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THE EFFECTS OF
PERSONALITY AND TASK SEX-TYPE ON
THE CHOICE OF WORKING ALONE OR IN A GROUP

By

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ABSTRACT

THE EFFECTS OF PERSONALITY AND TASK SEX-TYPE ON THE CHOICE OF WORKING ALONE OR IN A GROUP

By

Jeffrey Bret Vancouver

Factors influencing females and males preferences for working arrangement was examined. A personality and a interactional perspective were used to model the behavior of one hundred fifty undergraduate students. The personality perspective generated a model in which differing degrees of agency, communion and interpersonal orientation would predict choice of working alone or with another on either a masculine or feminine achievement-oriented task. The interactional perspective generated a model in which expectancies of success would mediate the relationship between gender and sex-type congruence and the dependent variable. The interactional perspective model was supported, but the personality perspective was only partially supported. Expectancies of success predicted choice of working arrangement for five of the six tasks and mediated the relationship between gender/task congruence and choice. The personality variables covaried with gender and predicted choice within, but not between, task sex-type.

ACKNOWLEDGMENTS

Too many years and fears have passed since the begining of this project to acknowledge all those individuals who encouraged me during the low times. Nonetheless, a few individuals saw me through the entire process. These are the ones I would like to thank.

First, to my committee chairman, Dan Ilgen, whose patience I tried, but failed to discourage, I would like to say thank you! I shall endeavor to write from an outline from now on.

To my committee members, Kevin Ford and Lawence Messe, whose knowledge bases, comments, and tutelage contributed heavily to this thesis, I am most grateful.

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Finally, to my parents and brother, thank you for the independence you have always encouraged in me and the faith you have always had in me. And guess what? I finished.

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INTRODUCTION

Overview

Team building, quality circles, task forces, are but a few of the buzz words in Industrial/Organizational psychology today that emphasize working in groups. When the issue of how best to perform tasks arises, the use of groups is becoming a frequent response. For some tasks, this tendency to form groups is clearly appropriate. Shaw (1981) found a number of tasks for which groups proved more effective than individuals. For example, producing a complex piece of machinery requires the talents of many individuals. For other tasks, groups are not as appropriate. When writing and debugging a simple computer program, too much time and energy is lost trying to understand the logic of the original programmer to be of much help in debugging the program.

Although there are clearly tasks for which groups are more effective than individuals and vice versa, a number of tasks fall between the two extremes. From the individual's perspective, there are a number of costs and benefits associated with the choice of working in a group or working alone to accomplish a task (Steiner, 1972). In some cases, the tradeoffs involved may be so close as to balance

(Hackman and Morris, 1975). Task accomplishment may not be facilitated nor debilitated by use of a group. The previous example of the computer program will be useful in illustrating this point. It is very common for complex programming tasks to be accomplished by many individuals. Yet simple programming is best accomplished by a single programmer. However, if a programming task is moderately complex, the decision for working alone or in a group is not as straightforward.

When there are no apparent task specific characteristics that intimate individuals to work in groups or alone, one criterion for selecting the mode of task assignment is the preferences of the persons who work on the task. Other things being equal, it is assumed that matching task composition to the preferences of those who do the tasks is a desirable state. Hackman and Oldham (1980) and Lorsch and Morse (1974) hypothesized that individuals' preferences for working in groups or alone moderate the relationship between work satisfaction, motivation and the coordination of work activities. Therefore, it becomes important to learn why people choose to work alone or with others, if we wish to match the work configuration to individual preferences. Conversely, when task demands suggest a work configuation, understanding individual preferences may prove a useful piece to the puzzle of work dynamics.

Two views on the preferences of persons for working alone or with others appear in the literature. The approach

of long standing tradition has been the personality or internal characteristics perspective. Research from this perspective focuses on some dispositional quality or orientation that predicts one to respond with distinctive behavior patterns to a wide range of situations. A second, more cognitive approach, focuses on the assessments individuals make due to the interaction of the situation and individual and how those assessments relate to task accomplishment and outcomes. Both perspectives have contributions to make to the understanding of choosing to work alone or in a group.

Another important issue is the effect of gender on choice of working alone or in a group. Within the personality perspective, gender is both a personality characteric itself and frequently correlated with the major personality variables postulated as influencing choice of working alone or in groups. Second, situations often are sex-typed. The effects of sex-typed tasks can be a particularly interesting topic in work settings. There is some evidence that the sex of the person interacts with the sex-type of the job to influence choices regarding the job (Terborg, 1977). These issues are elucidated further in the next sections.

Personality

From a personality perspective it is hypothesized that individuals are attracted to or shy away from group situations based on their personal orientations. A

particularly popular personality characteristic has been that of agency/communion (Bakan, 1966). Agency is a personal orientation, style, or perference for action associated with achievement, prominence and success and tends to be more individualistic. Communion is associated with interpersonal relationships, intimacy, attachments and so forth. Thus individuals may choose to work alone because of an individualistic orientation, or in groups because of an orientation toward being with people. Originally, agency and communion were described by Bakan (1966) as the primary psychological orientation of humans.

Males and females have been found to differ in their tendency toward one or the other of the agency/communion personality dimension. Agency is more closely associated with males and communion with females (Watts, Messe', & Vallacher, 1982).

Interaction

The second possible explanation for choosing to work in a group or alone involves the individual's assessment of the payoffs associated with each alternative. Although the alternatives may be balanced in terms of objective outcomes, the subjective probabilities of task accomplishment associated with each alternative may affect the payoff matrix for individuals. For example, even though the personal rewards for accomplishing a task alone may be very high, if the individual does not believe he/she can succeed while working alone, he/she may choose to join in a group for the added assistance of other members or the diffusion

of responsibility groups allow. Thus, the subjective probability of task accomplishment, that is, one's perceived competence or expectancy of success at the task, should influence the choice to work in a group or alone if the task is one for which working alone has a very different subjective probability of success than working in a group.

On tasks that are easily sex-typed (that is, frequently labeled as male or female tasks), the gender of the task participant often interacts with subjective probabilities of success (Lenny, 1977). In particular, males may see themselves as more likely to succeed on masculine tasks then females do and vice versa for females. Because the interaction of persons and situations affect the perceptions of competence in the situation or on the task, this explanation is referred to as the interactional perspective in the remainder of the text.

Purpose

The purpose of this study is to investigate the effects of personality and interactional perspectives on choices of working on a task alone or with others. The aim of the research is to deal with personality orientations, and with the gender characteristics of tasks. The interest is in the choices of males and females for working in groups or working alone and in the personality and situational variables that mediate these choices. Expectancies of success and personal orientations of agency/communion will be measured in order to investigate the effects of these

variables.

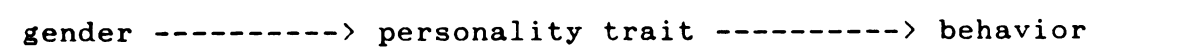
The paper begins by elucidating the personality perspective and particularly the agency/communion conceptualization within that perspective. Next, the basic arguments of the interactional perspective are presented and the emphasis on sex-typing of the task as a situation variable is addressed. Then, the relevant literature on group formation and joining behavior is summarized and related to the personality and interactional perspectives. Finally, an approach for studying the effects of these perspectives is presented.

The Personality Perspective

Traditional sex differences research has emphasized personality predispositions as explanatory mechanisms for gender differences in behavior. The personality trait becomes the mediating variable between the sex of the subject and behavior (see figure 1). Explanations given for the source of the personality traits vary from researcher to researcher. These explanations range from biological differences to differences in the unconscious motives of the sexes (Mischel, 1976).

Figure 1

The Personality Model



Likewise, numerous personality dimensions have arisen which reportedly distinguish between the sexes. These personality dimensions have frequently focused on different interpersonal orientations. For the purposes of understanding group forming behavior, three personality characteristics are discussed below.

Task Orientation Versus Person Orientation

Emmerich (1971) posited the task- versus person-oriented dimension as an approach to understanding the task orientation of children on a large array of behaviors. Task-oriented behaviors are defined as "autonomous achievement strivings in which social responses are subordinated to individualized, task-oriented goals" (quoted from Maccoby & Jacklin, 1974, p. 146). Person-oriented is defined as "affiliative tendencies toward peers in which task requirements and individual achievements are subordinated to interaction processes and goals" (quoted from Maccoby & Jacklin, 1974, p. 146). The descriptions correspond to the conceptions of a number of researchers on the task orientation of males and person orientation of females (Maccoby and Jacklin, 1974).

Bales and his colleagues (Bales, 1970; Parsons & Bales, 1955) have developed a measure of interactive processes between members in groups. In examining the data they have collected on interaction styles, researchers (Parsons & Bales, 1955; Strodtbeck & Mann, 1956) have noted a difference in emphasis in the styles of males and females.

Women tend to exhibit a more social-emotional interaction style, whereas men tend toward a more task-oriented style.

Wood, Polek, and Aiken (1985) examined the interaction behavior of men and women on a production task and a discussion task. It was found that male groups did better on the production task and female groups did better on the discussion task. The evidence suggested that the male groups' superior performance on the production task was due to their greater levels of task-oriented behavior. The female groups' superior performance on the discussion tasks, on the other hand, may have been due to their greater level of positive social behavior.

Separateness Versus Connectedness

Gilligan (1982) formulated a connectedness versus separateness distinction. Gilligan posited in her book, In a Different Voice (1982), that females assume a connectedness to each other and image a network of relationships, whereas males assume a separation from others and image a hierarchy of duty. She used this distinction as a means to understanding the moral development of the two sexes. Gilligan believes that the differences in orientation bring into question the generalizability of Kohlberg's (1981) stages of moral development, since his stages were developed using only male subjects. Her ideas are fairly new and develops of a measure of the dimension is only now underway (Lyons, 1983).

In a similar conceptualization, Lykes (1985) spoke of man's notion of self as autonomous individualism and woman's

notion of self as social individuality. Lykes presented evidence that these two notions of self are grounded in different experiences of power. It was argued that women, whose power in society is less than that of men, derive a sense of power through their connectedness with others. It is possible to conceive of this conceptualization as a more abstract form of expectancy of success notions to be discussed later in the interactional perspective section.

Agency Versus Communion

A personality dimension that has received a great deal of attention is that of Bakan's (1966) agency and communion. Bakan divided the world into two "fundamental modalities in the existence of living forms, agency for the existence of an organism as an individual, and communion for the participation of the individual in some larger organism of which the individual is a part" (p. 15). He further proposed that men tend toward agentic concerns of self-enhancement, attainment of eminence, and mastery over the environment, whereas women tend toward communal concerns of cooperation and a state of harmony with others.

In a number of empirical studies, the sex of the subject has been found to covary with the personality characteristics of agency and communion. Carlson (1971) found males to be more agentic and women more communal in their orientations in both responses to questionnaires and in an analysis Carlson conducted of past research. Watts, Messe, and Vallacher (1982) investigated sex differences in

undergraduates on the values of agency and communion which they hypothesized mediated the choice of reward allocations of subjects. In the reward allocation literature two norms are articulated: equity, where reward distribution is based on inputs; and equality, where rewards are divided evenly by the participants. Deutsch (1975) suggested that the norm of equity is associated with concerns about individual achievement, whereas the norm of equality is associated with interpersonal concerns. Watts et al., using a modified form of the Survey of Interpersonal Values (SIV) (Gordon, 1961), found that females tended to score higher on communion and subsequently choose equality as a distribution rule more than did males. Males, on the other hand, tended to score higher on agency and subsequently chose equity as a reward structure. Also, agency mediated distribution strategy over sex, although communion did not. Watts et al. concluded that, "...it appears that the sex-linked personality characteristics of agency and communion play a major role in people's reward allocation behaviors" (p. 1186, 1982).

The essential argument of the personality perspective is that internal or personality characteristics affect the choices of individuals and those characteristics tend to covary with sex. Thus men might be more likely to choose to work alone because of the congruence between working alone and agency. Women, on the other hand, might tend to choose to work with others because of the congruence between social aspects of pairing and communion.

Although evidence has accumulated which supports the

personality perspective, the findings have not always been consistent. Gaeddert (as cited in Gaeddert, 1985) failed to find different levels of agency and communion meditating sex and performance. Meeker and Weitzel-O'Niell (1977) reviewed the literature and suggested that observed differences in behaviors on a variety of task oriented situations are a result of status differences and not any real personality differences. They concluded that "...status affects performance expectations and expectations for legitmacy of competitive or dominating behavior" (p. 101). Meeker and Weitzel-O'Neill took a more complex view of the differences between the sexes in order to understand the behavior differences being observed. They suggested focusing on situations in which sex differences appear rather than on universal sex differences. Their hypothesis involved different perceptions of competence by males and females. This approach may help fill some of the gaps left by the personality perspective and will be discussed next.

The Interactional Perspective

The interactional perspective has arisen, in part, as an attempt to understand the inconsistencies found in the results of the personality studies. The logic of the interactional perspective is to define the situations under which behavior patterns hold. Therefore, consideration is given to both the person and the situation.

Frequently it is the observation of the interaction between person and situation and the study of the mechanisms

of that interaction that adds to our accummulated knowledge. For our purposes, the focus is on expectancies of success as they affect the choice of working alone or in a dyad.

Expectancies Of Success

Vroom (1964) stated that expectancies of effort or a particular choice leading to performance will affect the force and direction of that effort or choice. When effort is not perceived to lead to performance, there seems little reason to expend a great deal of effort on a task. Expectancy theory models choice behavior by multiplying expectancy (the behavior - to - performance link) by the attraction of outcomes (instrumentalities times valences). Thus, expectancies weight the attractiveness of the outcomes associated with each alternative course of action.

Expectancies are defined as the subjective probabilities that effort or choice will lead to performance. Expectancies of success vary for individuals depending on their perceptions of competence on the task (Vroom, 1964). The measurement of expectancies is straightforward (Mitchell, 1982).

Expectancy Theory has received a great deal of attention and reviews have found support for the usefulness of the theory (e.g. Campbell and Pritchard, 1976; Heneman & Schwab, 1972; Mitchell, 1982). The utility of the expectancy model has been supported in research of occupational choice (e.g. Lawler, Kuleck, & Rhode, 1975), turnover (e.g. Mobley, 1977), job satisfaction (e.g.

Kopelman, 1977), job effort (e.g. Schwab, Olian-Gottlieb, & Heneman, 1979), and retirement decisions (e.g. Parker & Dyer, 1976).

There is considerable evidence that perceptions of competence are often affected by the gender stereotype of the task and the gender of the task performer (Kerr & Sullaway, 1983; Lenny, 1977; Maccoby & Jacklin, 1974). Specifically, whether males or females believe they will be successful on a particular job or task depends, in part, on the extent to which the job or task is viewed as a masculine or feminine. The latter is referred to as the sex-typing of the task. When the sex-type of a task is congruent with the gender of the performer, then, at least for females, perceptions of competence are higher than when the task sex-type is incongruent (Lenny, 1977). In the case of male performers, sex-type of the task does not appear to be as great a factor in perceptions of competence. A review of some of the evidence regarding the differing effects of task sex-type on task performers follows.

Sex-Typing of Tasks

Sex-typing of the task has been an important situation variable in studying sex differences. Through experience, people share beliefs about the extent to which tasks are linked to gender (Brovermen, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972). Wood, Polek, and Aiken (1985) indicated sex-typing of the task was an important consideration in studying behavior differences between the sexes. The authors stated that sex-typed tasks may have affected

results of previous research "due to individual women's (vs. men's) lesser interest in, knowledge about, or motivation to perform the experimental tasks" (p. 63). They further demonstrated that, when task content was controlled, performance differences could be linked to the task-oriented behavior of males and the social behavior of females. In a meta-analytic review of the studies on group performance, Wood (1987) found task content or settings moderated the effect of group performance. Sex-typing also has served as a moderator in studies regarding emergent leadership (e.g., Aries, 1976), performance attribution (e.g., Deaux & Emswiller, 1974), reward allocation (e.g., Reis & Jackson, 1981), social interaction (e.g., Piliavin & Martin, 1978), and expectancy of success (e.g., Lenny, 1977). These topics will be discussed below.

Emergent leadership. Some studies investigating emergent leadership have demonstrated that men tend to emerge as leaders more often than women (Aries, 1976; Stogdill, 1974). However, other studies (e.g. Schneider & Bartol, 1980) have found no difference in the proportion of either sex as emergent leaders. This discrepancy led Wentworth and Anderson (1984) to examine the sex-typing of the tasks as a possibly important variable in the emergent leadership equation. Their findings revealed that women emerged as leaders more frequently than men on feminine tasks, whereas the reverse was true on masculine and neutral tasks. The earlier findings reviewed by Aries and Stogdill

may have been a consequence of the tendency of past researchers to use male-oriented tasks (Keyser, 1979).

Wentworth and Anderson's (1984) study hypothesized that perceptions of expertise in the task by both the individual and the group members highly influences the emergence of leadership such that perceived experts were more likely to emerge as leaders. They also hypothesized that due to the general belief that leadership is within the domain of males, males were more likely to emerge as leaders on sex-neutral tasks. Both hypotheses are directly relective of the current study in that task expertise or task competence influences expectations of success and leadership is agentic. Both hypotheses were supported (Wentworth & Anderson, 1984).

Performance attribution. When examining the explanations men and women give for successful performance, the sex-typing of the task becomes relevant. Deaux and Emswiller (1974) found that "performance by a male on a masculine task was more attributed to skill, whereas an equivalent performance by a female on the same task was seen to be more influenced by luck" (p. 80). The reverse did not hold for feminine tasks. That is, males were still seen as skillful when performing well on a feminine task. Females were likewise seen as skillful on these feminine tasks.

