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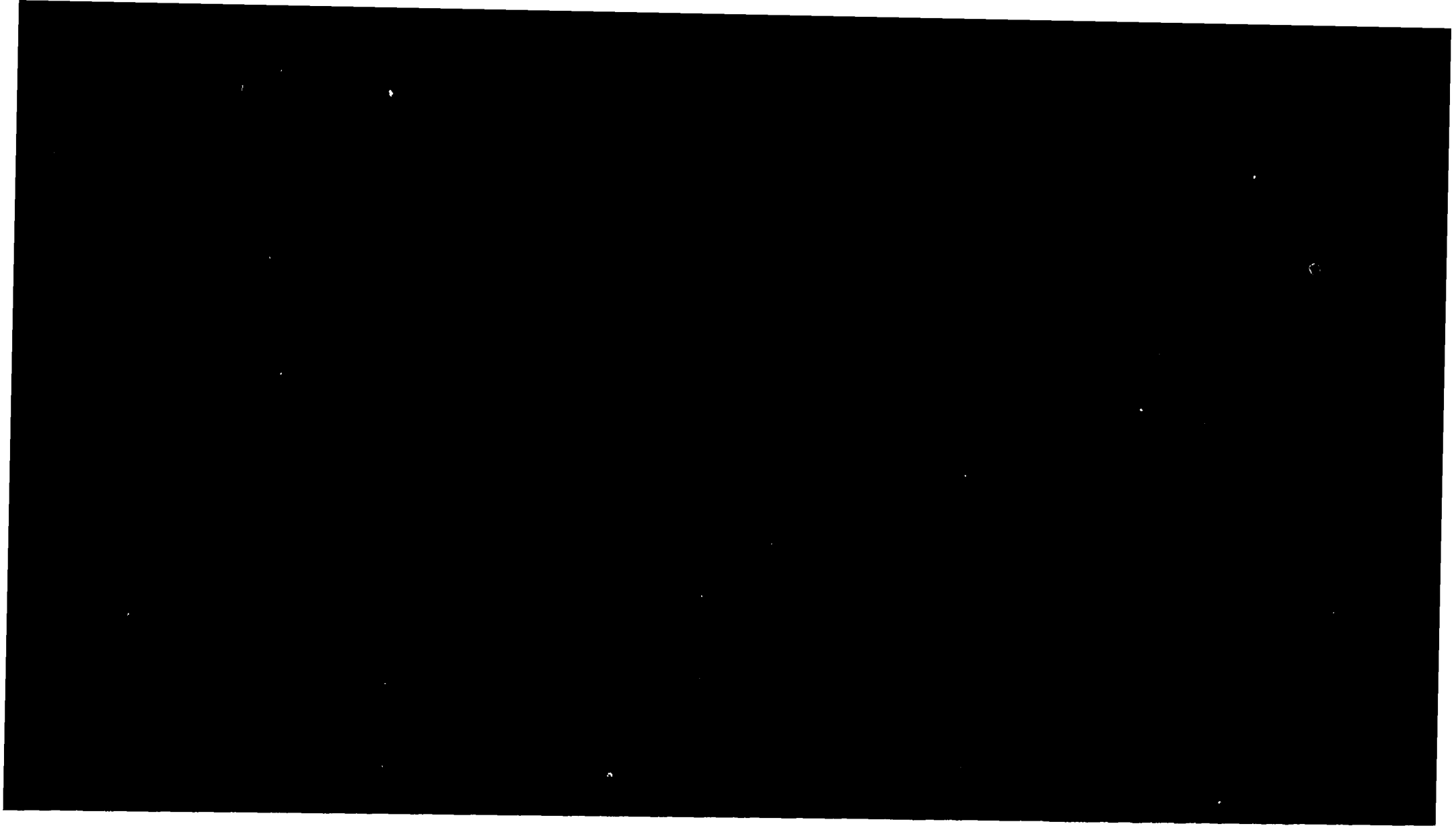

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GRADUATE COLLEGE

THE INFLUENCE OF EXPECTED GROUP OUTCOMES ON SMALL GROUPS IN A DECISION-MAKING SITUATION

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JAMES RONALD BURKETT

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THE INFLUENCE OF EXPECTED GROUP OUTCOMES

ON SMALL GROUPS IN A DECISION-MAKING SITUATION

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THE INFLUENCE OF EXPECTED GROUP OUTCOMES ON SMALL GROUPS IN A DECISION-MAKING SITUATION

CHAPTER I

INTRODUCTION

In the theoretical and experimental literature on the individual and the group process, the variable of expectancy emerges as an important determinant of interpersonal behavior in social situations. The individual expectations of group members about one another and the social situation appear to influence the subjective and behavioral outcomes of group activities. The importance of the expectancy that an individual has concerning the features and outcomes of his interaction with others has recently been demonstrated by Rosenthal (1966). It appears that both individual expectations regarding the consequences of one's interaction with others, and the anticipated duration of that interaction, can influence individual member behavior within a group with resultant effects on group performance and individual member satisfaction. However, the interaction of these two types of interpersonal expectancy in social situations has not yet been systematically investigated.

The purpose of the present study was to examine the subjective and behavioral effects of (1) individual expectations regarding the conse-

quences of the immediate outcomes of one's participation in a group, and (2) the anticipation of future or continued interaction with other group members over time, in a small group decision-making situation. It should be emphasized that a decision-making situation was used primarily to provide a vehicle for the assessment of group performance rather than as a major emphasis for the study. The major concern was with the question of how individual expectancy influences interpersonal outcomes within groups, and the outcomes assessed included not only group performance on a decision-making task, but also the subjective feelings of individual members about the group and their participation in its activities.

The concept of expectancy is deeply rooted in learning theory. It must be granted that expectancy is a learning concept in any of its applications, individual or social, because any type or level of expectancy can only be derived through some form of direct or indirect experience. For example, one might expect that another individual will be friendly, either because he has been friendly in past encounters, or because a reasonably credible source has said that he will be friendly (Kelley, 1949).

The role of expectancy in learning was first stressed by Tolman (1932), and has been subsequently discussed by Mowrer (1950), MacCorquodale and Meehl (1953) and Rotter (1954 and 1966) who all view learning in terms of the reinforcement of expectation. Tolman (1952) suggests that what is learned is the expectation that some responses rather than others will increase the probability that the needs of the organism will be satisfied. Thus, expectancy can be strengthened by

reinforcement confirming an expected satisfying outcome, and weakened by failure of reinforcement disconfirming an expected satisfying outcome. The result is that reinforcement tends to raise the expectancy that a given behavior will again be reinforced in subsequent similar situations, while lack of reinforcement tends to extinguish this expectancy.

Stogdill (1959) observes that while expectation theory has not provided all the needed explanations for a complete theory of learning, it does appear to be a most promising variant of learning theory for access to problems of social learning. He conceives of expectancy as a "readiness for reinforcement" that is a function of drive and composed of both probability estimates and desirability estimates about an event which interact in determining the level of expectancy experienced by the individual. He further outlines how probability estimates and desirability estimates can respond differentially to the same reinforcement.

The concept of expectancy has also found application in personality theory. Kelly (1955) postulated that "a person's processes are psychologically channelized by the ways in which he anticipates events." Because expectancies can generalize from one situation to a series of similar or related situations, or from one person to a group of similar or associated persons, generalized expectancies for classes of related events or persons have provided a useful group of variables for describing personality.

The value of conceptualizing expectancy as a basic dimension of social behavior was suggested by Mayo (1933) and Mead (1934). To Mayo, a socialized person was one who acted in accordance with the expectations of others. Mead, and also Barnard (1948), conceived of group or-

ganization as based on a system of stable expectations which provide predictability to individual member behavior within a group. The concept of expectancy has grown in its usefulness for explaining and interpreting interpersonal behavior. For example, the current social psychological conceptions of role and norm would be quite cloudy if expectancy were not used to explain their operation.

Sherif has indicated that groups tend to develop social norms of belief, expectation, and performance, and that deviates tend to respond more closely to the group norm after interacting with and observing the other members of the group. Further, group norms tend to induce conformity in expectation or belief, and in conduct and performance, when these norms are perceived as relevant to the purpose and operations of the group (Sherif, 1936; Sherif and Sherif, 1956).

Secord and Backman (1964) define roles and norms in terms of expectancy. For them, expectancy is of central importance to interpersonal behavior in most interaction situations. They note that individual group members hold certain expectations about the behavior of persons occupying a particular position in the group structure. This position is referred to as a "role category" which is a category of persons occupying a specific place or position in a social relationship. "Role expectations" are those expectancies that are associated with a particular role category, and the general term "social role" is used to refer to the category or position along with its associated expectations.

Secord and Backman view two characteristics of expectancy as central to the concepts of social role and social norm within the framework of social interaction. First is the "anticipatory nature of expec-

tations." An individual has definite expectations about both his own behavior and the probable behavior of others in a social situation. This gives interaction an anticipatory quality which serves as an important guide for individual behavior enabling one to anticipate how another person with whom he interacts will react toward him in a given situational context, so that he may shape his behavior accordingly. Second is the "normative quality of expectations." As just described, persons are able to anticipate the behavior of others. It is suggested that this gives interaction, in addition to an anticipatory quality, a contingent quality, because one's behavior becomes contingent upon his anticipation of how others will react to him in a given situation. In order to satisfy mutual social needs and to maximize the favorability of outcomes in interaction, it is important that such anticipations be correct. Through past common interpersonal experiences, the parties to an interaction come to share certain expectations concerning one another's behavior. These common shared expectancies become obligatory and normative in character, in that one is not just expected to behave in a particular way in a given situation; he <u>should</u> behave that way. Only then can others correctly anticipate his behavior, and only then can the favorability of outcomes be maximized in the interaction. Thus, social norms are derived from shared normative expectations.

Hollander (1967) also defines roles and norms in terms of expectancy. Roles are "social expectancies" derived from an individual's perception of the expectations of others, and norms are standards of conduct derived from the tendency for individuals to attempt to match their behaviors to the expectations of others. Hollander stresses the involve-

ment of the process of person perception in the operation of expectancy by emphasizing that engaging in social interaction places demands on an individual in the form of his perception of the expectations of others. The result is that the nature of an individual's perception of what is expected of him within the context of a social relation becomes an important determinant of his social behavior; the degree to which he perceives others as rewarding to him influences his motivation to engage in interaction with them. Perceptions of potential rewards of interaction can also be mediated by the anticipated duration of interaction. It is noted that interactions may be of a "long-term" or of a "short-term" variety, each holding distinctive expectancies, because interactions that are prolonged over time have different qualities than brief interactions having only immediate or transitory significance to the participants. Thus, interpersonal perceptions within a group differ for long-term interactions as contrasted with short-term interactions, as do resultant mutual expectancies of behavior.

Hollander also discusses another important aspect of expectancy, namely its "self-fulfilling" quality. The concept of perceptual "set" suggests that individual perceptions are influenced by what one expects to perceive. The implications of this principle for interpersonal behavior rest in the previously discussed important association between expectancy and outcome in social interaction. Subjective anticipation occurs in advance of an expected experience or outcome, and persons frequently tend to act in accordance with their expectation or anticipation of what will occur. Such actions and behavior resulting from expectations about an event or a social outcome can effectively increase the

probability that it will actually occur (Orne, 1962; Rosenthal, 1966). Thus, the "self-fulfilling" quality of expectancy can come into play in a variety of situations, including social interaction, and an individual can help to happen what he expects to have happen.

Rosenthal (1966) even suggests that there is a "motive" to fulfill and confirm one's interpersonal expectancy, and that in addition to the more commonly conceived "experience-derived component" such expectancies have a "self-fulfilling prophesy component" which contributes to the accuracy of interpersonal predictions through the social influence process. He cites evidence suggesting that it is often more rewarding to have one's expectations confirmed than disconfirmed (Festinger, 1947; Aronson and Carlsmith, 1962; Carlsmith and Aronson, 1963; Harvey and Clapp, 1965). Individuals appear to behave in ways which will confirm their expectancies about what will happen to them or how they will act (Aronson, Carlsmith, and Darley, 1963). If one's expectancy is of another's behavior, rather than his own, he behaves in ways which will influence the other person's behavior to conform to his own expectancy (Rosenthal, 1966).

Various positions regarding the importance of expectancy in social situations have been reviewed in the foregoing discussion. The role of expectancy in social processes relevant to such factors as roles, norms, person perception, duration of interaction, outcomes of interaction, and social influence has been considered. We now turn to some experimental evidence that bears directly on the two particular types of expectancy focused upon in the present study.

The literature on social influence and group cohesiveness suggests that the interpersonal expectancy held by an individual prior to his in-

teraction with other members of a group can affect the outcome of that interaction. For example, "interpersonal attraction" and "cohesiveness" have been manipulated by giving subjects varying expectancies about the other members of their experimental group through deceptive instructions presented prior to their actually coming together in an interaction situation.

Back (1951) told his subjects such things as "...It's quite a lucky coincidence to find two people who are so congenial, and you should get along extremely well." or "...we had some idea of putting people together who were congenial, but that didn't work out...." Schachter, Ellertson, McBride, and Gregory (1951) informed their subjects that each was "...a member of an extremely congenial group and that 'there is every reason to expect that the other members of the group will like you and you will like them'..." or that "...it had been impossible to bring together a congenial group and that 'there is no particular reason to think that you will like them or that they will care for you'...." In both studies, the instructions presented were designed to generate a particular level of attraction to the group by what amounts to a verbal manipulation of each subject's expectancy regarding how others in the group would react to him. The expectancy that the group would be a "congenial" one wherein the members would "like" each other and would "get along extremely well," or vice-versa, was designed to have an influence on the immediate outcomes of group interaction. The varying expectancies, even though induced by only a verbal manipulation stemming from a credible source rather than actual interpersonal experience, were found to be effective in influencing the subjective and behavioral outcomes of interaction.

