of status. Presumably, highly knowledgeable females should be able to overcome initial unfavorable expectations concerning their ability by actually making high quality contributions to the group. Clearly, this is not always the case in real organizations; men are reluctant to let women achieve high status positions and women are reluctant to strive for status (Kanter, 1976).

Researchers interested in expectation states theory have generally studied the effects of diffuse and specific status characteristics on influence. In the majority of these studies, subjects are isolated in cubicles and asked to make judgements about some ambiguous stimuli (Berger, Fisek, Norman, & Zelditch, 1977). The subjects communicate with bogus partners by means of a machine that relays messages with signal lights. The partner, actually the experimenter, disagrees with the subjects' judgements on most of the trials. Influence is measured as the proportion of times the subjects change their judgements to correspond to the judgements of the partners

(Berger, et al., 1977).

This research has shown that women use age (Freese, 1976; Freese & Cohen, 1973) and the prestige of subjects' colleges (Moore, 1968) as diffuse status characteristics. Men use military rank (Berger, Cohen, & Zelditch, 1972) and both men and women use race (Cohen, 1972; Cohen, Kiker, Kruse, 1969; Katz, Goldston, & Benjamin, 1958) as diffuse status characteristics. However, when specific status information (eg., ability) is provided that contradicts the diffuse status information, females are likely to disregard the latter (Freese, 1974; Freese & Cohen, 1973) except when it involves race (Webster & Driscoll, 1978).

Diffuse status characteristics such as sex influence not only expectations about future performance, but also the appropriate level of status and power within the group (Meeker & Weitzel-O'Neill, 1977). Possessing a high status position outside the group legitimates the acquisition of high status within the group (Sampson, 1969). It is considered appropriate, therefore, for men to seek a leadership role in a mixed-sex group simply because men generally have higher status (eg., power, prestige, money) than women; this norm operates independently of expectations about performance (Meeker & Weitzel-O'Neill, 1977). When a low status member makes task contributions, such out-of-role behavior may be interpreted as an illegitimate attempt to enhance his or her status rather than an altruistic desire to aid the group in attaining its goals (Meeker & Weitzel-O'Neill, 1977; Ridgeway, 1978). In order to get contributions accepted by the group,

low status members must show both that they are competent and that they are not motivated to improve their position in the group; one way they may demonstrate good faith is to engage in positive social behaviors (Meeker & Weitzel-O'Neill, 1977; Ridgeway, 1978). In fact, Meeker and Weitzel-O'Neill (1977) hypothesize that women would probably be more social simply to prove their good intentions so that the rest of the group will accept their task contributions.

A member who has low status outside the group will be allowed to make task contributions if the other members of the group have equally low status, even if that member appears to be seeking high status (Ridgeway, 1978). Either well-intentioned or high quality contributions are acceptable in a group of equals (Hollander & Julian, 1970). In groups of members with unequal status, those of high status would want to preserve their powerful positions and would be more likely to reject contributions from other members (Ridgeway, 1978). If sex operates as a diffuse status characteristic, therefore, sex differences should be stronger in mixed-sex than in same-sex groups where status differences do not exist.

Ridgeway (1981) has argued that subject who do not conform in a group interaction draw attention to their task contributions, are considered to be confident of their ideas, and are, therefore, likely to be perceived as more competent than conformers. However, nonconformity can also be viewed as evidence of self-interest, a desire to enhance one's position in the group (Ridgeway, 1981). As mentioned earlier, attempts to enhance one's status are acceptable for high

status individuals but not for those of low status relative to other group members (Meeder & Weitzel-O'Neill, 1977). If nonconformity suggests self-interest, then nonconformity should be directly and positively associated with the ability to influence others only for high or equal status group members (Ridgeway, 1981). Low status members may benefit from a moderate amount of nonconformity, just enough to demonstrate competence but not so much as to appear self-interested (Ridgeway, 1981).

Several studies have been conducted that include manipulations of the degree of conformity of male and female group members (Ridgeway, 1981; Ridgeway & Jacobson, 1977; Wahrman & Pugh, 1974). In these studies, subjects participate in groups and are allowed to communicate by microphone with each other and with a confederate partner. The studies are primarily concerned with the effect of nonconformity by the confederate on subjects' judgements. The confederate not only disagrees with the subjects' opinions concerning the judgement task, but also violates other social norms by speaking out of turn, insisting that his or her opinion is correct, and suggesting that he or she receive a larger share of a monetary reward. Influence, in these studies, is measured as the proportion of times during the discussion that subjects agree with confederates' judgements. The results show that, with a confederate whose judgements are found to be accurate, male subjects are more influenced by a male, especially when he is a nonconformist (Ridgeway, 1981; Wahrman & Pugh, 1974). Male subjects are more influenced by conforming females than nonconforming females

(Ridgeway, 1981; Wahrman & Pugh, 1974). Females are more influenced by males and more influenced by nonconformists, regardless of gender (Ridgeway & Jacobson, 1977). Both male and female subjects liked confederates more when they conformed but preferred to work with males who did not conform and with females who did (Ridgeway & Jacobson, 1977; Wahrman & Pugh, 1974). These data provide support for the hypotheses that men and women differ in status and that nonconformity is perceived to be evidence of self-interest which increases one's ability to influence those of equal or lower status. It is also possible, however, that these effects were due solely to subjects' belief that the male nonconformist was more competent than the female. This is, in fact, what was found (Ridgeway, 1981). Although confederates were equally likely to make accurate judgments, this manipulation may not have been explicit enough for subjects to judge male and female confederates as equally able. In addition, the task employed in these studies was adapted from a task used by Hollander (1960), one that has been described as quasi-mathematical, favoring those who are technically inclined (Ridgeway & Jacobson, 1977; Wahrman and Pugh, 1974). Female subjects may have felt less competent at the task than male subjects and female confederates may have been perceived to be less competent than males. It is not possible in these studies to determine whether men were more influential than women because of differing performance expectations or status differences. Finally, although nonconformity was found to be associated with rating the confederate as self-interested, female

confederates were not judged to be more self-interested than the males; in fact, females were judged to be more group-motivated, concerned about the welfare of the group, than males (Ridgeway, 1981). This result is somewhat surprising but not inconsistent with Ridgeway's (1981) hypothesis; self interest among males should be considered acceptable, while any degree of self interest among females should not be accepted by the male subjects.

A recent review of the literature on sex differences in social and task behaviors in small groups was performed for studies of small group interactions, studies of reward allocation, and studies of coalition formation (Carli, 1982). The results of the review showed that, for these studies, stereotypical sex differences along a task-social dimension do exist. In the group interaction studies, women engaged in more social behaviors, and men engaged in more task behaviors (Carli, 1982). Using Rosenthal's (1978) method of combining the probability levels of independent studies, the sex differences in both task and social behavior were significant. The mean effect sizes of the differences were computed to determine the absolute magnitude of the sex differences independent of sample size or significance level (Cohen, 1977). The effect sizes for task and social behaviors were medium to large, using Cohen's criterion (1977); they were between .35 and .59 standard deviation units in size (Carli, 1982).

In the reward allocation and coalition studies, men made more equitable divisions of reward and women took smaller rewards for

themselves. Although these differences were significant, they were quite small with effect sizes between .13 and .29 (Carli, 1982). Women were also more likely to form three-way coalitions when doing so would not increase their payoff; in the one study in which forming three-way coalitions also increased payoffs, men formed such coalitions more often than women (Carli, 1982).

The results of the review provide support for the hypothesis that women are more social and men more task oriented in groups. The differences appear not only in the types of interactions that men and women engage in but also in the way they divide rewards and form coalitions. Men's preference to divide rewards equitably reflects their interest in competition and achievement (Kahn, Lamm, Krulowitz & O'Leary, 1980); in general those who prefer to divide rewards equitably tend to view relationships as opportunities to assert status (Sampson, 1969). Women, on the other hand, take smaller rewards for themselves, most likely in an effort to deemphasize status (Carli, 1982). Forming coalitions including all players in a coalition game is another way to eliminate status differences and competition, since in such a case all players receive the same reward and no one loses the game (Vinacke, 1959). Women are more likely to form such coalitions than are men (Carli, 1982).