In a study designed to examine the same phenomenon, Deaux, White, and Farris (1975) examined males and females for their preferences with regards to games of skill and luck. It was found that females preferred the luck games

and males the skill games. In this paradigm the skill tasks were preceived as masculine and the luck tasks as feminine with expectancy postulated as a mediator in the preferences. However, given the study design, it is not possible to detect whether the results were due to the skill/luck dimension of the tasks or the sex-typing of the tasks.

The performance attribution literature is another indication of the perceptions of the expectations of success of males and females on masculine and feminine tasks. Again, males appear to be less influenced by task gender and tend to have higher expectancies on masculine tasks.

Reward allocation. Task content as a situationally relevant variable was addressed in the reward allocation literature by Reis and Jackson (1981). As was mentioned earlier, the reward allocation literature has found "a substantial body of empirical evidence that males subscribe to a norm of equity... whereas females adhere to a norm of equality" (Reis & Jackson, p. 465, 1981). However, this evidence was based on masculine sex-typed tasks. When the sex-type of the job was controlled, Reis and Jackson found the sex differences on reward allocation attenuated. In a more recent study, Jackson (in press) found males unaffected by sex-typing of task; however, females (with traditional female stereotypic values) allocated rewards more equitably on sex-congruent tasks than on sex-incongruent tasks. Consistent with Deaux and Emswiller's (1974) findings, males were not subject to the same moderating effect of task type

as females.

Social interaction styles. In studying the effects of sex composition of groups on styles of social interaction, Piliavin and Martin (1978) noted that subjects exhibited more socioemotional behavior in same sex groups, but that a main effect for sex, with females being more socioemotional, was greater than the group composition factor. Wood and Karten (1986) found that the behavior exhibited by subjects was influenced by manipulated perceptions of competence. Initially, when no manipulation took place, women were perceived as less competent at a discussion task by both men and women. It was also noted that women engaged in more positive-social behavior and less task-oriented behavior. In conditions where competence at the task was manipulated through false feedback a different result was observed. Those who were provided false feedback indicating that they were competent engaged in more task-oriented behavior; whereas, those who were provided false feedback indicating that they were relatively less competence engaged in more positive-social behavior -- at a level similar to the women in the control condition. Further, "in [the manipulated] condition, no sex differences were obtained on perceived competence or on active task or positive social behavior" (p. 341).

Expectancy of success. The study of sex differences in expectancy of success has received more attention than the other areas. Lenney, Gold and Browning (1983) reported that "women's task-specific self-confidence (defined in terms of

their performance expectancies and self-evaluations of ability) is lower than men's in a very broad range of academic and professional achievement settings" (p. 925). In Maccoby and Jacklin's (1974) review of the sex differences literature, they reported that, on a generalized level of self-esteem, no consistent differences were found between the sexes. However, women's expectations of success or confidence in task performance on a variety of tasks was less than that of men's. It should be noted that this difference was found to be true only for college age individuals, not for the younger samples in Maccoby and Jacklin's review. Stake (1983) found that males' initial expectations were higher, but that clear feedback dissipated the sex differences. Kerr and Sullaway (1983) found that men have higher expectancies of successful performance than women on physical tasks. Feather (1969) found that females were lower on initial confidence, and higher in external attribution and feelings of inadequacy on solving anagrams than were males. Frieze (1975) attributed the low expectancies of success to the negative stereotypes of women and what is considered feminine (see Brovermen, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972).

Lenny (1977) suggested that this lower self-confidence among women is not found in all achievement situations. In particular, Lenny noted that the sex-type of the task influenced self-confidence. That is, though men's self-confidence was unaffected by sex-type of the task, women's

self-confidence reached that of men's only with feminine tasks. For example, a woman might question her ability to be a lumberjack even if she were to work hard at it, but a man seldom questions his ability to cook if he would desire to make an effort to do it.

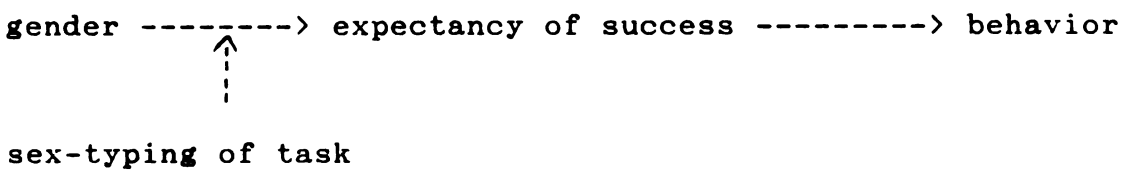
Garland and Smith (1981) provided an example of sex differences in occupational expectancies of success. They found not only a main effect for sex, with males expecting significantly higher scores on the various aptitude tests associated with the various occupations, but also an interaction. Males expected higher scores on the aptitude tests for masculine and neutral occupations, but no difference between the sexes existed for feminine occupations. Stein, Pohly, and Mueller (1971) reported the children's expectancies of success were lowest for sex-inappropriate tasks, intermediate for neutral tasks, and highest for sex-appropriate tasks. Finally, Carr, Thomas, and Mednick (1985) found that black women's self-confidence tended to vary as a function of task sex-type, whereas black men's self-confidence did not.

Summary. Five literatures have spoken to the existence of sex-typing of tasks as a moderating variable in the relation between gender and task-oriented behaviors or attitudes. This moderating effect seems to be particularly true for females. As pointed out by Deaux (1976), expectancies are the key to understanding the moderating effect of task sex-type. Figure 2 illustrates Deaux's proposed relationship. As the model indicates, expectancy

of success is the mediating variable between the gender of the subject and the behavior. The sex-typing of the task serves as a moderator in that relationship. Except for the moderating effect of task sex-type, expectancy of success holds a similiar position (that of mediator) to that of personality characteristic shown in the earlier model (see Figure 1).

Figure 2

The Interactional Model



It is interesting to note that no one has controlled for the degree to which tasks are facilitated by others in defining the masculinity/femininity of those tasks. Deaux (1976) suggested that an interpersonal task is more in line with female orientations than an individualistic task. She constructed a paradigm in which the situation presented to subjects differed in terms of the sex-typing of the task. Individualistic tasks were used as masculine tasks and interpersonal tasks were used as feminine tasks. However, this paradigm confounds masculinity or femininity of the task with social behavior, thus confusing sex-typing, a situation variable, with orientation, a personality variable. In order to separate these perspectives, it is

necessary to examine a choice which, by itself, would divide individuals by their social versus individualistic orientations. The choice of forming a group to accomplish a task is just such a choice. This literature will be examined next.

Group Formation

Tiger (1969) suggested that men are more biologically equipped to form bonds and participate in groups. Since then, Booth (1972) examined the group joining behavior of men and women and did not find substantial differences in the ability of either sex to form groups or their desire to join them. To the contrary, Fasteau (1975), a lawyer, seems to express the more popular sentiment that men join groups for more instrumental reasons, whereas women join groups just because they feel like getting together. A more sophisticated analysis of group joining and forming behavior would be helpful.

Shaw (1981) listed a number of reasons individuals choose to form or join a group. Among these are social affiliation and task accomplishment. Social affiliation is more closely associated with the personality perspective and task accomplishment with the interactional perspective. Each will be discussed and its connection to these perspectives made clear.

Affiliation

Most of us have a tendency to want some interpersonal contact, although the tendency may differ in degree.

Researchers (Gewirtz and Baer, 1958a, 1958b) have demonstrated that this tendency has the attributes of a need, and have labeled it need for affiliation (nAff). Other researchers have noted a nAff and the role of group formation as an avenue for satiating an affiliation need (McClelland, Atkinson, Clark, & Lowell, 1953; Schachter, 1959).

The logic of the personality perspective is that nAff is a factor impinging on the personality of individuals. Those with higher needs for affiliation would tend to reflect affiliative tendencies in their personality and engage in behavior designed to satisfy that need. Since joining in group activities is one mechanism for satisfying nAff, higher levels of nAff in women should predispose them toward joining in group activities more than men. However, some have reported higher scores for females on nAff scales (Hoyenga, 1979); some have not (Maccoby and Jacklin, 1974).

Task Accomplishment

For some tasks, greater numbers of persons are an advantage for task accomplishment. Assuming that an individual wants to accomplish a task, then joining or forming a group will increase the probability of success on tasks of this nature. According to Moreland and Levine, "a group may also become attractive not so much because of its intrinsic desirability, but rather because it mediates extrinsic rewards" (p. 159, 1982). The most frequently cited study on the role of group goals in group formation is the ingenious investigation by Sherif and Sherif (1953) at a

summer camp for boys. The researchers formed the camp into a large group by giving the campers "common" problems to solve. The authors reported that group harmony formed since the group was seen by the campers as capable of working together to address the external goals imposed on the group.

A second reason associated with joining a group for task accomplishment is the potential for diffusion of blame. Latane and Darley (1970) discussed the concept of diffusion of responsibility regarding bystander behavior in emergency situations. Among the components of the concept, potential diffusion of blame was articulated. The idea is that individuals will feel less culpable if others are around to share the responsibility. This concept may work both ways. If individuals feel likely to accomplish a task, then they may wish to take all the credit and therefore choose to work alone. However, if their expectancy is lower, diffusion of responsibility may seem like a hedge on their performance, and they may choose to work in a group.

Task accomplishment can have intrinsic and extrinsic rewards attached to it, The probabilities associated with these outcomes, probabilities derived from expectancies of success, weight the outcomes (Vroom, 1964). Those interactional variables that affect expectancies of success are likely to be very important in the weighting of outcomes. The rewards associated with task accomplishment are some of the outcomes considered in a utility analysis of choice of forming a group or working alone. Those with

higher expectancy of success will have a higher utility associated with working alone and subsequently choose that alternative. Those with lower expectancy of success, using the same logic, will choose to work in a group.

As discussed earlier, the sexes may differ in their tendency to join groups or the reasons they give for joining groups. Thus, the topic of forming groups can be analyzed using the two perspectives discussed. Social affiliation, communion, connectedness are personality traits leading to group participation and these traits are more closely associated with women. Instrumentality and separateness are traits leading away from group participation and are more closely associated with men. Using the interactional perspective one focuses on examining tasks which differ on masculinity and femininity. Different expectancies of success on the sex-typed tasks may mediate the choice of group formation.

The Present Study

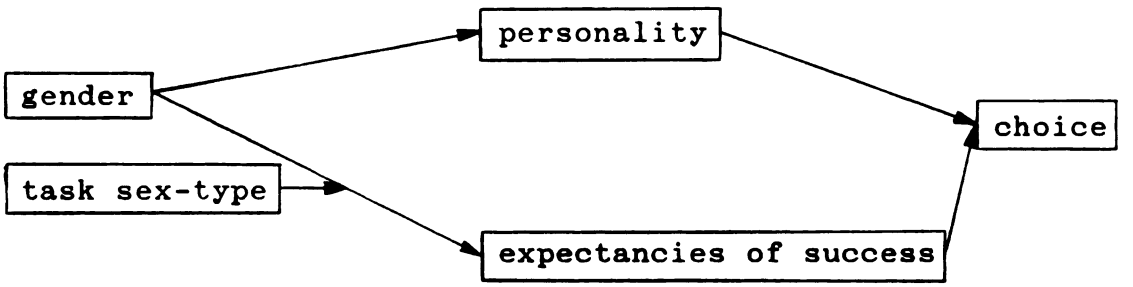
The objective of the present study is to test the contributing effects of the personality perspective and the interactional perspective on individual's choices regarding joining groups. To accomplish the objective, the decisions of subjects to form into a group to accomplish different sex-typed tasks was measured, and the relative contributions of the personality dimensions and expectancy of success was assessed.

Figure 3 combines the models outlined earlier in Figures 1 and 2 and serves as the model for the present

study. The model proposes that the choice of joining a group for males and females is mediated by the personality variables. Likewise, the interaction of gender with task

Figure 3

The General Model



sex-type to choice relationship is mediated by expectancies of success, thus sex-type of the task moderate the gender to choice relationship. An exploratory test of the general model was investigated by assessing the degree to which partialing out personality and expectancies of success attenuates the correlation between gender and choice.

The Hypotheses

In the previous sections, literature has been examined which indicates that gender is expected to be related to the choice of joining or not joining a group. According to the personality perspective model, personality serves as a mediator between sex of the subject and choice. According to the interactional perspective model, expectancies of success mediate the interaction between gender and sex-typing of the task. These conditions led to the following hypothesis.

H1: Both gender and the interaction of gender with task sex-type predict choice behavior.

When personality variables relevant to choices of group membership are assessed, the relationship between sex and choice should be attenuated by the personality variables identified. That is, to some extent, sex should predict personality and subsequently personality predict choice. Agency and communion have been developed into a measure by Watts, Messe, and Vallacher (1982) and by Reinhart (1983). Also, an interpersonal orientation scale was developed by Swap and Rubin (1983). These measures were used to measure the personality variable in the present study. The second hypothesis is that:

H2: In the sex-to-choice prediction, the personality variables will function as a mediator.

The specific prediction resulting from Hypothesis 2 is that those who score higher on agency will tend to choose to work alone and that males should tend to score higher on this dimension. On the other hand, those who score higher communion and interpersonal orientation will tend to choose to work in dyads. Based on the work of Carlson (1971), it is predicted that females are more likely to score higher on the communion dimension and be more interpersonally oriented than males, thus females should choose to work in groups more frequently than males.

According to the interactional perspective, the factor that subjects presumably use to make their choice of group

membership on tasks for which performing well is important is their expectancy of success. We will measure this construct directly with a questionnaire asking for the likelihood or probability that effort will lead to successful performance. It is hypothesized that:

H3: In the gender by task sex-type interaction to choice prediction, expectancy of success will function as a mediator.

Specifically, it is predicted that those with higher expectancies will tend to choose to work alone, whereas those with lower expectancies will tend to choose to work in a group.

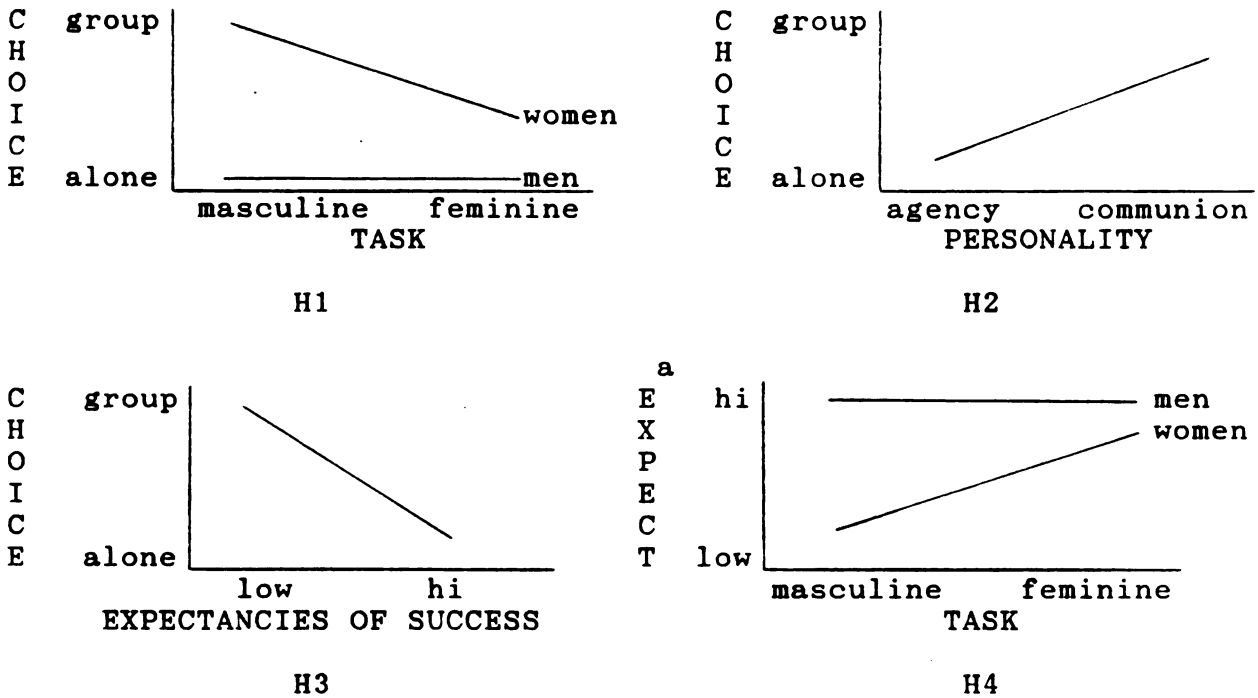
If the moderating effect of task type on expectancies of success holds, then females should tend toward working in groups more so than males, when anticipating to work on masculine tasks. Expectancies should be higher for women, however, when anticipating to work on feminine tasks. Males, on the other hand, vary on expectancies of success less than females based upon the sex-type of the task. Therefore, no changes in tendency to work alone or in pairs is expected for males. Stated in the form of a hypothesis we have:

H4: Sex-typing of the task will moderate the relationship between sex of the subject and expectancy of success only for female subjects.

Figure 4 illustrates the predicted results for all the major variables when all four hypotheses are combined.

Figure 4

Predicted Relationships



a. Expectancy of Success

METHOD

Overview

This research required tasks that were clearly perceived as masculine or feminine. These "masculine" and "feminine" tasks needed to be similar in terms of perceived difficulty and subjects' experience with the task. It was also necessary to establish that the tasks would be conducive to accompishment through either individual or group effort. Therefore pilot work was necessary to insure that the tasks met the requirements for the research and that variance existed in responses to work alone or with others. Pilot work also made possible preliminary assessment of the qualities of the measurement instruments and experimental procedures.