Festinger, Gerard, Hymovitch, Kelley, and Raven (1952) and Gerard (1954) used "cohesiveness" or "attraction" manipulations similar to those of Back and Schachter, et al., which, while much more involved and detailed, were still designed to generate specific levels of interpersonal expectancy among the members of their subject groups prior to interaction during the performance of an experimental task. Again, some group members were told that they would find one another very congenial, and other groups were composed of members who were told that they would not get along well together. In short, differing interpersonal expectancies were generated for the purpose of manipulating attraction to the group, and these verbally induced expectancies were acted upon by the subjects, resulting in associated differing outcomes in the interaction situations.

Two recent studies have dealt with the problem of expectation of future interaction among the participants in a social situation. Marlowe, Gergen, and Doob (1966) found that, in a bargaining situation, the extent of exploitation of an opponent was mediated by the anticipation of having to engage in future interaction with him. Expectation of future interaction induced greater cooperation among those subjects who perceived each other as being predominantly cooperative. Kiesler, Kiesler, and Pallak (1967) explored both subjective and behavioral reactions to the "inappropriate" behavior of another as a function of the anticipation of future interaction with the other. With future interaction anticipated, subjects liked the person more who behaved appropriately and liked the person less who behaved inappropriately than when no future interaction was anticipated. When the "inappropriate" behavior of another was directed toward a third person, commitment to future interaction increased

the frequency of attempts to change the other's behavior. Thus, anticipating subsequent interaction with others has been shown to influence the flow and outcome of interpersonal behavior. Expectancies concerning a future interaction appear to influence behavior in the immediate social situation as well as in subsequent interactions.

A conceptual framework which stresses the influence of interpersonal expectancy on the behavior of group members is provided by exchange theories of social interaction. Thibaut and Kelley (1959) and Homans (1961) have independently suggested two similar theoretical orientations to social behavior that attempt to explain interaction in terms of an exchange of rewards and costs between the participants. Rewards are the pleasures and satisfactions enjoyed by an individual as a result of engaging in a social exchange; costs include any punishments incurred or alternative rewards foregone as a result of engaging in the exchange. Social exchanges result in outcomes, and the perceived favorability of outcomes in a given situation is determined by the rewards exchanged less the costs incurred in interaction. Thus, positive outcomes are perceived as favorable and are reinforcing, while negative outcomes are subjectively unfavorable and are not reinforcing. However, the expectancy of outcome is important in determining the value of an exchange, in that the favorability of outcomes experienced in interaction is a joint function of the actual rewards and costs of the exchange in comparison with the minimum level of rewards and costs expected by the parties to the exchange.

Exchange theory is basically an operant view of interpersonal behavior. Sequential factors in the history of interaction, such as indi-

vidual investments and expectancies, are stressed as important determinants of social behavior. An individual must invest some of his energy and resources in an exchange. The more he has invested in exchange, or in a sequence of exchanges, the more important become the rewards he seeks, and the more costly the nonattainment of those rewards. One expects his outcomes to be equitable with the outcomes of others in an exchange, and he expects that the extent of favorable outcomes obtained by others as a result of their investments. Feelings of personal dissatisfaction, injustice, and inequity can arise if the outcomes of interaction are less favorable than expected when compared to the outcomes of others. Equity is achieved when reward-cost outcomes are proportional to investments, and within the limits of expectancies, among the participants in an interaction. Thus, individuals in interaction constantly exchange verbal or nonverbal behaviors, and the outcome of each exchange has some degree of value subjectively associated with it ranging from very favorable to very unfavorable. The value of a given reward or cost in an exchange is influenced by the level of reward or cost expected by an individual. These expectancies are the result of direct or indirect experience with past exchanges, the availability and attractiveness of alternative exchanges, and the implications of present exchanges for the outcomes of future exchanges.

To summarize, individual interpersonal expectancies about the immediate outcomes of interacting with others in a group appear to influence the behavior of group members. Individuals in interaction behave in ways which contribute to confirming their expectations about one another. Thus, positive mutual expectancies about interpersonal outcomes in a

group should influence the flow of communication and interaction toward a maximization of favorable outcomes among group members. Conversely, negative mutual expectancies about group outcomes should restrict the flow of communication and interaction resulting in the occurrence of more unfavorable outcomes among group members. In addition, it appears that the anticipation of future interaction with others in a group produces different perceptions of associated reward-cost outcomes than does a short or "one-time" type interaction. Future or prolonged interaction requires greater individual investments and is potentially more costly than short or limited interaction. Therefore, situations involving no anticipation of future interaction should provide a better opportunity for group members to minimize unfavorable outcomes than situations where future interaction is anticipated. Finally, the influence of specific expectations about immediate reward-cost outcomes in a group should differ, depending on whether or not there is also anticipation of future group interaction. To date, however, there has not been a systematic investigation of the interaction between these two types of individual expectancy, although both are present in almost all social situations.

The interpersonal effects of these two types of expectancy should be reflected in a variety of behavioral and subjective outcomes within a group, including member enjoyment and satisfaction, member acceptance by the group, agreement among group members, sentiment, degree of group influence, and intragroup hostility, conflict, and equity. Subjective assessment of these kinds of outcomes in a group should provide an appraisal of the rewards and costs involved in the interaction. The influence of interpersonal expectancy on the flow of verbal and nonverbal

interaction should also be visible in the quality of the group product if the group is committed to a task, especially if that task is one requiring a considerable sharing of individual resources through active participation in verbal discussion, such as group decision-making (Collins and Guetzkow, 1964).

The present study was designed to examine the influence of both (1) individual expectations regarding the consequences of the immediate outcomes of one's participation in a group, and (2) the anticipation of future or continued interaction with other group members over time, on small groups in a decision-making situation. The decision-making task used was one which has been shown to be effective in generating the type of interaction which provides a sensitive setting for obtaining a well-defined indication of group performance (Hall and Watson, 1968), and subjective responses to scaled questions were obtained to provide an indication of the interpersonal outcomes of group members. The design allowed assessment of group and individual performance and appraisal of the subjective effects of expectancy under four treatment combinations in a 2 x 2 factorial arrangement:

a. Positive Expectancy and Anticipation of Future Interaction - Subjects were told that their groups should be very compatible and pleasant, that they should get along well together, and that they would continue to work together in the same groups on some additional tasks.

b. Positive Expectancy with No Anticipation of Future Interaction - Subjects were told that their groups should be very compatible and pleasant, that they should get along well together, and that

they would not be working together as a group on any additional tasks.

c. Negative Expectancy and Anticipation of Future Interaction - Subjects were told that their groups should be very uncompatible and unpleasant, that they probably would not get along well together, but that they would have to continue working together in the same groups on some additional tasks.

d. Negative Expectancy with No Anticipation of Future Interaction - Subjects were told that their groups should be very uncompatible and unpleasant, that they probably would not get along well together, but that they would not have to continue working together as a group on any additional tasks.

It was hypothesized that: (1) Group performance would be better for positive expectancy groups than for negative expectancy groups; (2) Group performance would be better for groups having no anticipation of future interaction than for groups having anticipation of future interaction; (3) Subjective group outcomes would be more favorable for positive expectancy groups than for negative expectancy groups; (4) Subjective group outcomes would be more favorable for groups having no anticipation of future interaction than for groups having anticipation of future interaction; (5) More favorable subjective group outcomes and better group performance would occur under the positive expectancy - no anticipation of future interaction condition than under negative expectancy - anticipation of future interaction condition. Group performance was evaluated in terms of the qualitative adequacy of decisions in comparison with an "expert" criterion and the effectiveness with which available member resources

were utilized to the extent that groups performed at a higher level than their individual members. Subjective group outcomes included assessments of subjective enjoyment, confidence, acceptance, satisfaction, equity, agreement, hostility, sentiment, and influence.

CHAPTER II

METHOD

Subjects, Task, and Experimental Situation

The sample consisted of 400 basic airmen who were drawn at random from an available population of 17,000 men in basic military training at Lackland Air Force Base, Texas. These Air Force basic trainees provided a good cross sample of subjects from varying backgrounds having no particular data biasing characteristics. Subjects were assigned to 5-man groups on a random basis for the group decision-making task. Twenty groups of five men each were run under each of the four experimental conditions.

The decision task used was the NASA Moon Survival Problem (Hall, 1963; Hall and Watson, 1968). This task requires that subjects rank 15 items of equipment in order of importance for survival on the moon (see Appendix A). The total decision product for both individuals and groups is composed of 15 interdependent judgments, which can be compared for accuracy against an "expert" answer criterion (see Appendix A) supplied by the Crew Equipment Research Section of the NASA Manned Spacecraft Center at Houston, Texas. Thus, the task provides a numerical index of decision adequacy in the form of an error score, for individuals or groups, that can vary from 0 to 112 points away from the

correct criterion. Normative data (Hall, 1963) indicate that the average individual error is 39.30 with a standard deviation of 6.62 points.

Hall and Watson (1968) give an excellent overview description of the task and its potential for use as a research tool:

> The NASA Moon Survival Problem concerns the plight of the crew of an ill-fated space flight; background information supplied to subjects indicates that they are to think of themselves as crew members. The story line indicates that their spaceship was originally scheduled to rendezvous with a mother ship on the lighted surface of the moon; due to mechanical difficulties, however, they have been forced to crashland some 200 miles from the rendezvous point. It is further indicated that with the exception of the 15 items all equipment was damaged beyond use during the crashlanding, and, since survival depends upon the crew reaching the mother ship, the available equipment must be evaluated with respect to its importance for insuring survival during the crew's 200 mile cross-country trek. Subjects are asked to rank in order the 15 items in terms of their relative value and utility for survival.
>
> A number of frames of reference may be employed in ranking the items, and it is particularly necessary for one to break his "earth-bound" set in order to perform well on the task.... The task has been found to generate extremely high levels of ego-involvement on the part of subjects, and decision adequacies have been found to be sensitive to a number of substantive and procedural contributions. Thus, the decision task... affords a reasonable analogue of commonly encountered multi-stage decision-making situations. (p.8)

Therefore, the decision task employed in the present study was an objective one as well as a versatile one regarding the types of behavior that were to be investigated.

The subjective scales used to assess individual member feelings and opinions about the outcomes of group interaction (see Appendices B and E) were developed using principles of construction designed to minimize the potential influences of halo effect and errors of central tendency on the accuracy of ratings. Verbal descriptions were provided as anchors at various scale value points in order to maximize the reliabil-

ity of the scales across subjects (Taylor, Parker, and Ford, 1959). The subjective scales as constructed were assumed to have interval properties (Torgerson, 1958).

The room in which the experiment took place was one of two large "testing" rooms containing movable desk-top chairs used by the Personnel Research Division of the Air Force Human Resources Laboratory to gather data using Air Force basic trainees as subjects. The airmen come to the division for a half day on their third day of 30 days of basic training. Therefore, at the time of their participation as subjects in this study, the "basics" had not had the opportunity to get to know one another well, or to become particularly integrated into Air Force life. Thus, the situation afforded use of a large sample of relatively naive subjects under conditions that were constant and under the control of the experimenter. The subjects arrived and participated in the experiment as a "flight" of approximately 50 men, but their Air Force NCO "Training Instructor" was not present during their participation as subjects.

All but 60 desk-top chairs had been removed from the experimental room, and these remaining 60 chairs were arranged in rows of 5 chairs each on either side of a wide center aisle with a wide space between rows. The 5 chairs in each row were numbered on the back, to facilitate the 5-man groups finding their chairs when the group assignments were revealed. To the naive observer, the room appeared to be set up in a standard "classroom" arrangement, but when subjects were assigned to their 5-man groups, all they had to do was locate the row of 5 chairs with their "group number" on the back and arrange these chairs in a

circle in the space provided. Thus, 10 to 12 5-man groups could be assembled and run at one time in the large "testing" room in small face to face circles with little disturbance from adjacent groups. At the conclusion of the small-group activities, the subjects rearranged their chairs in a row of 5 again for the final individual data collection portions of the study. All subjects were assigned to their groups on a random basis prior to their arrival, and all their materials and forms were pre-coded with subject and group numbers to facilitate later data collation and analysis.

Procedure

Overview. The subjects arrived and were seated in rows in a large room at desk-top chairs. They were given a general orientation to the study and instructions for performing the NASA decision task as individuals. No mention was made at this time concerning group decision-making. They made their pre-group decisions, and following these initial individual rank orderings of the items, they were then told that they were going to split up into 5-man groups and work together to arrive at a group decision on the rankings of the items.

At this time subjects were given instructions establishing the treatment combination under which they were to be run and were told that they had been selected by a computer for their particular type of 5-man group. After the required experimental treatment had been established, subjects were instructed regarding proper procedures for responding to the subjective scales used in the study, and they marked some preliminary scales as both a check on their feelings at that point and on the effectiveness of the experimental treatment manipulations.

Then, subjects were put together in their respective 5-man groups from a "computer selection roster," and, after arranging their chairs in circles facing one another, they performed the group decision-making task. When all groups had completed the group decision-making, subjective scales were administered to subjects individually to assess their feelings and opinions about their groups and their participation in their groups.

Upon completion of the subjective scales, subjects again were given the opportunity to individually rank the items as a post-group decision measure. When all subjects had completed their individual post-group decision rankings on the task, they were given a demand characteristics questionnaire, after which the experimenter fully discussed the purposes and methodology of the study, and answered subjects' questions concerning all that had taken place.

The dependent variables in this study were: (1) both individual and group error scores from the criterion rankings of the items in the decision task, and (2) the responses to the subjective scales administered before and after participation in the group decision-making interaction. Various indices and difference scores were calculated using these two basic sources of data.

General Orientation Instructions and Pre-Group Decision Task Instructions. When the subjects had arrived and were seated in the large experimental room, the experimenter began his instructions:

> Good morning (good afternoon); I'm Lt. Burkett. Today I'm going to give you an opportunity that's rather rare for basic airmen; I'm going to have you make decisions. The experiment that you are about to participate in is one dealing with decision-making. I'll be explaining what I want you to do as we go along. You must pay close attention to my instructions at all times, and do your best to follow them.

