INFERIOR PERFORMANCE, STANDARDS, AND EXPECTATIONS IN TASK-ORIENTED SAME-SEX DYADS

By

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THE UNIVERSITY OF BRITISH COLUMBIA

June 1986

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ABSTRACT

This research examines the role of standards in the formation of performance expectations. In particular, the formation of inferior performance expectations of an actor relative to a partner are examined. The theoretical framework used is that of expectation states theory which is concerned with the development, maintenance and modification of power and prestige hierarchies in task-oriented groups. Subjects in same-sex dyads were assigned at random to one of two experimental conditions. Two sets of standards defined the presence or absence of ability. In the first condition, subjects were given a lower score than their partners and were informed that it could not be determined from these scores whether they lacked ability at the task or whether the partner possessed the task ability. In the second condition, subjects were given the same scores as in condition one, but were told that they definitely lacked the task ability, and that the partner definitely possessed the ability. The hypothesis states that subjects in the first condition will reject less influence than those in the second. The hypothesis was supported for women, but not for men. Gender differences in rejection of influence rates cannot be attributed to manipulation failures or other variables also measured in the study. It is argued that lack of support for the hypothesis with respect to male subjects can be attributed to a greater degree of caution amongst males in the formation of expectations based upon evaluations of past performance. Reasons for male reluctance in
generalizing from information provided are suggested and the importance of these findings to expectation states theory and to the general role of standards is discussed.
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Chapter I - The Problem

Objectives of Present Research

The purpose of this study is to enhance the understanding of the role of standards in the formation of performance expectations. This research is formulated in the context of expectation states theory, a theoretical research program that investigates the formation and maintenance of power and prestige hierarchies in task-oriented groups. The present work expands upon the study conducted by Foschi, Warriner and Hart (1985) which investigated the relationship between standards and performance expectations. Contrary to their prediction, the authors found that standards have a greater effect on task-oriented same-sex dyads when the subject is shown to be relatively superior in ability as compared to a situation in which the subject is shown to be relatively inferior in ability. In discovering this asymmetry in perceived inferiority and superiority, the Foschi et al. study raises new questions regarding the effect of standards. It is the intent of this study to address these questions.

Specifically, there are two major objectives of the present study. The first objective is to examine the design and results of the Foschi, Warriner and Hart study in the context of literature pertaining to the formation of expectations based on performance evaluations. This project involves a thorough review of such studies, with particular emphasis on two variables:
gender of dyad and type of expectations generated (higher or lower for self relative to other). Other variables which may have affected the formation of expectations in the Foschi et al. study are also investigated.

The second objective is to attempt to explain the anomalous findings of the Foschi, Warriner and Hart study via a laboratory experiment designed to investigate the effects of standards on expectations and influence in selected cases. In addition to studying the variables identified above (gender of dyad and type of expectations generated), the experiment introduces methodological improvements to their study.

Theoretical Background

Expectation States Theory: An Overview

Expectation states theory, developed by Joseph Berger and associates in the early 1960's, focuses on inequalities in task-oriented groups. These inequalities were documented in the early 1950's by R. Bales who found that hierarchies develop and subsequently stabilize in problem-solving groups whose members are initially status equals. Berger was particularly interested in the status-organizing process occurring in such small groups. Expectation states theory provides a blueprint for the mechanism generating hierarchical differentiation within task-oriented groups. This overview provides a description of the major components of the structure of expectation states theory.
Inequalities manifest themselves in the power and prestige order of task-oriented groups. To facilitate the study of groups, expectation states theory defines each component concerned with the establishment, maintenance and modification of inequality. The basic observable components of the group are its actors or members and various behaviors which occur in the group.

There are four interrelated behavioral phases in the establishment and maintenance of the power and prestige order in a task-oriented group. The first, the action opportunity, is a chance, or opening, to contribute to the solution of the group task or problem. The second phase, the performance output, is a suggestion of a group member who has used the action opportunity to contribute towards the solution. The third phase, the reward action, is comprised of an evaluation by a group member of the performance output of another. The fourth phase, acceptance (or rejection) of influence, occurs when a group member alters (or fails to alter) his position to agree with the performance output. These behavioral phases are distributed unequally: some group members may receive more action opportunities, contribute more output, receive more rewards and exert more influence than other group members.

The phases described above lead to the formation of performance expectations of members about themselves in relation to others. A group member, referred to in expectation states theory as 'self', always judges performances in relation to at
least one other group member, referred to as 'other'. There are four possible expectation states that can form, each reflecting the assignment of relative levels of ability to self and other, and influencing the power and prestige order of the group. The expectation states are: higher for self than for other, symbolized by [+-]; equally high for self and other or [++]; equally low for self and other or [--]; and lower for self than for other or [-+].

Predictions made by expectation states theory are constrained by a number of conditions which define the theory's scope. There are three such scope conditions of particular importance to the present study: task orientation; collective orientation; and perceived group homogeneity. Expectation states theory investigates only groups whose members are task-oriented. In other words, the actors must be motivated and focused toward successful completion of the task or resolution of the problem. Predictions made do not apply to any other type of group, e.g. a social group. Every individual actor of the group must also be collectively oriented, i.e. prepared to work with other members of the group to solve the problem or task at hand. In addition, the present study contains the scope condition that all actors must perceive themselves as a homogeneous group, similar in all respects except actual task performance. For a discussion of scope conditions see Cohen (1980).

An important theoretical concept in expectations states
theory is that of a "status characteristic". A status characteristic is a personality trait or an attribute which is valued. Examples of status characteristics in North American society include gender, ethnicity, education, and military rank. A status characteristic is differentiated from other characteristics by its importance or value in society. In other words, value-neutral characteristics become status characteristics only when a group of people attach importance to them.

Status characteristics have no biological basis but, rather, are constructs that are culturally, socially and situationally determined. Thus, in a culture where skin colour is important, phenotype assumes the role of a status characteristic; whereas, in another culture where skin colour is not important, it is not a status characteristic. Status characteristics possess at least two different states, e.g. regarding military rank, society values the rank of general more than the rank of captain, which is valued more than that of private.

Status characteristics are either specific or diffuse. When specific, they are narrowly defined and seen as having limited applicability (e.g. the ability to solve cross-word puzzles). When diffuse, status characteristics are perceived as having wide applications as in the case of gender, age, or educational level. A number of studies have explored the effects of differences in specific and diffuse status characteristics on performance.
expectations. Status characteristics that have been studied include: race (Tuzlak and Moore, 1984; Riordan and Ruggiero, 1980; Entwisle and Webster, 1974; Cohen and Roper, 1972); ethnicity (Cohen and Sharan, 1980; Yuchtman-Yaar and Semyonov, 1979); gender (Pugh and Wahrman, 1983); specific task performance (Freese, 1976); military rank (Berger, Cohen, and Zelditch, 1972); educational status (Moore, 1968).

The general progression of expectation states theory research in this area has been from the study of elementary status situations to the study of multicharacteristic status situations. Elementary status situations involve two actors, one task and one status characteristic differentiating the actors. The status characteristic is activated when an actor forms expectations about self and other based on this characteristic.

Expectation states theory is based on a number of assumptions; of particular importance is the "basic expectations" assumption. This concerns the impact of a status characteristic that has become activated or seen as relevant to the task at hand. Once the status characteristic is activated, self forms expectations as to self's ability relative to other. A status

1This paper discusses expectation states theory in a general manner. The theory has, in fact, been expanded to include aside from elementary and multicharacteristic status situations, other characteristics such as moral and personality characteristics and work on status cues (Berger, Ridgeway, Rosenholtz & Webster Jr., 1985; Moore Jr., 1985).
characteristic is activated automatically when it is specific and its link to task ability is direct e.g. aptitude in math is activated when the task at hand is to solve an algebraic equation. However, when the link is indirect, self will search for a "path of task relevance" using a diffuse status characteristic to form a link with the specific status characteristic. An example can be found in the diffuse status characteristic of gender. Activation of gender may occur when the task is solving an algebraic equation since males are often perceived as more mathematically adept than females.

The power and prestige hierarchy tends to be self-maintaining in that, once formed, performance expectations provide a relative advantage for the higher status actor at every behavioral phase. In other words, this group member has a disproportionate probability of receiving action opportunities, generating performance output, enjoying favorable reward actions from other group members, and benefiting from influence deference. In the same sense, lower performance expectations for self than for other are self-maintaining.

The self-maintaining nature of the power and prestige hierarchy can be altered when the status characteristic is deactivated or, in other words, shown to be irrelevant to the task at hand and of no bearing on performance. Otherwise, the "burden of proof" process operates: a differentiating status characteristic determines the power and prestige order of the
group, unless defined irrelevant to the task at hand.

In the study of elementary status situations it has been found that when subjects perceive themselves as being equal in terms of an activated diffuse status characteristic, such as age, the effect of a differentiating diffuse status characteristic, such as race, is minimized. Moreover, the influence of the equating status characteristic is increased (Berger et al, 1977: 57). Seashore (1968) conducted a study with white female junior college students who were led to believe they were working with a female of the same age and belonging to one of four categories: a black female student from a prestigious university; a black female student from the same school; a white female student from a prestigious university; a white female student from the same school. The equating status characteristic of age was found to have a mitigating effect on the differentiating diffuse status characteristics of race and prestige of educational institution.

**The Effect of Performance Evaluations on Expectations**

To date, many studies in expectation states theory have examined the effects of having a specific or a diffuse status characteristic assigned to self and other. For the current study, research in which expectations are formed on the basis of performance evaluations is of relevance and is discussed next.

Early work brought a number of researchers to address the problems of emergent group hierarchies when members of task-
oriented groups all possess similar status characteristics (e.g. gender, socio-economic status, age, education...etc) (Berger, Conner, and Fisek, 1974: 28). Specifically, the following questions were addressed: why is there consensus among members of the group as to its power and prestige order? Why are the perceptions of those who consider themselves to be of relatively high status congruent with the perceptions of those who consider themselves to be of lower status?

This has been explained through observation of the unorchestrated, natural interaction of group members (Berger, Conner and Fisek, 1974: 30). It has been found that on the basis of performance evaluations, both self and other develop their relative self-images. The relationship is complementary: if self performs better than other, the results are that self will feel superior and that other will feel inferior. As in the case of expectations formed by a status characteristic, performance expectations formed on the basis of evaluations of actual performance tend to be self-maintaining.

It is through self's evaluations of self and other that the expectation state is formed, maintained and altered. Again here a burden of proof process inhibits change in the hierarchy since the actor whose initial performances were evaluated positively, relative to other, must be proven to lack the ability in order to alter the expectation state. The action-opportunity, performance output and evaluation cycle is difficult to break. This occurs
only when evaluations are changed; otherwise, the expectation state is maintained (Berger, Conner and Fisek, 1974; Meeker, 1981).

Other studies of particular relevance to the formation of expectations on the basis of performance evaluations are those of Berger and Conner (1969), Webster (1969), Foschi (1971), Freese and Cohen (1973), and Pugh and Wahrman (1983).

Berger and Conner studied performance expectations and small group behavior and found that "performance expectations directly reflect beliefs that members hold about task ability, and that those thought to be more able were more likely to be perceived as having performed well" (Berger and Conner, 1969: 187). In this study, subjects were led to believe that task ability was to be measured by a score that each person would receive upon completion of the task. Through manipulation of the results of the task, giving one person a higher score than the other, the following behavior patterns were discovered: subjects who performed better than their partner accepted influence less often than subjects who performed worse in that task relative to their partners (Ibid.: 197).

A study conducted by Webster (1969) examines the evaluation of subject's past performance, and conditions under which predictions of future performance are affected. Webster, like Berger and Conner, manipulated subject's performance expectations
by supplying subjects with fictitious scores thought to be results from a recently completed task. The Webster study, however, not only discusses past performance and related future expectations, but also examines the influence of the evaluator on self's expectations (the evaluator is a third person who evaluates the performance of both self and other).

If self respects the evaluator's ability or competence in evaluation, or knows that the evaluator is privy to relevant information to which self does not have access, then the evaluator becomes a "source". A source is a person believed by self to be more capable at evaluating performances than self. Therefore, the evaluation made by the source regarding both self and other, is accepted by self. However, if self does not respect the ability of the evaluator, then the evaluator will not be regarded as a source, and the evaluator's assessment will be disregarded (Webster, 1969, :253). Further work in this area appears in Webster and Sobieszek (1974) and Crundall and Foddy (1981).

Foschi (1971) studied [-+] performance expectations and the manner by which they change when contradicted. In the Foschi study, first [-+] performance expectations were created in the laboratory by providing fictitious scores thought to correspond to task outcome. Then these expectations were either partially or totally contradicted by scores received by both actors (higher evaluations for self than for other constituted "total
contradiction" whereas equal evaluations for the two actors operationalized "partial contradiction"). Foschi's findings indicate that [-+] expectations "change as a function of the number and the degree of the contradiction they receive" (Foschi, 1971: 220).

In the study conducted by Freese and Cohen (1973), both a diffuse status characteristic and scores which represented past performance were introduced to measure the relative importance of these two variables. The results of this study indicate that past performance is perceived as being of greater relevance to task ability than a high state of a diffuse status characteristic which was, in this case, age. The manipulation of expectations based on past performance succeeded, for the most part, in eliminating status generalization. The implication here is that the path of relevance between the diffuse status characteristic and the task can be severed by demonstrating that the group member with the low state of such a status characteristic is better at the task.

The elimination of status generalization and the blockage of the path of relevance can occur only when there is a demonstration of skill by the person with the low state of the diffuse status characteristic. In a study conducted by Pugh and Wahrman (1983) the salient status characteristic was gender: in condition one, subjects were told that there was no relationship between gender and task ability, and that women were as likely as
men to do well at the task; in condition two, women were demonstrated to be equal to men in task ability; in condition three, subjects were shown that women do better at the task than men. The instructions in both conditions one and two were insufficient to eliminate the effects of gender. In both these conditions women deferred to men more often than men did to women. Only in the third condition, when it was demonstrated to both the female and the male that the female had been superior to her partner in performance, did the male accept influence from the female as often as the female from the male (Pugh and Wahrman, 1983).