Subjects

Undergraduates from an introductory psychology course were used as subjects for the pilot studies and for the main study. They received course credit for their participation. More complete descriptions will follow when each study/pilot is described.

Tasks

A number of tasks were articulated as possible stimuli. The design required tasks differenting on perceived masculinity and femininity, but similar on perceived level

of difficulty and subjects' experience with the tasks. Examination of the literature produced five tasks with similar levels of difficulty that were differentially sex-typed (the fifth task was neutral). Two tasks were selected based on the work of Carr, Thomas, and Mednick (1985). These authors found that cooking a meal was considered a feminine task, and changing the oil in a car a masculine task. Two other tasks were derived from work on gender differences in knowledge about specfic topics. Lippa and Beauvais (1983) tested a number of topics and found that flowers and children's stories were considered feminine topics, sports and business and industry were considered masculine topics, and famous names and movies were viewed as neutral topics. The authors created a quiz on each of these topic areas and assessed item difficulties. For the present study, a question from each of the three topic areas of Lippa and Beauvais was selected to be used in the presentation of the task. Point values on question difficulty determined by Lippa and Beauvais were equated across sex-typed topics. Two more tasks were created based on a list of masculine and feminine occupations and activities (provided by L. Jackson, personal communication). These last two tasks involved designing a tool shed and designing a store window display. (See Appendix A for the descriptions of the tasks given to the subjects).

Pilot Study I

Design

The goal of the first pilot study was to determine key properties of the tasks. Tasks were presented to undergraduate subjects verbally and with visual examples and descriptions. After being presented with the tasks, subjects filled out a questionnaire on each task (see Appendix B).

The tasks were evaluated on their perceived difficulty, subjects' experience working at each task, and the perceived sex-type of the tasks in the target population. The purpose of this pilot was to confirm the findings of the studies from which the tasks were chosen on a sample from the present study's population. It was also necessary to assess the levels of experience and difficulty for the two new tasks.

Procedure

In the first pilot study, 20 males and 29 females participated in two groups of approximately 25 persons each. They were told they were involved in a pilot study, given a questionnaire, and asked to answer the questions as if they might perform the tasks described. Each task was described individually. The subjects answered the questions based on the task presented to them (see Appendix B for a copy of the questionnaire). Subjects were asked about their experience working on similar tasks, the degree to which they felt the task was masculine or feminine, their expectancies of success (based on 4 items), and their view of the task's

difficulty (based on 2 items) In addition, data regarding the respondent's gender, choice of working alone or with another, preferred gender of potential partner, and the appropriateness of the task for the subject's gender were asked. Seven tasks were presented. The entire precedure took approximately one half hour to complete.

Results

Table 1 shows the means and standard deviations of the questions regarding task difficulty, sex-type, and subjects' experience with the tasks. Due to missing data, the number of subjects fell to 42. The two difficulty items correlated .80. The expectancy of success items had a coefficient alpha of .91.

Table 1

Means (M) and Standard Deviations (SD) of Difficulty, Sex-type, and Experience on Pilot Tasks

	DIFFICULTY[a]		SEX-TYPE[b]		EXPERIENCE[c]	
	M	SD	M	SD	M	SD
Sports and Business Quiz	6.6	2.0	2.3	.6	2.7	.9
Changing Oil	8.0	1.4	2.0	.6	3.8	1.5
Designing Tool Shed	5.0	1.7	2.0	.8	3.7	1.3
Flowers and Children's Quiz	8.1	1.8	3.4	.6	3.2	1.0
Cooking a Meal	6.8	1.4	3.2	.4	2.5	1.1
Designing Store Window	6.0	1.7	3.8	.6	3.4	1.4
Famous Names Quiz	7.3	1.9	3.0	.2	3.4	.8

a. Difficulty ranged from 1 = high difficulty to 5 = low difficulty on each of two items that were summed for the measure.

b. Sex-Type was measured by one item where 1 = very masculine to 5 = very feminine.

c. Experience was measured by one item where 1 = great deal of experience to 5 = no experience.

Essentially the data confirmed the findings of Carr et al. (1985) and Lippa and Beauvais (1983). The three masculine tasks -- the sports and business and industry quiz, changing oil, and designing a tool shed -- were seen as significantly more masculine than the flowers and children's stories quiz, cooking a meal, and designing a store window, $t(82) = 17.57$, $p < .001$, which were seen as more feminine. The means on task difficulty and experience level did not match as neatly as the literature implied (e.g. difficulty level for changing oil equalled 8.0 and for cooking a meal equalled 6.8, where low numbers were high difficulty). However, comparing the entire set of masculine tasks with the entire set of feminine ones, difficulty and experience levels matched more closely; the tasks differed only for experience (the masculine level of difficulty total was 19.5; the feminine level of difficulty total was 20.9, where 1 = high difficulty and 5 = low difficulty, $t(82) = 1.11$, p = NS; masculine experience total was 10.2; feminine total experience was 9.1, where 1 = great deal of experience and 5 = no experience, $t(82) = 2.89$, $p < .01$). Thus, the masculine tasks taken together were seen as no more difficult than the combined feminine tasks, and the subjects reported having slightly more experience with the feminine tasks as a whole. These differences did not seem sufficiently large to reject comparison of the two task types.

Combining tasks within masculine and feminine types seemed to promise the best generalizability and reliability

for the main study; therefore, all masculine and feminine tasks were retained for the next step. The study design required an equal number of tasks in each sex-type. Since only one neutral task was identified, it was dropped from further consideration.

Pilot Study II

Design

The second pilot study was designed to explore whether or not the tasks influenced desire to work alone or in groups. Frequencies of responses to the item asking if the subject wished to work alone or with another person were compared across sex of the subject to assure variance. A within subjects design was employed.

The personality scales were also administered here to assess reliability. Timing and logistic concerns were also addressed in this pilot.

Procedure

Twelve males and thirty-four females were given the questionnaire (see Appendix C) and the tasks in three separate sessions. The questionnaire began with Watts' Agency/Communion Scale (Watts, Messe, & Vallacher, 1982), followed by Reinhart's Agency/Communion Scale (Reinhart, 1983), and Swap's Interpersonal Orientation Scale (Swap & Rubin, 1983). The remainder of the questionnaire included the questions reported in the first pilot study repeated for each task. Finally, five items asking about the reasons for the choice of working alone or with another were added for

each task. All the subjects were exposed to all the tasks. Tasks were verbally described with a copy of the description on an overhead projector (see Appendix A for these descriptions).

Results

Table 2 shows the percentage of males and females who chose to work alone on the tasks. The percent of those who chose to work alone did vary considerably over the tasks although the choices for working alone were not independent of the sex-type of the task. The percent who chose to work alone varied from 0 to 59 percent with an average percent of 28. Based on these variances it was concluded that sufficient variance in choice behavior existed to justify continuation of the research.

Across genders there were some differences in choice of working alone or in a group (e.g., no males on task 6, i.e., designing a store front window, chose to work alone). Averaging the percentages for all the masculine tasks and for all the feminine tasks created a difference of 23 points between the sexes on the masculine tasks, and 28 points on the masculine tasks. The average percentage of all males asking to work alone was 27%, and for females 30 percent. Therefore, it was decided to include all the tasks in second pilot in the main study in order to (1) maintain similar mean difficulty and experience levels for the masculine and feminine tasks, (2) maintain the original pairing schemes, and (3) improve reliability of findings by using multiple tasks within classification categories.

Table 2

Frequencies and Percentages of Respondents Asking to Work Alone

	MALES			FEMALES		
	N	FREQ	%	N	FREQ	%
Sports and Business Quiz	11	2	18	33	4	12
Changing Oil	12	7	58	32	5	16
Designing Tool Shed	11	4	36	34	5	15
Flowers and Children's Quiz	12	2	17	32	10	29
Cooking a Meal	12	4	33	34	20	59
Designing Store Window	12	0	0	34	16	47

Reliabilities of the measures were also assessed in the second pilot sample. Watts' agency subscale had an alpha of .87 (8 items), and the communion subscale an alpha of .93 (11 items). Alphas for Reinhart's scales were .63 for agency (5 items) and .73 for communion (6 items). Swap's Interpersonal Orientation Scale (IO) had an alpha of .71 with 29 items. Reliabilities on all scales were reassessed in the primary study described below. (See Appendix C for the second pilot study questionnaire).

Main Study

Design

Based on the pilot studies, six tasks were presented to each subject. A Latin Square design was used to insure that all tasks were presented first at least one time in six sessions. Table 3 shows the order of the tasks used.

Table 3

Task Order of Presentation

SESSION	ORDER					
1	Aa	B	C	D	E	F
2	B	C	D	E	F	A
3	C	D	E	F	A	B
4	D	E	F	A	B	C
5	E	F	A	B	C	D
6	F	A	B	C	D	E

a. Each letter represents a task: A = Cooking a Meal, B = Changing the Oil, C = Flowers and Children's Stories Quiz, D = Designing a Tool Shed, E = Designing Store Window, F = Sports adn Business and Industry Quiz.

Subjects

A power analysis (Cohen & Cohen, 1983) with alpha = .05, power = .90, 5 independent variables (sex of subject, sex-typing of task, the interaction of sex and sex-type, expectancy of success, and the personality trait) and a small effect size (.10) indicated a need for 154 subjects for the main study. This analysis assumed a between subjects design which would only be necessary if the a large order effect was found. Otherwise, the more powerful within subjects design would be used.

One hundred fifty undergraduates from an introductory psychology course were be used as subjects. They received course credit for their participation. Seventy six male and 74 female subjects agreed to participate; between 8 and 21 of each sex were assigned to each of 6 sessions. Extra subjects were assigned to each session to insure that sufficient numbers of people were available for the

analysis. Missing data reduced the total sample from 150 to as low as 140 for some of the analyses.

Procedure

Subjects were assigned to sessions in the order that they volunteered (see Consent Form in Appendix D). The sessions were conducted by both a female and male experimenter to control for possible gender of the experimenter biases (Wood, 1987). Instructions were written which allowed both experimenters to appear as coexperimenters, conducting the experiment on an equal basis (see Appendix E for the intructions). Nonetheless, experimenter roles were assigned randomly such that each experimenter read each role of the instructions only half the time.

Subjects were tested in groups of 20 to 31 individuals. The session began with the administration of a questionnaire with the measures of agency and communion, and interpersonal orientation. After completion of the questionnaire, the nature of the tasks were discussed one at a time with the aid of an overhead projector (see Appendix A for slides used). The tasks were described as ones which could be worked on alone or with the added contributions of a partner. Dyads were used in the group condition in order to avoid the subjects' worrying about high process costs (Steiner, 1972), while still maintaining the interpersonal context necessary for working with others. Success on the task was defined for each task (see Appendix A).

Subjects were given questions to answer following the presentation of each task that were designed to measure expectancy of success, choice of working alone or in a group, the strength of the preference for working alone or with another and beliefs about why they chose the working arrangement they did (see Appendix F for Questionnaire).

A possible confound in the experiment was differences in the subjects' concern about public performance on the tasks. In an experiment dealing with singing in public, Garland and Brown (1972) found that females tend to be more concerned about face-saving than their male counterparts. Since one effect of working alone is privacy of results, it was necessary to obtain some measure of "face-saving" concerns. Thus face-saving was measured with four questions concerned with appearance in public (items 21, 22, 88, and 118 in Appendix F). Correlations of the results of this measure with the dependent variable were to be partialled out should these correlations have existed.

After the questionnaires were completed and returned, the subjects were told that some of them would be called for the second part of the experiment, and that any who did not wish to continue at that time could decline further participation. A letter was sent to each subject explaining the study and that they were not in the group to be called back (see Appendix G). In actuality, no one was called back to perform the tasks. The deception was designed to increase the saliency of the choice decision. It was felt that if subjects felt they would actually perform the tasks

in question, they would more likely respond as persons choosing would respond.

RESULTS

The results of the pilot studies were presented in the previous section. Results relating to manipulation checks, control variables, reliabilities, individual hypotheses, and the model are presented in this section. Due to the complexities of the design introduced by the repeated-measures approach that was used, a number of analyses were performed on the data. Each analysis and an explanation for its inclusion is provided prior to its presentation.

Manipulation checks. The major manipulation was the sex-typing of the tasks. The pilot studies examined the perception of task sex-type on a sample from the study population. The purpose of the first manipulation check was to confirm the pilot study findings that certain tasks were perceived as male tasks and others as female tasks. Table 4 presents the means and standard deviations of the responses to the sex-typing question. Combining the three masculine tasks (Sports and Business Quiz, Changing Oil, and Designing a Tool Shed) and the three feminine tasks (Flowers and Childrens Quiz, Cooking a Meal, and Designing a Store Window) the difference between the male tasks and the females tasks was calculated and found to be significant ($t = 19.78$, $df = 145$, $p < .001$). This finding is consistent with the results of the pilot study.

Table 4

Means (M) and Standard Deviations (SD)

for Ratings of Task Sex-Type

TASK	N	M	SD
Sports and Business Quiz	150	2.41	.61
Changing Oil	151	1.99	.78
Designing Tool Shed	149	1.91	.81
Flowers and Childrens Quiz	151	3.54	.73
Cooking Meal	151	3.31	.58
Designing Store Window	149	3.88	.77

Scale ranged from 1 = very masculine to 5 = very feminine

Control Variables. Before testing the hypotheses, two control variables were examined. The first of these was the degree of face-saving. If face-saving covaried with the dependent variable and subject gender such that one gender was more sensitive to public appearances this would have been confounded with gender affects on choice of working alone or with others. Four items were added to the measure to assess the degree face-saving was an issue for the participant. One of the items was dropped due to low correlation with the other items. The three remaining items produced a relatively low internal consistency reliability of .54.

The dependent variable (choice of working alone or in a group) was regressed on the face-saving variable. The Beta for face-saving did not reach customary levels of significance (Beta = .147; p = NS), nor was face-saving

correlated with gender ($r = .004$, $p = NS$). Since face-saving did not covary with gender and since the correlation with choice was weak, it was dropped from further analyses.

The other control variable involved testing for order effects in the Latin square design. At issue was the ability to ignore order in the combination of data. An ANOVA examining the effect of session, which reflected order, was conducted using the choice variable. The result demonstrated no order effect ($F = 1.32$; $df = 142$, $p = NS$).

Coding. The coding of the variables follows convention. Males were scored as 1 and females 2. All the personality and expectancy of success scales were scored such that the higher the score the higher the tendency toward possessing the trait measured. Finally, choice was coded as 0 for wishing to work alone and 1 for wishing to work in a group unless otherwise specified.

Reliabilities. Reliabilities on all of the scales created for the subsequent analysis are presented in Table 5. All reliabities are a calculation of internal consistency using Cronbach's (1951) coefficient alpha. Among the scales, reliabilities ranged from alpha of .71 to .94. A correlation matrix of all relevant variables are also provided in Table 5. The implications of these correlations are relevant for the combination of scale scores into composite scales as well as issues of external parallelism, and convergent validity.

Table 5

a
Reliabilities and Correlations

SCALE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Gender	--	-.16	.18	-.15	.27	.23	.13	.29	.51	-.62	-.63	-.61	-.16	-.27	-.33	.43	.33	.18
2. Agency(Watts)	.91	.57	.21	.14	-.06	.11	-.09	.15	.25	.18	.25	.04	.21	.03	-.15	-.05	.01	
3. Agency(Reinhart)	.72	.14	.11	-.11	.11	.02	.10	.26	.24	.36	.06	.11	-.02	-.16	-.01	-.08		
4. Communion(Watts)	.91	.58	.45	.23	.18	.28	-.18	-.10	-.08	.06	06	-.14	.09	.16	.03			
5. Communion(Reinhart)	.86	.42	.29	.20	.24	-.28	-.18	-.06	-.05	-.08	-.18	.24	.10	-.11				
6. Interpersonal Orientation	.71	.23	.23	.22	-.22	-.24	-.27	-.02	-.10	-.18	.11	05	.14					
7. Expectancy of Success (Cooking a Meal)	.88	.21	.28	.04	-.09	.14	-.23	.11	-.08	.12	-.03	.07						
8. Expectancy of Success (Flowers and Childrens Quiz)	.87	.33	-.24	-.20	-.15	.04	-.32	-.06	.19	.16	.18							
9. Expectancy of Success (Designing a Store Window)	.92	-.31	-.31	-.25	-.07	-.14	-.40	.31	.31	.17								
10. Expectancy of Success (Changing the Oil)	.94	.43	.14	.00	.38	.30	-.63	-.17	-.15									
11. Expectancy of Success (Sports and Business & Industry Quiz)	.90	.40	.04	.17	.24	-.21	-.46	-.05										
12. Expectancy of Success (Designing a Tool Shed)	.90	.07	.28	.23	-.41	-.18	-.27											
13. Choice (Cooking a Meal)	--	.04	.14	-.01	.15	.02												
14. Choice (Flowers and Childrens Quiz)	--	.07	-.08	.04	-.15													
15. Choice (Designing a Store Window)	--	-.23	-.18	.00														
16. Choice (Changing the Oil)	--	.18	.09															
17. Choice (Sports and Business & Industry Quiz)	--	.02																
18. Choice (Designing a Tool Shed)	--																	

a. Alphas are the underlined coefficients in the diagonals

r = .14, p < .05

r = .19, p < .01

The correlation of the agency scales was a respectable .57. Also, a consistency in the correlations of the agency scales with the other personality measures and the expectancy measures indicates an external parallelism for the agency scales. For these reasons z-transformations on the agency scales were conducted in order to combined the scales into one agency score to be used in all subsequent analysis.