At this point the experimenter introduced the NASA decision task and gave instructions for making the pre-group individual decision rankings:

> First, I want you to make some preliminary decisions for me to familiarize you with the type of task you'll be working with. (Pre-group Crew Decision Forms, see Appendix A, and pencils were distributed to all Ss.) I'm going to read the instructions at the top of the form while you read along with me. (E read instructions on Crew Decision Form, Appendix A.) Now, understand that this is NOT a test; it is merely an experimental decision-making task. And also understand that nothing you do for me here today will go into your records or will in any other way affect your basic training. This is an experimental study, and you are serving as subjects for the study. Thus, you can see that there is no need for you to look at your neighbor's paper, or anything like that. I want your OWN decision on what YOU feel is the best order of importance for the items listed. Now, there isn't any completely RIGHT or completely WRONG ordering for the items, but some orderings will be more logical and reasonable to YOU than others; so give me your own decisions as best you can. MAKE SURE THAT YOU ORDER ALL 15 ITEMS. Don't leave any out, and be careful to PRINT YOUR NUMBERS VERY CLEARLY so that I can read them easily. All right, are there any questions? (E answered questions.) OK, go ahead and make your rankings. When you're through, remain quiet, no talking, because others may not yet be finished. Keep your Crew Decision Forms until I tell you to turn them in later.

Manipulation of Treatment Combinations. When all subjects had completed their pre-group decision rankings, the experimenter continued his instructions to introduce the particular experimental condition desired. All subjects were instructed:

> Everyone is finished, so let me tell you what we're going to do now. I'm going to split you up into 5-man groups and have you work on the task TOGETHER to arrive at a GROUP decision on the importance of the items. The Air Force has a continuing interest in developing a better understanding of how different types of groups function. Personnel are often assigned to work together in groups to perform some task or job. The group might be large or small, friendly or unfriendly, enjoyable to work in or unpleasant to work in, and so on. The purpose of this study is to examine how some of these

different types of groups make decisions. So, let me tell you how you were selected to be a member of the PARTICULAR TYPE of 5-man group that you will be working in today.

At this point, subjects in the positive expectancy - anticipation of future interaction (+E +F) condition were told:

As you know, the Air Force already knows a great deal about you. I have obtained all of the test and enlistment data that is available on each of you and had the computer use this data to assign you to 5-man groups. Because of the way this was done, your groups should be VERY compatible and pleasant to work in, although how well you will actually get along from group to group will probably vary. I wanted to do this so that the group members in each group would have the BEST possible chance to get along WELL with each other and would enjoy working together on the group decision task as much as possible. Since the computer has selected you for your groups to get along WELL together, I don't think you will have much difficulty, and you will probably find it very enjoyable to work together with the other members of your group. This is the first of a series of group tasks that you will be working on today. After you complete this group task, you will CONTINUE working together in the SAME 5-MAN GROUP AGAIN on each of the other additional group decision-making tasks using different problem situations.

Subjects in the positive expectancy - no anticipation of future interaction (+E -F) condition were told:

As you know, the Air Force already knows a great deal about you. I have obtained all of the test and enlistment data that is available on each of you and had the computer use this data to assign you to 5-man groups. Because of the way this was done, your groups should be VERY compatible and pleasant to work in, although how well you will actually get along from group to group will probably vary. I wanted to do this so that the group members in each group would have the BEST possible chance to get along WELL with each other and would enjoy working together on the group decision task as much as possible. Since the computer has selected you for your groups to get along WELL together, I don't think you will have much difficulty, and you will probably find it very enjoyable to work together with the other members of your group. After you complete this one group decision-making task, you will break up and do a few more things separetely as individuals. But this is the ONLY task you will be working on today as a group, so you will just be with your 5-man group this one time this morning (afternoon).

Subjects in the negative expectancy - anticipation of future interaction (-E +F) condition were told:

> As you know, the Air Force already knows a great deal about you. I have obtained all of the test and enlistment data that is available on each of you and had the computer use this data to assign you to 5-man groups. Because of the way this was done, your groups should be very UNcompatible and UNpleasant to work in, although how well you will actually get along from group to group will probably vary. I wanted to do this so that the group members in each group would have as SMALL a chance as possible of getting along well with each other, so you probably WON'T enjoy working together very much on the group decision task. Since the computer has selected you for your groups to NOT get along well with each other, I think you may have quite a bit of difficulty, and you probably will NOT find it very enjoyable to work together with the other members of your group. This is the first of a series of group tasks that you will be working on today. After you complete this group task, you will CONTINUE working together in the SAME 5-MAN GROUP AGAIN on each of the other additional group decision-making tasks using different problem situations.

Subjects in the negative expectancy - no anticipation of future interaction (-E -F) condition were told:

> As you know, the Air Force already knows a great deal about you. I have obtained all of the test and enlistment data that is available on each of you and had the computer use this data to assign you to 5-man groups. Because of the way this was done, your groups should be VERY UNcompatible and UNpleasant to work in, although how well you will actually get along from group to group will probably vary. I wanted to do this so that the group members in each group would have as SMALL a chance as possible of getting along well with each other, I think you may have quite a bit of difficulty, and you probably will NOT find it very enjoyable to work together with the other members of your group. After you complete this one group decision-making task, you will break up and do a few more things separately as individuals. But this is the ONLY task you will be working on today as a group, so you will just be in your 5-man group this one time this morning (afternoon).

At this time the experimenter asked if there were any questions, and answered them before going on.

Administration of Subjective Scales to Check the Effectiveness

of the Manipulations. The experimenter continued his instructions by telling the subjects about the subjective scales (see Appendix B) and how they should be marked:

> OK, in just a minute I'll tell you what 5-man group you'll be working with. But before I do that and give you your materials for the group decision-making task, there is one more matter that I want to take care of. At a certain point in the experiment I'll give you a questionnaire to fill out. I want to give you the instructions on how to answer the questionnaire now, so that I don't have to take any time to give you further instructions later. (The preliminary scales were distributed to all Ss.) This is a preliminary questionnaire composed of several questions that are of the same type as the ones on the questionnaire you'll be answering later. Now listen carefully to my instructions about how you fill these out.

The experimenter paused to make sure that all subjects had a copy of the "Preliminary Questionnaire" to refer to, and then continued:

> The questionnaires that you will complete are composed of questions, similar to the ones on this preliminary questionnaire, which apply to various feelings or opinions that you may have concerning different aspects of this study. Notice that I have assigned numerical values to the different answers for statistical purposes. YOUR JOB is to read each question carefully, including the descriptions for the various scale values, and then to answer by selecting the one SCALE VALUE NUMBER of the nine that best represents your feeling or opinion on the item in question. Then you are to clearly print that number so that I can read it easily in the "ANSWER" box to the right of each set of scale values and descriptions for each question. You will notice that only FIVE descriptions are provided for the nine scale values, one for every other scale value. These descriptions are intended to help you to understand what the nine scale values represent, and IF your feeling or opinion falls between any two of the scale values that ARE described, you should not hesitate to select one of the middle, unlabeled numbers. You will notice that a summary of these instructions is included at the top of this "Preliminary Questionnaire" which you can refer to while you're answering the questions, if necessary. Are there any questions about how you mark the questionnaires? (E answered questions.) OK, go ahead, and again remember, this is NOT a test, so just give me your OWN answers to the three questions as best you can. Remember to remain quiet when you're through, and keep the questionnaires until I ask for them.

Instructions for the Group Decision-Making Task. When all subjects had completed their preliminary questionnaires, the experimenter moved on to get the groups set up for the group decision-making portion of the study:

> OK, everyone is finished with the preliminary questionnaires, so I want to give you your materials for the group decision-making task. (Group Decision Record Forms, see Appendix C, were passed out to all Ss by name.) You will notice on your Group Decision Record Forms that there is a column down the left-hand side labeled "Individual Rankings". Right now, I want you to write in under "Individual Rankings" your individual decisions from the Crew Decision Forms that you filled in when we started. This way, you'll be able to refer to your own individual rankings of the 15 items during the group discussions. (Ss filled in their individual rankings on the Group Decision Record Forms.) Now, keep the Group Decision Record Form and your pencil and pass both your individual Crew Decision Forms and your completed Preliminary Questionnaires in to the CENTER aisle.

When all subjects had passed in their forms and questionnaires for collection, the experimenter assembled the 5-man groups in the following manner:

> Look at the top of your Group Decision Record Form. You will see a circle with a number in it. The number in the circle is YOUR GROUP NUMBER. Now, also notice that each row of 5 chairs in this room is numbered on the backs. The numbers on the chairs are GROUP NUMBERS. This row is for group 1, this row for group 2 (E indicated), and so on to group 6 at the back of the room; then this row is for group 7, this row for group 8 and so on to group 12 at the back. To find YOUR GROUP, get up and in an orderly and quiet manner find the row of 5 chairs with your group number on the backs. No talking, but you may go ahead and sit down when you find your group.

When all subjects had found their 5-man groups and were seated, the experimenter continued:

> You are now together in your computer selected 5-man groups. Before we go on to the actual group decision-making, I want to give you some instructions to read along with me that contain some pointers on how to go about making a group decision.

> (Group Decision Instructions, see Appendix D, were passed out to all Ss, and E read them aloud.) Are there any questions? (E answered questions.) OK, now listen carefully, When your group arrives at a GROUP DECISION on an item, EACH of you must INDIVIDUALLY enter it on your own Group Decision Record Form in the column down the right-hand side of the page under "Group Decisions." When your group is through making all the decisions, check among yourselves to make sure that EVERYONE'S form has the SAME rankings indicated for the group under "Group Decisions," and that all numbers are CLEARLY written so that I can read them easily. All right, pull your group's 5 chairs around into a CIRCLE facing each other, and go ahead and make your GROUP decisions. THERE IS NO TIME LIMIT, but when you get through, quietly come up here as a group and turn in your 5 Group Decision Record Forms to me.

Administration of Subjective Scales to Assess Group Outcomes. As the groups completed their decision-making task and came up to the experimenter to turn in their forms, they were individually given the "Questionnaire" (see Appendix E) containing the subjective scales. They were sent back to separate their chairs and then to complete the scales individually. When each subject had finished and turned in his scales to the experimenter, he was allowed to go outside for a "break." The subjects remained outside the room on their "break" until about 5 minutes after the last man had finished and gone outside. Then all subjects were called back inside the experimental room, the chairs were put back into rows, and all were seated.

Post-Group Decision Task Instructions. The experimenter distributed the post-group Crew Decision Forms (see Appendix F) to all subjects, again by name. The subjects were told:

> At this time, I want you to give me your OWN individual decisions on the importance of the items again, as you did when we started. I want you to give me the rankings as you NOW feel them to be, and these rankings don't have to be the same as your first ones or those of your group unless you want them to be. Just give me your rankings of the items as you see them at this time without any other considerations.

When all subjects had completed their post-group rankings of the items, the experimenter had the forms passed in to the center aisle, as before, and the demand characteristics questionnaire (see Appendix G) was distributed.

Catharsis. The experimenter collected the demand characteristic questionnaires when all subjects had completed them, and then he told the subjects what the actual purpose of the study was, revealed the nature and necessity of the deception, invited criticisms and comments, and engaged in discussion about the experiment with the subjects. Finally, he thanked all subjects for their participation, cautioned them regarding the importance of not revealing the nature of the experiment to anyone else for at least several weeks, and then the flight was released to the Training Instructor.

Summary of Experimental Design

The design employed in this experiment was a 2 x 2 factorial combination of positive expectancy - negative expectancy and anticipation of future interaction - no anticipation of future interaction treatments. Twenty 5-man groups were randomly assigned to each of the resulting four experimental conditions: (1) positive expectancy - anticipation of future interaction, (2) positive expectancy - no anticipation of future interaction, (3) negative expectancy - anticipation of future interaction, and (4) negative expectancy - no anticipation of future interaction.

All subjects performed a decision-making task (1) individually before going into their groups, (2) as a group, and (3) finally as individuals again after coming out of their groups. Subjective scales to

assess expected and resultant group outcomes were administered before and after the group decision-making effort.

CHAPTER III

RESULTS

As a preliminary step in the analysis of data, performance adequacy on the decision task was scored by computing the difference between both individual and group decision rankings and the criterion rankings supplied by NASA (see Appendix A) for each of the fifteen items comprising the task in the hypothetical survival problem. The differences obtained represent decision errors which, when summed across the fifteen items, provide a total decision product for individuals or groups in the form of a decision error score. Higher dicision error scores thus indicate poorer performance while lower scores reflect less overall error, or better performance on the task in the form of a more "correct" ranking of the fifteen items. Next, means of these decision error scores and means of responses to the pre and post group subjective scales were computed. These means and corresponding analyses will be presented as each measure is discussed. In addition, it should be noted that intercorrelations between all subjective scales were also accomplished as a check on their overall psychometric characteristics (see Appendix H for intercorrelation matrix). Examination of the means and intercorrelations indicated that the scales were minimally subject to such common rating errors as halo effect and central tendency.

Responses to Pre-Group Subjective Scales

Recall that subjective scales to assess feelings of anxiety as well as expectations regarding how well group members would get along and how much they would enjoy working together were administered immediately after the experimental manipulations but before any actual participation in group interaction. These pre-measures thus served two primary functions: first, they allowed a check on subjects' feelings and expectancies in several important areas that could later be contrasted with actual outcomes in those same areas; and second, they provided a check on the effectiveness or success of the experimental manipulations used to establish the treatment variables for the study.

Anxiety. First, subjective anxiety was assessed. Subjects were asked how calm or anxious they felt. Mean pre-group anxiety scores are shown in Table 1 with the corresponding analysis of variance presented in Table 2. The pre-group anxiety data indicate indifference or very little anxiety across all conditions at this point in the study. The analysis indicated no significant difference between the positive expectancy conditions (5.01) and the negative expectancy conditions (4.86). It further revealed no significant differences between subjects having anticipation of future interaction (4.98) and those having no anticipation of future interaction (4.90). Thus, at the point that the pre-group subjective measures were obtained, little anxiety was present and no differential effects in terms of the treatment manipulations were indicated.