In addition to providing evidence for sex differences in task and social orientations in groups, the review examined the sex difference outcomes with respect to the various attributes of the studies in order to suggest possible post hoc explanations for the effects

(Carli, 1982). In the group interaction studies, subjects engaged in more task behaviors when the topics used in the studies favored the interests or expertise of their gender (Carli, 1982). This suggests that performance expectations may be important in determining whether there are sex differences in task contributions to a group discussion.

The results of the review revealed that the sex composition of the group did not affect the sex difference outcomes of the group interaction studies (Carli, 1982). This suggests that status differences between men and women, per se, are not responsible for the findings; only in mixed-sex groups could sex act as a diffuse status characteristic. Several of the studies included in the review manipulated the sex composition of the group. It is possible that these studies might reveal effects due to the composition of the group that were not observed in the meta-analysis. Unfortunately, in only two studies were sex differences in task and social behaviors examined with respect to sex composition; one showed no difference (Aries, 1981) and the other revealed larger sex differences between same-sex groups than between men and women in mixed-sex groups (Piliavin & Martin, 1978). The results of the second study are directly opposite to those predicted by the status hypothesis. Similar results were reported by Aries (1976) showing that all-male groups had a more rigid status hierarchy and more competition than all-female groups, but mixed-sex groups fell between those extremes in the amount of competition and rigidity of the status hierarchy. In addition, ste-

reotypical sex differences in nonverbal behavior, such as decoding and encoding nonverbal cues, are larger in same-sex interactions than in mixed-sex (Hall, 1983) and women on television shows were found to be more dominant when talking to men than when talking to women (Hall & Baunwalk, 1981). All these data were collected for studies of face-to-face interactions. Perhaps in face-to-face interactions the status of men and women and performance expectations associated with gender are less important than when subjects interact using intercoms and are separated from each other in individual cubicles. When subjects interact face-to-face, information other than gender may become salient, such as what each participant says, how they look, and their nonverbal behaviors.

So far, theories have been discussed that link sex differences in groups to differences in performance expectations and to status differences. Other researchers have proposed an alternative argument; they maintain that it may not be legitimate for women to act as task specialists, but rather than emphasizing the importance of status, they argue that men and women behave differently because they are each conforming to different norms (Goffman, 1959; Piliavin, 1976). For women, appropriate group behavior includes being expressive, being agreeable, and concealing task abilities. Appropriate behavior for men includes competitiveness, assertiveness, and the achievement of a leadership position. Unlike the status hypothesis, this argument suggests that both sexes, regardless of external status, will behave in a sex-stereotyped manner in groups. This approach implies

that sex differences should not disappear when subjects are members of same-sex groups. Hall (1983) has extended this argument and suggested that sex differences should be more likely when subjects are in same-sex groups. She argues that in our culture segregation by sex is common among children and adults, and that norms are often well established for sex-segregated sports, occupations, games, and interests (Hall, 1983). The type of activities traditionally engaged in by men and women may have shaped the norms that developed for each sex (Hall, 1983). Hall's argument (1983) provides one possible reason why stereotypical sex differences have sometimes been larger in same-sex groups (Aries, 1976; Hall, 1983; Hall & Baunwald, 1981; Piliavin & Martin, 1978). Perhaps subjects in mixed-sex groups feel free to violate sex role norms that operate in same-sex groups.

Another plausible explanation is that subjects have different expectations about the way men and women behave in groups. Perhaps subjects hold common cultural stereotypes about the interaction styles of men and women and these stereotypes may, in fact, affect the way the subjects themselves behave in groups. Both men and women expect males to be ambitious and competitive and females to be expressive and aware of the feelings of others (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972). Subjects may view an interaction with males as a competition for a leadership position and an interaction with women as an opportunity for a friendly social gathering, and may adjust their behavior accordingly. This hypothesis

suggests that subjects may modify their behavior in a chameleon-like manner to fit the type of interaction that they expect from other group members. This chameleon-effect hypothesis predicts that in same-sex groups, males would behave in a stereotypically masculine fashion and females in a stereotypically feminine fashion because they expect such behaviors from their fellow group members. Once group members begin interacting, they find that their expectations are justified and they continue to behave in a sex-stereotyped manner. However, in mixed-sex groups, both men and women would behave similarly. Men, expecting a friendly cooperative interaction from females would behave more friendly and cooperatively than when interacting with men. Women, expecting competition from men would behave more competitively than when with women. Once members begin interacting, they continue to match the behaviors of other group members. Behavior in mixed-sex groups would, therefore, be less sex-stereotyped.

A similar argument can be made with regard to social influence. Presumably subjects would expect a man to try to influence them more than a woman and would expect him to be less willing to listen to and consider their opinions. In all-male groups, subjects would expect determined influence attempts from other members and would themselves strongly resist these attempts. In all-female groups, subjects should expect a more open consideration of each other's ideas. They should, in embracing a cooperative style of interaction, be much less resistant to each other's ideas. Therefore, one would predict very little attitude change in all-male groups and a great

deal in all-female groups. The level of influence for mixed-sex should be somewhere between those two extremes as the interaction should be somewhat less cooperative than all-female groups and somewhat less competitive than all male groups.

This study will test predictions based on the status and performance expectation theories, that sex differences in task and social behaviors are larger in mixed-sex than same-sex groups and that men are more influential because they engage in more task behaviors and disagreements (thereby increasing their status in the group). It will also test predictions based on the chameleon-effect explanation of sex differences, that sex differences in task and social behaviors are larger in same-sex groups and that influence attempts by men will be resisted, particularly by men, whereas women will be more influential, particularly with other women.

Since sex differences in groups have been attributed to different performance expectations for men and women, the topics used in this study have been chosen so that they do not favor the interests or expertise of one sex over the other. In addition, subjects are asked to make attributions about their competence and the competence of their partners in order to determine whether such sex differences emerge inspite of the use of neutral topics, and, if so, whether they may be related to sex differences in behavior or influence.

One final purpose of this study is to examine the effect of instructing subjects to try to influence their partner. Such instructions should lead to increased influence attempts for both men and

women. According to expectation states theorists, increased influence attempts should take the form of increased task contributions and disagreements (Berger & Conner, 1974). If Ridgeway (1981) is correct, subjects in same-sex groups should benefit from the increased task contributions and disagreements by becoming more influential. Increased task contributions and disagreements should result in males becoming more influential when paired with females but should interfere with the ability of women to influence men if women are of lower status (Ridgeway, 1978).

Predictions

In conformity studies, subjects are presented with the opinions of others without arguments to support those position. In persuasion studies, subjects are presented with arguments that oppose their opinions. Research has shown that women are more conforming and more easily persuaded than are men (Eagly & Carli, 1981). Women and men are also more likely conform to the opinions of males than females (Ridgeway, 1981; Ridgeway & Jacobson, 1977; Wahrman & Pugh, 1974). It is hypothesized that similar findings will be obtained in a face-to-face interaction between pairs of subjects who initially disagree with each other and are asked to discuss the topic on which they disagree: male subjects should be more able to resist influence and be more likely to influence others than are females. Private measures of opinion, which are more likely than public expressions to reflect subjects' true opinions, are elicited for this study.

Sex differences in influence will probably be much smaller when measured privately than when measured by analyzing the way subjects interact publicly during the discussion, as is typically done in the status and expectation states literatures.

Predictions based on status and expectation states theories.

According to the status and performance expectation explanations for sex differences, males are expected to engage in more task behaviors and disagreements and females are expected to engage in more social behaviors and agreements. These sex differences should occur in mixed-sex interactions but not in same-sex interactions. Since these approaches predict that high amounts of task contributions and disagreements should enhance the influence of high status group members, male subjects should be more influential in mixed-sex groups. In same-sex groups, both men and women are paired with members of equal status. Therefore, men and women are expected to be equally influential in same-sex groups.

Instructing subjects to try to influence their partners is expected to increase task contributions and disagreements and to increase the influence of men in mixed-sex groups and men and women in same-sex groups, but reduce the influence of women in mixed-sex groups.