**Standards and Expectations**

Research conducted by Foschi has brought attention to the role of standards when expectations are formed on the basis of performance evaluations. A number of studies have used scores to form expectations, providing set standards solely to facilitate uniformity in the subject's interpretation of scores (Webster, 1969; Freese and Cohen, 1973). Foschi and Foddy (1984) have presented a conceptualization of standards for performance. They define standards "as rules providing minimum performance requirements to infer either ability or lack of ability" (Ibid.: 1). Standards are essential in the evaluation of past performance for self and other since a given level of performance may be judged as good, average or poor depending upon the standards against which it is measured. Standards have been
conceptualized as being either 'strict' or 'lenient'. When they are strict, the resultant expectation state is said to be weak in that it does not meet the standards. When the standards are lenient, a strong expectation state results since standards are met.

The importance of studying standards is derived from their ability to maintain the power and prestige order of a group. Foschi and Foddy argue that standards used to judge the performance of group members may differ, depending upon whether or not a diffuse status characteristic has been activated. If it has, lower status performers will be treated with stricter standards than higher status ones. A common example of this phenomenon can be found in the female who is a professional equal or possibly a superior to her male counterpart, yet remains at a disadvantage when competing for a promotion. Different standards are commonly employed in the evaluation of both candidates: the stricter standard is applied to the female, the more lenient to the male. The result of the double standard is that the female is competing from a distinctly disadvantageous position and is therefore less likely to obtain the promotion. Instead, the promotion will be awarded to the equally or less qualified male, whose past performance more easily meets the lenient standards applied to males. In aggregate terms, the promotion of beneficiaries of double standards into the upper echelons of an organization operate to maintain the power and prestige hierarchy
of the group (Foschi and Foddy, 1984).

A study conducted by Foschi (1985) uses a Bayesian model on evaluations and expectations for the formulation of hypotheses. Foschi and Foschi's normative model (1976) predicts the types of expectations that a person should have for self and other on the basis of both received scores and the person's own standards. This model predicts how an ideal person will process information and form expectations following Bayes' theorem. An assumption of the model is that such an ideal person will process information in the same way regardless of role. The Foschi (1985) study was designed to determine whether subjects vary, in terms of the Bayesian model, in the way they assess the situation and form expectations in accordance with their roles. In this study, three conditions were created: in the first case self received higher scores than other; in the second case, self was given lower scores than other; in the third case, self was not a performer but an observer or third person who occupied the role of the non-participatory evaluator of two others. As expected, subjects in each condition were conservative, or tended to extract less information from received input than the Bayesian model stipulated. Actors performing more poorly than their partners were the most conservative in forming expectations regarding their own and their partner's ability or lack of ability. On the other hand, actors receiving higher evaluations showed the least conservatism.
Foschi, Warriner and Hart (1985) conducted a study using scores and varying standards to study the impact of standards on expectations. This was implemented by holding subjects' scores constant and varying the standards by which subjects judged their own and their partner's ability or lack of ability. There were two standards for both ability and lack of ability, one lenient and one strict. In total, four experimental conditions were created. In the "strong [+-]" condition, self received a higher score than other and was given standards which indicated that self definitely had the ability and that other definitely did not have the ability. The "weak [+-]" condition was created by providing self with a higher score than other, and setting standards from which it could not be concluded that self definitely had the ability and that other definitely did not have the ability. The "strong [-+]" condition was the reverse of the "strong [+-]" condition. Likewise, "weak" [+-] and [-+] conditions were symmetrical.

The hypotheses tested in this study involved differences among the four conditions in amount of influence accepted from the partner. As predicted, subjects in the strong [+-] condition accepted less influence than subjects in the weak [+-] condition. However, Foschi et al. had difficulties creating two distinct strong and weak [-+] conditions and therefore no differences in the amount of influence accepted were observed between these two conditions. When analysed by gender of dyad, the results indicated that the difficulty lay primarily with male subjects.
A number of methodological explanations for this difficulty were forwarded. It was also suggested that there may be differences in the patterns of rejection and acceptance of the standards provided, based on gender. These questions are examined in the next chapter.
Chapter II - Sex Differences Re-examined

Two questions are raised by the Foschi, Warriner and Hart study: first, do people differ in the manner by which they come to terms with either superior or inferior ability relative to a partner?; second, do males and females differ in their acceptance of evaluations indicating inferior ability? The results from their study suggest that (i) there is a gender difference in the acceptance of standards and evaluations, with women more accepting of extreme information than men (ii) this pattern is more noticeable in the case of inferior than superior ability.

An examination of the results of the original study suggests that there are sex differences among the four experimental conditions, each condition composed of same-sex dyads, both male and female. None of these sex differences was found to be statistically significant. However, owing to the small number of subjects run per condition, these tests should be interpreted with a degree of caution. None the less, male/female differences in the strong conditions are worth noting since they are the most significant of the differences. The proportion of trials in which self rejected the influence of other, represented in the following tables as proportion of s-responses or p(s), had the following level of significance scores: $p=.159$ (strong [+-]) and $p=.150$ (strong [-+]). From these results, it is apparent that the level of significance scores ($p$) are quite similar and close to being statistically significant.
<table>
<thead>
<tr>
<th>Condition</th>
<th>Sex of Subject</th>
<th>Proportion of s-Responses</th>
<th>Mann-Whitney U-Tests** (two-tailed)</th>
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<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>S.D.</td>
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<tr>
<td>(1) Strong</td>
<td>F N=10</td>
<td>.719</td>
<td>.099</td>
</tr>
<tr>
<td></td>
<td>M N= 9</td>
<td>.646</td>
<td>.133</td>
</tr>
<tr>
<td></td>
<td>(2) Weak</td>
<td>F N=12</td>
<td>.604</td>
</tr>
<tr>
<td></td>
<td>M N=10</td>
<td>.619</td>
<td>.086</td>
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<tr>
<td></td>
<td>(3) [0,0]</td>
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<td></td>
<td>M N= 9</td>
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<td>.117</td>
</tr>
<tr>
<td></td>
<td>(4) Weak</td>
<td>F N=11</td>
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<td></td>
<td>M N=11</td>
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<tr>
<td></td>
<td>(5) Strong</td>
<td>F N=8</td>
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<tr>
<td></td>
<td>M N=10</td>
<td>.456</td>
<td>.138</td>
</tr>
</tbody>
</table>

*Table 6 in the Foschi, Warriner & Hart study

**Adjusted for ties

From the data they gathered, Foschi et al. were unable to identify the causes of the differences they had found between male and female p(s) responses. What is clear, however, is that this finding is not caused by differential influence rates. Specifically, the discrepancy between the p(s) for males and females is not caused by the greater rejection of influence by one gender over the other since the dyads were same-sex. In addition, the p(s) values (table 1) are consistent with self's reports of perceived ability (table 2) which suggests that male and female rejection of influence rates reflect their perceptions of relative ability. In other words, subject behavior reflects
attitudes regarding ability. The possibility of different predispositions towards conformity between males and females as being the cause of varying p(s) scores is not supported by these results.

Table 2*: Manipulation Check, Reported Ability of Other Relative to Self: Frequencies and Percentages by Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Much More</th>
<th>Somewhat More</th>
<th>About the Same</th>
<th>Somewhat Less</th>
<th>Much Less</th>
<th>Impossible to Tell</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Strong [+-] N=19 (100%)</td>
<td>15 (79.0%)</td>
<td>2 (10.5%)</td>
<td>2 (10.5%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Weak [+-] N=22 (100%)</td>
<td>1 (4.5%)</td>
<td>13 (59.1%)</td>
<td>1 (4.5%)</td>
<td>7 (31.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) [0,0] N=21 (100%)</td>
<td>2 (9.5%)</td>
<td>7 (33.3%)</td>
<td>5 (23.8%)</td>
<td>1 (4.8%)</td>
<td>6 (28.6%)</td>
<td></td>
</tr>
<tr>
<td>(4) Weak [-+] N=22 (100%)</td>
<td>13 (59.1%)</td>
<td>8 (36.4%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Strong [-+] N=18 (100%)</td>
<td>11 (61.1%)</td>
<td>7 (38.9%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 3 in the Foschi, Warriner and Hart study.

As for differences in [+-] and [-+] conditions, Table 2 indicates that both [+-] and [-+] conditions were successfully created. Most subjects perceived themselves as being either better or worse than their partners, dependent upon condition. There is less differentiation between the weak and strong conditions, especially in the case of [-+] conditions. The p(s) scores of the strong and weak [-+] conditions are virtually identical (.423 and .420, respectively). However, Foschi et al.
report that when analyzed by gender, it becomes apparent that males in the [+] conditions are responsible for the lack of differentiation between strong and weak conditions. In addition, their findings reveal that in both [+] and [-+] conditions, the effect of standards is more distinct for females than for males.

These two observations of Foschi et al. indicate that the differences between male/female results originate in the formation process of expectations. The central issue concerns whether or not expectations are formed on the basis of standards provided to interpret test scores. In both strong and weak [+] and [-+] conditions, the mean p(s) scores indicated that males formed only weak expectations. This may have been due to a higher degree of conservatism in accepting extreme ability attributions and, particularly, lack of ability attributions. From the p(s) scores, it is clear that males did not form expectations using the provided standards.

In an effort to account for differences in the expectation formation process of males and females, a review of studies concerned with expectation states was conducted and fifteen studies which created [+] and [-+] conditions on the basis of scores were identified. These studies are the closest to the present work, aside from the Foschi, Warriner and Hart study. Specifically, these studies have been examined for any indications of the existence of gender differences between the formation and acceptance of [+] and [-+] expectations, and any
difficulties in the creation of [-+] expectations (i.e. larger variances in the [-+] conditions than in the [+-] conditions would indicate difficulty in the formation of the former).

All studies included in the following table have been conducted with same-sex dyads, meet the scope conditions of expectation states theory, and have at least one condition where expectations were formed solely on the basis of scores. The majority manipulate subject expectations by providing subjects with scores upon completion of a block of trials. However, a few studies (e.g. Foschi, 1971) report a score to the subject after each trial. Several studies in expectations states theory create expectations using scores as well as a diffuse status characteristic in a single condition e.g. Freese (1974). Such studies have not been included in the following table. The interest here is only in those studies which have formed expectations created solely on the basis of performance in at least one condition.

A variety of fictitious abilities were utilized to enable the assignment of false scores (e.g. contrast sensitivity, meaning insight, pattern recognition, relational specificity). These fictitious abilities were designed to involve ambiguous stimuli, although subjects were led to believe that the tasks all contain a correct answer. A few studies use a single task throughout the study. However, most studies use two task abilities usually purported by the experimenter to be related.
In order to quantify the degree to which self accepts or rejects influence from other, a number of measures have been devised. The most widely used is the proportion of self responses or \( p(s) \), this measure also used in the majority of these experiments. Other measures such as the proportion of other responses, referred to as either \( p(o) \) or \( R_i (1-p(s)) \) (Knottnerus and Greenstein, 1981; Greenstein and Knottnerus, 1980), are used less frequently but still measure influence as accurately as the traditional \( p(s) \). Foschi (1971, 1985) uses subject score prediction, which measures expectations rather than influence and Conner (1977) measures the proportion of responses between high and low status subjects, proportion of responses considered a related variable to degree of influence.
Table 3: Summary of Relevant Studies in Which \([+-]\) and \([-+]\) Expectations Are Formed on the Basis of Scores.

<table>
<thead>
<tr>
<th>Study</th>
<th>Type of ability</th>
<th>Sex of Dyad</th>
<th>Scores received</th>
<th>Type of expectations created</th>
<th>Rejection Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Berger and Conner (1969)</td>
<td>Meaning insight</td>
<td>Male</td>
<td>Actual scores were not reported but subject was informed that he was either exceptionally good and his partner exceptionally bad at the task or vice versa.</td>
<td>([+-], [-+], [++], and [-])</td>
<td>26%</td>
</tr>
<tr>
<td>2. Camilleri and Berger (1967)</td>
<td>Contrast sensitivity</td>
<td>Male and Female</td>
<td>In some of the ([+-]) and ([-+]) conditions, the scores were ([10,5]) and ([5,10]) said to be out of a possible 12 correct. In the rest of the ([+-]) and ([-+]) conditions, the scores were ([17,8]) and ([8,17]) said to be out of a possible 20 correct. In the ([++]) condition, self was told he did as well as his partner and that they were in the &quot;superior&quot; category. In the ([-[-]) condition, the opposite occurred.</td>
<td>([+-], [-+], [++], and [-])</td>
<td></td>
</tr>
</tbody>
</table>

Authors report a 26% rejection rate due to suspicion and refusal to accept one or more manipulations; however, there were no reports regarding difficulties in creating either the \([+-]\) or \([-+]\) conditions.

*The general form to express scores in the table is \([s,o]\) where \(s=\)self's score and \(o=\)other's score.
3. Conner (1977)

Type of ability: Aptitude test to measure ability at non-english word test, Non-english word test

Sex of Dyad: Male and Female

Scores received: Scores were provided to subjects but not reported in the paper. The subject was also informed that he was unusually good and his partner unusually bad at the task or vice versa.

Type of expectations created: [+−] and [−+].

There were no reported difficulties in creating either the [+−] or [−+] condition.

4. Foschi (1971)

Type of ability: Pattern recognition

Sex of Dyad: Female

Scores received: The scores were out of 30. On most trials, subjects first received [10,20] and then [30,20].

Type of expectations created: In the first phase of the experiment [−+] expectations were created. In the second phase [+−] expectations were created. The same subjects formed both [−+] and [+−] expectations. In the control condition, subjects were not given scores in the second phase of the experiment.