Likewise, the communion scales correlated .58 and exhibited a similar level of external parallelism. Therefore, z-scores were used in combining the communion scores into one scale for subsequent analysis. The interpersonal orientation scale correlated highly with communion (.45 and .42 for the Watts et al. and Reinhart scales respectively), but did not show a similar degree of external parallelism. The lack of parallelism, the convergent validity with the communion scales, and its lower reliability (.71) for the 29 item questionnaire led to its exclusion from the remaining analyses.

Combining task specific items like expectancy of success within the masculine and feminine task types was also considered, since the hypotheses all stated the task effects in terms of the impact of tasks typed by gender. Such a combination would treat responses to each task as repetitions within the gender type. However, to combine responses over tasks, responses should be consistent to all tasks; in other words, responses to tasks should demonstrate internal consistency reliability. Cronbach's (1951)

coefficient alpha is an appropriate measure this type of reliability.

The assessed reliability for the expectancy of success variable on the female and male task was alpha = .53 and alpha = .73, respectively. A one-way MANOVA with task sex-type revealed a significant contrast effect for task, Rao's $F(147,2) = 10.66$; $p < .001$, within the two sex-types of tasks. These task specific variations in expectancy of success were residual when the expectancy of success terms were combined, hence the low reliability for expectancy of success on the feminine tasks. This low reliability will attenuate any correlations with expectancy on feminine tasks.

Table 6 shows the correlations of the composite scales with each other, gender, and the combined choices of working arrangement for the three masculine tasks and the combined choice for the three feminine tasks. These correlations are refered to in the next sections which describe each hypothesis and the analyses and results relating to that hypothesis.

Hypothesis One. Hypothesis One deals with the relationship between the exongenous variables (gender, task sex-type and the their interaction) and the dependent variable (choice of working alone or with another). In particular, it stated that both gender and the interaction of gender with task sex-type should predict choice behavior. To test Hypothesis One a number of analyses were conducted.

Table 6

Correlations of Gender, Personality Composite Scales, Expectancy of Success Composite Scales, and Choice of Working Arrangement Composites

	Agency	Communion	Expectancy Masc.	Expectancy Fem.	Choice Masc.	Choice Fem.
Gender	-.18	.26	-.76	.44	.52	-.41
Agency		.21	.36	.12	-.14	.13
Communion			-.20	.38	.18	-.09
Expectancy (Masculine)				-.29	-.58	.36
Expectancy (Feminine)					.37	-.28
Choice (Masculine)						-.13

a. Correlations greater than or equal to .14 are significant at $p < .05$.

The first analysis dealt specifically with the gender to choice relationship, collapsing across task type. Since gender is a between subjects variable, the dependent variable was calculated by adding together each individual's responses to each task. A variable ranging from 0 to 6 resulted, with 0 indicating always choosing to work alone to 6 indicating always choosing to work with another. This variable was correlated with gender to determine the overall relationship between gender and choice of working arrangement. A correlation of .06 ($df = 128$, $p = NS$) was found. Thus, the first part of Hypothesis One, that gender predicted choice of working alone or in a group was not supported when task sex-type was ignored.

A second analysis focused on the relationship between the gender by task sex-type interaction and choice of

working arrangement. The combined responses to choice of working arrangement for the tasks were calculated by adding the responses to the masculine and feminine tasks separately to examine this part of Hypothesis One. Table 7 gives the breakdown of those combinations by gender and Figure 5 plots the results. A clear interaction is revealed. MANOVA was used to test main and interaction effects. No significant main effect for gender was found, $F(138,1) = .53$, $p = NS$. A significant main effect for task sex-type, $F(138,1) = 21.63$, $p < .001$, and interaction effect for task sex-type by gender, $F(138,1) = 82.94$, $p < .001$, were found. The simple main effects of task sex-type were calculated for males, $F(70,1) = 9.88$, $p < .01$, and females, $F(68,1) = 95.21$, $p < .001$. Eta squareds were calculated for each simple main effect to determine the percent of variance accounted for by task sex-type for the genders. Eta squared was .12 for males and .58 for females, revealing a greater sensitivity to task sex-type for females.

Examining the interaction from the other direction, the simple main effects of gender on choice of working arrangement on masculine tasks and choice on feminine tasks correlations were found. Gender correlated significantly on masculine tasks, $r = .52$, $p < .001$, and accounted for 27% of the variance in choice. On Feminine tasks, gender correlated significantly, $r = -.41$, $p < .001$, and accounted for 17% of the variance in choice.

A final look at the interaction between gender and task sex-type was conducted by examining the gender by choice of

Table 7

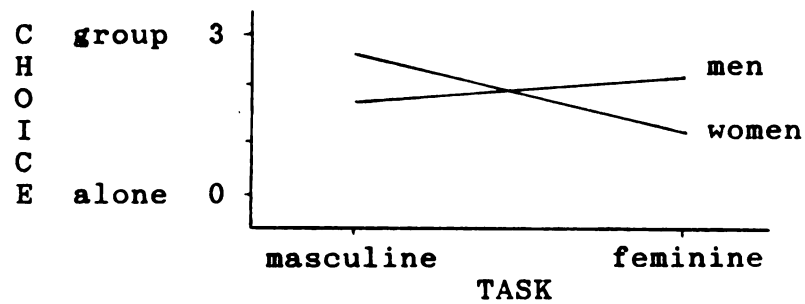
Breakdown of Choice By Gender and By Task Sex-Type

	N	Mean	Standard Deviation
Males			
Masculine Task	74	1.72a	.768
Feminine Task	73	2.08	.741
Females			
Masculine Task	73	2.58	.644
Feminine Task	70	1.39	.839

a. 0 = Alone on all tasks of same sex-type;
3 = Work with another on all tasks of same sex-type

Figure 5

Choice by Task Sex-Type Interaction



working arrangement chi-square for each task. Since any one task is either masculine or feminine, the gender term also captures the interaction between gender and task sex-type. In these analyses, gender could also be called gender/task sex-type congruence. Thus, the chi-squares reflect the gender by task sex-type interaction.

Table 8 shows the chi-squares, level of significance and Pearson's r to indicate the direction of the relationship. All chi-squares were significant at $p < .05$. All the masculine tasks had positive correlations between choice of working arrangement and gender (correlations ranged from .18 to .43). All the feminine tasks had negative correlations (ranging from -.17 to -.33). These correlations, in combination with the lack of an overall relationship between gender and choice of working arrangement, reveal a high degree of crossover interaction between gender and task sex-type as can be seen in Figure 5.

Table 8

Chi-Squares and Pearson's R on Gender by Choice For Each Task

	Chi-Square Analyses			Correlation Analysis	
Task	Chi-Square	D.F.	Signif.	Pearson's R	Sign
Cooking a Meal	4.19	1	0.041	.17	-
Changing Oil	28.04	1	0.000	.43	+
Childrens Quiz	10.40	1	0.001	.27	-
Designing Tool Shed	5.05	1	0.025	.18	+
Designing Store Window	15.89	1	0.000	.33	-
Sports & Business Quiz	15.50	1	0.000	.32	+

In summary, a highly significant relationship between choice and the interaction of gender and task sex-type was found. No overall relationship between gender and choice was found due to the crossover interaction. However, highly significant simple main effects for sex were found within the two sex-typed tasks.

Hypothesis Two. Hypothesis Two refers to the mediating effect of the personality variables between the gender and choice relationship. Since the overall relationship between gender and choice of working arrangement was moderated by task sex-type, the mediating effects of personality could not be tested across task sex-type. However, since gender did predict choice within each of the task sex-types, the effects of the personality variables can be examined for each sex-type separately. Also, it is useful to examine each link in the model in Figure 1 to determine which relationship, if any, held up.

The first link is between subject gender and the personality variables. Table 5 gives the point-biserial correlations between gender and the personality variables. All personality variables correlated significantly, and in the predicted direction, between personality and gender (see Table 5). Table 9 breaks down the means and standard deviations for each personality variable by gender.

Next, a regression analysis was conducted on all the observations to test the relationships between the personality variables and the choice of working alone or

with another. For this analysis, choice was combined across all the tasks. Using a forward regression model on the personality variables, no terms entered into the equation despite the liberal entry criteria (minimum F ratio of .01 and a tolerance of variance unexplained by the other independent variables of .1 percent).

Next, the agency and communion were correlated with choice of working arrangement for the combined masculine tasks and the combined feminine tasks. The correlations are reported in Table 6. For masculine tasks, agency and communion are both significantly correlated at the .05 level, where high scores on agency predict choosing to work alone, r = -.14, and high scores on communion predict choosing to work in a group, r = .18.

Finally, the personality variables were correlated with the choice of working arrangement for each task separately. Five correlations were statistically significant. Agency

Table 9

Breakdown of Personality Variables By Gender

	Males (76)		Females (74)	
	Mean	SD	Mean	SD
Agency (Watts)	3.60a	.649	3.35	.711
Communion (Watts)	3.63	.613	3.84	.576
Agency(Reinhart)	3.80	.576	3.60	.666
Communion(Reinhart)	3.72	.637	4.07	.554
Interpersonal Orientation	3.33	.328	3.48	.339

a. All personality scales were scored such that the higher the score the higher the tendency toward possessing the trait measured.

correlated .20 ($p < .01$) with choice on the Flowers and Childrens Stories Quiz and -.16 ($p < .05$) with choice on the Oil Changing task. Communion correlated .19 ($p < .01$) with choice on the Oil Changing task, .14 ($p < .05$) on the Sports and Business and Industry Quiz choice, and -.19 on the Designing a Store Window task. As can be seen by these significant relationships, agency and communion correlated as predicted for the masculine tasks, but correlated opposite to predictions on the feminine tasks. Thus, the personality-to-choice link was moderated by task sex-type just as was gender.

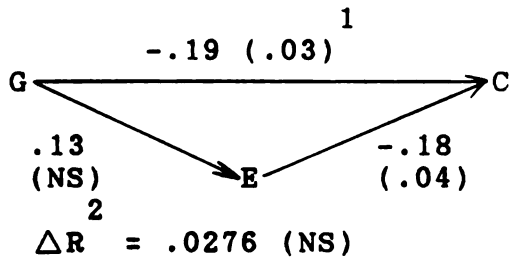
Hypothesis Three. Hypothesis three refers to the relationship between expectancy of success and choice and the mediating effect of expectancy between the interaction of gender and task sex-type with choice. The second part of Hypothesis One dealt with the relationship between the gender/task sex-type interaction and choice of working arrangement. The confirmation of the second part of Hypothesis One demonstrated above permits examination of mediation (James & Brett, 1984).

Again the analysis was done task-by-task, therefore, gender reflected congruence. That is, if the task was known to be typed as a male or female task, then the subjects' gender was either congruence or incongruence with the task sex-type. In order to test for mediation, the link between each variable in the mediation hypothesis must be established. Figure 6 shows the correlations among the variables. In all but the Cooking a Meal task, gender is

Figure 6

The Mediation of Expectancy of Success (E) Between Gender to Task Congruence (G) and Choice of Working Arrangement (C)

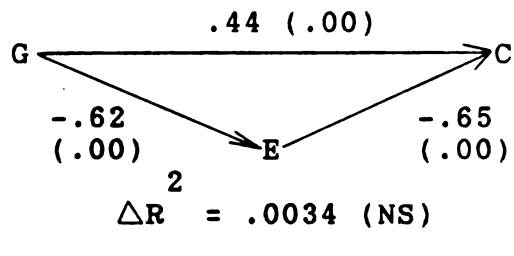
FEMININE TASKS



ΔR^2 = .0276 (NS)

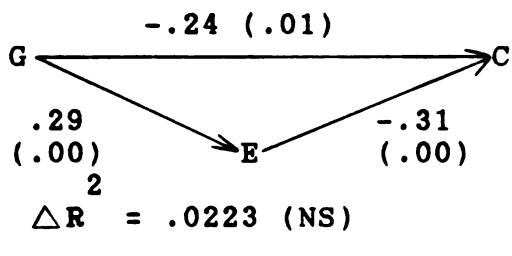
a. Cooking a Meal

MASCULINE TASKS



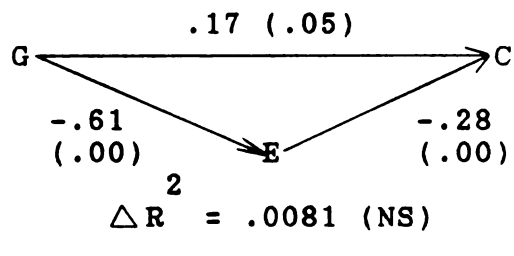
ΔR^2 = .0034 (NS)

b. Changing Oil



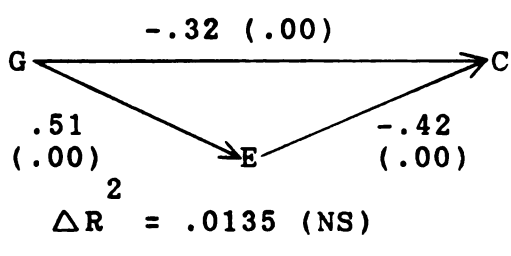
ΔR^2 = .0223 (NS)

c. Childrens and Flowers Quiz



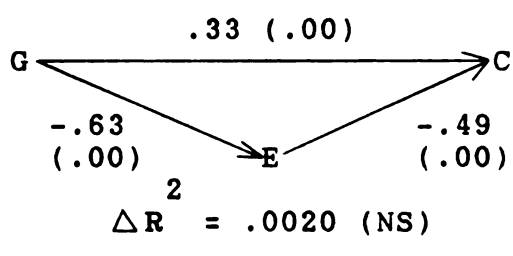
ΔR^2 = .0081 (NS)

d. Designing a Tool Shed



ΔR^2 = .0135 (NS)

e. Designing Store Window



ΔR^2 = .0020 (NS)

f. Sports & Business Quiz

1. Regression coefficients are used in this figure. Sign was added to reveal direction of relationship. Significance levels are in parentheses

significantly related to expectancy of success for each task. For all tasks, the expectancy of success term is significantly related to choice of working arrangement. Finally, the changes in R^2 that are reported in Figure 6 are the result of entering gender into an equation with choice of working arrangement regressed on expectancy of success. None of the changes in R^2 are significant (alpha = .05).

With the exception of the Cooking a Meal task, all the links were established among all the variables -- a necessary prerequiste to a mediation test. In the test for complete mediation, the changes in R^2 are an index of the variance in the choice of working alone or with another unaccounted for by the expectancy of success term but accounted for by the gender to task congruence term. The concept of complete mediation is that the significant relationship (or accounted for variance) between an exogenous variable (gender to task congruence) and the endogenous variable (choice of working arrangement) is accounted for in the relationship between the mediating variable (expectancy of success) and the endogenous variable. If the mediating variable is, in fact, mediating, the relationship between the exogenous and endogenous variables should not be significant when the mediating variable is partialled out. Entering expectancy of success into the regression equation first, partials expectancy of success out of the variance in variables subsequently entered. The change in R^2 measures the variance between

remaining between gender to task congruence and the choice of working arrangement variables. In this case, none of those R^2 changes were significant, therefore the mediation of expectancy of success (Hypothesis Three) was found in every case (except the Cooking a Meal task since congruence to expectancy link was not established initially).

Hypothesis Four. Hypothesis four focuses on the relationship between the exogenous variables and expectancy of success. The hypothesis stated that only for females would we expect to see the task sex-type serve as a moderator in the gender to expectancy of success relationship. Thus, the issue of congruence between gender and task would be relevant for females only. Figure 7 described the relationship between gender or congruence and expectancy of success. For feminine tasks the correlations between gender and expectancy of success are positive (only for Cooking a Meal is the relationship not significant). For the masculine tasks all the correlations between gender and expectancy of success are highly negative.

The results shown in Figure 7 combined the male and female respondents. To support the hypothesis, the relationships described in the previous paragraph should only hold for females. Table 10 shows the breakdown of expectancy of success by gender and task sex-type and Figure 7 the plot. MANOVA was used to test main effects and interactions and eta squares were calculated to determine the relative differences in simple main effects. With expectancy of success on the masculine and feminine tasks as

Table 10

Breakdown of Expectancy of Success

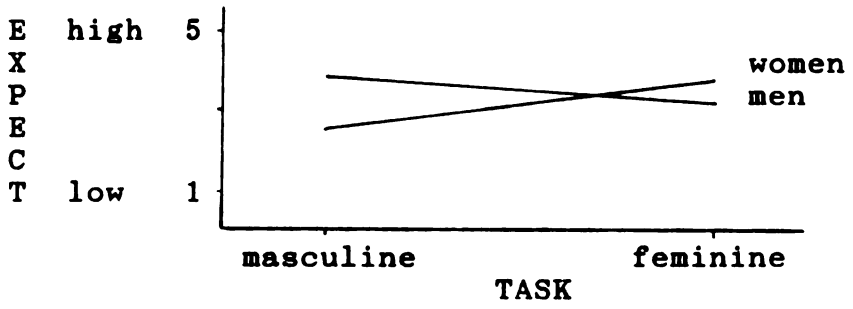
By Gender and By Task Sex-Type

	Mean	Standard Deviation
Males		
Masculine Task	3.74a	.546
Feminine Task	3.12	.586
Females		
Masculine Task	2.44	.555
Feminine Task	3.69	.549

a. Scale ranged from 1 = low expectancy of success to 5 = high expectancy of success.

Figure 7

Expectancy of Success by Gender and Task Sex-type



the dependent variables, a main effect for gender was found, $F(138,1) = 24.26$, $p < .001$, a main effect of task sex-type was found, $F(138,1) = 22.63$, $p < .001$, and a strong interaction effect was found, $F(138,1) = 221.74$, $p < .001$. The simple main effect for males was $F(71,1) = 55.69$ ($p < .001$), with an eta squared of .44. For females, the simple main effect was $F(67,1) = 178.07$ ($p < .001$), with an eta squared of .73. Although a significant simple main effect was found for males on task sex-type, the eta squares revealed a relative smaller effect for males than females. These results are congruent with the conclusions derived from other research that found males' expectancies of success were less sensitive to the sex-type of the task. The data support the hypothesis to some extent, but not completely.