Expectancy of Interpersonal Conflict. Second, expectancy regarding the extent of conflict anticipated by subjects when working with others in their groups was assessed by asking each subject how well he thought

Table 1

Mean Pre-Group Anxiety Scores

	+Expectancy	- Expectancy	Total
Anticipation of Future Interaction	5.02	4.93	4.98
No Anticipation of Future Interaction	5.00	4.79	4.90
Total	5.01	4.86	

Table 2

Analysis of Variance on Pre-Group Anxiety Scores

Source of Variance	df	MS	F	P
Between Expectancy Groups (E)	1	2.25	.43	n.s.
Between Anticipation of Future Interaction Groups (F)	1	.64	.12	n.s.
Interaction E x F	1	.36	.07	n.s.
Error	396	5.26	—	—

he would "get along" with the other members of his group. This measure was designed to reflect the degree of disharmony or difficulty expected by subjects in working in their groups on the upcoming decision task. Mean pre-group conflict expectancy scores are given in Table 3. The analysis of variance on these scores is shown in Table 4. If the experimental treatment manipulations were in fact effective, subjects in the negative expectancy groups should have indicated lower scores than those in the positive expectancy groups. This is exactly what the analysis reflected, in that positive expectancy subjects reported significantly more affirmative estimates that they would get along well with others in their group (7.31) than did negative expectancy subjects (6.58) who were more uncertain. However, the analysis indicated no significant differences between subjects having anticipation of future interaction (6.99), and those with no anticipation of future interaction (6.90), although it should be noted that the interaction between expectancy of outcome and anticipation of future interaction approached significance.

Expectancy of Reward. Finally, expectancy of interpersonal or social reward was assessed by asking subjects how much they felt they would enjoy working with the other members of their groups. This scale was included to provide a measure of the enjoyment or "reward" anticipated by subjects in the course of the upcoming member interactions during the group decision-making process. Mean pre-group enjoyment (reward) expectancy scores are displayed in Table 5, and the associated analysis of variance is presented in Table 6. Again, negative expectancy subjects' responses should be lower than those of positive expectancy subjects for the treatment manipulations to be considered effective. And again the analysis confirmed

Table 3

Mean Pre-Group Conflict Expectancy Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	7.28	6.70	6.99
No Anticipation of Future Interaction	7.34	6.45	6.90
Total	7.31	6.58	

Table 4

Analysis of Variance on Pre-Group Conflict Expectancy Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	54.02	42.25	.000
Between Anticipation of Future Interaction Groups (F)	1	.90	.71	n.s.
Interaction E x F	1	2.40	1.88	n.s.
Error	396	1.28	—	—

Table 5

Mean Pre-Group Enjoyment (Reward) Expectancy Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	7.24	6.61	6.93
No Anticipation of Future Interaction	7.23	6.37	6.80
Total	7.24	6.49	

Table 6

Analysis of Variance on Pre-Group Enjoyment Expectancy Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	55.50	35.85	.000
Between Anticipation of Future Interaction Groups (F)	1	1.56	1.01	n.s.
Interaction E x F	1	1.32	.85	n.s.
Error	396	1.55	--	--

that positive expectancy subjects indicated significantly greater anticipated enjoyment (7.24) than negative expectancy subjects (6.49). Unfortunately, this analysis also again showed no significant differences between groups having anticipation of future interaction (6.93) and those having no anticipation of future interaction (6.80).

To summarize, the pre-group subjective scale responses indicated no differential effects of the treatment manipulations for anxiety. However, on the two more critical expectancy scales, strong differences were found between the positive and negative expectancy conditions while none were indicated between the anticipation of future interaction and no anticipation of future interaction conditions. This suggests that the expectancy manipulation was somewhat weak in some respect. Somewhat weak rather than totally unsuccessful, because the means do show consistent directional differences (more favorable for anticipation of future interaction), but these differences were not significant.

Performance on the Decision Task

Mean errors on the decision task for individuals on the pre-group measure, for groups, and for individuals on the post-group measure are shown in Table 7. The corresponding repeated measures analysis of variance for these decision error scores is displayed in Table 8. These data reflect what could be termed "decision adequacy" in the form of the extent of deviation of individual and group rankings from the expert or "correct" criterion rankings. Decision adequacy is the primary performance index that will be discussed. An indication of the extent of utilization of member resources will be noted at the conclusion of the decision adequacy results.

Table 7

Mean Error Scores on Decision Task

	+ Expectancy	- Expectancy	Total
Individual Error-Pre Measure			
Anticipation of Future Interaction	44.05	44.09	44.07
No Anticipation of Future Interaction	42.72	43.53	43.13
Total	43.39	43.81	43.60
Group Performance Error			
Anticipation of Future Interaction	28.28	29.51	28.90
No Anticipation of Future Interaction	31.70	28.20	29.95
Total	29.99	28.86	29.42
Individual Error-Post Measure			
Anticipation of Future Interaction	30.76	30.03	30.40
No Anticipation of Future Interaction	32.58	30.36	31.47
Total	31.67	30.20	30.93
Grand Total	35.02	34.29	34.65

(Grand Total for Anticipation of Future Interaction Groups - +F34.48, -F34.82)

Table 8

Summary of the Analysis of Variance on Decision Error Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	159.14	.99	n.s.
Between Future Interaction Groups (F)	1	36.40	.22	n.s.
Interaction E x F	1	222.74	1.39	.25
For Pre Measure	(1)	18.02	.19	n.s.
For Groups	(1)	488.29	5.28	.05
For Post Measure	(1)	55.41	.60	n.s.
Error A	396	159.59	--	--
Error for Simple Effects	(396)	92.43	--	--
Between Individual and Group Performance Measures (M)	2	24240.85	411.00	.000
Interaction E x M	2	102.65	1.74	n.s.
Interaction F x M	2	126.09	2.14	n.s.
Interaction E x F x M	2	169.49	2.88	.10
Error B	792	58.85	--	--

Decision Adequacy. Consider now decision adequacy in light of the first hypothesis from Chapter I which predicted that group performance would be better for positive expectancy groups than for negative expectancy groups. This hypothesis was not supported. The analysis of variance indicates that the mean decision error of subjects who had a positive expectancy (35.02) was not significantly different from the error of subjects who had a negative expectancy (34.29). Thus, in terms of overall decision adequacy, at least, it appears that the differential expectations reflected on the pre-group subjective scales reported earlier did not precipitate differing performance outcomes between positive and negative expectancy subjects.

Next, recall the second hypothesis that groups having no anticipation of future interaction would perform better on the decision task than would groups having anticipation of future interaction. This hypothesis was also not confirmed by the decision adequacy data. The analysis in Table 8 indicates no significant differences between decision errors made under the no future interaction condition (34.82) and the errors found under the anticipation of future interaction (34.48) condition.

The fifth hypothesis in Chapter I predicted that better group performance would occur under the positive expectancy - no anticipation of future interaction condition than under the negative expectancy - anticipation of future interaction condition. The opposite was found, in that group decision error in the positive expectancy - no anticipation of future interaction condition (31.70) was greater ($t=1.67$, $p < .05$) than that for the negative expectancy - anticipation of future interaction condition (29.51).

Additionally, the complete analysis of variance indicated a hint of an overall interaction between expectancy of group outcomes and anticipation of future interaction. As the main interest of this study was to explore the interaction of these two types of expectancy in influencing what happens in the groups, the simple interaction effects were examined. As might be anticipated, the E x F interaction was found to be significant for the group performance measure, but not for the individual pre or post measures. It is apparent from Table 7 that this interaction of expectancies stems primarily from the finding that under positive expectancy, groups anticipating future interaction (28.28) performed better than groups not anticipating future interaction (31.70), while under negative expectancy, groups anticipating future interaction (29.51) performed worse than groups not anticipating future interaction (28.20). This supports an overall interaction hypothesis and suggests that expectancies regarding group outcomes were in fact influenced by extent of anticipated future interaction among group members. As such, it demonstrates that group performance outcomes can differentially reflect the interaction of these two types of interpersonal expectations, as was asserted in Chapter I in stating the rationale for this study.

Finally, it should be noted that an analysis of covariance using the individual ranking on the pre-measure as the covariate indicated that the absence of main effect differences in the quality of group performance was probably not accounted for by any initial bias in individual performance on the pre-measure. Further, this covariance analysis showed that the simple interaction treatment effect found on the group performance measure was not attributable to any initial interaction effect in indivi-

dual performance on the pre-measure.

Utilization of Group Resources. The resources available to the group members for making decisions about how to rank the items on the survival task can be viewed from a variety of perspectives. But probably it is the group members' error scores on the pre-group individual rankings that offer the best reflection of overall resources available to the groups in the present situation. This overall individual pre-error can be considered as a sort of baseline against which subsequent group-error can be contrasted for improvement. If nothing else, the groups should be able to perform as well as their members performed alone prior to the group discussions, unless group processes and outcomes were so negative as to result in an ineffective sharing of collective knowledge. Thus, by viewing the extent to which groups surpass the performance of their collective members individually, some indication of the effectiveness with which total member resources were utilized can be obtained. It can be clearly noted from the analysis of variance in Table 8 that groups performed significantly better (29.42) than did individuals alone either before (43.60) or after (30.93) the group discussions, regardless of experimental treatment. This suggests that, overall, member resources were well-utilized by all groups. Application of the Newman-Keuls precedure to the individual and group performance means indicated that the differences between the pre-measure and group performance measure (14.18) as well as the pre-measure and post-measure (12.67) were significant ($p < .01$), and that the difference between the group performance measure and the post-measure (1.51) was not significant. The difference between group and individual performance measurements is primarily accounted for by the difference

between initial individual performance and group performance.

Responses to Post-Group Subjective Scales

The subjective scales administered after subjects had completed the group decision-making exercise (see Appendix E) were designed to assess feelings and subjective outcomes in three broad areas: some measured primarily interpersonal outcomes; others dealt more with attitudes or outcomes associated with the decision task or the perceived performance of one's group on that task; and finally some scales were included to measure various aspects of the experiment itself, that is as control scales relating to outcomes of the study and how it was conducted. The post-group subjective scale results will be described in three sections, each covering responses to scales as outlined in the broad categories just mentioned. First, findings from each of the scales dealing with interpersonal outcomes will be presented.

Interpersonal Rewards. Subjective enjoyment or reward accruing from group interaction was assessed by asking each subject how much he had enjoyed working with the other members of his group on the decision task. Mean reward scores are shown in Table 9, and the corresponding analysis of variance is presented in Table 10.

Recall the third hypothesis from Chapter I which predicted more favorable subjective outcomes for positive expectancy groups than for negative expectancy groups. This hypothesis was supported by the responses to this scale, in that the mean enjoyment reported by positive expectancy subjects (8.06) was significantly greater than that indicated by negative expectancy subjects (7.64). No support was found for the fourth hypothesis as subjects under the no anticipation of future inter-

Table 9

Mean Reward Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	8.08	7.54	7.81
No Anticipation of Future Interaction	8.04	7.74	7.89
Total	8.06	7.64	

Table 10

Analysis of Variance on Reward Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	17.64	10.86	.001
Between Anticipation of Future Interaction Groups (F)	1	.64	.39	n.s.
Interaction E x F	1	1.44	.89	n.s.
Error	396	1.62	—	—

action conditions reported about the same enjoyment (7.89) as subjects under the anticipation of future interaction conditions (7.81). The fifth hypothesis was also confirmed, in that more reward was indicated ($t=4.24$, $p < .0005$) for the positive expectancy - no anticipation of future interaction condition (8.04) than for the negative expectancy - anticipation of future interaction condition (7.54). The overall E x F interaction was not significant.

Group Acceptance Outcomes. Acceptance by other group members was assessed by asking each subject how well his comments and suggestions were accepted by others during the group discussions. Mean group acceptance scores age given in Table 11. The analysis of variance is shown in Table 12.

The third hypothesis would predict greater feelings of acceptance for positive expectancy groups than for negative expectancy groups, while the fourth hypothesis suggests more acceptance would be found for groups having no anticipation of future interaction than for groups anticipating future interaction. Support was found for the third hypothesis but not for the fourth. Positive expectancy subjects reported significantly greater group acceptance (7.06) than did negative expectancy subjects (6.79), while there was no significant difference between anticipation of future interaction groups (6.93) and no anticipation of future interaction groups (6.93). Again, hypothesis five was confirmed, and there was no E x F interaction. Group acceptance was greater ($t=1.36$, $p < .10$) for the positive expectancy - no anticipation of future interaction condition (7.12) than for the negative expectancy - anticipation of future interaction condition (6.85).

Table 11

Mean Group Acceptance Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	7.00	6.85	6.93
No Anticipation of Future Interaction	7.12	6.73	6.93
Total	7.06	6.79	

Table 12

Analysis of Variance on Group Acceptance Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	7.29	3.84	.05
Between Anticipation of Future Interaction Groups (F)	1	0.00	0.00	n.s.
Interaction E x F	1	1.44	.76	n.s.
Error	396	1.90	--	--

Group Member Satisfaction. An indication of member satisfaction was obtained by asking subjects how satisfied they were with the overall performance and functioning of their groups. Mean satisfaction scores are presented in Table 13, and the corresponding analysis of variance is summarized in Table 14.

Again, the third hypothesis was confirmed and the fourth not supported. Positive expectancy subjects were more satisfied with their groups (8.07) than were negative expectancy subjects (7.69). However, there was no significant difference between anticipation of future interaction groups (7.94) and no anticipation of future interaction groups (7.82). In support of hypothesis five, positive expectancy - no anticipation of future interaction subjects (8.04) were more satisfied ($t=1.48$, $p < .01$) than negative expectancy - anticipation of future interaction subjects (7.78), and again no E x F interaction was found.

Subjective Equity. Equity from the individual's point of view was assessed by asking each subject if he felt that the other members of his group had treated him "fairly." Mean equity responses are shown in Table 15. The analysis of variance on equity scores is displayed in Table 16.