Predictions based on the chameleon-effect explanation. According to the chameleon-effect explanation for sex differences in groups, males are expected to engage in more task behaviors and disagreements and females are expected to engage in more social behaviors and agreements.

These sex differences should occur in same-sex interactions, but be weakened or eliminated in mixed-sex interactions. Because male subjects in same-sex groups will probably expect a more competitive interaction, men should be more resistant to influence attempts by their male partners than women are to such attempts by their female partners. Attitude change for mixed-sex groups should fall somewhere between that for male pairs and female pairs.

C H A P T E R I I

METHOD

Subjects. A pretest questionnaire was administered to 226 undergraduate students in introductory psychology courses at the University of Massachusetts--Amherst. Of these students, 64 men and 64 women made up the final sample of participants. Most of the students in the sample were not psychology majors. The distribution of majors in the study was fairly representative of those in the university population.

Procedure. Students were contacted at the beginning of the semester in their classrooms and asked if they would fill out a questionnaire indicating their opinions on a number of topics, as well as how much interest and expertise they had in each topic. They were told that by responding to the questionnaire, they might gain an opportunity to participate in an experiment later in the semester. Such participation would provide them with extra credit.

The respondents rated each of 27 current issues (see Appendix A) on 10-point scales indicating their agreement with each item (with endpoints "agree completely" and "disagree completely"), their interest in each item (with endpoints "no interest" and "a very high amount of interest"), and their knowledge about each item (with endpoints "no knowledge" and "a very high amount of knowledge").

This questionnaire served two purposes. First, it pretested

each topic to eliminate all those that were sex-typed. The topics to be used in the study could not favor the interests or expertise of one gender over the other, nor could men and women differ in opinion of these issues. Second, the questionnaire provided a measure of each subject's initial opinion on the topics to be used in the study. These opinion measures could be used to pair subjects who disagreed with each other and could also be compared with subjects' reported opinions taken after the experiment to determine whether the interaction had induced attitude change.

T-tests comparing the ratings of male and female subjects were performed for each issue. Only five items revealed no sex differences in opinion, interests, and knowledge. The five items and t-tests for those items are presented in Table 1. The items concerning religion and cremation were eliminated because they generated very little disagreement. Most subjects were in agreement in opposing forced cremation and in denying that there is one true religion. The items concerning federally funded daycare and the drinking age were finally chosen to be used in the experiment.

All subjects participated as members of two-person groups and were paired with partners who disagreed with them on both topics. Other than this restriction, pairings were made randomly. Subjects who favored lowering the drinking age, for example, were always paired with someone who was opposed to lowering it. Respondents who had reported their opinions to be fairly neutral, with opinion scores of five or six, were not included in the sample. The magnitude

of the disagreements between partners ranged from 3 points to 9 points (for partners having opinion scores of 7 versus 4 and 10 versus 1, respectively). The amount of disagreement was allowed to vary randomly among the pairs of subjects. Half of the subjects were paired with same-sex partners and half with opposite-sex partners.

Subjects received no information about the study until they arrived at the laboratory. Upon arrival, they were immediately informed that they would be videotaped during the experiment and were given the opportunity to withdraw. One female subject refused to participate, was given credit, and was excused. The others, after consenting to be taped, received the following verbal instructions from the author, who acted as the experimenter.

In this study, we are interested in the way people think about controversial topics and how they form opinions about these topics, both when alone and when working with another person. We are also interested in the way people discuss their ideas when they work together. In a moment, I am going to ask you to discuss a current topic. But first, I want you to each think about your opinions concerning this topic. What ideas or points do you feel were of primary importance in forming your opinion on this topic? Think carefully and try to come up with the ideas that were most important.

Participants were presented with the first topic. A random selection of half of both the same-sex and mixed-sex pairs were asked to consider the topic, "Should the drinking age be lowered to 18 in this state?" The others received the topic, "Should the federal government provide free daycare for working parents?" Participants were then separated from their partners and given pencils and paper. They received written instructions asking them to write down the

three ideas that they felt were of primary importance in forming their opinions on the topic. They were asked to think carefully and to try to come up with the most important idea. Participants, by performing this task, were given a chance to organize their thoughts on the topic. More important, they were further committing themselves to their positions by creating and recording arguments supporting their positions.

After writing down their ideas, subjects responded to the following items asking them to assess the quality of their own and their partner's ideas; their judgements were reported on 10-point scales: 1) Indicate how good you feel your ideas are (with endpoints "very low quality" and "very high quality"); 2) Estimate how good you think your partner's ideas are (with endpoints "very low quality" and "very high quality"); 3) Estimate how knowledgeable your partner is concerning the topic (with endpoints "has very little knowledge" and "has very high amount of knowledge"). All subjects then read the following (Instruction A):

Now you and your partner are going to discuss the ideas that you each generated. You will be videotaped during the discussion. Again, think carefully about the topic and work together with your partner to choose the three ideas that you both feel are most important to consider when forming an opinion on this topic. Both the quality of your ideas and the quality of the discussion will be evaluated by several judges and compared with those of other pairs of partners. You have ten minutes for the discussion. Write down your final list of ideas on the paper provided. The experimenter will tell you when to begin.²

Subjects were given up to 10 minutes to discuss the topic and come up with their mutually agreed upon ideas. They were video-

taped during the discussion from an adjacent room through a one-way mirror. The experimenter left the room during the discussion and returned after the participants had finished or after 10 minutes, whichever came first.

After the end of the discussion, subjects were once again separated from their partners. Each participant indicated on a piece of paper his or her opinion concerning the first topic on a 10-point scale (with endpoints "disagree completely" and "agree completely"). They were then given the second topic, which was either the issue concerning the drinking age or that concerning federally funded day care, depending on which condition they were in (and which topic they had already discussed). The procedure and instructions used for the second topic were identical to those used for the first topic, with one exception. One randomly selected member of each pair received instructions that he or she should try to influence his or her partner. Instead of receiving Instruction A, as did his or her partner, these target participants read Instruction B:

Now you and your partner are going to discuss the ideas that you each generated. You will be videotaped during the discussion. This time you must defend your arguments as well as you can. Try to be as convincing as possible when presenting your ideas to your partner. You will be evaluated on how well you present your ideas and how well you are able to convince your partner that your ideas are important. You have 10 minutes for the discussion. Write down your final list of ideas on the paper provided. The experimenter will tell you when to begin.

After completing the discussion, subjects were again separated from their partners in order to privately record on a piece of paper

their opinions on the topic. They then completed a questionnaire,³ received their credit forms, and were debriefed and excused.

The questionnaire was made up of these items: 1) Before actually interacting with your partner, how did you guess your partner might behave during the discussion? (three responses, with endpoints "very competitively" and "very cooperatively," "would contribute few opinions" and "would contribute many opinions," "would support my opinions" and "would criticize my opinions"); 2) How much did you like your partner? (with endpoints "disliked a great deal" and "liked a great deal"); 3) How much did you contribute to the discussion concerning lowering the drinking age to 18? (with endpoints "very little" and "a great deal"); 4) How much did your partner contribute to the discussion concerning lowering the drinking age to 18? (with endpoints "very little" and "great deal"); 5) Rate the quality of your ideas presented during the discussion concerning lowering the drinking age to 18 (with endpoints "very low quality" and "very high quality"); 6) Rate the quality of your partner's ideas presented during the discussion concerning lowering the drinking age to 18 (with endpoints "very low quality" and "very high quality"); 7) How concerned were you with getting your ideas chosen as the best during the discussion concerning lowering the drinking age to 18? (with endpoints "not at all concerned" and "extremely concerned"); 8) How concerned do you think your partner was with getting his or her ideas chosen as the best during the discussion concerning lowering the drinking age to 18? (with endpoints

"not at all concerned" and "extremely concerned"). The last six items were repeated for the discussion concerning the federal government providing free daycare. Subjects were also asked to indicate their age.