7 out of 77 subjects (9%) were eliminated because the scores they predicted for themselves in the first part did not indicate the formation of [−+] expectations; however, there were no indications of difficulties in the creation of [+−] expectations.
5. Foschi (1985)

Type of ability: Pattern recognition ability

Sex of Dyad: Female

Scores received: Subjects in the [+-] condition received higher scores than their partners in 15 out of 25 trials. Those in the [-+] condition received lower scores than their partners in 15 out of 25 trials.

Type of expectations created: [+−] and [-+].

Subjects in the [+−] condition showed less conservatism in attribution of ability, which suggests that [+−] expectations are easier to form than [-+] expectations.

6. Freese (1976)

Type of ability: Meaning insight, Complex social situation outcome prediction, Contrast sensitivity

Sex of Dyad: Female

Scores received: Scores were [21,6] and [6,21] said to be out of a possible 24 correct. Subjects were informed that skill at the tested ability was directly related to another ability, and that the scores they received were unusually high or low by national standards.

Type of expectations created: [++,−−], [−−,++], [+−,−−], and [+−,+−]

([++,−−] represents the condition in which self is better at two tasks than other).

Both [+−] and [-+] expectations on the basis of performance were successfully formed.
7. Freese and Cohen (1973)

Type of ability: Contrast sensitivity, Meaning insight

Sex of Dyad: Female

Scores received: Scores to form [-+] were [4-5, 22-23]. Scores to form [+-] were [22-23, 4-5]. The researchers did not indicate the number of correct scores possible, but subjects were informed that the scores were, respectively, in the top and bottom 5%.

Type of expectations created: [+-] and [-+].

There were no indications of difficulties in creating either [+-] or [-+] expectations on the basis of performance.


Type of ability: Modes of perception, Relatively uncommon words

Sex of Dyad: Female

Scores received: Scores were provided to subjects but were not reported in the paper. Subjects were informed that they possessed either a high or low task ability relative to their partners. In the control condition, subjects were not given any information regarding their partners.

Type of expectations created: [+-], [-+] and [00].

The resultant p(s) scores suggest that the [-+] expectation was not fully formed in that the p(s) scores in the no information and [-+] conditions were similar and high for a [-+] condition. However, authors did not report difficulties in creating either the [-+] or [+-] conditions.

Type of ability: Modes of perception, Relatively uncommon words

Sex of Dyad: Female

Scores received: Scores were not reported in the paper but were provided to subjects.

Type of expectations created: [+-] and [-+].

There was no reported difficulty in creating the [-+] condition. However, in table 3, 43.8% of the subjects in the [-+] condition thought they were equal to other, and 56.3% thought they were worse. This suggests that the [-+] condition was not fully formed for almost half the subjects. In addition, 64.7% of the subjects in the [+-] condition thought they were equal which suggests that the [+-] condition was not fully created for more than half those subjects.


Type of ability: Contrast sensitivity (per Martin and Sell), Solid white bar slide task

Sex of Dyad: Female

Scores received: Scores were not reported in the paper but were assigned to subjects based on a task purported to measure ability on two, three and four related tasks.

Type of expectations created: [4+ 1-, 4- 1+], [4- 1+, 4+ 1-]
[3+ 1-, 3- 1+], [3- 1+, 3+ 1-]
[2+ 1-, 2- 1+], [2- 1+, 2+ 1-]

([4+ 1-, 4- 1+] represents a condition in which self is better than other at four tasks, and other is better than self at one task).

There is a decrease in stability of the decision process as the performance characteristic of the actor is modified to become less consistent. This is to say that as performance at a given task becomes less consistently bad or less consistently good (e.g. 4+ to 2+ or 4- to 2-), then the actor is less likely to consistently reject or consistently accept influence i.e. the decision making process destabilizes. As consistency decreases, the marginal utility of the one discrepant skill increases causing increased vacillation in the decision making process. Uncertainty as to the task relevance of the skills that comprise the performance characteristic increases. This decrease in stability is more pronounced for low ranked actors than for high ranked actors due to the tendency of low ranked actors to place more weight on the discrepant evaluation because it infers skill. No difficulties in the formation of any of the [-+] or [+-] conditions were reported.
11. Martin and Sell (1985)

Type of ability: Contrast sensitivity (per Martin and Sell), Figural similarity

Sex of Dyad: Female

Scores received: Scores were not provided but subjects were either categorized as being in the top or bottom 10%.

Type of expectations created: [+-], [-+], and [00].

There were no indications of difficulties in the formation of either [+-] or [-+] performance expectations. It is suggested, however, that high and low ranked actors do not process differentiating information similarly. For high-rank actors, rank has little effect on differentiation; however, rank significantly effects low-rank actors.


Type of ability: Contrast sensitivity, Meaning insight

Sex of Dyad: Female

Scores received: Scores were assigned to subjects but not reported. Subjects were said to be in either the top or bottom 5%.

Type of expectations created: [+-] and [-+].

There is a difference in the manner by which high and low status actors evaluate themselves. Low status, high performance actors tend to ignore their status; whereas, high status, low performance actors do not ignore their status. It was found that status is not the only variable in an actor's decision making process when contradictory information is provided. In fact, performance is more important when actors are high rank. There was no indication of difficulties in forming either [+-] or [-+] performance expectations.
13. Webster (1969)

Type of ability: Contrast sensitivity

Sex of Dyad: Male

Scores received: Scores were [17,9] and [9,17]. Standards were as follows: average (11-15/20), unusually good (16-20/20), unusually poor (0-10/20).

HE=evaluator with high ability, LE=evaluator with low ability.

Type of expectations created: HE[+-], HE[-+], LE[+-], and LE[-+].

A high evaluator succeeded in creating a [-+] condition. There were no difficulties reported as to the creation of [-+] conditions although the p(s) in the LE[++] condition is high. Both the HE and LE [+-] conditions were fully formed.


Type of ability: Meaning insight, Relational insight and Contrast sensitivity

Sex of Dyad: Male

Scores received: Scores were not reported in the paper but provided in the first two conditions of each experiment. Conditions three and four were control conditions and therefore, no scores were provided. In experiment one, subjects were informed that they were equal and average at two tasks, and differentiated at one. Experiment two subjects were informed that they were equal and superior at two tasks, and differentiated at one.

Type of expectations created: [00-,00+], [00+,00-], [??+,??-], [??-,??+], [+-,++], [++,+-], [??+,??-], and [??-,??+].

([00-,00+] describes the condition in which self and other are equal and average at two tasks and differentiated at one. Likewise, [++,+-] describes the condition in which self and other are equal and superior at two tasks and differentiated at one. The control condition, where no scores are given on the first two tasks, is described as follows: [??+,??-]).

It was found that subjects ignore equating information. There was no indication of a difficulty in creating either [+-] or [-+] conditions.

Type of ability: Contrast sensitivity

Sex of Dyad: Female

Scores received: Scores were not reported in the paper but were provided to subjects.

Type of expectations created: [+-] and [-+].

Authors did not indicate a difficulty in forming either [+-] or [-+] conditions. The results of the first experiment led them to conclude that those subjects who have task ability are affected by the fact that their partner is high status; whereas, high status, low ability subjects are not affected by the fact that their partner is low status.

Two conclusions may be arrived at from the preceding table. First, there is no evidence that the formation process of expectations differs between men and women. This may be due to few researchers having concentrated on a comparison between two sets of male and female same-gender dyads. Of the fifteen studies reviewed, only two (Camilleri and Berger, 1967; Conner, 1977) were conducted using both male and female subjects. Of these two studies, neither presents a comparison between male and female same-sex dyads. According to expectation states theory, diffuse status characteristics, such as gender, become salient only when they are differentiated. In such a case, they become the basis of differentiated expectations. Male and female dyads are not predicted to differ in the way they form expectations, and perhaps because of this, they have not been extensively studied.
In reference to differences in the formation of expectations in [+-] and [-+] conditions, there is little indication that one condition is easier to generate than another and the authors give no indication of difficulties aside from Foschi (1971) who mentions that successful creation of the [-+] condition was problematic. In addition, most of the studies do not include variances associated with the values of the dependent variables in different conditions. Therefore, it was not possible to use the variance to check if there were any difficulties in forming [-+] expectations.

Although no indications were found regarding differences in the formation of expectations between males and females or between [-+] and [+-] conditions, a number of researchers commented on the different behavior of high status and low status subjects. Camilleri and Berger (1967), Freese and Cohen (1973), Martin and Sell (1980, 1985), Sell and Freese (1984), and Zelditch et al. (1980) all noted differences between high and low status actors' behavior in [+-] and [-+] conditions. Of particular interest is the Sell and Freese study (1984) in which performance was found to be important to the subject only when the actor is of a high rank.

Unfortunately, studies which have formed [-+] expectations on the basis of scores do not shed much light on the problem of creating [-+] conditions for males, although there is some
indication that [-+] and [+-] conditions are formed differently. Since none of these studies makes comparisons between both male and female dyads, they cannot account for the difference between male and female responses in the Foschi, Warriner and Hart study.

Due to the limitations of the Foschi et al. study, it was decided to replicate portions of their study. Therefore, the present work replicates some of their conditions with selected changes.

The portions of the original study which were replicated are the [-+] conditions only, since these are the conditions in which the authors report difficulties. In particular, they found no distinction between the strong and weak [-+] conditions when analyzing combined male and female p(s) scores. Therefore, gender of dyad will be treated as a third variable in the present work.

The modifications to the Foschi et al. study result in the following four conditions: 1. Male, Weak [-+]; 2. Male, Strong [-+]; 3. Female, Weak [-+]; 4. Female, Strong [-+]. Although there were no variations in the standards set for male and female subjects, creating two distinct standards was problematic, whether due to technical reasons or gender differences. Therefore, no differences are predicted between both conditions 1 & 3, and between conditions 2 & 4.

Given the scope conditions of task and collective
orientation, and same-sex dyads, the following is predicted:

A person holding strong \([-+]\) expectations will reject less influence from a partner than a person holding weak \([-+]\) expectations.

As was mentioned previously, when a diffuse status characteristic, such as gender, is not salient, it is not believed to be a factor in the formation of expectations. However, results of the original study indicate the existence of gender differences. This study is designed to assess whether males and females will behave as Berger et al. suggest or as Foschi, Warriner and Hart found. In other words, will females holding strong \([-+]\) expectations differ in acceptance of influence from males holding strong \([-+]\) expectations? Also, will there be differences in acceptance of influence between males and females holding weak \([-+]\) expectations?

In addition, other variables related to the formation of expectations are explored to observe whether males and females differ in this respect. These include importance of task, feeling of control, motivation and seriousness about task performance. The replication of the Foschi, Warriner and Hart study also contains methodological changes which are discussed in the following chapter.
Chapter III - Research Design and Procedure

Overview

This experiment was run in the small groups laboratory at the University of British Columbia, in the summer of 1985. The experimental method used was traditional of expectation states theory research with the addition of standards as per the Foschi, Warriner and Hart study (1985). A situation was constructed in the laboratory requiring each person in a same-gender dyad to choose between rejecting and accepting influence from his or her partner. In all conditions, the only information given to subjects about their partners was gender, and year in school at U.B.C. (subjects are always described as identical to their partners to avoid the introduction of status bias).

In the strong [-+] condition, self was given a computer printout containing scores and standards which determine that self definitely does not possess the ability of Contrast Sensitivity and that other definitely does possess this ability. In the weak [-+] condition, self was given scores with the accompanying standards which indicate that self did not do as well as other. However, self was led to believe that from these scores it cannot be concluded that self definitely does not have the ability, and that other definitely does. In both conditions, though, manipulated scores for self and other showed that self performed poorly in comparison with other. The same scores were used in both conditions. However, the conditions were
differentiated by varying the standard with which the scores were to be interpreted by the subject.

**Scope Conditions and Other Variables**

The scope conditions of this experiment are characteristic of those traditionally employed in expectations states experiments. A situation in which two people work together on a collective task was constructed. Each member of the team had to decide whether to accept or reject the advise of his/her partner. Both subjects were motivated to succeed, and the task was perceived as valuable and important. Instructions specified that subjects be guided by skillful partners and avoid being led astray by partners perceived as having poor judgement and less skill.

Task orientation was promoted by the experimenter emphasizing that the task is important, and mentioning that a prestigious university such as Stanford is studying the ability which this task tests. In addition, it was emphasized that although this task is unrelated to all known abilities, it is used in most major aptitude tests.

Collective orientation was encouraged by the experimenter through instructions to subjects specifying that only their final choice counts towards the team score and that there is no recording of initial individual choice when working as a team. The goal of working together was emphasized frequently in the
instructions and an analogy illustrating the importance of teamwork in an organization was made. A number of questions in the interviewer's summary and questionnaire were used to verify whether the subject did indeed meet the scope conditions.

This experiment is principally concerned with the relationship between four major variables: scores; standards; expectations; and influence. The independent variables of scores and standards effect the intervening variable of expectations. This variable, which is the expectations of self toward the task ability of other, in turn effects the dependent variable which is the degree of influence accorded by self to other.

**Experimental Environment**

The experiment was conducted over a two month period. Each experimental run lasted approximately one hour. For each run, there were three members of the research team: the experimenter (host); the I.C.O.M. controller; and the confederate. A standard room arrangement as per the guidelines of expectation states research was utilized (see Appendix A). This experiment required the use of Interaction Control Machines (ICOM) (for a detailed description of the ICOM see Webster Jr. and Sobieszek, 1974: 171). There was one terminal for each subject, connected to the central control panel, from where the experimenter conducted the necessary manipulations.
Subject Selection

Ninety-three subjects, recruited from first and second year spring and summer session courses, participated in the study. Subjects were volunteers and remuneration was provided in the form of the opportunity to win one of four $50 prizes. The age of the volunteers ranged from 17 to 22, inclusive, the mean age being 19.14 with a standard deviation of 1.30. They were assigned at random to either a weak [-+] condition or a strong [-+] condition. Half the subjects were male, the other half female and they were run in same-sex dyads. In order to ensure that all subjects met the various criteria making them eligible for analysis, a number of rejection rules were formulated beforehand. The rejection rules utilized were stringent, yet straightforward. Rejection was indicated by any one of the following:

1. If the scope conditions were not met
2. If there were well articulated suspicions
3. If there was no doubt that the [-+] manipulations were unsuccessful
4. If there were blatant inconsistencies in the responses in the questionnaire

In all laboratory experiments there is the possibility of experimenter bias. Every possible effort was made to minimize the effect of the experimenter. The same researcher conducted all experimental trials, attention was paid to maintaining uniformity of attire and appearance for the duration of the study.