Oddly, no significant differences in feelings of equity were found for any of the hypotheses. Positive expectancy groups were not much more fair (8.57) than negative expectancy groups (8.48), and future interaction groups (8.50) were about the same as no future interaction groups (8.56). There was no equity E x F interaction, and positive expectancy - no anticipation of future interaction subjects (8.61) had much the same equity feelings ($t=1.28$, n.s.) as negative expectancy - anticipation of

Table 13

Mean Satisfaction Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	8.10	7.78	7.94
No Anticipation of Future Interaction	8.04	7.60	7.82
Total	8.07	7.69	

Table 14

Analysis of Variance on Satisfaction Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	14.44	9.66	.005
Between Anticipation of Future Interaction Groups (F)	1	1.44	.96	n.s.
Interaction E x F	1	.36	.24	n.s.
Error	396	1.49	--	--

Table 15

Mean Equity Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	8.53	8.46	8.50
No Anticipation of Future Interaction	8.61	8.48	8.56
Total	8.57	8.48	

Table 16

Analysis of Variance on Equity Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	.81	.94	n.s
Between Anticipation of Future Interaction Groups (F)	1	.36	.42	n.s.
Interaction E x F	1	.04	.05	n.s.
Error	396	.86	—	—

future interaction subjects (8.46).

Friendliness Toward Other Group Members. An estimate of feelings toward other group members was obtained by asking each subject whether he felt friendly or hostile toward them. The dimensionality of the scale was such that higher scores would indicate greater friendliness than lower scores. The means are presented in Table 17 and the analysis of variance in Table 18.

Hypothesis three was confirmed as was hypothesis five. Again, no support was found for hypothesis four. Positive expectancy subjects felt more friendly to the other members of their groups (8.16) than did negative expectancy subjects (7.81). Under the positive expectancy - no anticipation of future interaction condition, more friendliness (8.25) was expressed ($t=2.45$, $p < .01$) than under the negative expectancy - anticipation of future interaction condition (7.84). The anticipation of future interaction groups (7.97) were about as friendly as the no anticipation of future interaction groups (8.01), and again no E x F interaction was found.

Perceived Friendliness From Other Group Members. In order to get an indication of the degree of friendliness of the other group members perceived by each individual, each subject was asked to estimate how friendly he thought the members of his group felt toward him. Mean scores obtained for this scale are shown in Table 19. The analysis of variance is summarized in Table 20.

As with the previous friendliness/hostility measure, hypotheses three and five were supported, but hypothesis four was not. More friendliness from other group members was perceived by positive expectancy sub-

Table 17

Mean Friendliness Toward Other Group Members Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	8.09	7.84	7.97
No Anticipation of Future Interaction	8.25	7.78	8.01
Total	8.16	7.81	

Table 18

Analysis of Variance on Friendliness Toward Other Group Members Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	12.25	9.65	.005
Between Anticipation of Future Interaction Groups(F)	1	.16	.13	n.s.
Interaction E x F	1	1.00	.79	n.s.
Error	396	1.27	—	—

Table 19

Mean Perceived Friendliness From Other Group Members Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	7.75	7.57	7.66
No Anticipation of Future Interaction	7.89	7.35	7.62
Total	7.82	7.46	

Table 20

Analysis of Variance on Percieved Friendliness From Others Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	12.96	10.23	.005
Between Anticipation of Future Interaction Groups (F)	1	.16	.13	n.s.
Interaction E x F	1	3.24	2.56	n.s.
Error	396	1.27	—	—

jects (7.82) than by negative expectancy subjects (7.46), but there was little difference between subjects who anticipated future interaction (7.66) and those who anticipated no future interaction (7.62). More friendliness was perceived ($t=2.03$, $p < .025$) in the positive expectancy - no anticipation of future interaction groups (7.89) than in the negative expectancy - anticipation of future interaction groups (7.57). The E x F interaction approaches, but does not attain, significance.

Affection (Liking) for Other Group Members. Subjects were asked how well they liked the other members of their groups. Their mean responses are given in Table 21, and the associated analysis of variance is presented in Table 22.

The third hypothesis would predict greater affection (liking) toward other group members under positive expectancy conditions than under negative expectancy conditions. This hypothesis was supported, in that positive expectancy subjects indicated greater affection (7.96) than did negative expectancy subjects (7.42). No support was found for the fourth hypothesis. Subjects with anticipation of future interaction (7.65) were not significantly different on this measure from subjects with no anticipation of future interaction (7.73). In keeping with the fifth hypothesis, subjects under the positive expectancy - no anticipation of future interaction condition (8.01) did like the other members of their groups more ($t=3.93$, $p < .0005$) than subjects under the negative expectancy - anticipation of future interaction condition (7.39). No E x F interaction was indicated.

Interpersonal Conflict. In order to assess the interpersonal or social conflict outcomes for individuals as a result of their group parti-

Table 21

Mean Affection (Liking) for Other Members in Group Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	7.90	7.39	7.65
No Anticipation of Future Interaction	8.01	7.45	7.73
Total	7.96	7.42	

Table 22

Analysis of Variance on Liking for Other Group Members Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	28.62	18.27	.000
Between Anticipation of Future Interaction Groups (F)	1	.72	.46	n.s.
Interaction E x F	1	.06	.04	n.s.
Error	396	1.57	—	—

cipation, subjects were asked if they "got along well" with the other members of their groups. Mean conflict outcome scores are presented in Table 23. The corresponding analysis of variance is shown in Table 24.

In support of hypothesis three, positive expectancy subjects got along better with the other members of their groups (8.23) than did negative expectancy subjects (7.78). No support was found for hypothesis four, in that anticipation of future interaction subjects were about the same (7.98) as no anticipation of future interaction subjects (8.06). Hypothesis five was also confirmed. Positive expectancy - no anticipation of future interaction groups (8.39) reported more favorable interpersonal relations ($t=3.73$, $p < .0005$) than negative expectancy - anticipation of future interaction groups (7.83). A significant E x F interaction was also found. It indicates that positive expectancy subjects got along with others in their group worse when they had anticipation of future interaction (8.12) than when they had no anticipation of future interaction (8.39); but that, on the other hand, negative expectancy subjects got along better when they had anticipation of future interaction (7.83) than when they had no anticipation of future interaction (7.72).

Post-Group Anxiety. Subjects were again asked how calm or anxious they felt, as on the pre-group anxiety measure. The post-group anxiety means are shown in Table 25. The analysis of variance on anxiety scores is presented in Table 26.

As higher scores indicate greater anxiety, hypothesis three would predict lower scores for positive than negative expectancy groups, and hypothesis four would predict lower scores for no anticipation of future interaction groups than for anticipation of future interaction groups.

Table 23

Mean Post-Group Conflict Outcome Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	8.12	7.83	7.98
No Anticipation of Future Interaction	8.39	7.72	8.06
Total	8.23	7.78	

Table 24

Analysis of Variance on Post-Group Conflict Outcome Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	23.04	20.34	.000
Between Anticipation of Future Interaction Groups (F)	1	.64	.57	n.s.
Interaction E x F	1	3.61	3.19	.10
Error	396	1.13	—	—

Table 25

Mean Post-Group Anxiety Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	5.15	5.47	5.31
No Anticipation of Future Interaction	4.70	5.15	4.93
Total	4.93	5.31	

Table 26

Analysis of Variance on Post-Group Anxiety Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	14.82	1.98	n.s.
Between Anticipation of Future Interaction Groups (F)	1	14.82	1.98	n.s.
Interaction E x F	1	.42	.60	n.s.
Error	396	7.48	—	—

Hypothesis five suggests that lower scores should be found under the positive expectancy - no anticipation of future interaction condition than under the negative expectancy - anticipation of future interaction condition. Positive expectancy subjects did report less anxiety (4.93) than negative expectancy subjects (5.31), but this difference only approaches significance. Also, subjects with no anticipation of future interaction did indicate less anxiety (4.93) than subjects with anticipation of future interaction (5.31), but again the difference only approaches significance. However, in support of hypothesis five, subjects in the positive expectancy - no anticipation of future interaction condition (4.70) reported significantly less anxiety ($t=2.03$, $p < .025$) than did subjects in the negative expectancy - anticipation of future interaction condition (5.47).

We now turn to findings from each of the scales dealing with attitudes or outcomes associated with the decision task and feelings about performance on the task.

Confidence in Adequacy of Group's Performance. Subjects were asked how confident they were that their group's decisions were "good" decisions in order to assess individual member confidence regarding the adequacy of their group's performance. Mean confidence scores are given in Table 27 with the corresponding analysis of variance summarized in Table 28.

The third hypothesis in Chapter I was supported, in that positive expectancy subjects reported greater confidence (7.93) than did negative expectancy subjects (7.59). But again, no support was found for hypothesis four. Confidence reported by anticipation of future interaction subjects (7.72) was not significantly less than that indicated by no anticipation of future interaction subjects (7.81). No E x F interaction was

Table 27

Mean Confidence Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	7.88	7.55	7.72
No Anticipation of Future Interaction	7.98	7.63	7.81
Total	7.93	7.59	

Table 28

Analysis of Variance on Confidence Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	11.56	7.75	.01
Between Anticipation of Future Interaction Groups (F)	1	.81	1.54	n.s.
Interaction E x F	1	.01	.01	n.s.
Error	396	1.49	—	—

found. However, hypothesis five was confirmed. Positive expectancy - no anticipation of future interaction groups (7.98) were more confident in their decisions ($t=2.37$, $p < .01$) than were negative expectancy - anticipation of future interaction groups (7.55).

Agreement Among Group Members. Individual feelings about agreement among group members concerning their group decisions was assessed by asking each subject to indicate his impression of the extent of agreement among his group on the group's final decision rankings. Mean agreement ratings are shown in Table 29 and the associated analysis of variance is presented in Table 30.

Hypothesis three would predict greater agreement in positive expectancy groups than in negative expectancy groups. This hypothesis was supported; positive expectancy subjects reported more agreement (8.05) than did negative expectancy subjects (7.77). No support was found for the fourth hypothesis, because anticipation of future interaction groups (7.96) had about the same extent of agreement as no anticipation of future interaction groups (7.86). Again there was no E x F interaction. Further, no support was found for hypothesis five. Positive expectancy - no anticipation of future interaction subjects (7.99) reported about the same agreement ($t=1.10$, n.s.) as negative expectancy - anticipation of future interaction subjects (7.80).

Group Influence on Individual Members. In order to assess the extent of group influence on individual feelings about the decision rankings, subjects were asked to indicate how much they personally agreed with the final decisions arrived at by their groups. The mean group decision influence scores are presented in Table 31 and the analysis is

Table 29

Mean Intragroup Agreement on Final Group Decision Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	8.11	7.80	7.96
No Anticipation of Future Interaction	7.99	7.74	7.86
Total	8.05	7.77	

Table 30

Analysis of Variance on Final Intragroup Agreement Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	7.84	4.75	.05
Between Anticipation of Future Interaction Groups (F)	1	.81	.49	n.s.
Interaction E x F	1	.09	.05	n.s.
Error	396	1.65	—	—

shown in Table 32.

Hypothesis three would predict greater influence for positive expectancy conditions than for negative expectancy conditions; this hypothesis was confirmed. Positive expectancy groups reported greater individual agreement with group decisions (7.91) than did negative expectancy groups (7.67). No support was indicated for hypothesis four or five and no E x F interaction was found. Anticipation of future interaction subjects (7.79) were the same as no anticipation of future interaction subjects (7.79), and positive expectancy - no anticipaiton of future interaction subjects (7.91) were not significantly different (t=1.21, n.s.) from negative expectancy - anticipation of future interaction subjects (7.67), although the means differed slightly in the predicted direction.

Individual versus Group Decisions. Subjects were asked to indicate the extent to which they felt that their individual decisions were better than the decisions arrived at by their groups. The resulting mean responses are shown in Table 33 with the corresponding analysis of avriance in Table 34.

No support was found for any of the hypotheses on this measure. Positive expectancy groups (4.64) were not significantly different from negative expectancy groups (4.85). Anticipation of future interaction groups (4.76) were about the same as no anticipation of future interaction groups (4.73). The positive expectancy - no anticipation of future interaction condition (4.58) was not significantly better (t=.76, n.s.) than the negative expectancy - anticipation of future interaction condition (4.82). Again, there was no E x F interaction.

Disagreements During Group Discussions. Each subject was asked to

Table 31

Mean Group Decision Influence Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	7.91	7.67	7.79
No Anticipation of Future Interaction	7.91	7.66	7.79
Total	7.91	7.67	

Table 32

Analysis of Variance on Group Decision Influence Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	6.00	4.22	.05
Between Anticipation of Future Interaction Groups (F)	1	0.00	0.00	n.s.
Interaction E x F	1	0.00	0.00	n.s.
Error	396	1.42	--	--

Table 33

Mean Confidence That Individual Better Than Group Decision

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	4.70	4.82	4.76
No Anticipation of Future Interaction	4.58	4.88	4.73
Total	4.64	4.85	

Table 34

Analysis of Variance on Individual vs. Group Decision Confidence

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	4.41	.89	n.s.
Between Anticipation of Future Interaction Groups (F)	1	.09	.02	n.s.
Interaction E x F	1	.81	.16	n.s.
Error	396	4.96	--	--

indicate whether the members of his group had any prolonged disagreements during the group's discussions on how to rank the items on the decision task in order to assess intragroup disagreement or conflict. This was a three point scale, and the mean scores obtained are presented in Table 35. The analysis of variance for this scale is given in Table 36.

Hypothesis three would predict less conflict and disagreement under positive expectancy conditions than under negative expectancy conditions. This hypothesis was supported; positive expectancy groups reported less disagreement or conflict (1.64) than did negative expectancy groups (1.99). Hypothesis five was also supported, in that positive expectancy - no anticipation of future interaction subjects (1.57) reported less disagreement ($t=3.35$, $p < .005$) than did negative expectancy - anticipation of future interaction subjects (2.01). No support was found for hypothesis four; anticipation of future interaction groups (1.86) were about the same as no anticipation of future interaction groups (1.77). Also, no E x F interaction was found.