CHAPTER III

RESULTS

Coding of videotapes. All of the videotapes were analyzed by a female rater (the author), and the tapes of 24 randomly selected pairs of subjects were independently analyzed by a male rater to establish reliability. Neither rater knew which subject had been given instructions to influence his or her partner during the discussion of the second topic. Using a modification of Bales' (1951) categories of behaviors, a record was made for each subject of his or her number of task contributions (giving suggestions, opinions, or orientation), agreements, disagreements, questions, expressions of tension (showing negative affect towards the partner, anger or nervousness), and expressions of friendship (showing positive affect towards the partner, joking, disclosing personal information, or laughing with the partner).

Each type of behavior was recoded in two ways, first as a percentage of each subject's total number of behaviors during a single discussion. For example, if a subject asked five questions and his total number of contributions to the discussion was 50, the percentage of questions would be 10. Each type of behavior was also recoded a second way, as a percentage of the number of behaviors of that type exhibited by the pair of subjects during that discussion. If a subject asked five questions and his partner asked 15, the

subject would have contributed 25 percent of the questions.

A correlational analysis was used to test the reliability of the two raters. Since each subject was a member of a dyad, the behavior of each pair of subjects could not be considered independent, which is a requirement when computing correlation coefficients. To deal with this problem, the 24 pairs of subjects were randomly divided so that partners would not be included together in the same analysis. Pearson correlation coefficients were computed separately for these two groups of subjects, comparing the scores of the two raters. The correlation for the number of each type of behavior before being recoded, and for the two types of recoded percentages, ranged from $r(22) = .70$, $p < .001$, to $r(22) = .99$, $p < .001$. The judgements of the two raters were highly reliable.

Analysis of the videotaped behaviors. Separate analyses of variance were performed for the data on the mixed-sex and same-sex pairs. This was done because the models needed to test the mixed- and same-sex data were different. For the mixed-sex groups, sex is a within groups variable. Both males and females participated in the same group. For the same-sex data, sex is a between groups variable since men and women never participate together in the same group. No computer programs were available that permit variables to be treated as both within-groups and between-groups. Therefore, separate analyses had to be performed.

A $2 \times 2 \times 8 \times 2$ mixed model analysis of variance was performed for the data on the mixed-sex pairs; with two between subjects vari-

ables, order (the first topic concerned the drinking age vs. the first topic concerned daycare), and group (pairs with a male target instructed to influence his partner vs. pairs with a female target instructed to influence her partner); one nested variable, pair (eight pairs of subjects nested within each group by order cell); and one within pair variable, sex (male vs. female). A $2 \times 2 \times 8 \times 2$ mixed model analysis of variance was performed for the data on the same-sex pairs; with two between subjects variables, order (the first topic concerning the drinking age vs. the first topic concerning daycare), sex (male vs. female); one nested variable, pair (eight pairs of subjects nested within each sex by order cell); and one within pair variable, target (the subject who is instructed to influence his or her partner vs. the control subject who receives no such instructions). Overall sex differences were tested by comparing the male and female means averaged over mixed- and same-sex pairs. The error term for this comparison was made up of a linear combination of the error terms used in testing the sex effects in the mixed- and same-sex pairs.

The dependent variables consisted of each subject's task contributions, agreements, disagreements, questions, expression of friendship, and expressions of tension. Each of these variables was expressed as a percentage of each subject's total number of behaviors. These data were analyzed separately for the first and second discussion.

The sex differences resulting from these analyses are presented

in Table 2 for the first discussion and Table 3 for the second discussion. Overall sex differences, computed by averaging over the same- and mixed-sex groups, are presented in the tables only when significant. During the first discussion, an overall sex difference was obtained for the percentage of expressions of friendship. Women were more friendly than men. However, this sex difference was significant only for same-sex pairs. In addition, males in same-sex pairs were found to engage in a higher percentage of task contributions and disagreements. Overall sex differences were also obtained for the second discussion (Table 3). Men were more task oriented and women more friendly. Again, the sex differences occurred only for same-sex pairs. In addition, females were more agreeable and males more disagreeable. No sex effects were observed for the mixed-sex pairs for either the first or second discussion.

Since it is possible for these sex differences to be due either to the behavior of the men, or the women, or both, further analyses were conducted separately for males and females to determine whether subjects behaved differently in mixed-sex than in same-sex groups. The results are summarized in Tables 2 and 3. During the first discussion (Table 2), females were more task oriented, more disagreeable, and less friendly when paired with a male partner than a female partner. Males were less task oriented and more friendly when paired with a female partner. During the second discussion (Table 2), women were more disagreeable and less friendly when paired with a male partner and men were less task oriented when paired with a female part-

ner. Both men and women behaved in a less stereotypical fashion when in a mixed-sex group.

Table 4 summarizes the remaining significant effects obtained for the mixed-sex groups for the second discussion. Disagreements were more frequent in groups in which the female subjects had received instructions to influence their partners than in groups in which the males were the target of these instructions. The sex by group interaction for the number of disagreements reflects the fact that targets disagree more than nontargets ($M=1.83$ vs. 1.09). Contrasts revealed that male targets do not differ from their female partners in amount of disagreements; female targets disagreed more than their male partners (see Table 4).

Table 5 summarizes the significant effects other than sex, obtained for the same-sex groups for the second discussion. Target subjects made more task contributions and asked fewer questions than nontarget subjects. Sex by target interactions were obtained for both task contributions and questions; contrasts revealed that the target effect for these two variables was significant only for male subjects (see Table 5).

A $2 \times 2 \times 8 \times 2 \times 2$ mixed model analysis of variance was conducted for the amount of task contributions and disagreements with two between subjects variables, order and group for mixed-sex groups and order and sex for same-sex groups; one nested variable, pair; one within pair variable, sex for the mixed-sex group and target for the same-sex group; and one repeated measure variable, discussion (discussion 1 vs.

discussion 2). This analysis, conducted separately for the same- and mixed-sex groups, tests whether subjects' task contributions and disagreements increase when they are instructed to influence their partners during the second discussion. The significant results are presented in Table 6. Women targets increased the percentage of times they disagreed with male partners. Males increased both task contributions and disagreements when paired with male partners. The instruction to influence their partners did not affect the behavior of either male or female subjects when they had female partners.

A second series of analyses were conducted for the mixed-sex pairs. The dependent variables consisted of the percentage of behaviors of each type (e.g., task contributions, agreements) that had been exhibited by the male subject. For example, if the male subject asked 5 questions and his female partner asked 10 questions, he would have contributed 33.3% of the questions during that discussion. T-tests were used to compare the percentage of task contributions, agreements, disagreements, questions, expressions of friendship, and expressions of tension with .50, the value expected if male and female subjects did not differ. No significant findings were obtained.

Analysis of the questionnaire data. The analysis of the questionnaire data was identical to that of the videotaped behaviors. Two $2 \times 2 \times 8 \times 2$ mixed model analyses of variance were performed separately for the data on the mixed-sex pairs (order by group by pair by sex) and the data on same-sex pairs (order by sex by pair by target). The dependent variables for both analyses included: the age of

each subject; the initial opinion concerning the drinking age topic; the initial opinion concerning the daycare topic; the amount of attitude change on the first topic discussed; the amount of attitude change on the second topic discussed; the amount of interest in the drinking age topic; the amount of knowledge about the drinking age topic; the amount of interest in the daycare topic; the amount of knowledge about the daycare topic; subjects' ratings of how good their ideas were, subjects' estimates of how good they thought their partners' ideas would be, and subjects' estimates of how knowledgeable they thought their partners would be, both for the first topic and the second topic; and all the items included on the questionnaire filled out by the subjects after the experiment.

The item asking subjects to indicate how concerned they had been with getting their ideas chosen as the best provided a measure of the effectiveness of the instructions (to influence their partners) given to target subjects. Since these instructions were given only for the second discussion, target subjects were not expected to differ from nontarget subjects for any variable concerning the first discussion and no such differences occurred. As expected, target effects were obtained for the second discussion. Target subjects in same-sex groups indicated that they were more concerned ($M=7.56$) than nontargets ($M=5.97$) with getting their ideas chosen as the best, $F(28)=10.23$, $p < .01$. For the mixed-sex groups a group by sex effect, which is equivalent to a target effect⁶, was found, $F(28)=9.86$, $p < .01$, with target subjects indicating greater concern ($M=7.16$)

than nontargets ($M=5.97$).