This study has been approved by the U.B.C. behavioural sciences screening committee for research and other studies involving human subjects, certificate of approval #B84-257.
and the instructions provided were standardized, with no deviation from the prescribed text.

**Description of Task**

There were two stages to the experiment, both using the contrast sensitivity slide task. The slide consists of two rectangular designs (see appendix B). The subject must decide which rectangle contains a higher proportion of white. In fact, each rectangle contains an equal amount of white. Since there is no correct answer, the subject cannot judge his/her partner's skill based on actual performance and has to rely on the information of the printout given by the experimenter. This task was developed by Moore in the early 1960's and has been perfected so that the task does appear to have a correct answer.

**Experimental Procedures**

**Instructions and I.C.O.M.**

After the subject signed the experimenter-volunteer contract, (see appendix C) a set of standardized instructions (see appendix D) were given to the subjects. Instructions were delivered immediately prior to each section of the experiment. The instructions and their delivery were standardized, i.e. vocal

3 There is an imperceptibly greater proportion of white than black [48% and 52%], but the human eye perceives an equal amount of white and black.

4 The contract contains the terms of volunteer participation, indicating the option to end participation at any time during the experiment, guaranteeing confidentiality and that no physical or psychological harm will come to any participants. The purpose of this form is to put the subject at ease.
intonations and frequency of eye contact between the subject, experimenter and confederate were kept as similar as possible.

The I.C.O.M. was used in the first part to appear as if the outcome of the first 20 trials was being recorded since the subject was told that the terminal was attached to a computer which would record the results. At the end of the first section the subject's score and relevant standard was indicated by the experimenter on computer printouts, and then the printouts were handed to both the subject and confederate. The computer printout contained the outcome of each trial, the scores for both the subject and confederate, and the standards for possessing the ability, lacking the ability, and falling into the middle category where task ability cannot be determined. In the second part of the experiment, the subjects made decisions on 25 trials. Here the ICOM was used to communicate a standardized sequence of five agreements and twenty disagreements to the subject. A recording sheet was provided for the Master ICOM operator to record the outcome of each trial, ie. initial choice, final choice and acceptance or rejection of influence (see appendix E).

Data Collection

Questionnaire

In order to verify that the scope conditions were met and the experimental conditions were successfully created, an opinion questionnaire (appendix F) was completed by each subject. The questionnaire contains a variety of checks, such as instruction
comprehension and awareness of the set of standards provided.

**Interviewer's summary**

Subsequent to completion of the questionnaire, and prior to the debriefing, the experimenter interviewed the subject as an additional check that all scope conditions were met, instructions were understood and that the subject was not suspicious of the manipulations. (Please refer to appendix G for the interview summary form and discussion on the interview).

**Debriefing**

After the opinion questionnaire was administered, the subject was interviewed and debriefed. A debriefing booklet was provided for the subject to read. It contained a full explanation of the manipulations conducted and the objectives of the study. Questions were addressed and any misunderstandings corrected. At this time, the subject was requested to sign a secrecy form committing him/her to refrain from discussing the experiment. The intention of this instrument was to minimize the contamination of the pool of potential subjects. (Please refer to the appendices for the debriefing form and booklet (appendix H) and Secrecy Commitment Form (appendix I)).

**Improvements Over the Foschi, Warriner and Hart Study.**

As was discussed in Chapter II, the inability of the Foschi, Warriner and Hart study to create the male [-+] conditions, calls into question the assumptions regarding same gender groups and
and the symmetrical nature of success and failure. It is for this reason that the Foschi, Warriner and Hart study was examined more closely and deemed worthy of replication.

The [-+] conditions of the original study were replicated for both males and females, with a number of changes intended to improve the experimental design, and to provide an explanation as to the difficulties experienced in creating the two male [-+] conditions. Care was taken not to change the basic design of the study, to facilitate comparison.

Table 4. Overview of the Experiment

<table>
<thead>
<tr>
<th>Condition</th>
<th>Trials 1-20</th>
<th>Score Received by</th>
<th>Standard Defining Lack of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Weak [-+]</td>
<td>45% (9)</td>
<td>75% (15)</td>
<td>85% (17)</td>
</tr>
<tr>
<td>Male Strong [-+]</td>
<td>45% (9)</td>
<td>75% (15)</td>
<td>65% (13)</td>
</tr>
<tr>
<td>Female Weak [-+]</td>
<td>45% (9)</td>
<td>75% (15)</td>
<td>85% (17)</td>
</tr>
<tr>
<td>Female Strong [-+]</td>
<td>45% (9)</td>
<td>75% (15)</td>
<td>65% (13)</td>
</tr>
</tbody>
</table>

There are a number of possible explanations for the inability to create two distinct male [-+] conditions. In the study conducted by Foschi, et al., there may have been a difficulty with the standards for lack of ability; they may have been too low to seem plausible (the standards were 3 out of 20 or 15%). In most academic institutions the standards for failure
hover about the 50% mark, or 10 out of 20. In order to make the standards for lack of ability more realistic for the present study, they were set as closely as possible to 50%, bearing in mind that there are two standards for failure which must be differentiated and that the difference between failure and success must be credible. Although this change was a significant difference between the standards of the two studies, the basic objective -- to create realistic standards for failure -- was maintained.

In addition, the manipulation of the standards for lack of ability in the original study was problematic. It is possible that the difficulties may have stemmed from the method by which the standards were relayed, i.e. raw numbers exclusively, as opposed to both raw numbers and percentages. In order to strengthen the manipulation of the standards, both the raw numbers and percentages of the subjects' supposed performances and the respective standards were relayed. This modification in the experimental design was intended to strengthen the existing manipulation without changing its very nature.

In the Foschi, Warriner, and Hart study each subject was asked to establish standards for possessing or lacking the ability in the abstract, for a hypothetical other. This proved to be problematic in that it is important subjects know that the standards they are to set must be for their specific situation i.e. the subject and his or her partner. The rationale for this
is as follows: self already possesses established opinions regarding self's ability vis à vis his or her partner's ability. With a different partner, the standards self applies may be different. Therefore, a question asking the subject about the standards of his/her specific situation was posed in this study. This, once again, does not significantly change the experimental design from the original study; it does, however, provide the opportunity to more accurately assess the standards of the subjects.

In the original study a number of experimenters were involved. Although there was an established script, the manner by which different experimenters conduct the experiment can bias, however slightly, the results of the experiment. In this study, in order to minimize experimenter bias, the same experimenter conducted each run of the experiment.

Males and females may react differently to the realization that they have failed. Males may become less motivated or less serious than females regarding the task and may consider the task unimportant. Conversely, it is possible that females accept failure more easily, and do not become unmotivated or devalue the task by considering it unimportant. In the original study, no checks were provided to differentiate the degree to which the subject deemed the task to be important, took it seriously, and was motivated. In this study, checks on these three variables have been included.
It is also possible that men are accustomed to being in control to a greater extent than women. The task may have led men to believe that they lacked control over the outcome, encouraging them to ignore their failure and attribute failure to external circumstances, such as components of the experiment. Conversely, women may not have been effected by the same feelings of lack of control, because women are not as used to being in control, unlike men. Women, therefore, may tend not to ignore their failure, but may accept it as being a reflection of their lack of ability.

To monitor possible male/female differences in perceptions of control, a question regarding the amount of perceived control was posed. In the Foschi et al. study, degree of control perceived by the subject was not measured. The original study utilized a pattern recognition task, which, due to task difficulty, is hypothesized to possibly account for the problem of males not accepting the standards in that this task may have been perceived as so difficult that it may have added to a feeling of lack of control over scores. Therefore, this study has utilized the task that is traditionally used in expectation states theory, namely the one testing the fictitious ability of Contrast Sensitivity.

In order to standardize this study to enable comparison with other studies in expectation states research, 25 trials have been conducted per run instead of 20, the number of trials in the
Foschi et al. study. The slides have been shown in the order which has been extensively tested to make the contrast sensitivity task work best (Moore, 1968). Finally an attempt has been made to narrow the age range more than in the previous experiment for the sake of homogeneity.

With the implementation of these improvements, it is expected that the original hypothesis of the Foschi, Warriner and Hart study will be supported for the [±+] conditions as presented at the end of Chapter II. In the next two chapters, the data generated through the experiment are analysed and interpreted in relation to the hypothesis.
Chapter IV - Data Analysis

Exclusion of Subjects

After examining the data from the post-experimental questionnaire and interview, 13 of the 93 subjects run (13.9%) were excluded. Five subjects expressed well articulated suspicions, seven subjects were not collectively oriented, nine subjects did not form [-+] expectations, two subjects could not recall either the percentage or raw score for possessing or lacking the ability of Contrast Sensitivity, and finally, two subjects revealed major inconsistencies throughout the questionnaire. Seven of the excluded subjects were in more than one rejection category. No pattern was evident in the distribution of subjects across conditions regarding the various rejection categories. The percentage of subjects rejected in this study is well within the figures reported in similar experiments.

Seven females and six males were excluded from analysis. Of the excluded females, four were in the strong [-+] condition, and three were in the weak [-+] condition. Of the excluded males, one was in the strong [-+] condition, and five were in the weak [-+] condition. Rejection criteria were stringent (i.e. when in doubt, a subject was kept) and formulated before hand (see Appendix J). The following analysis has been conducted on the 80 remaining subjects.
Manipulation Checks

In the post-experimental questionnaire, each subject was required to recall the score received by self and other. As may be expected, subjects recalled the scores they received more accurately than the scores of their partners. Ninety two and one half percent of the subjects remembered the scores for self and other exactly; 7.5% deviated slightly from the actual scores given, but always recalled one of the two scores accurately. Consequently, the reported scores closely resemble the actual scores provided. The following table summarizes the results of this manipulation:

Table 5: Scores as Reported by Subjects

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Actual Scores Received</th>
<th>Scores Received as Reported by the Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Self</td>
<td>Other</td>
</tr>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>s.d.</td>
</tr>
<tr>
<td>(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak [-+]</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Male N=20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong [-+]</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Male N=20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak [-+]</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Female N=20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong [-+]</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Female N=20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is also clear from the above table that there are no major differences across the four conditions in terms of accuracy of subject score recall.
Another important manipulation check concerns standards. Table 6 shows (1) the degree to which subjects remembered the standards provided to them and (2) the standards that subjects would set to assess whether they or their partner possessed or lacked the task ability. The standards reported by subjects were similar to the standards which subjects would set, which indicates the following: either the provided standards approximated the subjects' own, or, if subjects had no internalized standards at the beginning of the experiment, they found the ones provided by the experimenter to be acceptable. The standards given by the experimenter to measure task ability were quite accurately reported by subjects. The case for lack of ability, however, is somewhat different. Although not large, discrepancies between the provided standards and the reported standards are as follows:

Table 6: Reported Standards Provided, Reported and Set by Subjects Per Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>For Ability</th>
<th>For Lack of Ability</th>
<th>For Ability</th>
<th>For Lack of Ability</th>
<th>For Ability</th>
<th>For Lack of Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Weak [-+]</td>
<td>85%</td>
<td>30%</td>
<td>(\bar{X} 83.65%)</td>
<td>(\bar{X} 30.3%)</td>
<td>(\bar{X} 82.15%)</td>
<td>(\bar{X} 31.05%)</td>
</tr>
<tr>
<td>Male N=20</td>
<td>s.d. 4.25</td>
<td>s.d. 10.02</td>
<td>s.d. 5.21</td>
<td>s.d. 9.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Strong [-+]</td>
<td>65%</td>
<td>60%</td>
<td>(\bar{X} 64.9%)</td>
<td>(\bar{X} 56.7%)</td>
<td>(\bar{X} 65.4%)</td>
<td>(\bar{X} 55.2%)</td>
</tr>
<tr>
<td>Male N=20</td>
<td>s.d. 3.51</td>
<td>s.d. 6.90</td>
<td>s.d. 5.76</td>
<td>s.d. 6.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Weak [-+]</td>
<td>85%</td>
<td>30%</td>
<td>(\bar{X} 84%)</td>
<td>(\bar{X} 34%)</td>
<td>(\bar{X} 81.95%)</td>
<td>(\bar{X} 37.85%)</td>
</tr>
<tr>
<td>Female N=20</td>
<td>s.d. 3.49</td>
<td>s.d. 14.10</td>
<td>s.d. 8.32</td>
<td>s.d. 14.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Strong [-+]</td>
<td>65%</td>
<td>60%</td>
<td>(\bar{X} 66.65%)</td>
<td>(\bar{X} 54.4%)</td>
<td>(\bar{X} 66.4%)</td>
<td>(\bar{X} 53.1%)</td>
</tr>
<tr>
<td>Female N=20</td>
<td>s.d. 6.87</td>
<td>s.d. 8.66</td>
<td>s.d. 8.39</td>
<td>s.d. 9.45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
standards are clearly visible in the case of lack of ability: this standard was lowered by both males and females in the strong conditions, and raised by females in the weak condition. In the first two conditions a strict standard was lowered, whereas in the third condition a lenient standard was raised: these directions indicate a tendency towards less extreme standards for lack of ability. The situation is similar when one compares the standards provided by the experimenter with those set by the subjects.