Testing the model within task sex-type. Although the full model postulated in the introduction did not find complete support, it is possible to test the relative effects of gender, personality, and expectancy of success on the choice of working arrangement within a task sex-type.

We already know that gender correlated with choice at .50 for the masculine tasks and -.41 for the feminine tasks. Thus, it is again reasonable to postulate that personality mediates the relationship between gender and choice. Gender is also a congruence term for the task sex-type. Thus, as with the mediation tests demonstrated for the individual tasks in the test of Hypothesis Three, expectancy of success

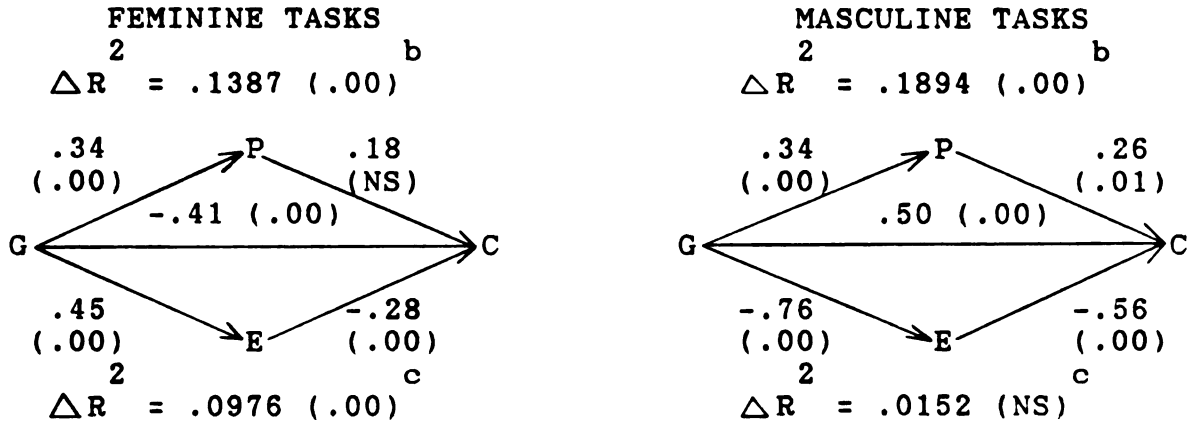
can be tested for mediation on all the masculine tasks and all the feminine tasks. Likewise, the mediation of the personality variables can be tested. Figure 8 shows the relationships between each term and the change in R^2 after entering gender into equations with the mediator terms. Only expectancy of success on the masculine tasks serves as a mediator according to the conservative test for complete mediation of James and Brett (1984).

Several points shoud be made about Figure 8. First, all coefficients are the result of canonical correlations or regression analysis. For instance, gender correlated -.18 ($p < .05$) with agency and .26 ($p < .01$) with communion, but the canonical correlation of the two personality variables with gender was .34 ($p < .01$) as reported in Figure 8. Second, as reported earlier, the reliability of the expectancy of success term when was only .53 when combined across the three feminine tasks. Thus, any correlations between this term and gender of choice are attenuated by the low reliability of expectancy of success. Likewise, the ability of expectancy of success on feminine tasks to mediate is attenuated. Finally, Figure 8 is not a test of the entire model since the relationship of the personality variables with expectancies of success are not taken into account.

Toward that end, Table 11 provides the beta weights when all the terms are regressed against choice simultaneously. For the feminine tasks only gender significantly (Beta = -.33, $p < .01$) contributes to the

Figure 8

Model of Within Task Sex-Type Effects[a]



a. All coefficients are multiple Rs or canonical correlations. Signs are added to signify the directions of relationships. P values are in parentheses.

b. Change after adding gender to equation with personality regressed on choice.

c. Change after adding gender to equation with expectancy of success regressed on choice.

Table 11

Relative Contributions

Variable	Betas for Choice On Feminine Tasks	Betas for Choice On Masculine Tasks
Gender	-.33 (.01)	.15 (NS)
Expectancy of Success	-.16 (NS)	-.46 (.01)
Agency	.09 (NS)	.07 (NS)
Communion	.04 (NS)	.08 (NS)

prediction of choice. For masculine tasks, only expectancy of success significantly (Beta = -.46, $p < .01$) contributes to the prediction of choice. The next section will discuss interpretations of the data presented in this section.

DISCUSSION

This study tested a model of group-joining behavior using gender, personality, and expectancies as predictors of the behavior. Personality factors, specifically agency, communion and interpersonal orientation, were hypothesized to covary with gender and to predict the choice of working on an achievement task individually or with another. It was hypothesized that the personality factors described would mediate the relationship between gender and group-joining behavior. The results partially supported hypotheses derived from the personality perspective.

A second mediating relationship was postulated between the congruence of gender with the sex-type of the task and choice of working arrangement. It was hypothesized that expectancies of success on the tasks would mediate the relationship between gender/task congruence and the working arrangement choice. This hypothesis was supported.

Summary of Results.

Hypothesis One predicted covariance between gender, task sex-type, and the interaction of gender and task sex-type with choice of working alone versus with another. A significant relationship was not found between gender and choice of working arrangement when all tasks were

considered. Close examination of the interaction effects between gender and sex-type of the task revealed consistent relationships between gender and choice within but not between the masculine and feminine tasks, meaning task sex-type acted as a moderator. The nature of the interaction (moderation) was such that it concealed the gender effect. When the full model for how gender was expected to affect choice was tested, it was revealed where relationships in the model tended to break down.

Significant correlations between gender and the personality constructs were found. However, the relationship between the personality measures and choice of working arrangement was also moderated by the sex-type of the task. Thus, when all tasks were considered, no overall relationship was found. Yet, when choice of working arrangement was examined for only masculine and only feminine tasks, a significant relationship between gender and choice was found. Examination of effects of personality on the relationship between gender and choice within task sex-type is beyond the hypotheses articulated in the introduction to this study. Nonetheless, exploration into these relationships provides useful information about the variables studied.

For the masculine tasks, the personality variables correlated with choice as expected (see Table 6). That is, high agency scores predicted choosing to work alone and high communion scores predicted choosing to work with another.

However, correlations were in the opposite direction, although not significant, for the feminine tasks.

Since, within task sex-type personality correlated with choice on the masculine tasks, it was possible to test for mediation. Using James and Brett's test, personality still did not mediate the relationship between gender and choice. The James and Brett test requires the absence of a direct effect to exist between the exogenous and endogenous variables after the mediator is partialled out. However, two paths may exist between exogenous and endogenous variables -- one direct and one indirect. The indirect relationship cannot be tested when a direct effect is also present.

Another hypothesis dealt with the effects of expectancy of success on choice of working arrangement. Since a significant relationship was found between the gender by task sex-type interaction and choice of working arrangement, a test for the mediating effect of expectancy of success was appropriate. Results confirmed the mediating hypothesis. In particular, expectancy of success was found to mediate the interaction to choice relationship. Thus, overall the interactional model was supported. A clear indication of mediation was found for all but the meal cooking task. The test consisted of establishing a significant relationship between the interaction of gender and task sex-type with expectancy of success. This was found for all but the cooking a meal task. Also, the relationship between the gender with a task of a known sex-type and choice needed to

not be significant when expectancy of success was held constant. This was true for every task. Thus, the mediating nature of expectancy of success, as suggested by Deaux (1976), was borne out.

An unexpected yet consistent finding was the complete crossover of expectancy of success and choice between males and females. In this study, males appeared to be somewhat sensitive to the sex-type of the task. However, examination of the relative effect of task sex-type on gender revealed a greater sensitivity for females than males. These results were consistent with Wood et al.'s (1985) argument that task characteristics need to be a consideration in any study in which sex-typing is likely to occur.

Finally, examination of all the variables within task sex-type revealed less dramatic effects. First, expectancy of success mediated the gender-to-choice relationship only for masculine tasks. An explanations for the inability to find a mediating effect for expectancy of success within the feminine tasks is that the low reliability of the expectancy of success for feminine tasks ($r = .53$) attenuated any effects of that variable in validity analyses, thus making it difficult to find significant and strong relationships between it and other variables (i.e., gender and choice).

Additional Issues

An additional issue regards the intercorrelations of the personality variables with the expectancies of success measures for each task. The communion scales tended to

correlate positively with the expectancies on the feminine tasks and negatively with the expectancies on the masculine tasks. Likewise, the Interpersonal Orientation Scale always significantly correlated positively with the expectancies on the feminine tasks and negatively with the expectancies on the masculine tasks. Meanwhile, those who scored high on agency tended to score high on expectancy of success across all tasks, but especially for masculine tasks.

These correlation patterns are interesting in a number of ways. First, the fact that the agency and communion scales did not produce exactly opposite patterns adds justification to the use of separate measures of the two constructs rather than combining them into one measure which assumes bipolar concepts of a single dimension (Watts, Messe, & Vallacher, 1982). Second, although the masculine and feminine tasks are similar in there propensity for group effort, expectations of success on the feminine tasks correlated positively with the people-oriented personality factors and both predicted choosing to work alone. The correlations seem to indicate a sex-role expectation of responses. Since females were expected to be interpersonally oriented (Carlson, 1971; Watts, et al., 1982) and good at feminine tasks and they responded positively to both measures. Likewise, males were expect to be agentic (Carlson, 1971) and good at masculine tasks and they responded positively to both measures. Finally, the positive correlations between agency and all the expectancies indicated that the achievement-oriented aspects

of the task were cueing their agentic tendencies such that successful accomplishment outweighed the more dubious rewards of individual effort.

The high intercorrelations between the expectancy measures and the personality measures prompted an analysis of the incremental affects of personality over expectancy. Only for the flowers and childrens stories quiz did personality add a significantly to the prediction of choice (change in R^2 = .044, $p < .05$). This addition was due primarily to the agency scale (Beta = .20, $p < .05$) and not communion (Beta = .07, p = NS). It should be noted that the positive Beta for agency reflects the desire for high agency individuals to work with another on the flowers and childrens stories quiz! It is not clear why this effect was observed.

Finally, it should be noted that the personality perspective articulated in the introduction was a trait approach which requires a main effect a variety of across situations. Endler and others (Endler, 1983, Magnusson & Endler, 1977) have taken a less forceful approach to personality. Much like the interactional approach taken here, they believe that situational cues trigger personality characteristics in a coherent pattern rather than in all situations. So, for example, the masculine tasks may have triggered communal charateristics in the females, but the feminine tasks did not. Likewise, the achievement-oriented qualities of the tasks triggered agentic responses for the

males. The potentially interactional characteristic of personality requires consideration when the results demonstrate clear patterns in the responses within the task sex-type as they did here.

Limitations of the Study.

In the introduction of this study, two primary approaches to study of choice behavior were articulated -- personality and interactional. The data are more supportive of the interactional perspective than the personality one when personality is seen as a trait. Primarily, for the unsupported hypothesis (i.e., the lack a gender main effect when all tasks were considered simultaneously), issues of subjects, task type, paradigm and salience of the choice manipulation need to be addressed. For the supported hypotheses and other significant findings, issues concerning the possibility of spurious results and the degree of generalizability need to be addressed.

Main effect for gender. For the hypotheses generated from the personality perspective, the failure to find a gender main effect limited the possible results. To recall, the personality-perspective argument was that gender should have a main effect on choice, since communal and affiliation needs associated with the personality scales should lead to choosing to join in a group, and that females should score higher on the scales reflecting these needs. Females did score higher on the communion and interpersonal orientation scales, but choice interacted with task sex-type negating any main effect. That is, when tasks choices were examined

individually and within task sex-type, the personality variables did have an effect. To understand the lack of an overall effect, explorations of possible limitations with regards to subject population, the tasks and the paradigm are discussed below.

The subjects were undergraduate psychology students -- mostly freshmen and sophomores. As such they may be too homogeneous to produce a significant main effect. It is possible, even hopeful, that cultural and environmental elements have changed enough for these students that many of the sex differences perceived in past years are now dissipating. However, sex differences on the personality scales were found in the predicted direction, albeit the differences were small. Therefore, such a conclusion would be optimistic.

The type of tasks used in this study is another issue. Here, type of tasks falls into two categories. One is the task gender or sex-type. The other is the achievement orientation of the tasks and the instructions regarding the tasks.

A main effect for gender did occur when examining masculine or feminine tasks separately used rather than combining both types. On the masculine tasks, females chose to work with another significantly more often than males. This result is consistant with Hypothesis One and its prediction. However, on the feminine tasks, males chose to work with another significantly more often than females.

This result was counter to the prediction for the first hypothesis and counteracted the effect of masculine tasks. Thus, the contention of Wood et al. (1985) that task gender may have influenced the results of previous studies, such that the gender main effect found in the literature is a function of not taking task gender into account through the over emphasis of masculine tasks, is supported by this study.

The question that remains is, why did females who scored high on communion choose to work alone on the feminine tasks? At the same time, why did males who scored low on communion choose to work with another on feminine tasks? The answers seem to be in the high correlation between communion and expectancy of success on feminine tasks. Expectancy of success predicted choice, communion did not. Speculation as to why communion and expectancy of success on feminine tasks were correlated was discussed earlier as possibly the result of sex-role response sets. It appears that task type, when type is defined as gender, is not therefore a limitation in this study but an addition in the sense that interesting questions are raised as a result of its inclusion.

Another possibility is that task type may be suggesting achievement orientation. A limitation may be found in the achievement orientation of the task and the research paradigm employed. Carlson (1972) chastised the research community for using only agentic modes of inquiry rather than communal research styles. The agentic paradigm

involves manipulation, quantification and control -- all factors in the current study. Perhaps communal (naturalistic, qualitative, and open) research paradigms would have produced different results. For example, the dependent variable was choice of working arrangement on a task described as one in which subjects either passed or failed. Veroff (1977), in a review of achievement motivation in women, postulated that women are more process-oriented than impact or results-oriented. Since the description of the tasks used in this study emphasized results (success or failure), a bias toward a masculine orientation was established and may have subjugated female propensities to act freely. Using Endler's (1983) perspective, one could argue, for example, that females did not define these tasks as being appropriate for displaying their communal characteristics. Other non-work or unappraised tasks may have allowed the personality differences and therefore the gender differences to surface. It is important to note, therefore, that a possible limitation of the generalizability of this study is the achievement orientation of the tasks.

Finally, another possible limitation of this study with regards to the gender to choice finding is the salience of the choice manipulation. It is probable to expect that subjects did not see the choice of working alone or with another as a very salient of important decision. The artificial nature of the experiment may have produced

results not replicable in natural settings. Although an attempt was made to suggest actual participation in the tasks, the tasks were only described, as opposed to demonstrated, and the participation was to be voluntary, not required. Had the choice manipulation been more salient, like career choice, the personality factors associated with gender may have been stimulated into influencing behavior.

Personality. As mentioned earlier, the personality prediction as stated in Hypothesis Two also failed to be supported. However, within task sex-type, the personality variable did have an effect. Nonetheless, mediation was still not found when using the strick James and Brett (1984) definition. Among the possible explanations for this might be poor personality measures, both psychometrically and substantively, as well as the issues associated with the tasks mentioned above.

For example, reliability problems may have attenuated findings as suggested for the combined expectancy of success on feminine tasks. However, reliabilities were well within accepted limits for the personality variables used in the analysis (see Table 5). Likewise, the personality measures were collected from two different instruments with a degree of convergent validity. Therefore, psychometric problems are an unlikely explanation.

Another problem may have been that the measures used in the study did not capture the personality constructs most likely to covary with the particular behavior studied here. Other constructs, like need for affiliation, may have

produced different results. However, the personality variables were chosen because of their history of covaration with gender which was substantiated. The relationship between need for affiliation and sex is less clear.

When examining the overall (i.e., combining all tasks) relationship between personality and choice, the lack of such an overall relationship between gender and choice obviates the personality variables as a limitation. That is, without a relationship between gender and choice, personality variables covaring with gender must show no relationship with choice or, if they did the relationship would be weak. Therefore, the psychometric properties and substantive nature of the measures may have limited the assessment of the personality constructs, but did not speak to the validity of the mediating hypothesis issue.

Before leaving the issues involving the personality perspective, it is important to note that this study was not designed to test or compare the power of two theoretical positions. As Cooper and Richardson (1986) point out, one perspective may be more strongly operationalized, manipulated, or measured. In this case, expectancies of success were asked about specific tasks, the personality variables were global and may suffer from many of the same types of issues that Ajzen and Fishbein (1977) articulated regarding the lack of ability to use general attitudes to predict specific behavior. Also, task sex-type was explicitly stated, as was the achievement outcome. In many

ways, the study was stacked in the favor of the interactional approach. Therefore, it is risky to attempt to compare the two perspectives outside the paradigm used in the present study.

The mediation of expectancy of success. The data were very encouraging regarding the mediating properties of expectancy of success between the gender to task congruence and choice of work arrangement. However, procedures of analysis and demand characteristics may have produced spurious results in this particular study.