Next, findings from each of the scales that dealt with aspects of the experiment will be presented. These are the measures dealing with subjective outcomes of the study and how it was conducted.

Prior Acquaintance of Group Members. Two scales were designed to assess the extent of prior acquaintance among group members. One scale asked subjects to report how well they knew each other (prior to the experiment) while the other asked subjects to indicate specifically how many members of their five-man groups they knew "very well" (again, prior to the experiment). Means and analyses of variance for these scales are presented in Tables 37, 38, 39, and 40.

Table 35

Mean Intragroup Disagreement Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	1.71	2.01	1.86
No Anticipation of Future Interaction	1.57	1.97	1.77
Total	1.64	1.99	

Table 36

Analysis of Variance on Intragroup Disagreement Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	12.25	14.74	.000
Between Anticipation of Future Interaction Groups (F)	1	.81	.97	n.s.
Interaction E x F	1	.25	.30	n.s.
Error	396	.83	--	--

Table 37

Mean Scores For Prior Acquaintance Among Group Members

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	6.37	6.59	6.48
No Anticipation of Future Interaction	6.68	7.51	7.10
Total	6.53	7.05	

Table 38

Analysis of Variance on Prior Acquaintance Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	27.56	8.11	.005
Between Anticipation of Future Interaction Groups (F)	1	37.82	11.13	.001
Interaction E x F	1	9.30	2.74	.10
Error	396	3.40	--	--

Table 39

Mean Scores for Number of Group Members Previously Well-Known

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	3.99	4.32	4.16
No Anticipation of Future Interaction	4.29	4.74	4.52
Total	4.14	4.53	

Table 40

Analysis of Variance on Number of Group Members Previously Well-Known

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	15.21	13.67	.000
Between Anticipation of Future Interaction Groups (F)	1	12.96	11.65	.001
Interaction E x F	1	.36	.32	n.s.
Error	396	1.11	—	—

It would be desirable, from the viewpoint of experimental control, if subjects indicated minimal prior acquaintance on these two scales. Since subjects were selected and grouped on a random basis, it was necessary to assess the extent to which this requirement was met. Both scales were constructed such that higher scale values reflect less prior acquaintance. On the "prior acquaintance" scale, negative expectancy groups reported less prior acquaintance (7.05) than positive expectancy groups (6.53). No anticipation of future interaction groups indicated less prior acquaintance (7.10) than anticipation of future interaction groups (6.48). Also, there was an E x F interaction. However, viewed in the context of practical significance, these differences are not disturbing. The means, while different, all reflect only minimal prior acquaintance (between only somewhat acquainted and not very well acquainted).

Similarly, on the "number of group members previously well-known" scale, negative expectancy subjects indicated less prior knowledge (4.53) than positive expectancy subjects (4.14) and no anticipation of future interaction subjects reported less prior knowledge (4.52) than anticipation of future interaction subjects (4.16). No E x F interaction was indicated. Again, these differences have little practical significance in terms of unacceptable experimental control, for all reflect very minimal prior knowledge or acquaintance (between one, or less than one, and none of the other group members having been well-known prior to the experiment). Thus, responses to these scales indicate that minimal prior acquaintance among group members was in fact achieved.

Disconfirmation of Expected Enjoyment. Two scales were devised to assess whether the expectations generated by the expectancy manipulation

were disconfirmed by actual group outcomes during the group discussions. The first of these scales dealt with expected enjoyment, and asked each subject to indicate whether he enjoyed working with his group more than he had thought he would (a higher scale value thus indicated a positive disconfirmation of expectancy) or less than he had thought he would (the lower scale value indicated a negative disconfirmation of expectancy). By choosing the middle position of this three point scale, subjects could indicate no disconfirmation of their enjoyment expectations. The enjoyment expectancy disconfirmation means are shown in Table 41. The analysis of variance is given in Table 42.

While all groups indicated some positive disconfirmation of enjoyment expectancy, the only difference in extent of this disconfirmation that approached significance was between positive and negative expectancy groups. Negative expectancy subjects reported somewhat more positive disconfirmation (2.53) than did positive expectancy subjects (2.43). No difference was found between anticipation of future interaction (2.47) and no anticipation of future interaction (2.48).

Disconfirmation of Expected Intragroup Conflict. The second expectancy disconfirmation scale dealt with expected conflict or disharmony among group members. This time, each subject was asked to indicate whether he "got along" with the other members of his group better than he had thought he would (again indicating a positive disconfirmation of expectancy) or not as well as he had thought he would (indicating a negative disconfirmation of expectancy). As on the first disconfirmation scale, subjects could choose the middle position of the three point scale to indicate no disconfirmation of their interpersonal conflict expectations.

Table 41

Mean Enjoyment Expectancy Disconfirmation Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	2.41	2.53	2.47
No Anticipation of Future Interaction	2.44	2.52	2.48
Total	2.43	2.53	

Table 42

Analysis of Variance on Enjoyment Expectancy Disconfirmation Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	1.00	2.53	n.s.
Between Anticipation of Future Interaction Groups (F)	1	.01	.03	n.s.
Interaction E x F	1	.04	.10	n.s.
Error	396	.40	--	--

The mean conflict expectancy disconfirmation responses are given in Table 43. The associated analysis of variance is summarized in Table 44.

As on the previous disconfirmation scale, all groups reported some positive disconfirmation of expectancy. Again, the difference between positive and negative expectancy subjects in extent of positive disconfirmation regarding conflict expectations only approached significance. Negative expectancy subjects' positive disconfirmation (2.43) was not much greater than that reported by positive expectancy subjects (2.37). Again, no significant difference was found between anticipation of future interaction groups (2.38) and no anticipation of future interaction groups (2.42).

Leadership. As the individual members were to function together as a leaderless group in arriving at a single group decision product, it was necessary to assess whether leaders had emerged and differentially dominated group discussions. Subjects were asked, on another three position scale, whether they felt someone had assumed the role of group discussion leader. The higher scale value indicated no leader while the lower value indicated that someone had assumed a leadership role. Mean leadership responses are presented in Table 45 and the associated analysis of variance is displayed in Table 46.

Overall responses to the leadership question indicated that leadership, or dominance, of individual group members was minimal. More important, from the standpoint of experimental control, was the finding that no differential leadership influences acrogs experimental conditions were indicated by the analysis.

Interest in the Experiment. Each subject was asked to indicate how

Table 43

Mean Conflict Expectancy Disconfirmation Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	2.34	2.41	2.38
No Anticipation of Future Interaction	2.39	2.45	2.42
Total	2.37	2.43	

Table 44

Analysis of Variance on Conflict Expectancy Disconfirmation Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	.42	1.69	n.s.
Between Anticipation of Future Interaction Groups (F)	1	.20	.81	n.s.
Interaction E x F	1	0.00	.01	n.s.
Error	396	.25	—	—

Table 45

Mean Leadership in Group Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	2.21	2.13	2.17
No Anticipation of Future Interaction	2.17	2.13	2.15
Total	2.19	2.13	

Table 46

Analysis of Variance on Discussion Leadership in Groups

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	.36	.44	n.s.
Between Anticipation of Future Interaction Groups (F)	1	.04	.05	n.s.
Interaction E x F	1	.04	.05	n.s.
Error	396	.82	—	—

interesting the experiment was to him on a nine point scale where the higher values reflected the greatest interest. Mean interest scores are reported in Table 47, and the analysis of variance on these scores is presented in Table 48.

Overall, subjects indicated that they found the experiment interesting. No significant differences in interest across treatment conditions were revealed by the analysis.

As a final step in the data analysis, difference scores were computed for the subjective anxiety, intragroup conflict, and enjoyment (rewards) measures. Recall that pre-measures were obtained on these three scales to assess expectations before subjects were placed together in their groups. Post-measures on the same scales were obtained after the group interaction to assess subsequent interpersonal outcomes. Difference scores were obtained by subtracting the pre-measure responses from the post-measure responses such that a positive difference score indicated an increase on the post-measure outcome over the pre-measure expectancy.

Anxiety Differences. The mean anxiety difference scores are shown in Table 49 with the associated analysis of variance in Table 50. Hypothesis three from Chapter I would predict less of an anxiety increase for positive expectancy groups than for negative expectancy groups. In support of this hypothesis, positive expectancy subjects actually declined slightly in their anxiety (-.09) while negative expectancy subjects increased (+.45). Hypothesis four would predict less anxiety increase for groups having no anticipation of future interaction than for groups anticipating future interaction. This hypothesis was not confirmed, although the differences indicated were in the predicted direction with anxiety increasing

Table 47

Mean Scores on Interest in Experiment

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	8.31	8.07	8.19
No Anticipation of Future Interaction	7.96	8.08	8.02
Total	8.14	8.08	

Table 48

Analysis of Variance on Interest in Experiment

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	.36	.19	n.s.
Between Anticipation of Future Interaction Groups (F)	1	2.89	1.49	n.s.
Interaction E x F	1	3.24	1.67	n.s.
Error	396	1.94	—	—

Table 49

Mean Pre-Post Anxiety Difference Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	+.13	+.54	+.34
No Anticipation of Future Interaction	-.30	+.36	+.03
Total	-.09	+.45	

Table 50

Analysis of Variance on Anxiety Difference Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	26.01	4.28	.05
Between Anticipation of Future Interaction Groups (F)	1	7.84	1.29	n.s.
Interaction E x F	1	2.25	.37	n.s.
Error	396	6.08	--	--

less for no anticipation of future interaction groups (+.03) than for anticipation of future interaction groups (+.34). Of particular interest was the support found for hypothesis five. Subjects in the positive expectancy - no anticipation of future interaction condition (-.30) declined significantly in their anxiety while negative expectancy - anticipation of future interaction subjects (+.54) increased more than any of the other experimental groups ($t=2.23$, $p < .025$).

Intragroup Conflict Differences. Mean intragroup conflict difference scores are given in Table 51. The corresponding analysis of variance is presented in Table 52. The difference between how well subjects expected they would get along on the pre-measure and how well they reported that they actually got along on the post-measure can be viewed as another index of disconfirmation of initial expectancy. The means indicate that all subjects got along better in their groups than they had expected to. However, the only significant difference indicated by the analysis is between positive and negative expectancy groups. Negative expectancy subjects showed a greater increase over their original expectations (+1.20) than did positive expectancy subjects (+.95). Thus, the extent of disconfirmation of expectancy was apparently greater for negative than for positive expectancy subjects. No other significant effects emerged.

Enjoyment (Reward) Differences. Mean enjoyment, or interpersonal rewards, difference scores are shown in Table 53. The analysis of variance is summarized in Table 54. Again, the difference between how much subjects expected they would enjoy working with the other members of their groups as indicated on the pre-measure and the enjoyment outcome they reported on the post-measure can be viewed as another disconfirmation of

Table 51

Mean Intragroup Conflict Difference Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	+ .84	+1.13	+ .99
No Anticipation of Future Interaction	+1.05	+1.27	+1.16
Total	+ .95	+1.20	

Table 52

Analysis of Variance on Intragroup Conflict Difference Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	6.25	3.31	.10
Between Anticipation of Future Interaction Groups (F)	1	2.89	1.53	n.s.
Interaction E x F	1	.09	.05	n.s.
Error	396	1.89	--	--

Table 53

Mean Enjoyment (Reward) Difference Scores

	+ Expectancy	- Expectancy	Total
Anticipation of Future Interaction	+ .84	+ .93	+ .89
No Anticipation of Future Interaction	+ .81	+1.37	+1.09
Total	+ .83	+1.15	

Table 54

Analysis of Variance on Enjoyment Difference Scores

Source of Variance	df	MS	F	p
Between Expectancy Groups (E)	1	10.89	4.70	.05
Between Anticipation of Future Interaction Groups (F)	1	4.00	1.72	n.s.
Interaction E x F	1	5.30	2.28	n.s.
Error	396	2.32	—	—

expectancy index. The means again indicate that, overall, subjects enjoyed working with the other members of their groups more than they originally expected that they would. Also as before, the only significant difference found was between positive and negative expectancy groups. Negative expectancy groups indicated a greater increase over their preliminary expectations of enjoyment (+1.15) than that shown by positive expectancy groups (+.83). Thus again, disconfirmation of expectancy appears to have been greater for negative than for positive expectancy subjects, and no other significant effects were indicated.

CHAPTER IV

DISCUSSION

The Expectancy Manipulations. The attempt to generate differential expectancies of both group outcomes and additional group interaction appears to have been only partially successful. Recall that the pre-group expectancy scales indicated satisfactory achievement of the desired directional difference between positive and negative expectancy groups, but only a very slight directional difference between groups anticipating future interaction and groups not anticipating future interaction. This apparent weakness of the anticipation of future interaction manipulation reflected on the pre-group subjective scales suggests that the overall lack of significance found for this factor throughout the performance and subjective outcome data should be interpreted with some caution. In view of the findings of Marlow, et al. (1966) and Kiesler et al. (1967) noted in Chapter I on the influence of the future interaction variable in other social situations, it is probably unwise to regard the lack of differential effects found on this dimension in the present study as unequivocal. Rather, it is more likely that the lack of impact of expected future interaction on group outcomes indicated in the present data is to some extent a result of a weakness in the expectancy manipulations. The pre-group subjective scale responses certainly suggest the possibility

that introduction of a more effective future interaction manipulation could have produced greater differential effects than the present results indicated. Some evidence to support this contention is provided by the fact that some effects at least partially attributable to anticipation of future interaction did emerge throughout the data, principally in the form of statistical interactions obtained and the support found for the fifth hypothesis on various measures. These findings indicate that, even though the influence of the expectancy manipulation for anticipation of future interaction was somewhat weak in the present experimental situation, it cannot be considered as having been totally absent.