Table 7: Mann-Whitney U-Tests* on Standards Reported by Subjects

<table>
<thead>
<tr>
<th>Conditions Compared</th>
<th>U</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard for Ability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)=(3)</td>
<td>190</td>
<td>0.370</td>
<td>0.711</td>
</tr>
<tr>
<td>(2)=(4)</td>
<td>177</td>
<td>0.689</td>
<td>0.491</td>
</tr>
<tr>
<td>Standard for Lack of Ability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)=(3)</td>
<td>171.5</td>
<td>0.927</td>
<td>0.354</td>
</tr>
<tr>
<td>(2)=(4)</td>
<td>159</td>
<td>1.176</td>
<td>0.240</td>
</tr>
<tr>
<td>Standard for Ability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)&gt;(2)</td>
<td>2.0</td>
<td>5.608</td>
<td>0.000</td>
</tr>
<tr>
<td>(3)&gt;(4)</td>
<td>14.5</td>
<td>5.282</td>
<td>0.000</td>
</tr>
<tr>
<td>Standard for Lack of Ability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)&lt;(2)</td>
<td>9.5</td>
<td>5.305</td>
<td>0.000</td>
</tr>
<tr>
<td>(3)&lt;(4)</td>
<td>44.0</td>
<td>4.363</td>
<td>0.000</td>
</tr>
</tbody>
</table>

*adjusted for ties

Table 8: Mann-Whitney U-Tests* on Standards Set by Subjects

<table>
<thead>
<tr>
<th>Conditions Compared</th>
<th>U</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard for Ability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)=(3)</td>
<td>186.5</td>
<td>0.439</td>
<td>0.661</td>
</tr>
<tr>
<td>(2)=(4)</td>
<td>198.5</td>
<td>0.043</td>
<td>0.965</td>
</tr>
<tr>
<td>Standard for Lack of Ability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)=(3)</td>
<td>153</td>
<td>1.326</td>
<td>0.185</td>
</tr>
<tr>
<td>(2)=(4)</td>
<td>180</td>
<td>0.551</td>
<td>0.582</td>
</tr>
<tr>
<td>Standard for Ability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)&gt;(2)</td>
<td>7.5</td>
<td>5.330</td>
<td>0.000</td>
</tr>
<tr>
<td>(3)&gt;(4)</td>
<td>36.0</td>
<td>4.625</td>
<td>0.000</td>
</tr>
<tr>
<td>Standard for Lack of Ability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)&lt;(2)</td>
<td>12.0</td>
<td>5.134</td>
<td>0.000</td>
</tr>
<tr>
<td>(3)&lt;(4)</td>
<td>72.5</td>
<td>3.493</td>
<td>0.000</td>
</tr>
</tbody>
</table>

*adjusted for ties
The differences and similarities between conditions regarding standards were created as expected as is evident by the p values in Tables 7 and 8.

Another manipulation check which assesses the degree of success achieved in creating the four conditions is illustrated in Table 9. The data indicate that two distinct conditions were created for both males and females, although the female conditions are differentiated to a greater degree than the male conditions. It must be noted, however, that conditions (2) and (3) are similar. This will be discussed in detail in Chapter V.

Table 9: Reported Ability of Other Relative to Self

<table>
<thead>
<tr>
<th>Condition</th>
<th>Much Better</th>
<th>Better</th>
<th>Same</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak [-+]</td>
<td>2</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Male N=20 (100%)</td>
<td>10%</td>
<td>85%</td>
<td>5%</td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong [-+]</td>
<td>6</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Male N=20 (100%)</td>
<td>30%</td>
<td>60%</td>
<td>10%</td>
</tr>
<tr>
<td>(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak [-+]</td>
<td>6</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Female N=20 (100%)</td>
<td>30%</td>
<td>70%</td>
<td>0%</td>
</tr>
<tr>
<td>(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong [-+]</td>
<td>13</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Female N=20 (100%)</td>
<td>65%</td>
<td>35%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Also of interest is that three of the forty male subjects - but none of the female subjects - perceived their partners as being of equal ability despite the high accuracy of score recall.
This suggests slightly more willingness on the part of females to admit that their partners were more skilled than they were.

**Dependent Variable**

Results on the dependent variable are presented in the following three tables. The number of s-responses is the actual number of trials in which other's influence was rejected; in Table 10, the proportion of such responses is also given.

**Table 10: Rejection of Influence by Condition**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Number of s-Responses</th>
<th>Proportion of s-Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>s.d.</td>
</tr>
<tr>
<td>(1) Weak [-+] Male N=20</td>
<td>9.25</td>
<td>2.86</td>
</tr>
<tr>
<td>(2) Strong [-+] Male N=20</td>
<td>8.80</td>
<td>2.63</td>
</tr>
<tr>
<td>(3) Weak [-+] Female N=20</td>
<td>9.55</td>
<td>2.42</td>
</tr>
<tr>
<td>(4) Strong [-+] Female N=20</td>
<td>7.00</td>
<td>2.05</td>
</tr>
</tbody>
</table>

Table 11 presents test results concerning differences between conditions. The hypothesis, represented as follows, has been partially supported:

1. (1) > (2)
2. (3) > (4)

The second inequality is supported, but the first is not
(although results for the first are in the predicted direction). These findings replicate those of the Foschi et al. study. In addition, results indicate a difference in the way in which males and females behave. The rates of influence in conditions (1) and (3) are essentially equal. In conditions (2) and (4), however, they are significantly different. These findings are also similar to those of Foschi, Warriner and Hart.

Table 11: Mann-Whitney U-Tests* on the Proportion of s-Responses

<table>
<thead>
<tr>
<th>Conditions Compared</th>
<th>U</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) = (3)</td>
<td>197.0</td>
<td>0.09</td>
<td>0.935</td>
</tr>
<tr>
<td>(2) = (4)</td>
<td>124.0</td>
<td>2.08</td>
<td>0.038</td>
</tr>
<tr>
<td>(1) &gt; (2)</td>
<td>173.0</td>
<td>0.736</td>
<td>0.231</td>
</tr>
<tr>
<td>(3) &gt; (4)</td>
<td>89.0</td>
<td>3.028</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*adjusted for ties

Table 12 shows the analysis of variance conducted on standards and sex, finding a statistically significant main effect of standards. As the previous table indicates, this result is mostly due to the females' behaviour. In addition, a marginally significant interaction between standards and sex is indicated.

Table 12: Summary of Analysis of Variance by Standards and Sex of Subject

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standards(A)</td>
<td>1087.812</td>
<td>1</td>
<td>6.890</td>
<td>0.010</td>
</tr>
<tr>
<td>Sex of Subject(B)</td>
<td>300.312</td>
<td>1</td>
<td>1.902</td>
<td>0.172</td>
</tr>
<tr>
<td>A X B</td>
<td>525.313</td>
<td>1</td>
<td>3.327</td>
<td>0.072</td>
</tr>
<tr>
<td>Total</td>
<td>176.104</td>
<td>79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Sex Differences

Tables 9, 10, and 11 indicate the existence of differences between male and female subjects: the male \([-+]\) conditions are less differentiated than the female \([-+]\) conditions. In particular, the three tables together show that in the strong conditions females were more convinced than males of their inferiority to the partner, and behaved accordingly. Furthermore, Table 12 suggests an interaction between standards and sex of subject. In order to identify the source of these differences, four possible contributing factors are analysed.

The first variable investigated is that of perceived control. Figure 1 shows that most subjects indicate either little or some control, and that the distributions of males and females in both weak and strong conditions are quite similar.

Figure 1: Distribution of Subjects by Level of Perceived Control
However, when level of perceived control is treated as a third independent variable (with two levels: total or some, and little or none), results indicate a difference between males and females: at each level of control, the males tend to respond to the strong and weak treatments in a similar way, whereas women's behaviour is more consistent with the strong/weak treatments. This is shown in Figure 2, and in the significant p value associated with standards in Table 13. It is also interesting to note how the males and females reacted differently to perceived little or no control. When feeling not responsible for their scores, men appear to be unwilling to assign less ability to self than to other. The women, on the other hand, appear to be ready to accept having inferior ability in line with the experimental treatments though they do not think that the outcome is under their control.

Figure 2: \( P(s) \) as a Function of Standards, Sex of Subject and Level of Perceived Control

<table>
<thead>
<tr>
<th>Total or Some Control</th>
<th>Little or No Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>(M: 29, F: 23)</td>
<td>(M: 11, F: 17)</td>
</tr>
<tr>
<td>Mean p(s)</td>
<td>Mean p(s)</td>
</tr>
<tr>
<td>Males</td>
<td>Males</td>
</tr>
<tr>
<td>.450</td>
<td>.500</td>
</tr>
<tr>
<td>.444</td>
<td>.500</td>
</tr>
<tr>
<td>Females</td>
<td>Females</td>
</tr>
<tr>
<td>.414</td>
<td>.496</td>
</tr>
<tr>
<td>.370</td>
<td>.290</td>
</tr>
</tbody>
</table>

Weak | Strong | Weak | Strong
Table 13: Summary of Analysis of Variance by Standards, Sex of Subject and Level of Perceived Control

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standards (A)</td>
<td>892.336</td>
<td>1</td>
<td>5.723</td>
<td>0.019</td>
</tr>
<tr>
<td>Sex of Subject (B)</td>
<td>391.949</td>
<td>1</td>
<td>2.514</td>
<td>0.117</td>
</tr>
<tr>
<td>Level of Perceived Control (C)</td>
<td>285.264</td>
<td>1</td>
<td>1.830</td>
<td>0.180</td>
</tr>
<tr>
<td>A X B</td>
<td>408.301</td>
<td>1</td>
<td>2.619</td>
<td>0.110</td>
</tr>
<tr>
<td>A X C</td>
<td>105.178</td>
<td>1</td>
<td>0.675</td>
<td>0.414</td>
</tr>
<tr>
<td>B X C</td>
<td>256.758</td>
<td>1</td>
<td>1.647</td>
<td>0.204</td>
</tr>
<tr>
<td>A X B X C</td>
<td>287.376</td>
<td>1</td>
<td>1.843</td>
<td>0.179</td>
</tr>
<tr>
<td>Total</td>
<td>176.104</td>
<td>79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The only significant result is the main effect for standards.

The second variable concerns the degree to which subjects were serious about performing the task well.

Figure 3: Distribution of Subjects by Seriousness Regarding Task Performance

There are practically no differences between males and
females in either graph. Note that most subjects indicate that they were serious about performing the task.

When seriousness about performing the task is treated as a third independent variable (with two levels: (1) agree, and (2) uncertain and disagree) the following picture emerges:

Figure 4: P(s) as a Function of Standards, Sex of Subject and Seriousness Regarding Task Performance

Figure 4 shows that standards had virtually no effect on males who were serious about performing the task well, but did affect those males who were not serious. Females show the opposite pattern: they were more affected by standards when they were serious about the task, than when they were not serious.

Table 14: Summary of Analysis of Variance by Standards, Sex of Subject and Seriousness Regarding Task Performance

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standards(A)</td>
<td>1025.140</td>
<td>1</td>
<td>6.531</td>
<td>0.013</td>
</tr>
<tr>
<td>Sex of Subject(B)</td>
<td>311.171</td>
<td>1</td>
<td>1.982</td>
<td>0.163</td>
</tr>
<tr>
<td>Seriousness about Task(C)</td>
<td>0.152</td>
<td>1</td>
<td>0.001</td>
<td>0.975</td>
</tr>
<tr>
<td>A X B</td>
<td>749.244</td>
<td>1</td>
<td>4.773</td>
<td>0.032</td>
</tr>
<tr>
<td>A X C</td>
<td>657.386</td>
<td>1</td>
<td>4.188</td>
<td>0.044</td>
</tr>
<tr>
<td>B X C</td>
<td>202.386</td>
<td>1</td>
<td>1.289</td>
<td>0.260</td>
</tr>
<tr>
<td>Total</td>
<td>177.759</td>
<td>78</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The total degree of freedom does not include one case with missing data.

**A three-way interaction value was not computed due to an insufficient number of cases.
Internal analysis shows that there is a definite main effect for standards, and two statistically significant interactions between (1) standards and sex, and (2) standards and seriousness regarding task performance.

Importance of task is the third variable to be examined. As Figure 5 shows, most subjects considered the task from average in importance to important. Male and female distributions for each level of standards are comparable, if not as similar as in the two previous variables.

Figure 5: Distribution of Subjects by Importance of Task

When these categories are combined in two groups (important, somewhat important and average, and somewhat unimportant and unimportant), the results are as follows:
Figure 6: P(s) as a Function of Standards, Sex of Subject and Task Importance

In both Figure 5 graphs, females in the strong condition have a lower p(s) than males in the strong condition. Values are higher on the left hand side of each graph, as expected, but even where the task was somewhat unimportant or unimportant, females were willing to accept influence from other in a way consistent with the strong and weak treatments.

Table 15: Summary of Analysis of Variance by Standards, Sex of Subject and Task Importance

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standards (A)</td>
<td>1079.072</td>
<td>1</td>
<td>6.575</td>
<td>0.012</td>
</tr>
<tr>
<td>Sex of Subject (B)</td>
<td>326.372</td>
<td>1</td>
<td>1.989</td>
<td>0.163</td>
</tr>
<tr>
<td>Task Importance (C)</td>
<td>141.674</td>
<td>1</td>
<td>0.863</td>
<td>0.356</td>
</tr>
<tr>
<td>A X B</td>
<td>615.439</td>
<td>1</td>
<td>3.750</td>
<td>0.057</td>
</tr>
<tr>
<td>A X C</td>
<td>18.787</td>
<td>1</td>
<td>0.114</td>
<td>0.736</td>
</tr>
<tr>
<td>B X C</td>
<td>11.215</td>
<td>1</td>
<td>0.068</td>
<td>0.795</td>
</tr>
<tr>
<td>A X B X C</td>
<td>4.639</td>
<td>1</td>
<td>0.028</td>
<td>0.867</td>
</tr>
<tr>
<td>Total</td>
<td>176.906</td>
<td>77</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The total degree of freedom number does not include two cases with missing data.*
As suggested by Figure 6, the analysis of variance indicates a statistically significant main effect for standards and an almost statistically significant interaction between standards and sex.