A note of caution regarding the test of mediation was uncovered in analysis of this study. In the Childrens and Flowers Quiz the change in R^2 has not significant. On the other hand, it was not necessarily trivial, particularly when compared to the original congruence to choice relationship. In that relationship, the magnitude of the correlation equalled -.24. The multiple R after partialling expectancy of success equalled .15 (signs are not relevant). Thus, a great deal of the relationship between congruence and choice was not accounted for by expectancy of success. It may be a function of the originally low (but significant) relationship between congruence and choice that did not allow the remaining relationship, after expectancy of success was partialled out, to be significant. This test for mediation may suffer from the same fallacy uncovered in the single group validity issue of the selection literature -- a fallacy centered in the use of significance test instead of confidence intervals. However, the preceeding

issue only surfaced for two of the six tasks analyzed. Therefore, regarding the mediation finding overall, this limitation seems to have little merit.

This study is also subject to some of the common biases of laboratory studies. Demand characteristic inherent in the instructions, nature of the procedure and questions asked may have influenced responses. It is possible, for example, that subjects began to notice the obvious sex-typing of the tasks and felt that they should say that they could do well on same-sex tasks. In fact, analysis run on the observations of exposure to the first task only produced non-significant results, whereas observations of the second through sixth task produced significant results. However, there were no patterns of increasing significance in observations 2 through 6. Therefore, the demand characteristics explanation is less defensible.

Generalizability of results. Generalizability issues surrounding the lack of positive results found for the hypotheses generated from the personality perspective were articulated above. However, other generalizability issues center around the findings generated from the situational perspective and post hoc analyses regarding the personality perspective. In particular is the unexpected finding of the crossover interaction of gender and task sex-type on the expectancy of success to choice relationship, and the validity of the significant findings of the interactional model to real-world settings. The issue of task difficulty

as a possible limitation regarding the crossover effect is addressed below, followed by a short discussion of the limits of generalizing the study findings to real-world settings.

Although an attempt was made to present tasks that were clearly masculine and feminine and of equal overall difficulty, it is difficult to say whether the manipulation checks fully demonstrated accomplishment of this objective. The crossover effect found for expectancy of success and choice may not hold if the masculine and feminine tasks differed in perceived difficulty or propensity for group approaches to accomplishment. For example, the female tasks may have been more difficult than the masculine tasks and hence caused the males of have significantly lower expectancies of success regarding those tasks. Should this have been the case, we would still have seen the expectancies higher for females than for males on female tasks, but we may not have seen the sensitivity to task sex-type by the males. Though a weak sensitivity it was.

The tasks used and situations presented in this research do not necessarily reflect normal real-life settings. Had the tasks been more ladened with pronounced costs and benefits, other results may have been found. However, as stated in the introduction, at issue is the decision of individuals when costs and benefits external to the task are balanced. Any pronounced external cost or benefit would certainly overshadow the expectancy of success finding.

Future Directions of Research

The results of the present study produced evidence which might suggest direction for further research. Questions about sex-typing issues, the interactional nature of personality, the benefits of exploring group-joining behavior, and the source and possible change of expectancies and self-confidence need further exploration.

The relationship between gender and task sex-type deserves further consideration. As pointed out by Wood et al. (1986), the direct relationship of gender with a variable like expectancy of success or perceptions of competence may be, as in this case, moderated by the sex-type of the task. A possible direction of research would be to investigate the specific properties of tasks which ellicit the sex-typing labels. For example, did females cue on physical demands, or spacial issues which lower expectancies on masculine tasks? Did males cue on insecurities in knowledge bases?

On the level of occupation, Heilman (1983) developed the Lack of Fit Model as an attempt to understand womans' expectations of performance. In the model, perceived attributes are compared with perceived job attributes to assess goodness of fit. Heilman (1983) hypothesized that females and employers would perceive poor fit when females considered traditionally male-dominated occupations and the poor fit would lead to expectations of failure by both the females and the employers. Here again, the specific

attributes women key on would be helpful if the designers of interventions wish to focus on changing perception about male-dominated jobs.

In any case, situational factors like the sex-type of the task need to remain a careful consideration in any sex difference study. For example, Hackett and Campbell (1987) used a non-sex-linked (neutral) task to explore the effects of successful and unsuccessful performance on self-efficacy and task interest. They found few sex differences (except that women tended to attribute good performance more to luck and bad performance more to ability than did males). Closer examination of the task sex-type may have been allowed an explanation of the attribution difference to be related to the differences in task sex-type sensitivity between the sexes.

Another example is when Instone, Major and Bunker (1983) examined the social influence strategies of men and women in an organizational simulation. They found females using a more limited array of influence strategies, but that "sex-linked differences in self-confidence explained much of the gender differences observed..." (p. 322).

With regard to the personality factors, further exploratory into the interactional nature of personality seems warrented. The findings in this study revealed interesting patterns in responses that were sometimes difficult to interpret. As with the sex-type attributes, identification of the situational cues that trigger responses associated with personality need to be identified.

The speculation that preference for working in a group actually enhances group performance was suggested by Hackman and Oldham (1980) and still needs verification. Furthermore, the source of that preference may be relevant. If expectancies of success are the issue, as they were in this study, then preferences may serve as a barometer of the capabilities of the potential group members. If other factors are influencing preference for work arrangement, then the consequences of their adherence or neglect need to be explored. Further exploration of the issues involved in task effectiveness, like participants' preferences need to be studied empirically.

Expectancy of success did produce significant results, but left a great deal of variance unexplained. Whether there are suppressor variables, moderators in the expectancy to choice relationship or simply other independent variables would be a point of departure in future research.

Finally, understanding the source of and possibly correcting low levels of expectancy or self-confidence, particularly in women, needs further investigation. Bandura's (1977) piece on social learning theory presented evidence that experience, persuasion, and role modeling effect self-efficacy and expectancy perceptions. A single question on experience with the task was asked for each task. For the masculine tasks experience correlated .87 with expectancy of success on the masculine tasks. For the feminine tasks, the correlations of experience with

expectancies ranged from .45 to .64. Experience, at least, demonstrated pronounced affects on expectancies in this study. The effects of persuasion and role modeling may also influence the sex-typed expectancies. A recent study (McCarty, 1986) found that women tended to have lower self-confidence in achievement settings, but the feedback of positive performance raised the self-confidence of both sexes. However, the work by Brockner (1985) and Hackett and Campbell (1987) suggest that attributional perceptions may tend to perpetuate expectancy differentuals in males and females. These researchers are finding that males tend to use luck as an explanation for failure and ability as an explanation for success, whereas females exhibit the opposite pattern.

The present study was an attempt to demonstrate the effects of personality and situational variables on a specific behavior. Strong effects were found for the situational variables, whereas more attenuating effects were found for the personality variables. Many possibilities present themselves regarding further inquiry into these issues. Further research, designed specifically to answer some of these questions, is suggested as a mechanism toward increasing our understanding of the complex phenomenons presented in this study.

REFERENCES

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. Psychological Bulletin, 84, 888-918.

Aries, E. (1976). Interaction patterns and themes of male, female, and mixed groups. Small Group Behavior, 7(1), 7-18.

Bakan, D. (1966). The duality of human existence. Chicago: Rand McNally.

Bales, R. F. (1970). Personality and interpersonal behavior. New York: Holt, Rinehart, and Winston.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.

Booth, A. (1972). Sex and social participation. American Sociological Review, 37, 183-192.

Broverman, I. K., Vogel, S. R., Broverman, D. M. Clarkson, F. E., & Rosenkrantz, P. S. (1972). Sex-Role stereotypes: A current appraisal. Journal of Social Issues, 28(2), 59-78.

Campbell, J. P., & Pritchard, R. D. (1976). Motivation theory in industrial and organizational psychology. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology (pp. 62-130). Chicago: Rand McNally.

Carlson, R. (1971). Sex differences in ego functioning: Exploratory studies of agency and communion. Journal of Consulting and Clinical Psychology, 37, 267-277.

Carlson, R. (1972). Understanding women: Implications for personality theory and research. Journal of Social Issues. 28(2). 17-31.

Carr, P. G., Thomas, V. G., & Mednick, M. T. (1985). Evaluation of sex-typed tasks by black men and women. Sex Roles, 13, 311-316.

Cohen, J. & Cohen, P. (1983). Applied multiple regression/correlation analsis for the behavioral sciences. 2nd Ed. Hillsdale, N.J.: Lawrence Erlbaum.

Cooper, W. H., & Richardson, A. J. (1986). Unfair comparisons. Journal of Applied Psychology, 71, 179-184.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psycholmetrika, 16. 297-334.

Deaux, K. (1976). The Behavior of women and men. Monterey, CA: Brooks/Cole.

Deaux, K., & Emswiller, T. (1974). Explanations of successful performance on sex-linked tasks: What is skill for the male is luck for the female. Journal of Personality and Social Psychology, 29(1), 80-85.

Deaux, K., White, L., & Farris, E. (1975). Skill versus luck: Field and laboratory studies of male and female preferences. Journal of Personality and Social Psychology, 32(4), 629-636.

Deutsch, M. (1975). Equity, equality, and need: What determines which value will be used as the basis of distributive justice? Jounal of Social Issues, 31, 137-149.

Endler, N. S. (1983). Interactionism: A personality model, but not yet a theory. In R. A. Dienstbier (Ed.), Personality -- Current Theory and Research (pp. 155-200). Lincoln, NE: University of Nebraska Press.

Fasteau, M. F. (1974). The male machine. New York: McGraw-Hill.

Feather, N. T. (1969). Attribution of responsibility and valence of success and failure in relation to initial confidence and task performance. Journal of Personality and Social Psychology, 13(2), 129-144.

Frieze, I. H. (1975). Women's expectations for the causal attributions of success and failure. In Mednick, M. T. S., Tangri, S. S. & Hoffman, L. W. (Eds), Women and Achievement: Social and motivational analysis. New York: Wiley & Sons.

Gaeddart, W. P. (1985). Sex and sex role effects on achievement strivings: Dimensions of similarity and difference. Journal of Personality, 53(2), 286-305.

Garai, J. E., & Scheinfeld, A. (1968). Sex differences in mental and behavioral traits. Genetic Psychology Monographs, 77, 169-299.

Garland, H., & Brown, B. R. (1972). Face-saving as affected by subjects' sex, audiences' sex and audience expertise. Sociometry, 35(2), 280-289.

Garland, H., & Smith, G. B. (1981). Occupational achievement motivation as a function of biological sex, sex-linked personality, and occupation stereotype. Psychology of Woman Quarterly, 5(4), 568-585.

Gewirtz, J. L., & Baer, D. M. (1958a). Deprivation and satiation of social reinforcers as drive conditions. Journal of Abnormal and Social Psychology, 57, 165-172.

Gewirtz, J. L., & Baer, D. M. (1959b). The effect of brief socal deprivation on behaviors for a social reinforcer. Journal of Abnormal and Social Psychology, 56, 49-56.

Gilligan, C. (1982). In a different voice. Cambridge: Harvard University Press.

Gordon, L. (1961). Survey of interpersonal values. Chicago: Science Research Associates.

Hackett, G., & Campbell, N. (1987). Task self-efficacy and task interest as a function of performance on a gender-neutral task. Journal of Vocational Behavior. 30(2), 203-215.

Hackman, J. R., & Oldham, G. R. (1980). Work Design. Reading, Mass: Addison-Wesley.

Heneman, H. G., III, & Schwab, D. P. (1972). An evaluation of research on expectancy theory predictions of employee performance. Psychological Bulletin, 78, 1-9.

Hoyenga, K. B. (1979). The question of sex differences: Psychological, cultural, and biological issues. Boston: Little, Brown.

Instone, D., Major, B., & Bunker, B. B. (1983). Gender, self confidence, and social influence strategies: An organizational simulation. Journal of Personality and Social Psychology. 44(2), 322-333.

Jackson, L. (in press). Gender and distributive justice behavior: The influence of gender-related characteristics on allocations. Sex Roles.

James, L. R., & Brett, J. M. (1984). Mediators, moderators, and tests of mediation. Journal of Applied Psychology, 69(2), 307-321.

Kelley, H. H., & Thibaut, J. W. (1968). Group problem solving. In G. Lindzey and E. Aronson (Eds.), Handbook of Social Psychology. Reading: Addison-Wesley.

Kerr, N. L., & Sullaway, M. E. (1983). Group sex composition and member task motivation. Sex Roles, 9, 403-417.

Keyser, D. (1979). Emergent leadership as a function of sex and task type. Unpublished master's thesis, Wayne State University.

Kohlberg, L., (1981). The philosophy of moral development: Moral stages and the idea of justice. San Francisco: Harper & Row.

Kopelman, R. E. (1977). Psychological stages of careers in engineering: An expectancy theory taxonomy. Journal of Vocational Behavior, 10, 270-286.

Lawler, E. E., III, Kuleck, W. J., Jr., & Rhode, J. G. (1975). Job chioce and post decision dessonance. Organizational Behavior and Human Performance, 13, 133-145.

Lenney, E. (1977). Women's self-confidence in achievement settings. Psychological Bulletin, 84(1), 1-13.

Lenney, E., Gold, J., & Browning, C. (1983). Sex differences in self-confidence: The influence of comparison to other's ability level. Sex Roles, 9(9), 925-942.

Lippa, R., & Beauvais, C. (1983). Gender jeopardy: The effects of gender, assessed femininity and masculinity, and false success/failure feedback on performance in an experimental quiz game. Journal of Personality and Social Psychology, 44(2), 344-353.

Lykes, M. B. (1985). Gender and individualistic vs. collectivist bases for notions about the self. Journal of Personality, 53(2), 356-383.

Lyons, N. P. (1983). Two perspectives: On self, relationships, and morality. Harvard Educational Review, 53(2), 125-145.

Magnusson, D., & Endler, N. S. (1977). Interactional psychology: Present status and future propects. In D. Magnusson & N. S. Endler (Eds.), Personality at the crossroads: Current issues in interactional psychology. Hillsdale, N.J.: Lawrence Erlbaum Associates.

McCarty, P. A. (1986). Effects of feedback on the self-confidence of men and women. Academy of Management Journal, 29(4), 840-847.

McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). The achievement motive. New York: Appleton.

Maccoby, E. E., & Jacklin, C. N. (1974). The psychology of sex differences. Stanford, CA: Stanford University Press.

Meeker, B. F., & Weitzel-O'Niell, P. A. (1977). Sex roles and interpersonal behavior in task-oriented groups. American Sociological Review, 42, 91-105.

Mitchell, T. R. (1982). Expectancy-value models in organizational psychology. In N. T. Feather (Ed.), Expectations and actions: Expectancy-value models in psychology. (pp. 293-314). Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. Journal of Applied Psychology, 64, 10-19.

Moreland, R. L., & Levine, J. M. (1982). Socialization in small groups: Temporal changes in individual-group relations. In L. Berkowitz (Ed.), Advances in experimental social psychology (pp. 137-193). New York: Academic Press.

Mulder, M. (1963). Group structure, motivation and group performance, Den Hagg: Mouton.

Parker, D., & Dyer, L. (1976). Expectancy theory as a within-person behavioral choice model: An emperical test of some conceptual and methodological refinements. Organizational Behavior and Human Performance, 17, 97-117.

Parsons, T. & Bales, R. F. (1955). Family, Socialization and Interaction Processess. Glencoe, Ill.: Free Press

Piliavin, J., & Martin, R. R. (1978). The effects of sex composition of groups on style of interaction. Sex Roles, 4, 281-291.

Reinhart, M. A. (1983, October). An examination of Bakan's theory of agency-communion: A self-schema approach. Paper presented at the Fourth Annual Conference of the Woman Researcher, Western Michigan University, Kalamazoo, Michigan.

Reis, H. T., & Jackson, L.A. (1981). Sex differences in reward allocation: Subjects, partners, and tasks. Journal of Personality and Social Psychology, 40, 465-478.

Schachter, S. (1959). The psychology of affiliation. Stanford, Calif.: Standord Univiersity Press.

Schnieder, C. E., & Bartol, K. (1980). Sex effects in emergent leadership. Journal of Applied Psychology, 65, 341-345.

Schwab, D. P., Olian-Gottlieb, J. D., & Heneman, H. G., III (1979). Between-subjects expectancy theory research: A staticstical review of studies predicting effort and performance. Psychological Bulletin, 86, 139-147.

Shaw, M. E. (1981). Group dynamics: The psychology of small group behavior (3rd ed.). New York: McGraw-Hill.

Sherif, M., & Sherif, C. W. (1953). Groups in harmony and tension. New York: Harper & Brothers.

Stake, J. E. (1983). Ability level, evaluative feedback, and sex difference in performance expectancy. Psychology of Woman Quarterly, 8(1), 48-58.

Stein, A, H., Pohly, S. R., & Mueller, E. (1971). The influence of masculine, feminine, and neutral tasks on children's achievement behavior, expectations of success and attainment values. Child Development, 42, 195-207.

Stogdill, R. (1974). Handbook of Leadership. New York: Free Press.

Strodtbeck, F. L., & Mann, E. (1956). Sex role differentiation in jury deliberation. Sociometry, 19, 3-11.

Swap, W. C., & Rubin, J. Z. (1983). Measurement of interpersonal orientation. Journal of Personality and Social Psychology, 44(1), 208-219.

Tiger, L. (1969). Men in groups. New York: Random House.

Veroff, J. (1977). Process vs. impact in men's and women's achievement motivation. Psychology of Women Quarterly, 1(3), 283-293.

Vroom, V. H. (1964). Work and Motivation. New York: Wiley.

Watts, B. L., Messe', L. A., & Vallacher, R. R. (1982) Toward understanding sex differences in pay allocation: Agency, communion, and reward distribution behavior. Sex Roles, 8(12), 1175-1187.

Wentworth, D. K., & Anderson, L. R. (1984). Emergent Leadership as a function of sex and task type. Sex Roles, 11(5/6), 513-524.

Wilke, H., Kuyper, H., Rouwendal, J., & Visser, G. (1978). Preference for prospective interaction. European Journal of Social Psychology, 8, 377-382.