Table 7 presents the results of the analysis of the amount of attitude change on the first and second topic. Overall, women were more easily influenced than men, as predicted, but only for the second topic. There were no sex differences in attitude change for subjects in mixed-sex pairs. Women in same-sex groups exhibited greater attitude change than men in same-sex groups. In addition, a further analysis revealed that female subjects were more easily influenced by female partners ($M=2.38$) than by male partners ($M=1.19$), $F(28)=4.84$, $p < .05$, for the first discussion, but not for the second, $F(28)=2.79$, ns. Male subjects were equally influenced by both men and women, $F(28)=0.21$, ns., for discussion 1 and $F(28)=0.10$, ns., for discussion 2.

Subjects were given three items before each discussion asking them how good their ideas were, how good they estimated their partner's ideas were, and how knowledgeable they thought their partner was concerning the topic. The results of the analyses of these items is presented in Table 8. In mixed-sex pairs, for both the first and second topic, male subjects rated their ideas to be of higher quality than female subjects rated their own ideas to be. Males expected their female partners to be more knowledgeable of the first topic than female subjects expected their male partners to be. Order effects were also obtained. In mixed-sex pairs, subjects estimated their partners' ideas, contributed during the first discussion, to be of higher quality when the topic was the drinking age rather than

daycare. They also estimated their partners' knowledge of that topic to be greater when the topic was the drinking age. Subjects in same-sex groups judged their ideas to be of higher quality, for both the first and second discussion, when the topic was the drinking age. They also felt that their partner would be more knowledgeable concerning the first discussion when it was about the drinking age rather than daycare.

The results of the analyses of the questionnaire items are presented in Table 9. In mixed-sex groups, male subjects expected their partners to contribute more ideas than female subjects expected their partners to contribute. Male subjects also felt that they had contributed more ideas of higher quality to both discussion than female subjects felt that they themselves had contributed. Subjects in mixed-sex groups in which the male was the target liked their partners more than those in groups in which the female was the target. Subjects in the former group (with male targets) felt that their partners had contributed more to the second discussion and judged their own ideas to have been of lower quality than subjects in groups in which the female was the target. In same-sex groups, females expected more cooperation from their partners and liked them more than males. Target subjects felt that they had contributed more to the second discussion when the topic had been the drinking age and not daycare.

Relationship between behaviors in the group and influence. The relationship between the behavior of subjects in the interaction and the amount of attitude change exhibited by their partners was examined

using a correlational analysis. As mentioned earlier, the behaviors of the members of each pair could not be considered independent, as is necessary when computing correlation coefficients. Subjects were therefore divided into two groups so that partners would not be included together in the same analysis. Pearson correlation coefficients were computed separately for these two groups of subjects. The following significant results were obtained. For the first discussion, subjects were influenced to a greater extent the more their partners agreed with them, $r(62)=.35$, $p < .01$ and $r(62)=.34$, $p < .01$ for the two groups. For the second discussion, subjects were influenced to a greater extent the more their partners agreed with them, $r(62)=.38$, $p < .01$ and $r(62)=.43$, $p < .001$, and the less their partner disagreed with them, $r(62)=-.32$, $p < .05$ and $r(62)=-.30$, $p < .05$.

C H A P T E R I V

CONCLUSIONS

The first prediction made for this study was that men should be more influential and more able to resist influence from others than women. The results of this study provide partial support for this hypothesis; women were more easily influenced than men for the second discussion, but not for the first. A second major hypothesis was that men were expected to engage in more task behaviors and disagreements than women, while women were predicted to engage in more agreements and social behaviors (ie., expressions of friendship). This is, in fact, what was observed for the same-sex pairs, with the exception that no sex differences in agreements emerged during the first discussion. The pattern of results for the sex differences in group interactions and attitude change clearly support the chameleon-effect explanation and not status theory. No sex differences were obtained for the mixed-sex pairs.

According to the chameleon-effect, not only would the predicted sex difference be larger in same-sex groups, but males would be less able than females to influence members of their own gender than females. This prediction was supported for the second discussion. Female subjects are presumably more accepting of each others' ideas than males because male subjects compete with their partners and expect their male partners to compete with them, whereas females expect

and give cooperation. Subjects expecting competition would probably resist influence more strongly and would expect their partners to do the same. When subjects were asked, after the experiment, how much they expected their partners to cooperate versus compete, female subjects in same-sex pairs indicated that they expected their partners to cooperate more than males in same-sex pairs expected..

The second discussion was included to test the hypothesis that giving subjects instructions to influence their partners would lead to increased task contributions and disagreements, and that this in turn would increase the influence of target subjects in same-sex groups and of men in mixed-sex groups. Female subjects increased their disagreements when interacting with men. Male subjects increased both task contributions and disagreements when interacting with men. Neither men nor women changed their behavior when interacting with women. Subjects did not disagree much with female partners. This may reflect their belief that interactions with females should not be competitive. However, men and women were both willing to disagree with male partners when receiving instructions to be influential. Since subjects were not told how to go about influencing their partners, these changes in behavior must reflect their common-sense approach to influencing others. Subjects may feel that to successfully influence a male, one must present one's opinion strongly, even if it means being disagreeable. Subjects may not feel that such an approach would work as well with women. It must be noted that the amount of disagreement was, overall, very low, ranging between one

and three percent of the total interactions. In spite of this low frequency, the amount of disagreements did have an effect on influence. Contrary to prediction, the amount of disagreements was negatively correlated with influence for the second discussion; this correlation probably did not achieve significance during the first discussion because disagreements were much less frequent and the variability somewhat attenuated. Both men and women are less receptive to influence the more their partners disagreed with them and are more receptive when their partners increase their agreements. Male non-targets responded to their male partners' disagreements by asking more questions. The increased disagreements by female targets in mixed sex pairs had other consequences. Subjects in these pairs liked each other less, judged their partners to have contributed less, and judged their own contributions to have been of higher quality, than mixed-sex pairs in which the male was the target. Increased disagreements, then, resulted in less influence, a reduction in attraction, and the perception that one was contributing more to the discussion than one's partner.

Researchers testing expectations states theory have found disagreements to increase status and influence. However, their measure of influence is the proportion of times subjects publicly agree with the disagreeable group member, or concede publicly in response to a disagreement. Researchers have often manipulated the number of disagreements to be much higher than was observed in this experiment. It is quite likely that subjects participating in other studies were

conforming simply to avoid confronting the disagreeable "subject," and were not changing their private opinions.

Target subjects in same-sex interactions increased their task contributions, as predicted. This, however, had no effect on influence. Since the amount of task contributions has been an important predictor of leadership status as well as how competent a group member is judged to be (Bales, 1955), the absence of a relationship between task contributions and influence is surprising. One possible explanation for the absence of this effect is that, in previous studies, subjects have generally been placed in groups with sample sizes larger than two. The larger groups often have considerable differences between members in their amount of task contributions; some members make a great many such contributions and others make very few. In this study, only two subjects participated in each group. Consequently, both subjects had the opportunity to engage in many task behaviors. It is likely that the absence of a relationship between task behaviors and influence was due to a ceiling effect. Task contributions accounted for an average of 61 percent of male subjects' behaviors and 56 percent of female subjects' behaviors.

Although the topics were chosen so that they did not favor the interests of expertise of one gender over the other, some sex differences emerged for the mixed-sex groups when subjects were asked to evaluate their ideas and estimate the quality of their partners' ideas. Male subjects rated their ideas to be of higher quality than female subjects rated their ideas to be. Males also rated their

female partners to be more knowledgeable about the first topic than the women rated their male partners to be. Male subjects appeared to be generally more optimistic about themselves and their partners. Perhaps females are more concerned about appearing modest. Interestingly, no such sex differences were found for same-sex groups. This suggests that pairing males and females results in subjects reevaluating their competence in relation to their partner. In other words, a female may independently judge her knowledge of a topic to be quite high (as on the pre-test questionnaire), but upon seeing her male partner she estimates her ability to be somewhat lower. Since these judgements were elicited before the discussions, one would expect judgements made after the discussions to reveal fewer sex differences (since, in fact, the ideas of male and female subjects were quite similar and subjects tended to come up with the same six or seven ideas for each topic). However, male subjects in mixed-sex groups retrospectively judged themselves to have contributed more ideas to each discussion. There were no sex differences for the percentage of task contributions for these subjects, no difference between men and women in the absolute number of task contributions for the second discussion, $F(28)=2.15$, ns., and a larger absolute number of task contributions by women for the first discussion, $F(28)=6.42$, $p < .05$. Men also judged their ideas for both discussions to be of higher quality than the women judged their ideas to be. Even selecting topics that are not sex-typed cannot entirely prevent stereotypical self-evaluations by male and female subjects when they are interacting

together.