Finally, the effect of subject's motivation is examined.

Figure 7: Distribution of Subjects by Motivation

In both the strong and weak conditions, males and females were motivated to similar degrees. There are very few subjects in the neutral to unmotivated categories, and none who was very unmotivated. When motivation is treated as a third independent variable, the following occurs:
Figure 8: P(s) as a Function of Standards, Sex of Subject, and Motivation

When subjects were motivated, females were affected by the standards but males were not. When unmotivated, both subjects showed the effects of standards, but males indicated higher p(s) values than women. This is reflected in the significant effect for standards appearing in Table 12.

Table 16: Summary of Analysis of Variance by Standards, Sex of Subject and Motivation

<table>
<thead>
<tr>
<th>Source</th>
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<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standards(A)</td>
<td>1039.172</td>
<td>1</td>
<td>6.546</td>
<td>0.013</td>
</tr>
<tr>
<td>Sex of Subject(B)</td>
<td>279.172</td>
<td>1</td>
<td>1.759</td>
<td>0.189</td>
</tr>
<tr>
<td>Subject Motivation(C)</td>
<td>14.698</td>
<td>1</td>
<td>0.093</td>
<td>0.762</td>
</tr>
<tr>
<td>A X B</td>
<td>421.944</td>
<td>1</td>
<td>2.658</td>
<td>0.107</td>
</tr>
<tr>
<td>A X C</td>
<td>0.004</td>
<td>1</td>
<td>0.000</td>
<td>0.996</td>
</tr>
<tr>
<td>B X C</td>
<td>241.879</td>
<td>1</td>
<td>1.524</td>
<td>0.221</td>
</tr>
<tr>
<td>A X B X C</td>
<td>310.771</td>
<td>1</td>
<td>1.958</td>
<td>0.166</td>
</tr>
<tr>
<td>Total</td>
<td>176.104</td>
<td>79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The findings presented in Chapter IV are analysed in Chapter V with a focus on standards and gender differences. In addition, a comparison of the data generated by this study is made with those of the Foschi, Warriner and Hart study to assess the effects of the methodological and design changes implemented.
Chapter V - Interpretation and Conclusions

Gender Similarities and Differences

Manipulation checks indicate a high degree of accuracy on subject recall of scores (Table 5). With respect to standards, (Tables 6, 7, and 8) there is a close correspondence between those given by the experimenter and reported by the subjects for the case of ability. For lack of ability, the degree of correspondence is somewhat less. A similar pattern is found when standards given by the experimenter are compared to standards as the subjects would set them. The results from the manipulation checks on scores and standards thus suggest that the partial support for the hypothesis cannot be attributed to a manipulation failure.

In addition, no gender differences are evident regarding either scores or standards, except that women are slightly less willing than men to accept the lenient standard for lack of ability. Therefore, it is also reasonable to dismiss the explanation suggested by Foschi, Warriner and Hart, that gender differences may be caused by differences in the amount of information accepted.

When the results from Tables 5 to 10 are considered together, the following two conclusions may be drawn. First, the correspondence between Tables 9 and 10 suggests that results cannot be attributed to a higher degree of acceptance of influence on the part of women relative to men. In fact, in the weak [-+] condition females accepted the least influence of all
four conditions. There appears to be a gender related reaction to the combined effects of scores and standards. The same manipulation affects men and women differently in terms of the expectations they form. Table 9 suggests that women react to the experimental conditions by generalizing the information received regarding the possession or lack of ability to a greater extent than do men. Thus, women may form more extreme expectations and, therefore, tend to become more differentiated in this respect than men (Table 10).

The second conclusion that may be reached concerns the effect of improvements to the experimental design. Despite the methodological changes implemented, results from this study do not differ substantially from those obtained by Foschi, Warriner and Hart (see Appendix K for a detailed comparison of results between the two studies). The similarity of findings indicates that differences between male and female behaviour cannot be attributed to particular characteristics of the experiments; the consistency of results strongly indicates that a gender difference exists and must, therefore, be explained.

In an attempt to find such an explanation, the following variables were measured: feeling of control; seriousness of task; importance of task outcome; and motivation.

When the data on these variables are divided by gender, no major differences were found between men and women. Figures 1, 3, 5, and 7 indicate that male and female distributions are quite
similar. It can, subsequently, be said that these four variables are not responsible for behavioural gender differences with respect to rates of influence. However, presenting the results on these four variables by gender, standards and p(s) demonstrates that females are strongly affected by standards, whereas males are not. The differences between male and female behaviour occur in the rejection of influence rates for comparable levels of each of these four variables (figures 2, 4, 6, and 8).

There are several highlights in the results of the above analysis: the variables of seriousness regarding task performance, perceived importance of task and motivation are related in that they represent different aspects of the scope condition of task orientation. This is reflected in Figures 4, 6, and 8. Most subjects were on the left graph of each pair of graphs as was expected. In other words, few subjects were low in motivation, importance of task and seriousness regarding task performance. Analysis is concentrated on the majority of subjects, since they more closely met the scope condition\(^5\). The pattern that emerges from these three left graphs is that women are clearly more differentiated than men in their rejection of influence rates.

\(^5\)Only those subjects who obviously did not meet the scope conditions were rejected. No subject was rejected on the basis of only one indicator. Those who were not rejected had to have met the scope conditions to some degree.
The variable "feeling of control" was not a scope condition. The task was obviously difficult and subjects could reasonably be expected to feel little or no control over their performances. This variable affects men and women to a varying degree. When men and women perceive little or no control over the task outcome, men have higher p(s) values than women, and are unaffected by standards (Figure 2). Consistent with their beliefs, men act as though outcome obtained is not within their control. Conversely, the behaviour of women reflects the effect of standards even though such behaviour is inconsistent with what they believe regarding the task, i.e. even when women feel they have little or no control over task outcome, they are fully prepared to accept responsibility for poor performance. In other words, forced to choose between the experimenter's instructions and their feelings regarding the task, women favor the experimenter.

The behaviour pattern observed from all four variables is that women are affected by variations in treatment to a far greater degree than men: they even do so when such behaviour completely contradicts their stated beliefs about the task (e.g. that the task is unimportant or that the subject has little or no control over task outcome). These findings lead one to the conclusion that gender differences arise during the formation of expectations from a given information base. Men appear to be more cautious than women in their use of provided information, or
more specifically, in the degree to which they generalize from the scores and standards received to an assignment of inferior ability at the task relative to a partner. Table 9 illustrates that, relative to females, males are more hesitant to attribute "much better" ability to other.

Finally, as another attempt to identify the source of these differences, the p(s) values were calculated averaging first over trials and then over subjects. In this way, an indication of the variability across subjects at each condition can be obtained. The results are as follows:

Table 17: s-Responses Calculated First Over Subjects and Then Over Trials

<table>
<thead>
<tr>
<th>Condition</th>
<th>$\bar{X}$</th>
<th>s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong [-+], Males</td>
<td>8.80</td>
<td>1.99</td>
</tr>
<tr>
<td>Weak [-+], Males</td>
<td>9.25</td>
<td>1.67</td>
</tr>
<tr>
<td>Strong [-+], Females</td>
<td>7.05</td>
<td>2.64</td>
</tr>
<tr>
<td>Weak [-+], Females</td>
<td>9.55</td>
<td>2.60</td>
</tr>
</tbody>
</table>

These results show that women oscillate more than men in their proportion of self responses. Oscillation can be attributed to difficulty in accepting inferior ability relative to the partner. Unlike women, one could infer that men do not oscillate because they simply refuse to read as much into the information received as women do.

Overall, the data suggest that men are better able to cope with the experimental situation: they are cautious about
generalizing from the information they receive and are confident in their decision to be cautious. Females accept the experimental manipulations to a greater extent than men (Tables 9 and 10), but the acceptance does not come easily, as the standard deviations in Table 17 illustrate.

An Explanation and Suggestions for Further Research

Males and females differ in the acceptance of evaluations indicating inferior ability. Men do not accept the conclusion that their task ability is definitely inferior to their partner, whereas women clearly do. The most plausible explanation for this phenomenon can be found looking at the status dynamics of the entire experimental situation. Since the experimenter occupies a higher status position relative to the subject, males, even in same-sex dyads, maintain a different relationship with the experimenter than do females. However, at the outset of the experiment, males in same-sex dyads are high status equals [++] whereas, females are low status equals [--]. Therefore, the experimenter maintains a much higher relative status to women than to men.

Berger et al., 1980 and 1985 propose that males in same-sex dyads will not differ from females in same-sex dyads. The present research, however, suggests that in same-sex dyads, the sex of other remains a salient factor in as much as the subject, whether male or female enters the experimental situation with preconceptions and attitudinal "baggage" with respect to the
competence and status of men and women. It is the gender of the subject which is itself the catalyst. In other words, the diffuse status characteristic of gender remains active, despite same-sex pairs. Females are less confident than males, even in same-sex dyads, when instructed by an experimenter. This appears to be the case regardless of the experimenter's gender - 80% of subjects in Foschi et al. were run by a male experimenter yet very similar results to this study were recorded. Since the experimenter is of a higher status for females than for males, females tend to be much more likely than males to accept the experimenter as a "source of expectations" (Webster 1969, Webster and Sobieszek, 1974). It is, therefore, proposed that the greater the difference in status between a subject and a source, the more likely it is that unit evaluations will generalize into expectations.

The generalization of unit evaluations into expectations made by women is accompanied by oscillation which indicates instability. This instability may be particular to [-+] conditions or associated with the acceptance of evaluations from a superior. The results from the Foschi, Warriner and Hart experiment suggest that this also occurs in the [+-] conditions. Both the original study and the present replication indicate that women are more ready than men to accept the information provided by the experimenter. The process is not unstable for men, since they simply put some distance between the information provided by
the experimenter and themselves. Women, on the other hand, accept this information more. Since they do so even when this contradicts how they feel about the task, the process is an unstable one.

In addition to this study and the work of Foschi et al., there is another expectation states study that indicates the existence of gender differences in same-sex dyads. Ridgeway (1982) found differences between same-sex dyads: men accepted more influence from a group-oriented male confederate than from a self-oriented one, females accepted less influence from a female group-oriented confederate than a self-oriented one. These three studies, which indicate the existence of differences between males and females in same-sex dyads, suggest that more research in expectation states theory is required regarding this topic. The entire status dynamics of an experiment should be examined not simply the power and prestige hierarchy of the dyad. The role of the experimenter as an unwitting third actor with relatively high status must be more precisely understood. For example, there is a large body of literature on experimenter affects (Wuebben et al., 1974; Miller, 1972; Carlsmith, Ellsworth, and Aronson, 1976) and it would be worthwhile to incorporate the findings on status of the experimenter into the expectation states program. The source branch of this program (Webster and Sobieszek) represents a start in this direction.

Additional suggestions for further research include the
following: the difference between male/female reactions to authority or high status persons in an expectation states context needs to be investigated further. Specifically, there are two techniques designed to examine the process of generalization from evaluations. The first technique utilizes a Bayesian model (see Foschi and Foschi, 1976, 1979; Foschi, 1986) to describe the behaviour of the ideal actor. This model revises predictions with each piece of new data input and, in this manner, enables a profile of the process of the formation of expectations. Actual performance of subjects can be compared to the model to discover whether there is a gender difference regarding the process of generalization. If a difference does exist, it is possible to determine which sex more closely approximates the model as well as variations through time.

The second type of analysis suggested to examine the process of generalization gauges the point at which a unit evaluation becomes an expectation (Berger and Conner, 1969, 1974; Conner, 1985). The point at which the subject generalizes from unit evaluations to create a performance expectation can be determined by running a number of trials, each with one outcome or score. Conditions with a varying number of unit evaluations could be developed, with the subject predicting a specific score for self and other after each trial. These results, then, may be compared across conditions and gender to confirm whether females tend to generalize unit evaluations into performance expectations on the
basis of a smaller number of unit evaluations than males.

It may also be constructive to use both of the above techniques for strong and weak \([+-]\) conditions. Although the "self-serving biases" literature (for a recent assessment of work in this area, see Tetlock and Levi, 1982) suggests that subjects would be more willing to accept \((+-)\) than \((-+)\) unit evaluations, there is also evidence indicating a reluctance on the part of subjects to accept \((+-)\) performance evaluations when they are unsure of the reasons for their high performance, as is the case in most experiments in which ambiguous tasks are used.
Bibliography


Appendix A. Room Arrangement

1. Interaction Control Machine
2. Projector
3. Room Dividers
4. Screen
5. Subject's Desk
6. Experimenter's Desk
Appendix B. Contrast Sensitivity Task
Appendix C. Experimenter-Volunteer Contract

THE UNIVERSITY OF BRITISH COLUMBIA  
6303 N.W. MARINE DRIVE  
VANCOUVER, B.C., CANADA  
V6T 2B2

Name: ________________________________

The above named person agrees to participate in a study at the Small Groups Laboratory of the UBC Department of Anthropology and Sociology with the understanding:

a) that there are no physical or psychological risks involved,

b) that his/her participation will last for approximately one hour and 15 minutes,

c) that he/she may terminate and withdraw from the study at any time without having to account for the reasons for such action,

d) that confidentiality will be kept by the members of the research team regarding the names of the participants in the study, and

e) that all reports of the results will preserve the participants' anonymity.

Date: _____________  Signature: ________________________________
Appendix D. Instructions to Participant

The host has two consent forms ready.