Wood, W. (1987). Meta-analytic review of sex differences in group performance. Psychological Bulletin. 102(1). 53-71.

Wood, W., & Karten, S. J. (1986). Sex differences in interaction style as a product of perceived sex differences in competence. Journal of Personality and Social Psychology, 50(2), 341-347.

Wood, W., Polek, D., & Aiken, C. (1985). Sex differences in group task performance. Journal of Personality and Social Psychology, 48(1), 63-71.

APPENDIX A

Overheads of Tasks

Appendix A

COOKING A MEAL

YOU WILL BE GIVEN A RECIPE FOR BAKED SHRIMPOREGANO, ALL THE INGREDENTS CALLED FOR AND THE UTENSILS AND KITCHEN APPLIANCES NECESSARY TO COOK A MEAL. JUDGES WILL WATCH YOU AT WORK AND WILL TASTE THE FINISHED PRODUCT TO DETERMINE THE SUCCESS OF YOUR ENDEAVOR. BELOW IS A COPY OF THE RECIPE.

BAKED SHRIMPOREGANO

1 LB.	RAW SHRIMP, SHELLED & DEVEINED
2 TBLS.	LEMON JUICE
1/2 CUP	MARG., MELTED
1/2 CUP	PACKAGED DRY BREAD CRUMBS
2 CLOVES	GARLIC, PEELED & CRUSHED (OR GARLIC POWDER)
2 TBLS.	CHOPPED PARSLEY
2 TBLS.	GRATED PARMESAN CHEESE
1 TSP.	DRIED OREGANO LEAVES
DASH	CAYENNE

1. PREHEAT OVEN TO 350, WASH SHRIMP; DRAIN WELL ON PAPER TOWELS.
2. ARRANGE SHRIMP IN 9-INCH PIE PLATE. SPRINKLE WITH 2 TBLS. LEMON JUICE.
3. IN MEDIUM BOWL, COMBINE MARG., BREAD CRUMBS, GARLIC, CHOPPED PARSLEY, PARMESAN, OREGANO, & CAYENNE; MIX WELL. SPOON OVER SHRIMP.
4. BAKE, UNCOVERED, 15 MINUTES; THEN BROIL, 5" FROM HEAT, UNTIL CRUMBS ARE BROWNED - 3 MINUTES.

DIVIDE AMONG 6 RAMEKIN DISHES, IF DESIRED.

Appendix A (cont'd)

CHANGING THE OIL IN A CAR

YOU WILL BE PROVIDED WITH INSTRUCTIONS, OIL, OIL FILTER AND ANY TOOLS NECESSARY TO CHANGE THE OIL IN A CAR. JUDGES WILL WATCH YOU AT WORK AND CHECK KEY FEATURES TO DETERMINE THE SUCCESS OF YOUR ENDEAVOR. BELOW ARE A COPY OF THE INSTRUCTIONS.

INSTRUCTIONS FOR CHANGING AUTOMOBILE OIL

1. PLACE A SUITABLE CONTAINER UNDER THE OIL PAN BOLT.
2. REMOVE OIL PAN BOLT WITH 3/8 INCH WRENCH.
3. ALLOW OIL PAN TO DRAIN. REPLACE OIL PAN BOLT.
4. PLACE A SUITABLE CONTAINER UNDER THE OIL FILTER.
5. UNSCREW FILTER FROM OIL PUMP COVER FLANGE, USING OIL FILTER WRENCH IF NECESSARY.
6. ALLOW ANY DRAINAGE BEFORE COMPLETE REMOVAL OF OIL FILTER.
7. COAT THE PACKING ON THE NEW FILTER WITH OIL. POSITION THE FILTER ON THE OIL PUMP COVER FLANGE. HAND TIGHTEN THE FILTER UNTIL PACKING CONTACTS THE COVER FLANGE, THEN ADVANCE IT 2/3 TURN.

   NOTE: DO NOT OVERTIGHTEN THE FILTER, OR OIL LEAK MAY OCCUR.
8. ADD 4 QUARTS OIL TO ENGINE. ALLOW OIL TO DRAIN THROUGH SYSTEM.
9. OPERATE THE ENGINE AT FAST IDLE AND CHECK FOR OIL LEAKS. CHECK THE OIL LEVEL AND ADD OIL IF NECESSARY.

THIS TASK IS CONSIDERED MASCULINE BY YOUR PEERS. PLEASE ANSWER THE NEXT SERIES OF QUESTIONS.

Appendix A (cont'd)

FLOWERS AND CHILDREN'S STORIES QUIZ

YOU ARE TO ANSWER A NUMBER OF QUESTIONS ON FLOWERS AND CHILDREN'S STORIES. A SCORE WILL BE CALCULATED BASED ON THE NUMBER OF QUESTIONS YOU GET RIGHT. A SCORE OF 70 PERCENT IS NECESSARY TO SUCCEED AT THIS TASK. A SAMPLE QUESTION FROM EACH OF THE TWO CATAGORIES IS GIVEN BELOW.

FLOWERS

Q: KIND OF BLOSSOMS FOR WHICH WASHINGTON D.C. IS FAMOUS IN THE SPRING:

(a) APPLE BLOSSOMS

(b) PEACH BLOSSOMS

(c) PEAR BLOSSOMS

(d) CHERRY BLOSSOMS

CHILDREN'S STORIES

Q: FIGARRO WAS THE CAT IN WHAT STORY?

(a) HANSEL AND GRETEL

(b) BAMBI

(c) PINOCCHIO

(d) JUNGLE BOOK

THIS TASK IS CONSIDERED FEMININE BY YOUR PEERS. PLEASE ANSWER THE NEXT SERIES OF QUESTIONS.

Appendix A (cont'd)

SPORTS, AND BUSINESS AND INDUSTRY QUIZ

YOU ARE TO ANSWER A NUMBER OF QUESTIONS ON SPORTS, AND BUSINESS AND INDUSTRY. A SCORE WILL BE CALCULATED BASED ON THE NUMBER OF QUESTIONS YOU GET RIGHT. A SCORE OF 70 PERCENT IS NECESSARY TO SUCCEED AT THIS TASK. A SAMPLE QUESTION FROM EACH OF THE TWO CATAGORIES IS GIVEN BELOW.

SPORTS

Q: IN COLLEGE BASKETBALL A PLAYER "FOULS OUT" WHEN HE HAS COMMITTED HOW MANY FOULS?

(a) 4

(b) 5

(c) 6

(d) 7

BUSINESS AND INDUSTRY

Q: THE ABILITY OF U.S. INDUSTRY TO PRODUCE IS MEASURED BY

(a) INDUSTRIAL INCOME

(b) GROSS NATIONAL PRODUCT

(c) NATIONAL PRODUCTION POTENTIAL

(d) INDUSTRIAL PRODUCTION INDICATOR

THIS TASK IS CONSIDERED MASCULINE BY YOUR PEERS. PLEASE ANSWER THE NEXT SERIES OF QUESTIONS.

Appendix A (cont'd)

DESIGNING INTERIOR STORE WINDOW

YOU WILL DESIGN THE LAYOUT FOR THE NEW SUMMER FASHIONS FOR A BOUTIQUE. YOU WILL BE PROVIDED THE CLOTHES, MANNEQUINS AND A LARGE NUMBER OF POSSIBLE ACCESSORY ITEMS AND MATERIALS TO COMPLIMENT THE MOTIF. PROJECT SUCCESS WILL BE DETERMINED BY EXPERT WINDOW DESIGNERS USING SUCH CRITERIA AS APPROPRIATENESS OF DISPLAY, AESTHETIC QUALITY, FUNCTIONALITY, AND DESIGN.

THIS TASK IS CONSIDERED FEMININE BY YOUR PEERS. PLEASE ANSWER THE NEXT SERIES OF QUESTIONS.

Appendix A (cont'd)

DESIGNING A FUNCTIONAL TOOL SHED

YOU WILL DESIGN A TOOL SHED BASED ON THE ITEMS TO BE PLACED IN THE SHED, THE TYPE OF WORK DONE MOST FREQUENTLY, AND SPACE LIMITATIONS. YOU WILL BE PROVIDED WITH ALL THESE PARAMETERS. PROJECT SUCCESS WILL BE DETERMINED BY EXPERT CARPENTERS USING SUCH CRITERIA AS FUNCTIONALITY AND DESIGN.

THIS TASK IS CONSIDERED MASCULINE BY YOUR PEERS. PLEASE ANSWER THE NEXT SERIES OF QUESTIONS.

APPENDIX B

Pilot Study I

Questionnaire

Appendix B

INSTRUCTIONS: For each task presented please answer the following questions by filling in the circle of the best response on the answer sheet provided.

1. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

2. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

3. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

4. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

5. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

6. How appropriate do you feel it is for someone of your gender to perform a task like this?

very appropriate		does not matter		very inappropriate
1	2	3	4	5

7. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

Appendix B (cont'd)

8. Successful performance of this task will lead to a small monetary reward (about $2 to $4 dollars). The reward will be divided evenly between yourself and another if you chose to work with another. However, if you chose to work alone on the task, the reward will go completely to you. Which would you choose?

1 = alone 2 = with another

9. If you were given a choice of a male or female partner in order to complete this task, which would you choose (circle one)?

1 = male 2 = no preference 3 = female

10. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

11. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

12. Are you: 1 = male 2 = female

APPENDIX C

Pilot Study II

Questionnaire

Appendix C

INSTRUCTIONS: For the following set of questions indicate the degree to which these statements describe things that are important to you. Use the scale provided below and the answer sheet provided in your packet.

not at all important to me		moderately important to me		very important to me
1	2	3	4	5

1. To hold an important job or office
2. To work for the good of other people
3. To do things for other people
4. To take the lead in making decisions at work
5. To be very friendly
6. To have a job of some real authority
7. To contribute a great deal to others' well being
8. To have other people work under my direction
9. To act for the good of others
10. To share with others
11. To be a person of influence at work
12. To help those who need it
13. To make decisions for the group
14. To be generous toward other people
15. To direct others at their work
16. To be sympathetic
17. To be in a position to tell others how best to do a job
18. To care deeply about other people
19. To be accepting of others

Appendix C (cont'd)

INSTRUCTIONS: Using the scale provided below, indicated the degree to which each of the adjectives describes you.

does not describe me at all		describes me moderately well		describes me very well
1	2	3	4	5

20. Sympathetic
21. Adventurous
22. Helpful
23. Independent
24. Assertive
25. Considerate
26. Sensitive
27. Ambitious
28. Loving
29. Affectionate
30. Active

INSTRUCTIONS: For the following set of questions, indicate the degree to which you agree with the statements, using the scale provided below and the same answer sheet.

strongly disagree		neither agree nor disagree		strongly agree
1	2	3	4	5

31. I would rather think about a personal problem by myself than discuss it with others.
32. I consider myself a forgiving person.
33. Other people are the source of my greatest pleasure and pain.
34. I am interested in knowing what makes people tick.
35. When I receive a gift, I find myself thinking about how much it must be worth.

Appendix C (cont'd)

strongly disagree		neither agree nor disagree		strongly agree
1	2	3	4	5

36. Under no circumstances would I buy something I suspected had been stolen.

37. I am greatly influenced by the moods of the people I am with.

38. Sometimes the most considerate thing one person can do for another is to hide a bit of the truth.

39. Sometimes simply talking aloud about things that bother me makes me feel better -- regardless of who, if anyone, hears these thoughts.

40. My friends and I seem to share the same musical interests.

41. I am reluctant to talk about by personal life with people I do not know well.

42. I generally view myself as a person who is not terribly interested in what other people are really like.

43. Sometimes I think I take things that other people say to me too personally.

44. It's important for me to work with people with whom I get along well, even it that means I get less done.

45. I often find myself wondering what my professors are really like.

46. If I were to share an apartment with somebody, I would want to find out about the person's family background, hobbies, and so forth.

47. I would prefer to do poorly on an exam that is machine scored rather than do equally poorly on one that is graded by the instructor.

48. I tend to like people who are good looking.

49. What others think about my actions is of little or no consequence to me

50. The more other people reveal about themselves, the more inclined I feel to reveal things about myself.

51. When someone does me a favor I don't usually feel compelled to return it.

Appendix C (cont'd)

strongly disagree		neither agree nor disagree		strongly agree
1	2	3	4	5

52. Sitting on a bus or a subway, I sometimes imagine what the person sitting next to me does for a living.

53. The more I am with others, the more I tend to like them.

54. I would rather be given a simple and thoughtful gift than a more extravagant one that involved less thought and care.

55. I am very sensitive to criticism.

56. When people tell me personal things about themselves, I find myself feeling close to them.

57. One good turn does not necessarily deserve another.

58. I can be strongly affected by someone smiling or frowning at me.

59. I find myself wondering what telephone operators are really like.

You have now completed the first portion of the experiment. Please check the marks you made on the answer sheets to assure proper reading by the machine. Then wait for the experimenters to continue the experiment. Thank you.

Appendix C (cont'd)

INSTRUCTIONS: For each task presented please answer the following questions by filling in the circle of the best response on the answer sheet provided.

TASK 1

60. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

61. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

62. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

63. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

64. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

65. How appropriate do you feel it is for someone of your gender to perform a task like this?

very appropriate		does not matter		very inappropriate
1	2	3	4	5

Appendix C (cont'd)

66. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

67. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

68. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

70. If you were given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

71. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

Appendix C (cont'd)

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

72. Like to work with others

73. Feel I need others to succeed

74. Like to work alone

75. To make the task easier

76. Hope I can learn task from others

TASK 2

77. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

78. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

79. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

80. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

Appendix C (cont'd)

81. How do you feel you compare to the average person on a task like this?

much better 1 — 2 — very similar 3 — 4 — much worse 5

82. How appropriate do you feel it is for someone of your gender to perform a task like this?

very appropriate 1 — 2 — does not matter 3 — 4 — very inappropriate 5

83. How difficult do you think you would find this task to perform?

very difficult 1 — 2 — moderately difficult 3 — 4 — very easy 5

84. Do you feel that the skills needed to successfully complete this task are

highly complex 1 — 2 — moderately complex 3 — 4 — not very complex 5

85. Do you feel the training necessary to complete this task is

highly involved 1 — 2 — moderately involved 3 — 4 — not very involved 5

86. If you were given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

87. To what degree do you believe this is your best decision?

very sure 1 — 2 — probably good 3 — 4 — not at all sure 5

Appendix C (cont'd)

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

88. Like to work with others

89. Feel I need others to succeed

90. Like to work alone

91. To make the task easier

92. Hope I can learn task from others

TASK 3

93. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

94. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

95. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

96. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

Appendix C (cont'd)

97. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

98. How appropriate do you feel it is for someone of your gender to perform a task like this?

very appropriate		does not matter		very inappropriate
1	2	3	4	5

99. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

100. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

101. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

102. If you were given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

103. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

Appendix C (cont'd)

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

104. Like to work with others

105. Feel I need others to succeed

106. Like to work alone

107. To make the task easier

108. Hope I can learn task from others

TASK 4

109. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

110. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

111. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

112. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

Appendix C (cont'd)

113. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

114. How appropriate do you feel it is for someone of your gender to perform a task like this?

very appropriate		does not matter		very inappropriate
1	2	3	4	5

115. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

116. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

117. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

118. If you were given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

119. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

Appendix C (cont'd)

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

120. Like to work with others

121. Feel I need others to succeed

122. Like to work alone

123. To make the task easier

124. Hope I can learn task from others

TASK 5

125. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

126. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

127. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

128. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

Appendix C (cont'd)

129. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

130. How appropriate do you feel it is for someone of your gender to perform a task like this?

very appropriate		does not matter		very inappropriate
1	2	3	4	5

131. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

132. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

133. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

134. If you were given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

135. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

Appendix C (cont'd)

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

136. Like to work with others

137. Feel I need others to succeed

138. Like to work alone

139. To make the task easier

140. Hope I can learn task from others

TASK 6

141. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

142. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

143. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

144. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

Appendix C (cont'd)

145. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

146. How appropriate do you feel it is for someone of your gender to perform a task like this?

very appropriate		does not matter		very inappropriate
1	2	3	4	5

147. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

148. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

149. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

150. If you were given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

151. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

Appendix C (cont'd)

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

152. Like to work with others

153. Feel I need others to succeed

154. Like to work alone

155. To make the task easier

156. Hope I can learn task from others

PLEASE BE SURE TO ANSWER THE FOLLOWING QUESTION

157. Are you: 1 = male 2 = female

APPENDIX D

Consent Form

Appendix D

INFORMED CONSENT DECLARATION

The purpose of this project is to examine the association of certain perceptions and personality traits with behavior in organizational settings. In order to comply with professional standards as well as those established by Michigan State University, it is essential that you be made aware of the nature of this research and the rights and responsibilities incurred by both you and the researchers.

The nature of this project requires 60 minutes of your time. During that time you will be given a questionnaire to fill out. At no time will you need to place any identifying marks on the questionaire. You will be asked to listen to the description of a number of tasks you might be asked to perform in the course of an experiment. You will then be asked a variety of questions about the tasks to assess your perceptions and possible behavior with regards to these tasks. No information supplied by you will be seen by anyone other than the principle investigator, Jeff Vancouver, who will assume complete responsibility for maintaining the confidentiality of all your responses.

It should also be stressed that you can terminate your participation in this project at any time without recrimination. In return for your participation, you will be given course credit as described by your instructor. If you wish to receive this credit, but do not wish to participate in this study, or decide to terminate your participation prior to the study's completion, an alternative activity requiring similar commitments of time and effort is available from the researchers. At the end of the study, a more complete written description of the study and its findings will be available to interested participants. Along with the rights listed above, you also incur certain responsibilities. Primarily among these responsibilities is that you must provide information that is, as far as possible, accurate and complete. We also ask that you not disclose any information related to this project to any other persons until this project is completed (i.e., until the end of Spring Quarter, 1987).