Order effects were found for subjects' judgements of the quality of their ideas and estimates of their partner's knowledge and the quality of their partners' ideas for both same- and mixed-sex groups. These judgements, taken before each discussion, indicated that subjects felt both they themselves and their partners knew more about the topic concerning the drinking age than about the topic concerning federally funded daycare. Although there were no sex differences in interest, expertise, or opinion before subjects participated in the study, subjects did feel more knowledgeable, $F(28)=116.64$, $p < .001$ (for mixed-sex pairs), and $F(28)=101.99$, $p < .001$ (for same-sex pairs), and had greater interest, $F(28)=55.52$, $p < .001$ (for mixed-sex pairs), and $F(28)=29.10$, $p < .001$ (for same-sex pairs) concerning the drinking age topic than the daycare topic. When subjects were retrospectively evaluating how much they had contributed to the second discussion and how high quality those ideas had been, target subjects in same-sex groups felt that they had contributed more high quality ideas when the topic had been the drinking age rather than daycare. Again, these effects reflect the greater interest and expertise subjects had concerning the drinking age.

The results of the study, overall, support the chameleon-effect explanation for sex differences in group interaction. Sex differences were larger in same-sex groups, where sex cannot act as a diffuse status characteristic. Although there were sex differences in subjects' evaluation of how much they contributed to the discussions and how high quality their ideas were, male and female subjects in mixed-

sex groups did not differ in the extent of their attitude change. Subjects' performance expectations were unrelated to influence, contrary to predictions based on expectation states theory.

This study spelled little support for the status approach. Not only were sex differences virtually absent in mixed-sex pairs, but there were no sex differences in influence in mixed-sex groups and women were more influential with female partners than men were. Instructing subjects to influence their partners did increase their task contributions and disagreements, but neither of these behaviors increased the subjects' influence. In fact, disagreements were negatively correlated with the partners' attitude change.

In general, little research has been done testing the hypothesis that sex acts as a diffuse status characteristic. Data have shown that women are often perceived to be less competent than men (Lockheed & Hall, 1976), and that perceived competence, as measured by performance expectations, does increase influence, measured as public agreement, in all-male groups (Berger & Fisek, 1974). However, as this study shows, private opinion is not necessarily affected by differences in subjects' perceptions of their own competence. Furthermore, in this study, subjects' public agreements also remained unaffected. This is not to say that, in our culture, men and women do not differ in status, or that this difference has no effect on behavior. The status theory is simply unable to explain the pattern of sex differences found in this study of group interaction.

Apparently, subjects have different expectations about the way

men and women interact in groups, Women in same-sex groups are expected to be more cooperative than men in same-sex groups. When men and women are placed in such groups they behave in a more stereotypical manner than when they are placed together. Evidence has shown that we expect men to be competitive and women to be cooperative and social (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972). These different expectations would lead subjects to expect a competitive interaction from male partners and a cooperative interaction from female partners. Subjects in this study modified their behavior accordingly. Sex differences only occurred in same-sex groups; women were friendlier and more agreeable, while men were more task-oriented and disagreeable. Subjects evidently had very different expectations about the interaction in mixed-sex groups. Both the men and the women modified their behavior to be more consistent with that of their partners; women became more like men and the men became more like women. Men were less task-oriented and more friendly when interacting with women. Women were more task-oriented and disagreeable when interacting with men. Since their behaviors during the interaction were quite predictive of influence, it is not surprising that women were at least as effective as men at influencing their partners. Women have been shown to be slightly more easily influenced and less influential in studies not involving face-to-face interactions (Eagly & Carli, 1981; Ridgeway, 1981).

In this study, females in same-sex groups liked each other more than males in such groups. They also were more agreeable and friendly

and less task-oriented and disagreeable. This pattern of behavior has been considered more appropriate for raising children and remaining in the home than to the task-oriented world of work (Bales, 1955). However, it is important to note that men and women in both mixed- and same-sex groups contributed more task behaviors than any other type of behavior. It is not that women in same-sex groups were not task-oriented, they were merely less task-oriented than men. Furthermore, the greater number of disagreements on the part of male subjects did not improve their ability to influence their partners. The "feminine" style, engaging in many agreements and few disagreements, was, in fact, more effective at inducing attitude change. It may be doing women a disservice to label men as instrumental and task-oriented and women as social and emotional. Clearly, one can be both social and task-oriented.

Finally, a word must be said about the generalizability of these findings. Although the subjects were primarily freshmen and sophomores, some care was taken that they were not all psychology majors but were majoring in a wide variety of topics. It is possible that some of the findings might be limited to two-person groups, however. Since task contributions have been positively associated with influence in past studies, it is likely that the absence of such an effect in this study is due to a ceiling effect. In two-person groups, it is difficult for members not to make task contributions. They are burdened, to some extent, with keeping the conversation going. As the group size increases, it should be much easier for individual

members to avoid making task contributions. With greater variability in the amount of task contributions, a relationship between these contributions and influence might emerge. It would be difficult, however, to form groups larger than size two and still have all group members disagree on some issue. It is essential that all members disagree in order to determine who has influenced whom. Since previous studies have not used private measures of influence, but instead have relied on public agreement during the discussion as their measure, they have not had this problem.

A more fundamental question is whether the sex differences in behavior (eg., task contribution, agreements, questions) would be affected by group size. In fact, it seems likely that group size would not affect these results. The only group interaction studies that compared the behaviors of men and women in mixed- and same-sex groups, used four-person groups, and found either no effect of sex composition (Aries, 1981), or effects consistent with those reported in this study (Piliavin & Martin, 1978). Furthermore, there is no theoretical reason to predict that group size would interact with sex composition to affect the behaviors of subjects.

Footnotes

¹An additional six pairs of subjects participated in the study, but could not be included in the analysis. In each case, one member of the pair changed his or her mind on the second topic, before participation in that discussion. Since these subjects had already discussed the first topic, they were probably aware that they were going to disagree with their partners on the second topic. They may have changed their opinions in order to avoid disagreeing with their partners. No opinion change ever occurred before the first discussion, or for the second topic among subjects who had received instructions to influence their partners. Five of the eliminated pairs were composed of female partners and one pair was composed of male partners. In the latter case, the 18-year old male subject who revised his opinion had been paired with a 32-year old male. Since age can act as a diffuse status characteristic and the average age of subjects in this experiment was 18.6 (with the range from 17 to 24), this subject may have been responding to the obvious difference in age by simply avoiding any disagreement with his partner on the second topic. The women who changed their opinions did not differ in age, interest, or expertise, from the other women in the study. Perhaps women are more likely to change their opinions when interacting with female partners, especially when given instructions to cooperate. All subjects who had changed their opinions in this way also changed their private opinion ratings.

²In a pretest of this experiment, subjects were instructed to reach a consensus on the topic, rather than reaching consensus on what ideas are important to consider when forming an opinion. This method was unsuccessful. Some subjects decided immediately that they did not intend to change their minds, and therefore felt that they did not need to discuss the topic. Many resented such blatant influence attempts and refused to listen to their partners' arguments. There was no attitude change among any of these subjects.

³Subjects were also given Spence and Helmreich's masculinity-femininity scale, the Personal Attributes Questionnaire, (Spence, Helmreich & Stapp, 1974) and a dominance scale (Goff, 1975). Neither scale predicted behavior during the interactions.

⁴The α level for each of these individual comparisons was set at .025. Each pair of comparisons, therefore, had an overall α of .05.