While it is difficult to account for the weakness of the expectancy manipulations, some speculation on possible causes is in order. First, it must be admitted that the primary emphasis of the verbal expectancy manipulations was upon establishing the rationale and credibility of the desired positive or negative interpersonal aspects of the upcoming group interaction. As was the case with the previously referenced similar manipulations of Back (1951), Schachter et al. (1952), Festinger et al. (1952), and Gerard (1954), the verbal instructions given in the present study were, in fact, successful in generating differing levels of expectation of interpersonal outcome among group members. However, this somewhat involved positive-negative expectancy portion of the verbal treatment manipulations was presented <u>before</u> the anticipation of future interaction - no anticipation of future interaction portion. With the subjects' attention focused on the more imminent and personal consequences of their expected intragroup outcomes, it is possible that some of the immediate impact of the anticipation of future interaction manipulation was reduced.

Alternatively, it is also possible that some of the Air Force basic trainee subjects used could have anticipated repeated or additional future interaction subsequent to their participation in the experiment that altered or superseded their perception of the more immediate implications of continued interaction within the rather limited context of the experimental situation. For example, as a function of expecting to work or live together throughout the completion of their basic training, these subjects could have anticipated some degree of future interaction, regardless of their experimental treatment. Whatever the cause of the weakness of the anticipation of future interaction manipulation, it can be concluded that, overall, the expectancy manipulations were at least effective enough to be considered adequate in light of the evidence provided by the pre-group expectancy scale responses.

Group Performance. No support was found for the differential hypotheses concerning the extent to which expectancies would be reflected in the quality of group performance. That is, no performance differences were found between positive and negative expectancy groups on the first hypothesis or between groups anticipating future interaction and those not anticipating future interaction on the second hypothesis. As previously noted, it would appear that the verbal expectancy manipulations, especially those designed to generate anticipation of future interaction, were somewhat weak in effect. However, this factor alone is probably not sufficient to account for the lack of differential main effects attributable to expectancy of group outcomes and anticipation of future interaction found in this study.

A more probable cause is the impact of the "Decision Instructions"

(see Appendix E) upon the nature and quality of the group interaction in the present experimental situation. These instructions were intended to provide some limited direction to the group members on how to channel their activities toward achieving a group consensus on the decision rankings. In retrospect, it appears likely that the normative influence of these instructions, which were given under all treatment conditions, tended to positively influence group performance to such an extent that any possible differential effects of the expectancy conditions were suppressed. There is previous evidence to support such an interpretation. Hall and Watson (1968) used a similar set of instructions as a treatment variable. They found that such instructions alone were sufficient to increase group performance well above that of groups left completely to their own devices in reaching a group consensus or decision. It is possible that an unwanted and unanticipated effect of the "decision instructions" in the present study was to severely reduce performance variability while increasing constructive group interaction to such an extent that all groups improved significantly regardless of the expectancy treatment combination that they were under. The finding that all groups performed better than individuals alone either before or after the group interaction is consistent with such an explanation of the absence of differential main effects found in this study.

Additionally, a strong interaction between expectancy of outcome and anticipation of future interaction was reflected in the quality of group performance. Recall that this interaction took a form in which the effects were "crossed", in the sense that the directionality and magnitude of the interaction effect tended to cancel out differences across the main effect

dimensions. That is, under positive expectancy, groups anticipating future interaction performed better than groups not anticipating future interaction. On the other hand, under negative expectancy, groups anticipating future interaction performed worse than groups not anticipating future interaction. This interaction can be explained by viewing the present experimental situation in the context of social exchange theory (Homans, 1961), which was described in Chapter I. If the pattern of potential rewards, costs, and personal investments structured by the expectancy treatment combinations in this study are considered from the viewpoint of the various group members, a social exchange framework consistent with the above described interaction emerges.

In the context of exchange theories of social interaction, it could be said that when group members have positive interpersonal expectancies, the emphasis of social exchange is likely to be on maximizing expected rewards, because generally favorable outcomes are anticipated and potential costs are low. However, if group members have negative interpersonal expectancies, the emphasis of social exchange is more likely to be on minimizing expected costs, because few favorable outcomes are anticipated and potential costs are high. But, the nature of personal investments, in the form of behaviors, that are likely to maximize rewards under positive expectancy conditions or to minimize costs under negative expectancy conditions may differ, depending on whether or not future exchanges or continued group interaction is also anticipated. For example, when future interaction is anticipated, positive expectancy group members could expect to maximize potential rewards to some extent by increasing their personal investments, and negative expectancy group members could similarly expect to minimize potential costs somewhat by reducing their

personal investments. But when no future interaction is anticipated, the maximum levels of potential rewards and costs may be fixed by the limits of the immediate social situation to such an extent that positive expectancy group members could be less likely to view high personal investments as essential to attaining maximum rewards. Similarly, negative expectancy group members could be less inclined to regard reduced personal investments as necessary to acceptably minimize costs.

More specifically in terms of the present group decision-making situation, positive expectancy subjects that anticipated future interaction could attempt to maximize potential rewards by increasing their personal investments through an active participation and sharing of information during the group discussions. The result would be better group performance than that achieved by subjects that did not anticipate future interaction who could have been less inclined to view the situation as one in which increasing personal investments, in the form of active discussion and sharing of ideas, offered much potential for maximizing their overall interpersonal rewards. On the other hand, negative expectancy subjects that anticipated future interaction could actively attempt to minimize potential costs by reducing their personal investments through inaction and overcooperation during the group discussions to some extent. This would have caused their group performance to be worse than that of subjects that did not anticipate future interaction who could have been generally less concerned with actively reducing personal investments in attempts to minimize their already limited potential interpersonal costs.

There is some support in the subjective outcome data for such an interpretation of the dynamics of the expectancy interaction reflected on

the group performance measure. Recall that the Conflict Outcome Scores (Table 27) also indicated an interaction between expectancy of outcome and anticipation of future interaction. If conflict outcomes are considered to be indicators of personal investments, then the foregoing social exchange conception of the present group situation should be sufficient to account for the conflict outcomes reported by group members. Further, the interaction effect on the conflict outcome measure should be consistent with the interaction reflected in the quality of group performance. In terms of the social exchange framework just presented, positive expectancy groups would make greater personal investments when they have anticipation of future interaction than when they have no anticipation of future interaction. But negative expectancy subjects would make fewer personal investments when they have anticipation of future interaction than when they have no anticipation of future interaction. This is exactly what the conflict outcome scores indicate. Positive expectancy subjects reported more conflict among group members when they had anticipation of future interaction than when they had no anticipation of future interaction. But negative expectancy subjects reported less conflict among group members when they had anticipation of future interaction than when they had no anticipation of future interaction. This is consistent with the exchange theory interpretation given for the expectancy interaction reflected by the group performance scores.

Finally, it must be noted that a reversal of the prediction of the fifth hypothesis was found. That is, better group performance occurred under the negative expectancy - anticipation of future interaction condition than under the positive expectancy - no anticipation of future in-

teraction condition. A hint to the cause of this reversal of predicted quality of group performance on the fifth hypothesis is provided by the responses on both the Conflict Outcome Scale (Table 27) and the Disagreement Scale (Table 39). Negative expectancy - anticipation of future interaction subjects reported significantly more conflict and argument among group members than was reported by positive expectancy - no anticipation of future interaction subjects. While somewhat costly in interpersonal terms, such conflict and disagreement can be interpreted as indicative of a considerable sharing of individual resources or information through discussion and debate. Thus, the extent of conflict and disagreement reported by negative expectancy - anticipation of future interaction subjects appears to have contributed to an increase in the quality of their group performance over that of positive expectancy - no anticipation of future interaction subjects. This more extensive sharing of individual resources probably accounts for the reversal finding on the fifth hypothesis concerning group performance.

Subjective Outcomes. In support of the third hypothesis, responses to the post-group subjective scales generally reflected more favorable outcomes for positive expectancy groups than for negative expectancy groups. That is, positive expectancy subjects reported greater enjoyment (more rewards), more acceptance by fellow group members (fewer costs), greater satisfaction with their groups, more friendliness among group members, greater affection or sentiment for other members of their groups, less interpersonal conflict between group members, more confidence in their groups, more agreement among members on group decisions, and less disagreement between group members during group discussions than negative expect-

ancy subjects reported. This finding, that positive expectancy groups had generally more favorable outcomes than negative expectancy groups, is consistent with the "self-fulfilling" property of interpersonal expectations described by Rosenthal (1966) and Hollander (1967) that was previously discussed in Chapter I. The present results suggest that the nature of the expectancy held by group members influenced their subjective outcomes regarding the group interaction.

In terms of the fourth hypothesis, none of the predicted differences in outcomes between groups anticipating future interaction and those not anticipating future interaction were found. Because this absence of outcome differences between anticipation of future interaction groups and no anticipation of future interaction groups is probably accounted for to some extent by the previously noted weakness of the future interaction treatment manipulation, the present findings cannot be considered conclusive. Thus, additional research will be required to clarify the role of anticipation of future interaction in influencing social and interpersonal outcomes.

As predicted by the fifth hypothesis, positive expectancy - no anticipation of future interaction groups generally indicated more favorable subjective outcomes than negative expectancy - anticipation of future interaction groups. Positive expectancy - no anticipation of future interaction subjects reported greater enjoyment (rewards), more group acceptance, greater group satisfaction, more friendliness and affection, less interpersonal conflict, less anxiety, more confidence, and fewer disagreements during group discussions than negative expectancy - anticipation of future interaction subjects reported. This finding is consistent with the interpersonal reward-cost implications of exchange theories of social

interaction (Thibaut and Kelly 1959; Homans, 1961), which would predict that a positive expectancy short-term interaction situation would involve fewer potential costs and result in more favorable outcomes than a negative expectancy long-term or continued interaction situation.

Finally, the pre-expectancy/post-outcome differences on the anxiety, conflict, and reward measures should be mentioned. Recall that negative expectancy subjects increased in anxiety on the post-measure while positive expectancy subjects decreased slightly, and that negative expectancy - anticipation of future interaction subjects increased more than subjects under any other condition while positive expectancy - no anticipation of future interaction subjects decreased significantly. The overall anxiety pre-post outcome difference between positive and negative expectancy groups was largely accounted for by the pre-post difference found between the positive expectancy - no anticipation of future interaction groups and the negative expectancy - anticipation of future interaction groups. This finding indicates an anticipation of future interaction effect, in that the anxiety increase of the negative expectancy - future interaction subjects was probably the result of apprehensions stemming from their expectations of continued unfavorable or negative interaction during the additional group decision sessions they had been instructed they would have. It would almost appear that the impact of the anticipation of future interaction manipulation was delayed until the future interaction became more imminent. In any event, negative expectancy subjects were more anxious about the prospect of continuing their group participation than they had been in beginning it.

On both the conflict and enjoyment outcome difference measures, all

groups reflected outcomes that were somewhat more favorable than they had expected. As was also suggested by the expectancy disconfirmation scales, this indicates an overall positive disconfirmation of expected outcomes. Although negative expectancy subjects reflected a greater positive increase on the conflict and enjoyment difference measures than positive expectancy subjects, it should be remembered that the actual outcomes reported on the post-group scales were more favorable for positive than negative expectancy groups. Thus, even though negative expectancy groups had more positive disconfirmation of their initial expectancies than positive expectancy groups, they still had more negative outcomes than positive expectancy groups, just as they had initially expected they would.

Recommendations for Future Research. The results of this study appear to warrant further research. Field studies investigating the interaction of the two types of interpersonal expectancy focused on in the present experiment are recommended. Such studies would probably clarify the role of the anticipation of future interaction variable, and, by employing natural expectancy settings, could also eliminate the need for artificial manipulations of the expectancy treatments which caused some problems in the present study. Separate studies should also be performed on anticipation of future interaction and expectancy of outcome where the attempt is made to focus on one or the other of the two types of expectancy, but not on their interaction, in order to more clearly establish the influence of each on group performance and interpersonal outcomes. In addition, future research in this area should include studies of the effects of task expectations versus interpersonal expectations on performance and subjective outcomes, the effects of group size on expectancy

and performance, sex differences in the effects of expectancy on group performance, and the effects of interpersonal expectancy on group performance where the nature of the group task is varied to require coordination as opposed to sharing resources through argument and discussion to arrive at a single solution.

CHAPTER V

SUMMARY

The purpose of this study was to examine the interaction of both individual expectations regarding the consequences of the immediate outcomes of participation in a group and the anticipation of future or continued interaction with other group members over time in influencing behavioral and subjective outcomes in a small group decision-making situation. It was predicted that: (1) group performance would be better for positive expectancy groups than for negative expectancy groups; (2) group performance would be better for groups having no anticipation of future interaction than for groups having anticipation of future interaction; (3) subjective group outcomes would be more favorable for positive expectancy groups than negative expectancy groups; (4) subjective group outcomes would be more favorable for groups having no anticipation of future interaction than for groups having anticipation of future interaction; and (5) more favorable subjective group outcomes and better group performance would occur under conditions of positive expectancy without anticipation of future interaction than under conditions of negative expectancy with anticipation of future interaction.

The design utilized was a 2 x 2 factorial combination of positive expectancy - negative expectancy and anticipation of future interaction -

no anticipation of future interaction treatments. Twenty 5-man groups were randomly assigned to each of the four resulting experimental conditions: (a) positive expectancy - anticipation of future interaction; (b) positive expectancy - no anticipation of future interaction; (c) negative expectancy - anticipation of future interaction; and (d) negative expectancy - no anticipation of future interaction. All subjects performed a decision-making task (1) individually before going into their groups, (2) as a group, and (3) finally as individuals again after coming out of their groups. Subjective scales to assess expected and resultant group outcomes were administered before and after the group decision-making effort. No support was found for either the first or the second hypothesis. Analysis did reveal a significant interaction between expectancy of outcome and anticipation of future interaction on the group performance measure. This interaction was interpreted in terms of the pattern of rewards, costs, and personal investments structured by the expectancy treatment combinations as being consistent with exchange theories of social interaction.

The third hypothesis was generally supported as was the fifth for subjective outcomes. However, no support was found for the fourth hypothesis on any of the subjective measures. Expansions of the present study and directions for future research were discussed.