I certify that I have read and understand the rights and responsibilities incurred by both me and the researchers in this project and outlined above. Given this understanding, I voluntarily agree to participate.

_____

(Print Name)

_____

(Signature)

APPENDIX E

Experimenter Instructions

Appendix E

EXPERIMENTER INSTRUCTIONS

A: Closes the door to the room.

B: MY NAME IS _____

A: AND MY NAME IS _____. THIS STUDY IS CALLED TASK ACCOMPLISHMENT. HAS ANYONE PARTICIPATED IN THIS STUDY BEFORE?

(If anyone answers yes, then: YOU WILL HAVE TO LEAVE SINCE YOU ARE NOT ALLOWED TO PARTICIPATE MORE THAN ONCE. THANK YOU.)

B: YOU SHOULD HAVE A PACKET CONTAINING A SUBJECT CODE SHEET (BLUE), A CONSENT FORM, AN ENVELOPE, A LARGE BLUE ANSWER SHEET, AND A LARGE QUESTIONNAIRE.

PLEASE FILL OUT THE SMALL BLUE SUBJECT CODE SHEET. YOU NEED TO FILL IN YOUR LAST NAME AND FIRST INITIAL, YOUR STUDENT NUMBER, THE MONTH (05), THE DAY (--), YOUR CLASS ACCORDING TO THE CODE ON THE FORMS, AND THE AMOUNT OF CREDIT. THIS IS A TWO CREDIT STUDY SO FILL IN 002.

THIS FORM IS TO INSURE YOU GET CREDIT FOR THE STUDY AND IS COMPLETELY SEPERATE FROM THE STUDY. DO NOT PUT ANY IDENTIFYING MARKS ON THE LARGE ANSWER SHEET.

A & B: observe that subjects understand instructions. Allow interaction between themselves.

A: AFTER FINISHING THE SMALL BLUE FORMS, PLEASE READ AND SIGN THE CONSENT FORM IF YOU WISH TO PARTICIPATE IN THIS STUDY.

YOU MAY BEGIN FILLING IN THE QUESTIONNAIRE USING THE LARGE BLUE FORM, AS SOON AS YOU HAVE SIGNED THE CONSENT FORM. ON PAGE 4 IT WILL TELL YOU TO STOP. PLEASE STOP WHEN YOU GET THERE, PUT YOUR PENCILS DOWN AND WAIT FOR FURTHER INSTRUCTIONS. WE WILL BE COMING BY TO PICK UP THE SUBJECT SHEETS AND THE CONSENT FORMS.

B: Collect the small blue answer sheets. Check for completion.

A: Collect consent forms. If anyone refuses to participate, hand them the reading packet.

A & B: Wait for everyone to complete the questionnaire.

Appendix E (cont'd)

B: WE ARE INTERESTED IN YOUR REACTIONS TO A NUMBER OF TASKS YOU MAY BE ASKED TO PERFORM AT A LATER DATE. PARTICIPATION IN A LATER PHASE IS LIKE THIS FIRST PART -- STRICTLY VOLUNTARY. SHOULD YOU CHOOSE TO VOLUNTEER, THE ANSWERS GIVEN TO THESE QUESTIONS WILL BE USED TO DETERMINE THE CONDITION IN WHICH YOU PARTICIPATE. FOR EXAMPLE, WE WILL DESCRIBE TASKS ONE AT A TIME AND ASK YOU SEVERAL QUESTIONS ON EACH TASK AND WHETHER YOU WOULD WISH TO PERFORM THE TASK ALONE OR WITH ANOTHER PERSON CHOOSEN RANDOMLY FROM THE OTHER SUBJECTS IN THIS STUDY. IF YOU WOULD WISH PARTICIPATE FURTHER, ONE OF THE TASKS WOULD BE SELECT BY US AND THE CONDITION, THAT IS WHETHER TO WORK ALONE OR WITH ANOTHER, WOULD BE BASED ON THE RESPONSE YOU GAVE TODAY. ARE THERE ANY QUESTIONS ABOUT THAT?

A: WE WILL READ SIX TASKS TO YOU AND PUT A DESCRIPTION OF THE TASKS ON THE OVERHEAD. MORE DETAILED INFORMATION WILL BE GIVEN AT THE LATER PHASE SHOULD YOU CHOOSE TO PARTICIPATE. HALF THE TASKS ARE CONSIDERED FEMININE AND HALF MASCULINE BY A PREVIOUS STUDY. ALL THE TASKS ARE STRAIGHTFORWARD AND SAFE. IF YOU ARE READY, WE WILL BEGIN BY READING THE FIRST TASK.

B: THE FIRST TASK IS_____.(place the transparency on the overhead and read the top paragraph to the subjects. For the quizzes read each question. Emphasize that they should not attempt to answer the questions on their answer sheets.

PLEASE FILL OUT THE ANSWER SHEET FOR QUESTIONS __ THROUGH ___ -- THE QUESTIONS PERTAINING TO THE FIRST TASK. THEN WAIT PATIENTLY FOR THE NEXT TASK.

A: THE NEXT TASK IS _____. PLEASE FILL OUT QUESTIONS ___ THOUGH ___ ON THE ANSWER SHEET.

B: TASK THREE IS _____. etc.

A: TASK FOUR...

B: TASK FIVE...

A: TASK SIX...

B: THE ENVELOPE IS PROVIDED SO THAT WE CAN CONTACT YOU ABOUT PARTICIPATING IN THE ACTUAL TASKS. LET US REEMPHASIZE THAT PARTICIPATION IN THE SECOND PHASE IS COMPLETELY VOLUNTARY. IF YOU ARE INTERESTED IN CONTINUING INTO THE NEXT PHASE, PLEASE ADDRESS THE ENVELOPE AND PUT YOUR PHONE NUMBER ON THE BACK FLAP. WE HAVE LIMITED CAPACITY FOR THIS LATER PHASE, SO ALL WHO ARE INTERESTED MAY NOT BE ABLE TO PARTICIPATE. WE WILL LET YOU KNOW EITHER WAY WITHIN THE NEXT WEEK. PLEASE ADDRESS THE ENVELOPE TO YOUR CURRENT ADDRESS.

Appendix E (cont'd)

A: ATTACH THE ENVELOPE TO THE ANSWER SHEET WITH THE PAPER CLIP. WE WILL COLLECT THE QUESTIONNAIRE, ANSWER SHEETS AND ENVELOPES WHILE YOU LISTEN TO A FIVE MINUTE PRESENTATION ON GROUP PROCESSES. (Start the tape player).

B: THANK YOU FOR PARTICIPATING IN THIS STUDY. IF YOU SEE ANY MORE SIGN-UP SHEETS FOR TASK ACCOMPLISHMENT, PLEASE DO NOT SIGH-UP AGAIN. WE WILL STAMP YOUR CARDS AND IF YOU DID NOT BRING YOUR CARD WE HAVE A BACK-UP SLIP.

A & B: Stamp cards as subjects leave. Thank you for completing a session.

APPENDIX F

Main Study

Questionnaire

Appendix F

TASK ACCOMPLISHMENT

QUESTIONNAIRE

PLEASE: Use the large answer sheet to complete the questionnaire below. DO NOT put any indentifying marks on the large answer sheet. Begin at the first numbered row of circles with the question below. Then answer the remaining questions as the instructions explain to you. Stop and wait for the experimenters when the instructions tell you to.

QUESTION NUMBER 1: ARE YOU: 1 = MALE 2 = FEMALE

Appendix F (cont'd)

INSTRUCTIONS: For the following set of questions indicate the degree to which these statements describe things that are important to you. Use the scale provided below and the answer sheet provided in your packet.

not at all important to me		moderately important to me		very important to me
1	2	3	4	5

2. To hold an important job or office
3. To work for the good of other people
4. To do things for other people
5. To take the lead in making decisions at work
6. To be very friendly
7. To have a job of some real authority
8. To contribute a great deal to others' well being
9. To have other people work under my direction
10. To act for the good of others
11. To share with others
12. To be a person of influence at work
13. To help those who need it
14. To make decisions for the group
15. To be generous toward other people
16. To direct others at their work
17. To be sympathetic
18. To be in a position to tell others how best to do a job
19. To care deeply about other people
20. To be accepting of others
21. To maintain the appearance of competence among your peers
22. To have others think you do well

Appendix F (cont'd)

INSTRUCTIONS: Using the scale provided below, indicated the degree to which each of the adjectives describes you.

does not describe me at all		describes me moderately well		describes me very well
1	2	3	4	5

23. Sympathetic
24. Adventurous
25. Helpful
26. Independent
27. Assertive
28. Considerate
29. Sensitive
30. Ambitious
31. Loving
32. Affectionate
33. Active
34. Self reliant
35. Yielding
36. Defends own beliefs
37. Cheerful
38. Moody
39. Shy
40. Conscientious
41. Athletic
42. Theatrical
43. Flatterable
44. Happy
45. Strong personality

Appendix F (cont'd)

INSTRUCTIONS: Using the scale provided below, indicated the degree to which each of the adjectives describes you.

does not describe me at all		describes me moderately well		describes me very well
1	2	3	4	5

46. Loyal
47. Unpredictable
48. Forceful
49. Feminine
50. Reliable
51. Analytical
52. Jealous
53. Has leadership abilities
54. Sensitive to the needs of others
55. Truthful
56. Willing to take risks
57. Understanding
58. Secretive
59. Makes decisions easily
60. Compassionate
61. Sincere
62. Self sufficient
63. Eager to soothe hurt feelings
64. Conceited
65. Dominant
66. Soft spoken
67. Likable

Appendix F (cont'd)

INSTRUCTIONS: Using the scale provided below, indicated the degree to which each of the adjectives describes you.

does not describe me at all		describes me moderately well		describes me very well
1	2	3	4	5

68. Masculine

69. Warm

70. Solemn

71. Willing to take a stand

72. Tender

73. Friendly

74. Aggressive

75. Gullible

76. Inefficient

77. Acts as a leader

78. Childlike

79. Adaptable

80. Individualistic

81. Does not use harsh language

82. Unsystematic

83. Competitive

84. Loves children

85. Tactful

86. Gentle

87. Conventional

Appendix F (cont'd)

INSTRUCTIONS: For the following set of questions, indicate the degree to which you agree with the statements, using the scale provided below and the same answer sheet.

strongly disagree		neither agree nor disagree		strongly agree
1	2	3	4	5

88. I often become self-conscious of my performance when in public situations.

89. I would rather think about a personal problem by myself than discuss it with others.

90. I consider myself a forgiving person.

91. Other people are the source of my greatest pleasure and pain.

92. I am interested in knowing what makes people tick.

93. When I receive a gift, I find myself thinking about how much it must be worth.

94. Under no circumstances would I buy something I suspected had been stolen.

95. I am greatly influenced by the moods of the people I am with.

96. Sometimes the most considerate thing one person can do for another is to hide a bit of the truth.

97. Sometimes simply talking aloud about things that bother me makes me feel better -- regardless of who, if anyone, hears these thoughts.

98. My friends and I seem to share the same musical interests.

99. I am reluctant to talk about by personal life with people I do not know well.

100. I generally view myself as a person who is not terribly interested in what other people are really like.

101. Sometimes I think I take things that other people say to me too personally.

102. It's important for me to work with people with whom I get along well, even it that means I get less done.

Appendix F (cont'd)

INSTRUCTIONS: For the following set of questions, indicate the degree to which you agree with the statements, using the scale provided below and the same answer sheet.

strongly disagree		neither agree nor disagree		strongly agree
1	2	3	4	5

103. I often find myself wondering what my professors are really like.

104. If I were to share an apartment with somebody, I would want to find out about the person's family background, hobbies, and so forth.

105. I would prefer to do poorly on an exam that is machine scored rather than do equally poorly on one that is graded by the instructor.

106. I tend to like people who are good looking.

107. What others think about my actions is of little or no consequence to me

108. The more other people reveal about themselves, the more inclined I feel to reveal things about myself.

109. When someone does me a favor I don't usually feel compelled to return it.

110. Sitting on a bus or a subway, I sometimes imagine what the person sitting next to me does for a living.

111. The more I am with others, the more I tend to like them.

112. I would rather be given a simple and thoughtful gift than a more extravagant one that involved less thought and care.

113. I am very sensitive to criticism.

114. When people tell me personal things about themselves, I find myself feeling close to them.

115. One good turn does not necessarily deserve another.

116. I can be strongly affected by someone smiling or frowning at me.

117. I find myself wondering what telephone operators are really like.

118. I would rather try something challenging in private than risk failure in public.

Appendix F (cont'd)

You have now completed the first portion of the experiment. Please check the marks you made on the answer sheets to assure proper reading by the machine. Then wait for the experimenters to continue the experiment. Thank you.

Appendix F (cont'd)

INSTRUCTIONS: For each task presented please answer the following questions by filling in the circle of the best response on the answer sheet provided.

TASK 1

119. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

120. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

121. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

122. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

123. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

124. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

Appendix F (cont'd)

125. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

126. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

127. Given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

128. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another on this task.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

129. Like to work with others

130. Feel I need others to succeed

131. Like to work alone

132. To make the task easier

133. Hope I can learn task from others

Appendix F (cont'd)

TASK 2

134. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

135. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

136. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

137. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

138. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

139. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

Appendix F (cont'd)

140. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

141. Do you feel the training necessary to complete this task is

highly involved		moderately involved.		not very involved
1	2	3	4	5

142. Given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

143. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another on this task.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

144. Like to work with others

145. Feel I need others to succeed

146. Like to work alone

147. To make the task easier

148. Hope I can learn task from others

Appendix F (cont'd)

TASK 3

149. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

150. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

151. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

152. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

153. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

154. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

Appendix F (cont'd)

155. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

156. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

157. Given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

158. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another on this task.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

159. Like to work with others

160. Feel I need others to succeed

161. Like to work alone

162. To make the task easier

163. Hope I can learn task from others

Appendix F (cont'd)

TASK 4

164. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

165. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

166. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

167. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

168. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

169. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

Appendix F (cont'd)

170. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

171. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

172. Given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

173. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another on this task.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

174. Like to work with others

175. Feel I need others to succeed

176. Like to work alone

177. To make the task easier

178. Hope I can learn task from others

Appendix F (cont'd)

TASK 5

179. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

180. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

181. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

182. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

183. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

184. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

Appendix F (cont'd)

185. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

186. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

187. Given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

188. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another on this task.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

189. Like to work with others

190. Feel I need others to succeed

191. Like to work alone

192. To make the task easier

193. Hope I can learn task from others

Appendix F (cont'd)

TASK 6

194. Indicate the degree of experience you have had with a task like this.

A great deal of experience		a moderate amount of experience		no experience
1	2	3	4	5

195. Indicate the degree to which you feel this task is masculine or feminine.

very masculine		neutral		very feminine
1	2	3	4	5

196. How well do you think you would perform on a task like this one?

very well		moderately well		not very well
1	2	3	4	5

197. What do you think is the likelihood of your successful completion of this task?

very likely		moderately likely		not very likely
1	2	3	4	5

198. How do you feel you compare to the average person on a task like this?

much better		very similar		much worse
1	2	3	4	5

199. How difficult do you think you would find this task to perform?

very difficult		moderately difficult		very easy
1	2	3	4	5

Appendix F (cont'd)

200. Do you feel that the skills needed to successfully complete this task are

highly complex		moderately complex		not very complex
1	2	3	4	5

201. Do you feel the training necessary to complete this task is

highly involved		moderately involved		not very involved
1	2	3	4	5

202. Given a choice of working on this alone or with a partner, which would you choose?

1 = alone 2 = with another

203. To what degree do you believe this is your best decision?

very sure		probably good		not at all sure
1	2	3	4	5

INSTRUCTIONS: For the following set of questions indicate the degree to which you agree with these reasons when deciding to work alone or with another on this task.

strongly disgree		neither agree nor disagree		strongly agree
1	2	3	4	5

204. Like to work with others

205. Feel I need others to succeed

206. Like to work alone

207. To make the task easier

208. Hope I can learn task from others

APPENDIX G

Debriefing Letter

Appendix G

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF PSYCHOLOGY
PSYCHOLOGY RESEARCH BUILDING

EAST LANSING · MICHIGAN · 48824-1117

Dear Participant:

Thank you very much for your participation in the first half of this experiment. Through a random selection process, you fell into the non-callback group. In other words, we will not be able to use you in the second half of the experiment. We hope this does not inconvience you in any way.

Now that you are no longer a participant in this experiment, it is safe for me to tell you a little bit more about it. As you know, we are interested in how personality and perceptual variables affect decisions to join a group to accomplish a task. We asked you to fill out a questionnaire designed to assess your level of the personality dimension agency/communion. Agency and communion are two concepts developed by a sociologist named Bakan.

According to Bakan, agency is a concern for self-enhancement, attainment of eminence, and mastery over the environment. Communion is concern for cooperation and a state of harmony with others. The first questionnaire you filled out assessed the level of these variables.

The perceptual variable of interest to us was expectations of success. We wanted to know how competent you felt with the tasks described to you. We hypothesized that the more competent one felt the more likely one would choose to work alone. Likewise, the higher one scored on agency the more likely one would choose to work alone.

As we are still collecting data, we would appreciated that you would not discuss this study yet. Data collection will be finished by end of Spring 1987. If you are interested in receiving the results of the study please drop me a line at:

Michigan State University
Department of Psychology
Psychology Research Building
East Lansing, MI 48824-1117

Again, I would like thank you for your participation in this study.

Sincerely,

Jeff Vancouver