⁵There were no differences between the mixed- and same-sex pairs in the average number of ideas finally agreed upon during the 10-minute discussion, 2.24 ideas out of a possible 3.

⁶The group by sex interaction compares males in groups having male targets and females in groups having female targets with males in groups having female targets and females in groups having male targets, which is equivalent to comparing targets and nontargets.

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APPENDIX A

This questionnaire is part of a larger study. You can earn up to 2 experimental credits for participating in the rest of the study. Simply fill out the questionnaire and provide your name, sex and phone number. You will have an opportunity to participate later in the semester. All of your responses will be kept confidential. Please print.

Name _____ Sex _____ Phone _____

Read each of the following items. Indicate the opinion you have concerning each item by writing the number corresponding to your answer in the space provided. Use the following scale:

1.....2.....3.....4.....5.....6.....7.....8.....9..... 10
disagree agree
completely completely

Opinion

- _____ 1. All women should have the right to decide whether to have an abortion.
- _____ 2. Laws should be passed prohibiting the possession of handguns in this state.
- _____ 3. Prayer should be allowed in public grammar and high schools.
- _____ 4. Grammar and high school instructors who teach the theory of evolution should also teach the Biblical account of creation.
- _____ 5. The drinking age in this state should be lowered to 18.
- _____ 6. This country should reinstate a military draft.
- _____ 7. Women in the military should be allowed to participate in all positions held by men, including combat duty if they desire.
- _____ 8. A ban should be placed on building nuclear power plants and all existing plants should be decommissioned within 5 years.
- _____ 9. The national speed limit (55 mph) should be abolished.
- _____ 10. Capital punishment should be reinstated in Massachusetts.
- _____ 11. The federal government should provide free daycare for working parents.
- _____ 12. Prostitution should be legalized in this country.
- _____ 13. Viewing violence on TV increases children's aggressive behaviors.
- _____ 14. Pornographic materials depicting violence should be censored in this state.
- _____ 15. There is one true religion.
- _____ 16. Reaganomics (supply-side economics) will work if given a chance.
- _____ 17. Doctors and family members should be able to decide when to stop using artificial means to keep comatose patients alive.
- _____ 18. Homosexuals should be free to take any job, including teaching children.

- ☐ 19. Children of divorced parents should live with their mothers.
- ☐ 20. Cross-race adoptions should be prohibited.
- ☐ 21. Fast-food, such as pizza and hamburgers provide adequate nutrition.
- ☐ 22. Federal funding should increase for the space program.
- ☐ 23. The U.S. Marines should remain in Lebanon if they are needed to keep peace.
- ☐ 24. People should be required to be cremated to save land space.
- ☐ 25. Surplus American produce should be sold to Russia and Soviet bloc countries.
- ☐ 26. Price controls should be set for medical treatments and physicians' fees.
- ☐ 27. The U.S. should put a complete freeze on the production of nuclear weapons.

Read each of the following items. Indicate

1) how much interest you have in the item, and

2) how much knowledge you have concerning the item.

Write the numbers corresponding to your answers in the spaces provided, using the following scale:

1.....2.....3.....4.....5.....6.....7.....8.....9.....10
 none extremely
high amount

Int. Kno.

- | | | | |
|-------|-------|-----|---|
| _____ | _____ | 1. | All women should have the right to decide whether to have an abortion. |
| _____ | _____ | 2. | Laws should be passed prohibiting the possession of handguns in this state. |
| _____ | _____ | 3. | Prayer should be allowed in public grammar and high schools. |
| _____ | _____ | 4. | Grammar and high school instructors who teach the theory of evolution should also teach the Biblical account of creation. |
| _____ | _____ | 5. | The drinking age in this state should be lowered to 18. |
| _____ | _____ | 6. | This country should reinstate a military draft. |
| _____ | _____ | 7. | Women in the military should be allowed to participate in all positions held by men, including combat duty, if they desire. |
| _____ | _____ | 8. | A ban should be placed on building nuclear power plants and all existing plants should be decommissioned within 5 years. |
| _____ | _____ | 9. | The national speed limit (55 mph) should be abolished. |
| _____ | _____ | 10. | Capital punishment should be reinstated in Massachusetts. |
| _____ | _____ | 11. | The federal government should provide free daycare for working parents. |
| _____ | _____ | 12. | Prostitution should be legalized in this country. |
| _____ | _____ | 13. | Viewing violence on TV increases children's aggressive behaviors. |
| _____ | _____ | 14. | Pornographic materials depicting violence should be censored in this state. |
| _____ | _____ | 15. | There is one true religion. |
| _____ | _____ | 16. | Reaganomics (supply-side economics) will work if given a chance. |
| _____ | _____ | 17. | Doctors and family members should be able to decide when to stop using artificial means to keep comatose patients alive. |
| _____ | _____ | 18. | Homosexuals should be free to take any job, including teaching children. |
| _____ | _____ | 19. | Children of divorced parents should live with their mothers. |

- _____ 20. Cross-race adoptions should be prohibited.
- _____ 21. Fast-food, such as pizza and hamburgers provide adequate nutrition.
- _____ 22. Federal funding should increase for the space program.
- _____ 23. The U.S. Marines should remain in Lebanon if they are needed to keep peace.
- _____ 24. People should be required to be cremated to save land space.
- _____ 25. Surplus American produce should be sold to Russia and Soviet bloc countries.
- _____ 26. Price controls should be set for medical treatments and physicians' fees.
- _____ 27. The U.S. should put a complete freeze on the production of nuclear weapons.

APPENDIX B

Table 1

T-tests and means for the non-sex-typed topics

Topic	Opinion	Interest	Knowledge
1. Prayer should be allowed in public grammar and high schools.	$t(226)=0.55$ Males: M=5.14 Females: M=4.92	$t(226)=-1.03$ Males: M=5.28 Females: M=5.68	$t(226)=0.56$ Males: M=5.90 Females: M=5.72
2. The drinking age in this state should be lowered to 18.	$t(226)=-0.33$ Males: M=5.86 Females: M=6.01	$t(226)=0.00$ Males: M=7.57 Females: M=7.58	$t(226)=1.25$ Males: M=7.92 Females: M=7.58
3. The federal government should provide free daycare for working parents.	$t(226)=-0.48$ Males: M=5.20 Females: M=5.39	$t(226)=-1.39$ Males: M=4.64 Females: M=5.18	$t(226)=-0.82$ Males: M=3.92 Females: M=4.19
4. There is one true religion.	$t(226)=0.45$ Males: M=2.52 Females: M=2.35	$t(226)=0.13$ Males: M=5.82 Females: M=5.77	$t(226)=0.90$ Males: M=6.56 Females: M=6.19
5. People should be required to be cremated to save land space.	$t(226)=0.12$ Males: M=3.18 Females: M=3.13	$t(226)=-0.67$ Males: M=4.62 Females: M=4.90	$t(226)=0.94$ Males: M=4.58 Females: M=4.24

Table 2
Sex Differences Obtained for the First Discussion Task

Behaviors:	Contributions	Agreements	Questions	Disagreements	Expressing Friendship	Expressing Tension
<u>Overall:</u>						
F (28)					25.08***	
Males ¹					M=4.09	
Females					M=9.23	
<u>Mixed-Sex Pairs</u>						
F (28)	3.33	0.94	4.14	2.13	1.08	0.32
Males	M=52.83	M=26.46	M=12.80	M=1.01	M=5.71	M=1.19
Females	M=57.99	M=23.76	M=9.11	M=1.37	M=6.62	M=1.02
<u>Same-Sex Pairs</u>						
F (28)	27.79***	2.27	0.02	9.45**	25.50***	0.15
Males	M=63.49	M=25.43	M=7.44	M=1.06	M=2.47	M=0.12
Females	M=51.98	M=28.27	M=7.63	M=0.10	M=11.83	M=0.18
<u>Males</u>						
Same vs. Mixed					9.97***	
F (28)	18.06***					
Females						
Same vs. Mixed						
F (28)	5.74*			20.46***	12.88**	

* $p < .05$, ** $p < .01$, *** $p < .001$

1. Male and female means are expressed as percentages.

	Sex Differences Obtained for the Second Discussion Task	Expressing Tension
Behaviors:	Contributions Agreements	Expressing Friendship
	Questions Disagreements	Expressing Friendship

* $p < .05$, ** $p < .01$, *** $p < .001$
1. Male and female means are expressed as percentages.