"Hello. Are you here for the study? Please come with me. Please have a seat. You are the first one to arrive. Please complete this form while we wait for your partner".

The host seats the subject and gives him or her the consent form. Then the host greets the confederate and says:

"Are you here for the study? Your partner has already arrived so we'll get started right away. Please have a seat and complete this form". The host then collects the consent form.

"Hello, my name is" NAME OF HOST "and I'm a graduate student in Sociology working for Dr. Foschi. First I'd like to thank you both for coming here today. I think you'll find this an interesting and enjoyable experience. The study is simple and straightforward and your participation will be kept confidential. I would like to remind you that the consent form you just signed allows you to leave at any time if you feel it's absolutely necessary".

"In this study, we are interested in the manner by which various environments affect job performance, satisfaction and task difficulty. The way we study these aspects of performance is to have participants work in four different work environments, no interaction, limited interaction, moderate interaction and extensive interaction".
"Today you and your partner will be working on a task using an ability called contrast-sensitivity. Contrast sensitivity has to do with detecting subtle differences between two patterns of black and white. From what is known so far, contrast sensitivity is a very important ability. For instance, it is now included on most major aptitude tests. However, the research so far shows no significant relationship between it and such things as mathematical, artistic, linguistic or reasoning ability. The absence of relationship between contrast sensitivity and other abilities is a great find and, of course, of interest to social scientists".

"Our study, as you already know, involves two participants. Today we have Name of Subject and Name of Confederate. "Both of you are" [1st/2nd year, arts/science] "students that have been assigned at random to work alone for the first part of the study in a 'no interaction' context. For the second part, you have been assigned to the moderate interaction context in which you will communicate through terminals. Remember in both contexts that this is a study on job performance, so you should be trying your hardest at Contrast Sensitivity since in order to accurately reproduce the environment of the workplace, excellence at the task must be pursued".

"Contrast Sensitivity is, at the moment, being tested extensively at Stanford University in California and at U.B.C. This ability concerns the judgement of contrasts in shapes and
colours. A series of black and white slides will be shown to you. On each slide there are two different patterns. What you are asked to do is judge whether the top rectangle or the bottom rectangle has more white in it. Although this is a difficult task, studies have proven that some people have the ability to make correct judgements without much difficulty, using their first impression. It has been shown that one's first impression is usually the correct one.

"Once you have decided which rectangle has more white in it, indicate your answer on the top of the panel by pressing either the yellow button labeled "top" or the yellow button labeled "bottom". In the second part of the study you will have a chance to use the other buttons but for now we'll just be using the top row. You'll have about 8 seconds to make your choice, after that a green slide will appear on the screen. At that point you should make a choice if you haven't done so already. If you haven't responded by the end of the green slide, the computer will record your choice as an error, whether or not a correct decision was made. After that the computer will process your answers, the panels will be cleared and we'll go on to the next trial. There will be twenty trials altogether in the first part. At times this task will seem difficult because of the similarity between the two choices. The choices are difficult to make, but there is a correct answer. Don't worry, though, since other people who thought they were 'guessing, in fact, did quite well.
Current research leads us to believe that these people were responding to subtle perceptual cues. So concentrate hard, and follow any impulses you might have. Are there any questions?"

"Okay, I'll see you after twenty trials. I'd like to point out that in this first part you're working in a no interaction context, so please, do not talk".

The host leaves, 20 slides are shown and the host returns.

"We'll have the computer results in a couple of minutes. Right now I have to change the slide tray to prepare for the second job context. Please feel free to read the magazines while you wait."

The host removes the slide carousel and leave the room. The host then returns and places the slide carousel back onto the projector and forwards it to the first slide.

The Controller then knocks on the door and brings in the printout. The host circles each participant's score, indicates the interpretation of the subject's score by pointing to the applicable standard with an arrow and hands it out to the participant and the confederate.

Name of Subject, "here are your results"; Confeder ate "here are yours. Have a good look at all the results, including your own and pay special attention to what the various scores mean; they're explained in the three statements below. Those standards
reflect tests done on hundreds of people, so they enable us to place your results in one of the three categories with a high degree of reliability. So, you should have a good idea of how you're doing in relation to the other person, and to other people tested so far. Ok, now I'd like to begin the second part.

"As I mentioned earlier, the second work environment we're studying is a moderate interaction situation. You are to work as a team to choose the correct answer. The most important goal of this exercise is that you and your partner come up with the correct answer working as a team. It is not important which member of the team makes the initial correct choice, but it is important that the team come up with the correct answer because you will be marked as a team and not as individuals. An example we always use to illustrate the importance of teamwork in an organization is the U.S. space program. The Apollo project had as its objective the landing of an astronaut on the moon. The co-operation of hundreds of people was crucial both in the research and development and implementation phases of the project. The strengths of individual scientists had to be merged and directed towards the collective goal if the crash program was to succeed.

"Ok., the panel of buttons on your desk will allow you and your partner to communicate. First, I will show one slide. You will decide which pattern has more white in it. Once you decide, press the button on your panel that says either top or bottom."
This will then register on your partner's panel, so your partner knows which one you have chosen. Then, looking at the same slide again make the final choice you believe to be the correct one. Remember, only your final choice goes towards your team score. There are two things you should be careful of. One is that you don't press your final choice before you press your initial choice. The second thing is don't wait for your partner's response because it won't be relayed to you until you have made your initial choice.

"You will be doing 25 trials with your partner. For every correct final decision that each member of the team identifies, the team earns one point. At the end of the study, we'll want to compare how you did as an individual as opposed to when you worked as a team. In addition, we'll compare your team's score to other groups who have performed this task."

"Only the final decision that each of you makes will count towards your team score. Remember that we are studying how well people communicate and make decisions working together in this job context. So, don't worry about whether your initial choice and your final choice are different. Concentrate on getting the correct answer. Any questions? O.K. Get ready for the first slide."

The host leaves the room. The subjects should be prompted only if necessary by saying: "Please make your initial choice. Notice your partner's choice. Now please make your final choice."
The 25 slides are shown and then the host returns to the room with two Opinion questionnaires.

"Now that we have completed the series, we are almost at the end of your participation. Please complete this form and then we'd like to ask you a few questions...."

The host then hands each person the questionnaire.

"If there are any questions about completing the questionnaire, please ask me".

The host leaves the room and checks the P(s). Then the host returns to the room with two interview summary forms, collects the questionnaires and checks, in particular, question 9.

"Now we would like to discuss your scores and your opinions about the study". **Name of Subject** "if you'd like to stay here, I'll be right with you". **Name of Confederate** "you can follow me. My assistant will discuss your scores and opinions with you.

The host returns and conducts the interviewer's summary. Then the host tells the subject that: "this next part is the last part of your participation and someone will be here to do this with you".

The controller enters the room with the contract, debriefing form, debriefing booklet and jar with paper and begins the debriefing. The debriefing booklet is given to the subject. The
study is discussed with the subject and the debriefing form is completed. The subject is then requested to read and sign the secrecy commitment contract. When the debriefing is completed, the subject is asked to write his or her name and phone number on a piece of paper and place it in the jar. Tell the subject that the first draw will take place at Time, Day, and Date in the Small Groups Lounge.
Appendix E. Outcome Recording Form

Participant: Name:__________ Number:______ Condition: 1 2 3 4

Date:__________ Time:__________ Host:__________ Controller:__________

<table>
<thead>
<tr>
<th>TRIAL # &amp; TYPE</th>
<th>CHECK</th>
<th>CHOICE</th>
<th>PARTICIPANT</th>
<th>TRIAL # &amp; TYPE</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1 D</td>
<td></td>
<td>First's Final</td>
<td>T B B O</td>
<td>14 D</td>
<td></td>
<td>First's Final</td>
<td>T B B O</td>
</tr>
<tr>
<td>2 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>15 D</td>
<td></td>
<td>First's Final</td>
<td>T B B O</td>
</tr>
<tr>
<td>3 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>16 A</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>4 A</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>17 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>5 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>18 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>6 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>19 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>7 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>20 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>8 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>21 A</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>9 A</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>22 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>10 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>23 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>11 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>24 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>12 A</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td>25 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
</tr>
<tr>
<td>13 D</td>
<td></td>
<td>First's Final</td>
<td>T S B O</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Subject's $P(s) = \underline{____} \quad (\underline{____} = \underline{____})$

20 100

Please note any ICOM feedback errors:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
Appendix F. Opinion Questionnaire and Comments

CONTRAST SENSITIVITY ABILITY TASK

OPINION QUESTIONNAIRE

Now we would like to find out your opinions about the Contrast Sensitivity tests you have just completed. This information is very important in order for us to develop testing procedures which provide accurate results. So this is your chance to tell us what you think. Please answer each of the questions below, giving us your true feelings. This is not a test, and there are no right or wrong answers.

Remember, all the information you provide is confidential; it will never be associated with you individually. However, in order for us to continue to improve our studies, it is important to know what you think.

Participant number: __________
We'll start by asking you about the way the study was conducted and whether the instructions and procedures were clear to you.

1. Did you find any of the following things done today confusing? Please circle the number indicating how you felt in each case.

<table>
<thead>
<tr>
<th></th>
<th>CONFUSING</th>
<th>UNCERTAIN</th>
<th>UNDERSTANDABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructions to the</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>first part, working alone:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructions to the</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>second part working with a partner:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer printout</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Operation of the</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>response panel.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Overall, what do you think of the ability of Contrast Sensitivity? Please give us your opinion of each of the following statements relating to it.

Is Contrast Sensitivity:

- Easy ___________________________ Difficult
- Creative ______________________ Routine
- Important ______________________ Unimportant
- Intuitive _______________________ Learned
- Confusing ______________________ Clear
- Specific ______________________ General
- A male ability __________________ A female ability

3. From my experience with this ability today, I feel that Contrast Sensitivity is related to (circle the applicable category):

A) Artistic talent  
B) Mathematical skills  
C) Linguistic skills  
D) Reasoning ability  
E) All of the above  
F) None of the above  
G) It is not yet known
4. Circle the most appropriate number:

<table>
<thead>
<tr>
<th>Statement</th>
<th>AGREE</th>
<th>UNCERTAIN</th>
<th>DISAGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>While working as a team in solving Contrast Sensitivity tasks, it is best to consider the other person's choices carefully.</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I lost interest in working hard in solving the Contrast Sensitivity Task after the first few trials.</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Agreeing as a team to what was the correct decision was more important to me than my own choice.</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Even when one person does better or worse than another in the Contrast Sensitivity task, most of the time it is just due to chance.</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I doubt if the other person here today and myself are similar in many ways.</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>My partner was very serious about doing the task well.</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I was very serious about doing the task well.</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

5. How motivated were you to do well in the Contrast Sensitivity task?

Very Motivated ___________________________________ Very Unmotivated

6. Did you feel that you (circle one of the below):

A) Had total control over your performance
B) Had some control over your performance
C) Had little control over your performance
D) Had no control over your performance
7. What was your score on the first 20 trials when you worked alone? ____ correct out of 20.

What was your partner's score on the first 20 trials?
____ correct out of 20.

8. Out of all 25 trials, when you were working as a team, how many correct initial choices did you think you made?

I made ____ correct choices out of the 25 trials.

What about the other person with whom you were working today? How many correct choices did you think that person make out of the 25 trials?

The other person chose the correct answer ____ times during the 25 trials.

9. Indicate the standard shown in the computer printout for:
   a) Having the ability: ____ % or above.
   b) Not having the ability: ____ % or below.

10. a) What is your opinion on the standards provided for having the ability on the computer printout?
    Just about right ____
    or
    Should be changed to ____________________.

   b) What is your opinion on the standards provided for not having the ability on the computer printout?
    Just about right ____
    or
    Should be changed to ____________________.

11. Overall, how do you feel your ability at Contrast Sensitivity compares with that of the other person?

   I feel the other person's ability at Contrast Sensitivity is:
   _____ Much better than mine.
   _____ Better than mine.
   _____ Same as mine.
   _____ Worse than mine.
   _____ Much worse than mine.
12. How confident were you in your partner's choices being correct?

_____ Very Confident
_____ Somewhat Confident
_____ Somewhat Uncertain
_____ Very Uncertain

13. We would also like to know how you felt during today's session. In general, working as a team with your partner, how did you feel? For each pair of nearly opposite terms below, please check along the scale which best represents your feelings.

Decisive ______________ Indecisive
Confident ______________ Insecure
Involved ______________ Uninvolved
Suspicious ______________ Trusting
Submissive ______________ Assertive
Convinced ______________ Skeptical
Resistant ______________ Conforming

14. Please give us your comments on the study's procedures, and your experience here today.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

**THANK YOU FOR PARTICIPATING IN THIS STUDY**
Comments on the Opinion Questionnaire

The questionnaire which the subject is to complete at the end of participation is designed to test whether the subject understood all the instructions, met the scope conditions and was not suspicious. In addition, information necessary for purposes of analysis is collected ie. motivational level, level of perceived control, the standards which the subjects thinks are equitable.

The following questions discern whether the subject understood the instructions:
Questions 1-a, 1-b, 1-d, 2-e.6

The following questions test whether the subject met the scope condition of task orientation:
Questions 2-b, 2-g, 4-b, 4-g, 13-c.

The following questions check for the scope condition of collective orientation:
Questions 4-a, 4-c, 11, 13-a, 13-b, 13-e, 13-g.

Motivational level was measured by the following:
Questions 2-c, 5, 13-c.

The subject's perceived level of control was measured by the following question:
Questions 2-d, 2-g, 6.

6The questions from the questionnaire and interview summary are represented by a number and a lower case letter for precision; however, the questions appear without lower case letters in both the questionnaire and interview summary.
The success of the manipulations regarding scores and standards were tested through the following questions:
Questions 4-e, 7, 8, 9, 11, 12.

The standards which the subject gives are collected from the following questions:
Questions 10-a, 10-b.

In order to sense whether the subject was suspicious, the following questions have been included:
Questions 13-d, 13-f.

Although the rationale for each question has been compartmentalized, in fact there is much overlap enabling the experimenter to use questions designed for one purpose to aid in the determining of other purposes.
Appendix G. Interviewer's Summary and Comments

Name of Subject: ___________________________ Subject Number: __

Condition: 1/MMW 2/MMS 3/FFW 4/FFS

Interviewer's final disposition: Retain: ___
                                Unsure: ___
                                Drop:  ___

Comments: ____________________________________________
          ____________________________________________
          ____________________________________________
          ____________________________________________
          ____________________________________________

*********************************************************

1. Run review
   List any problems encountered with the experimental procedures during this session:
   ____________________________________________
   ____________________________________________
   ____________________________________________
   ____________________________________________
2. **Subject's materials**

   a. Review the following questions for manipulation checks: 3, 5, 7, 9, 13d & 13f.

   b. Check question 1 for possible misunderstandings of instructions and/or procedures. Indicate below if subjects had problems with the following:

      Instructions/procedures part A___ part B____.

      Operation of panel part A___ part B____.

      Other_____________________________

                          ______________________________

3. **Manipulation checks**

   a. **Task orientation:** How did you make your decisions when you were working alone? Did you rely on intuition?

      From this answer, determine whether the subject tried to succeed or whether he/she did not care:________________________

                          ______________________________

   b. **Collective orientation:**

      "When you were working with your partner, how did you make decisions?"

                          ______________________________

                          ______________________________

      Did you like having feedback from your partner?  
      Yes____ No____

      Did knowing your partners choices help you to make your decisions?

      Yes____ No____

      Did you use your partner's choices to make your decisions?

      Yes____ No____
c. Do you remember your partner's name? If subject gives a name that indicates the partner is of the same sex, then:

Same Sex ___

If not:
Opposite Sex ___

d. Subject's suspicions: "Do you have anything that you want to ask me? Was there anything that bothered your about the study?"

Note suspicion, if any:______________________________

______________________________

Suspicious______________________________ Not Suspicious

If subject's suspicions are vague and can be disproven at that moment, ask: "How did your suspicions affect your behavior during the session?"

______________________________

______________________________

4. What was the subject's general orientation to the study?:

<table>
<thead>
<tr>
<th>Involved</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Uninvolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>Uncooperative</td>
</tr>
<tr>
<td>Satisfied</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>Unsatisfied</td>
</tr>
</tbody>
</table>
**Comments on the Interviewer's Summary**

The purpose of the interviewer's summary is to ascertain verbally the degree to which the experimental manipulations were successful and to confirm that the scope conditions were met. The opinion questionnaire is reviewed in the presence of the subject to clarify ambiguous responses. If the subject has omitted a question or given contradictory answers, these problems are exposed enabling the experimenter to clearly determine whether there are grounds for excluding a subject eg. instructions were misunderstood, scope conditions were not met, manipulations were ignored.

Question 2 is designed to lead the experimenter through each subject's opinion questionnaire, in order to locate any problems that have arisen.

Question 3-a and 3-b are concerned with the extent to which the scope conditions were met and give the interviewer the opportunity to probe with the intent of clarifying uncertainties.

Question 3-c verified that the subject understood that his/her partner was of the same gender. In order to avoid the introduction of bias, it must be clear to the subject that the other member of the team is of equal status.

Question 3-d is an attempt to subtly encourage the subject to articulate any suspicions that may exist.
APPENDIX H. Debriefing Form and Debriefing Interview

Now that the experiment is over, I'd like to tell you a few things about the study that you just participated in. What we are interested in learning is the manner by which people make decisions. In other words, what do people base their decisions upon? We needed to create a situation in which a person is required to make a decision. It is very difficult to study decision making in a natural setting since first, we would have to find decisions that needed to be made and then we would have to wait until someone came along and made a decision. Therefore, we decided to use a laboratory setting so that we could have people confront situations where they must make decisions. In this way, we could control the number of agreements and disagreements that you and your partner had.

Contrast Sensitivity is not a real ability, but rather a procedure used by social scientists to examine how people resolve disagreements. We want to find out how people make decisions when they disagree. We are interested in discovering what affects this process of resolving disagreements.

As far as Contrast Sensitivity is concerned, you may now understand that we are not interested in measuring anyone's ability. The slides you were shown exist to give people something to make judgements about and disagree upon. In fact, there is no correct answer. However, it is very difficult, if not impossible
in the short period of time given, for any participant to notice this. One would need a fair amount of time with a ruler to discover this fact. In order to see how your choices were affected by disagreements with your partner's, we manipulated your choice. We did this by using a machine called the Interaction Control Machine. This machine takes the answers from your panel and gives you an agreement or disagreement in a pre-arranged schedule, regardless of what your partner chooses. Everyone who participates in this study receives the same pattern of pre-arranged disagreements (numbering 20) and exactly the same scores on the computer printout.

There are two computer printouts with different standards on each. Each participant is randomly assigned one of the computer printouts. Both printouts are designed to have the participant receive a lower score than his/her partner who is the same sex and is not really a participant but part of the study.

Everyone who takes part in this study receives false information. This is the only way we can determine objectively how disagreements are resolved. Now I hope that you understand why we couldn't tell you that the ability really doesn't exist and that the slide task has no correct answer. If we had told all the participants everything from the beginning, it would have changed the way they acted and then invalidated the experiment.

If you have any questions, please feel free to ask them at this time.
. Debriefing Interview

Tell subject that this is the final part of his/her participation.

1. When subject was debriefed did he or she seem:
   a. Amused____
   b. Upset____
   c. Surprised____
   d. Unsurprised____

2. Ask again if there are any comments or questions the subject has. Do not let a subject go away confused or upset.

Was the subject:
   Involved  1  2  3  4  5  Uninvolved
   Cooperative  1  2  3  4  5  Uncooperative
   Satisfied  1  2  3  4  5  Unsatisfied

3. Ask the subject if he or she understands why he or she should not tell anyone about the study and then have the subject sign the secrecy commitment contract.

4. Have the subject write his/her name and phone number on a piece of paper and place it in the jar.

5. Inform the subject of the time and place of the lottery (Friday, August 2nd, 1985 at 1:00 pm in the Small Groups Lounge).

6. Finally, ask the subject if he/she would like to be a confederate for a day and then mention the $25 confederate lottery.
Appendix I. Secrecy Commitment Form

THE UNIVERSITY OF BRITISH COLUMBIA

Name: ________________________.

The above named person agrees not to disclose any information which could potentially jeopardize the success of the study in which he/she participated at the Small Groups Laboratory of the UBC Department of Anthropology and Sociology. In particular, the above named agrees not to mention anything about the deception aspects of the study.

Date: ______________. Signature: ________________________.
Appendix J. Rejection Criteria and Results

Subjects were excluded from analysis if they did not meet one of the following conditions:

1. Suspicion - Suspicion was measured by questions 13d and 13f of the Opinion Questionnaire, by the comments made at the end of the questionnaire and by question 3d of the interviewer's summary. Questions 13d and 13f alone did not give sufficient grounds to exclude subjects. However, well articulated suspicions in comments written by a subject or a well articulated answer to question 3d of the interviewer's summary provided grounds for exclusion. Five subjects were rejected due to suspicion.

2. Collective orientation - Measurement of this variable was compiled from questions 4-a, 4-c, 11, 13-a, 13-b, 13-e, and 13-g of the Opinion Questionnaire and questions 3bi, 3bii, 3biii, and 3biv of the interviewer's summary. None of the questions alone from the Opinion Questionnaire were sufficient grounds for disqualification. However, particular answers to these questions prompted the interviewer to probe the subject on collective orientation. Then, using the interviewer's summary, subjects were either excluded or included. Seven subjects were rejected due to lack of collective orientation.
3. Task orientation - Task orientation was measured using questions 2-b, 2-g, 4-b, 4-g, and 13-c of the Opinion Questionnaire and question 3-a in the Interviewer's summary. Questions in the Opinion Questionnaire were designed to alert the interviewer to possible problems regarding task orientation. The interviewer would then use question 3-a to probe the subject about task orientation. None of the questions in the questionnaire are sufficient grounds for exclusion. However, together with the interviewer's summary, subjects can be excluded.

4. Success of the scores and standards manipulations - If both questions 8 and 11 showed that the scores manipulation was unsuccessful, the subject was excluded. Question 11 alone was not considered sufficient grounds for rejection; however, if in question 8, the subject claimed that s/he made more correct choices than the partner, the subject was excluded. In addition, if the subject could not recall the percentage or raw score for either having or not having the ability (question 9) then the subject had to be excluded in that the manipulation was unsuccessful. Nine subjects did not form [-+] expectations and two subjects could not recall either the scores given to them.

5. Inconsistencies were found throughout the questionnaire about collective orientation and task orientation or luck and
ability attributions in two cases. It was then assumed that subjects either did not comprehend the instructions or did not care to accept the manipulations and had to be excluded. Two subjects fell into this category and thus, were rejected.
Appendix K. Methodological Changes and a Comparison of Results.

The findings of Table 10 in this study are compared to Table 6 in the original study. The p(s) responses when grouped by condition (i.e. weak or strong [-+]) differed markedly in the two studies. Foschi et al. were unable to differentiate the weak [-+] from the strong [-+] on the basis of the p(s) - the difference between these two conditions was .004. However, in this study the weak [-+] and the strong [-+] were differentiated by .074, which indicates that two distinct [-+] conditions were created.

When the p(s) variable is categorized by sex, it becomes clear that males and females reacted similarly in both studies, as is evidenced by the male mean p(s) in the weak and strong [-+] conditions in both studies. The difference between the male [-+] conditions in the original study was -.024! In other words, males in the strong [-+] condition rejected slightly more influence than males in the weak [-+] condition.

In the present study, males in each condition differed only slightly by a p(s) of .023. But in this case, males in the weak [-+] condition rejected more influence than those in the strong [-+] condition. In short, the male conditions are essentially undifferentiated in the two studies. The female conditions, however, are differentiated in both studies, providing a clear indication that both strong and weak [-+] conditions for females
were created. In the present study, a stronger difference was created between the female [-+] conditions than in the female [-+] conditions of the Foschi et al. study. The difference in the p(s) between these conditions in this study is .125, as opposed to .04, the results of the original study.

Standards between the two studies have been compared combining male and female conditions since the Foschi et al. study does not provide a breakdown by gender. The subjects in the present study recalled the standards much more accurately than in the Foschi, Warriner and Hart study in all cases except in the strong [-+] condition for lack of ability. In this condition, the standards were recalled very accurately as opposed to the recall in the present study in which subjects recalled the standards 4.45% lower than they actually were. The following table compares standards in the two studies:

Table 18: A Comparison of Standards Between Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Condition</th>
<th>Actual Standards for</th>
<th>Standards as Reported By Subjects for</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Having Ability</td>
<td>Lacking Ability</td>
</tr>
<tr>
<td>Foschi,*</td>
<td>Strong [-+]</td>
<td>60 40</td>
<td>63.35</td>
</tr>
<tr>
<td>Warriner &amp; Hart</td>
<td>Weak [-+]</td>
<td>85 15</td>
<td>77.25</td>
</tr>
<tr>
<td>Present Study</td>
<td>Strong [-+]</td>
<td>65 60</td>
<td>65.78</td>
</tr>
<tr>
<td></td>
<td>Weak [-+]</td>
<td>85 30</td>
<td>83.83</td>
</tr>
</tbody>
</table>

*Standards have been changed to percentages to enable comparison between the two studies
It is evident that by adjusting standards to give them a more realistic appearance and providing them in both percentages and raw numbers, the manipulations were strengthened, which resulted in subjects recalling the standards more accurately and accepting the standards provided. This is particularly noticeable regarding the standard for not having the ability in the weak [-+] condition.

It was hypothesized that the subjects in the Foschi et al. study may have perceived the task as being more difficult than the one used in the present study and therefore that they may have felt in less control over the outcome. By changing the task and comparing results of subjects' perception of their ability relative to their partners in both studies, it becomes evident that subjects in the present study perceive less their partner as "much better" than they are as opposed to subjects in the Foschi, Warriner and Hart study who perceived their partner more as having "much better" ability than they do. The following table represents this comparison; male and female subjects in the present study have again been combined.

<table>
<thead>
<tr>
<th>Study</th>
<th>Condition</th>
<th>Much More or Better</th>
<th>Somewhat More or Better</th>
<th>About the Same or Same</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foschi</td>
<td>Strong [-+]</td>
<td>61.1%</td>
<td>38.9%</td>
<td>0%</td>
</tr>
<tr>
<td>Warriner &amp; Hart</td>
<td>Strong [-+]</td>
<td>61.1%</td>
<td>38.9%</td>
<td>0%</td>
</tr>
<tr>
<td>Present Study</td>
<td>Weak [-+]</td>
<td>59.1%</td>
<td>36.4%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Strong [-+]</td>
<td>47.5%</td>
<td>47.5%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Weak [-+]</td>
<td>20%</td>
<td>77.5%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>
In addition, in the Foschi, Warriner and Hart study, standards had virtually no impact on perceived ability when subjects were so combined; whereas, in the present study the effect of standards was pronounced, particularly in the "much more or better" category.

The discrepancy between the two studies indicates that, indeed, pattern recognition (the task employed in the Foschi et al. study) was perceived as much more difficult than contrast sensitivity.

An attempt was made to narrow the age difference to increase homogeneity of the subject pool. The mean of the Foschi et al. study was 19.39 years of age, .25 points higher than the mean age of this study which was 19.15 years of age. The standard deviation of the Foschi et al. study was 1.68, .381 points higher than the standard deviation of this recent study which was 1.299.

Considering various improvements made to the experimental design and differences in results, the question that must be addressed regards whether the results collected in both studies differ substantially. All indications suggest that there are no significant differences in the manner by which subjects in both studies behaved.