Table 4

Significant Effects Other Than Sex for the Second Discussion

Mixed-Sex Pairs:

Behaviors	Effects	
	<u>Group</u> ¹	<u>Group by Sex</u>
<u>Disagreements</u>		
<u>F</u> (28)	9.27**	5.16*
	Males: Females:	
	Group 1: M=0.58 ²	Group 1: M=0.82 M=0.34 <u>t</u> (28)=1.04 ³
	Group 2: M=2.33	Group 2: M=1.83 M=2.83 <u>t</u> (28)=3.99**

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

1. In group 1, the males were the targets, In group 2, the females were the targets. Targets received instructions to influence their partners.
2. Means are expressed as percentages.
3. The t-tests compare the means for the men with means for the women separately for group 1 and group 2. The α level for each contrast was set at .025. The pair of contrasts had an overall α of .05.

Table 5

Significant Effects Other Than Sex for the Second Discussion

Same-Sex Pairs:
Behaviors

Effects

<u>Task</u>	<u>Target</u>	<u>Target By Sex</u>	
<u>Contributions</u>			
$F(28)$	4.83*	4.85*	
		Males:	Females:
	Target: M=63.61 ¹	Target: M=71.79	M=55.42
	Nontarget: M=58.81	Nontarget: M=63.19	M=55.43
		$t(28)=2.79^{**}$	$t(28)=0.00$
<u>Questions</u>			
$F(28)$	10.50**	9.20**	
		Males:	Females:
	Target: M=5.47	Target: M=4.56	M=6.37
	Nontarget: M=9.08	Nontarget: M=11.56	M=6.60
		$t(28)=4.44^{***}$	$t(28)=0.15$

* $p < .05$, ** $p < .01$, *** $p < .001$

- Means are expressed as percentages.
- The t-tests compare the means for targets and nontargets, separately for males and females. The α level for each contrast was set at .025. The pair of contrasts had an overall α of .05. Targets received instructions to influence their partners.

Table 6

Significant Effects Obtained Comparing Both the Percentage of Task Contributions and the Percentage of Disagreements for Discussion 1 with Discussion 2

<u>Mixed-Sex Pairs:</u> <u>Disagreements</u>	<u>Female Targets:</u> ¹	<u>Male Targets:</u>
<u>F(28)</u>	4.90*	
Discussion 1	M=2.02 ²	
Discussion 2	M=2.83	
<u>Same-Sex Pairs:</u> <u>Task Contributions</u>		
<u>F(28)</u>		10.46**
Discussion 1		M=63.26
Discussion 2		M=71.79
<u>Same-Sex Pairs:</u> <u>Disagreements</u>		
<u>F(28)</u>		8.02**
Discussion 1		M=0.89
Discussion 2		M=1.84

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

1. Targets received instructions to influence their partners.

2. Means are expressed as percentages.

Table 7

Attitude Change for Male and Female Subjects
in Mixed- and Same-sex Pairs

	Discussion 1	Discussion 2
<hr/>		
Overall:		
$\underline{F}(28)$	1.51	5.20*
Males ¹	M=1.32	M=0.67
Females	M=1.79	M=1.49
Mixed-Sex Pairs		
$\underline{F}(28)$	0.00	0.40
Males	M=1.19	M=0.75
Females	M=1.19	M=1.06
Same-Sex Pairs		
$\underline{F}(28)$	2.24	6.32*
Males	M=1.44	M=0.59
Females	M=2.38	M=1.91
<hr/>		

* $p < .05$,

1. Means based on 10-point scales.

Table 8

Significant Effects for the Items Estimating the Quality of the Subjects' Ideas and their Partners' Ideas Before Each Discussion

	Sex Effects		Order Effects	
	Discussion 1	Discussion 2	Discussion 1	Discussion 2
<u>Mixed-Sex Pairs</u>				
<u>Quality of Subject's Ideas:</u>				
	$F(28) = 6.56^*$	$F(28) = 10.27^{**}$		
	Males: $M=7.31^1$	$M=7.41$		
	Females: $M=6.44$	$M=6.31$		
<u>Quality of Partner's Ideas:</u>				
				$F(28)=7.25^*$
				Drinking ² : $M=6.94$
				Daycare: $M=6.19$
				$F(28)=25.41^{***}$
				Drinking: $M=6.97$
				Daycare: $M=5.75$
<u>Same Sex Pairs</u>				
<u>Quality of Subject's Ideas</u>				
				$F(28)=8.94^{**}$
				$F(28)=8.00^{**}$
			Drinking: $M=7.31$	$M=8.31$
			Daycare: $M=6.47$	$M=7.15$
				$F(28)=14.71^{***}$
			Drinking: $M=6.94$	
			Daycare: $M=5.88$	
<u>Partner's Knowledge</u>				

Partner's Knowledge:

Same Sex Pairs

Quality of Subject's Ideas

Partner's Knowledge

Table 8 Continued

* $p < .05$, ** $p < .01$, *** $p < .001$.

1. Means based on 10-point scales, with larger numbers indicating higher quality ideas or greater knowledge.
2. Drinking refers to the topic concerning the drinking age and daycare refers to the topic concerning federally funded daycare.

Table 9

Significant Effects Obtained for the Questionnaire Items

<u>Mixed-Sex Pairs:</u>		<u>Sex Effects</u>
1.	Before actually interacting with your partner, how did you guess your partner might behave during the discussion? (would contribute many opinions vs. would contribute few opinions)	$F(28)=7.06^*$ Males: $M=7.09^1$ Females: $M=5.88$
2.	How much did you contribute to the (first) discussion?	$F(28)=9.63^{**}$ Males: $M=7.47$ Females: $M=6.59$
3.	How much did you contribute to the (second) discussion?	$F(28)=4.48^*$ Males: $M=7.81$ Females: $M=6.97$
4.	Rate the quality of your ideas presented during the (first) discussion.	$F(28)=16.54^{**}$ Males: $M=7.59$ Females: $M=6.59$
5.	Rate the quality of your ideas presented during the (second) discussion.	$F(28)=4.29^*$ Males: $M=7.63$ Females: $M=6.63$

Table 9 Continued

<u>Mixed-Sex Pairs:</u>		<u>Group Effects</u>
6.	How much did you like your partner?	$\underline{F}(28)=6.79^*$ Group 1: $M=8.38$ Group 2: $M=7.47$
7.	How much did your partner contribute to the (second) discussion?	$\underline{F}(28)=5.92^*$ Group 1: $M=7.75$ Group 2: $M=7.03$
8.	Rate the quality of your ideas presented during the (second) discussion.	$\underline{F}(28)=5.23^*$ Group 1: $M=6.69$ Group 2: $M=7.56$
<u>Same-Sex Pairs</u>		<u>Sex Effects</u>
1.	Before actually interacting with your partner, how did you guess your partner might behave during the discussion? (would behave cooperatively vs. would behave competitively)	$\underline{F}(28)=4.43^*$ Males: $M=6.16$ Females: $M=7.28$
2.	How much did you like your partner?	$\underline{F}(28)=7.41^*$ Males: $M=7.16$ Females: $M=8.31$

Table 9 Continued

Same-Sex Pairs	Order by Target Effects:	
	Target:	Nontarget:
3. How much did you contribute to the (second) discussion?	$F(28)=5.44^*$	
	Drinking: $M=8.06$	$M=7.75$
	Daycare: $M=6.69$	$M=7.12$
	$t(28)=2.27^{**}$	$t(28)=1.03$

* $p < .05$, ** $p < .01$, *** $p < .001$

1. All means are based on 10-point scales. Larger numbers indicate a greater amount of contributions, higher quality ideas, a greater amount of liking, or higher amount of cooperation.

2. In group 1, the males were the targets. In group 2, the females were the targets. Targets received instructions to influence their partners.