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APPENDIX A

Pre-Group Crew Decision Form Including Criterion Rankings Supplied by NASA

CREW DECISION FORM

Instructions: You are a member of a space crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. Due to mechanical difficulties, however, your ship was forced to land at a spot some two hundred miles from the rendezvous point. During re-entry and landing, much of the equipment aboard was damaged and, since survival depends on reaching the mother ship, the most critical items available must be chosen for the two hundred mile trip. Below are listed the 15 items left intact and undamaged after landing. Your task is to rank order them in terms of their importance in allowing your crew to reach the rendezvous point. Place the number 1 by the most important item, the number 2 by the second most important and so on through number 15, the least important.

15 Box of matches

4 Food concentrate

6 50 feet of nylon rope

8 Parachute silk

13 Portable heating unit

11 Two .45 caliber pistols

12 1 case dehydrated Pet milk

1 2 hundred-pound tanks of oxygen

3 Stellar map (of the moon's constellation)

9 Life raft

14 Magnetic compass

2 5 gallons of water

10 Signal flares

7 First aid kit containing injection needles

5 Solar-powered FM transceiver

APPENDIX B

Preliminary Questionnaire Subjective Scales

PRELIMINARY QUESTIONNAIRE

Instructions: Read each question and all the answer scale value descriptions carefully. Decide which scale value (number) best represents your feeling or opinion. You may use one of the undescribed scale values for your answer if you wish. Write the scale value number which best represents your feeling or opinion in the "Answer" box to the right of each set of scales. Print clearly and ANSWER ALL QUESTIONS.

1. How do you feel at this time?

   9 Very Anxious
   8
   7 Somewhat Anxious
   6
   5 Indifferent
   4
   3 Fairly calm
   2
   1 Very calm

   ANSWER [ ]

2. Do you think you will get along well with the other members of your group?

   9 Definitely Yes
   8
   7 Probably Yes
   6
   5 Uncertain
   4
   3 Probably No
   2
   1 Definitely No

   ANSWER [ ]

3. How well do you think you will enjoy working with the group to which you have been assigned?

   9 I will enjoy it very much
   8
   7 I will probably enjoy it somewhat
   6
   5 I don't know if I will enjoy it
   4
   3 I will probably not enjoy it much
   2
   1 I will not enjoy it at all

   ANSWER [ ]

APPENDIX C

Group Decision Record Form

GROUP DECISION RECORD FORM

INDIVIDUAL RANKINGS	ITEM	GROUP DECISIONS
	Box of matches	
	Food concentrate	
	50 feet of nylon rope	
	Parachute silk	
	Portable heating unit	
	Two .45 caliber pistols	
	One case dehydrated Pet milk	
	Two hundred-pound tanks of oxygen	
	Stellar map (of the moon's constellation)	
	Life raft	
	Magnetic compass	
	Five gallons of water	
	Signal flares	
	First aid kit containing injection needles	
	Solar-powered FM transceiver	

APPENDIX D

Group Decision Instructions

(Adapted from Hall and Watson, 1968)

Decision Instructions

Instructions: This is an exercise in group decision making. Your group is to employ the method of group consensus in reaching its decision. This means that the ranking for each of the 15 survival items must be accepted by each group member before it becomes a part of the group decision. Consensus is difficult to reach. Therefore, not every ranking will meet with everyone's complete approval. Unanimity, however, is not a goal (although it may be achieved unintentionally), and it is not necessary that every person be as satisfied as he might be if, for example, he had complete control over what the group decides. What should be stressed is each individual group member's ability to accept a given ranking on the basis of logic - whatever his level of satisfaction - and his willingness to accept such a judgment as feasible. When the point is reached at which all group members feel this way as a minimal criterion you may assume that you have reached a consensus as it is defined here and the judgment may be entered as a group decision. This means, in effect, that a single person can block the group if he thinks it necessary; at the same time it is assumed that this option will be employed only in the best sense of group purpose. Here are some guidelines to use in achieving consensus:

1. Present your position as lucidly and logically as possible, but consider seriously the reactions of the group in any subsequent presentations of the same point.

2. Discard the notion that someone must win and someone must lose in the discussion; when impasses occur, look for the next most acceptable alternative for both parties.

3. View initial agreement as suspect. Explore the reasons underlying apparent agreements; make sure that people have arrived at similar solutions for either the same basic reasons or for similar reasons before incorporating such solutions in the group decision.

4. Avoid changing your mind only in order to avoid conflict and to reach agreement and harmony. Withstand pressures to yield which have no objective or logically sound foundation.

5. Avoid conflict-reducing techniques such as the majority vote, averaging, bargaining, coin flipping, and the like. Treat differences of opinion as indicative of an incomplete sharing of relevant information on someone's part and press for additional sharing, either about task or emotional data, where it seems in order.

APPENDIX E

Group Questionnaire Subjective Scales

GROUP QUESTIONNAIRE

1. How much did you enjoy working with your group on the decision task?

9 I enjoyed it very much
8
7 I enjoyed it somewhat
6
5 I did not care either way about it
4
3 I did not enjoy it much
2
1 I did not enjoy it at all

ANSWER ☐

2. How confident are you that your group's rank order decisions were "good" ones?

9 Very confident
8
7 Somewhat confident
6
5 Uncertain
4
3 Not too confident
2
1 Not at all confident

ANSWER ☐

3. How well were your comments and suggestions accepted by the other members of your group?

9 Very well accepted
8
7 Usually accepted
6
5 Sometimes accepted
4
3 Mostly not accepted
2
1 Never accepted

ANSWER ☐

4. How satisfied are you with the overall performance and functioning of your group?

9 Very satisfied
8
7 Somewhat satisfied
6
5 Indifferent
4
3 Somewhat dissatisfied
2
1 Very dissatisfied

ANSWER

5. Did you feel that the other members of your group treated you fairly during the group discussions?

9 They were very fair to me
8
7 They were somewhat fair to me
6
5 They were indifferent to me
4
3 They were somewhat unfair to me
2
1 They were very unfair to me

ANSWER

6. How much did the members of your group agree on the final group rankings for the group's decision?

9 We were in complete agreement
8
7 We were in partial agreement
6
5 We were uncertain
4
3 We were in partial disagreement
2
1 We were in complete disagreement

ANSWER

7. How much did you personally agree with the final group rankings in your group's decision?

9 I agreed completely
8
7 I agreed somewhat
6
5 I was uncertain
4
3 I disagreed somewhat
2
1 I disagreed completely

ANSWER [ ]

8. How do you <u>really</u> feel toward the other members of your group at this time?

9 Very friendly
8
7 Somewhat friendly
6
5 Indifferent
4
3 Somewhat hostile
2
1 Very hostile

ANSWER [ ]

9. How do you think the other members of your group feel toward <u>you</u> at this time?

9 Very friendly
8
7 Somewhat friendly
6
5 Indifferent
4
3 Somewhat hostile
2
1 Very hostile

ANSWER [ ]

10. Do you think your individual decision-rankings were better than those your group made?

9 Definitely Yes
8
7 Possibly Yes
6
5 Uncertain
4
3 Possibly No
2
1 Definitely No

ANSWER [ ]

11. How well do you like the other members of your group?

9 I like all of them very much
8
7 I like most of them
6
5 I like some of them
4
3 I don't like most of them
2
1 I don't like any of them at all

ANSWER [ ]

12. How well did you know the other members of your group before today?

9 I did not know them at all
8
7 I did not know them well
6
5 I knew them somewhat
4
3 I knew them fairly well
2
1 I knew them very well

ANSWER [ ]

13. Specifically, how many of the members of your group did you know very well before today?

5 None of them
4 One of them
3 Two of them
2 Three of them
1 All four of them

ANSWER [ ]

14. Did you get along well with the other members of your group?

9 Definitely Yes
8
7 Mostly Yes
6
5 Sometimes
4
3 Mostly No
2
1 Definitely No

ANSWER [ ]

15. Did the members of your group have many extreme or prolonged disagreements during the group's discussions?

3 Yes
2 Uncertain
1 No

ANSWER [ ]

16. How much did you enjoy working in the group to which you were assigned?

3 More than I thought I would
2 About as much as I thought I would
1 Not as much as I thought I would

ANSWER [ ]

17. Do you feel that someone in your group assumed the role of the group's discussion leader more than anyone else in the group?

3 No
2 Uncertain
1 Yes

ANSWER [ ]

18. How well did you get along with the other members of your group?

3 Better than I thought I would
2 About as well as I thought I would
1 Not as well as I thought I would

ANSWER [ ]

19. How do you feel about this decision-making experiment?

9 It is very interesting
8
7 It is somewhat interesting
6
5 It is OK
4
3 It is somewhat dull
2
1 It is very dull

ANSWER

20. How do you feel at this time?

9 Very Anxious
8
7 Somewhat Anxious
6
5 Indifferent
4
3 Somewhat calm
2
1 Very calm

ANSWER

APPENDIX F

Post-Group Crew Decision Form

CREW DECISION FORM

Instructions: You are a member of a space crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. Due to mechanical difficulties, however, your ship was forced to land at a spot some two hundred miles from the rendezvous point. During re-entry and landing, much of the equipment aboard was damaged and, since survival depends on reaching the mother ship, the most critical items available must be chosen for the two hundred mile trip. Below are listed the 15 items left intact and undamaged after landing. Your task is to rank order them in terms of their importance in allowing your crew to reach the rendezvous point. Place the number 1 by the most important item, the number 2 by the second most important and so on through number 15, the least important.

_____Box of matches

_____Food concentrate

_____50 feet of nylon rope

_____Parachute silk

_____Portable heating unit

_____Two .45 caliber pistols

_____1 case dehydrated Pet milk

_____2 hundred-pound tanks of oxygen

_____Stellar map (of the moon's constellation)

_____Life raft

_____Magnetic compass

_____5 gallons of water

_____Signal flares

_____First aid kit containing

APPENDIX G

Demand Characteristics Questionnaire

ANSWER THE FOLLOWING QUESTIONS:

What did you think we were after in this study?

Did your group follow the group decision instructions closely, using the "group consensus" approach as described?

Did you suspect anything about the experiment?

More specifically, did you suspect anything about what the experimenter told you concerning how you would probably get along in your groups, etc.?

Why do you think we put you together into groups to work on the decision task?

Did the thought ever occur to you during the experiment that you were really just randomly assigned to your groups?

Did it bother you in any way that the experimenter was an officer?

Now, about the scales. While you were answering them, do you feel that any idea you had concerning the nature of the experiment influenced your answers?

APPENDIX H

Subjective Scale Means, Standard Deviations, and Intercorrelations

		MEAN	S.D.
1.	Pre-Group Anxiety	4.94	2.28
2.	Pre-Group Conflict	6.94	1.19
3.	Pre-Group Enjoyment	6.86	1.30
4.	Scale 1 Rewards (Enjoyment)	7.85	1.29
5.	Scale 2 Confidence	7.76	1.23
6.	Scale 3 Acceptance	6.93	1.38
7.	Scale 4 Satisfaction	7.88	1.23
8.	Scale 5 Equity	8.53	.92
9.	Scale 6 Agreement	7.91	1.29
10.	Scale 7 Influence	7.79	1.19
11.	Scale 8 Friendliness 1	7.99	1.14
12.	Scale 9 Friendliness 2	7.64	1.14
13.	Scale 10 Individual vs Group Decisions	4.75	2.22
14.	Scale 11 Affection (Liking)	7.69	1.27
15.	Scale 12 Prior Acquaintance 1	6.79	1.88
16.	Scale 13 Prior Acquaintance 2	4.34	1.08
17.	Scale 14 Intragroup Conflict 1	8.02	1.09
18.	Scale 15 Intragroup Conflict 2	1.82	.93
19.	Scale 16 Expectancy Confirm/Disconfirm 1	2.48	.63
20.	Scale 17 Leadership	2.16	.90
21.	Scale 18 Expectancy Confirm/Disconfirm 2	2.40	.50
22.	Scale 19 Interest	8.11	1.39
23.	Scale 20 Anxiety	5.12	2.73

Subjective Scale Intercorrelations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.00	.03	.04	.06	-.05	-.05	.01	-.01	-.09	.00	.06	.05	.00	.09	-.01	.00	.03	.06	.03	-.04	.02	.06	.53
2		1.00	.58	.24	.15	.10	.22	.12	.09	.09	.25	.26	.04	.23	-.08	-.09	.27	-.08	-.09	.06	-.18	.18	-.01
3			1.00	.29	.15	.17	.21	.20	.13	.21	.22	.27	.00	.25	-.13	-.10	.28	-.03	-.15	.06	-.14	.22	-.01
4				1.00	.39	.35	.46	.44	.23	.31	.55	.44	.01	.50	-.09	-.04	.43	-.14	.39	.22	.23	.41	.00
5					1.00	.35	.53	.30	.37	.49	.34	.30	-.17	.30	-.11	-.10	.34	-.21	.20	.13	.11	.14	.00
6						1.00	.35	.41	.22	.29	.28	.28	.02	.18	-.09	-.09	.23	-.16	.12	.08	.07	.19	-.03
7							1.00	.38	.41	.58	.45	.36	-.17	.40	-.16	-.10	.38	-.20	.24	.07	.20	.30	.02
8								1.00	.28	.29	.51	.44	-.05	.43	-.04	-.04	.44	-.21	.31	.12	.25	.23	-.03
9									1.00	.52	.27	.26	-.13	.21	-.10	-.06	.32	-.28	.05	-.02	.11	.14	-.07
10										1.00	.36	.30	-.18	.26	-.13	-.12	.30	-.21	.14	.05	.17	.26	.03
11											1.00	.79	-.05	.65	-.17	-.17	.56	-.19	.28	.18	.27	.34	.03
12												1.00	-.01	.53	-.11	-.16	.48	-.10	.16	.15	.14	.28	.02
13													1.00	-.07	.04	.02	-.11	.17	-.02	-.02	-.06	-.04	.06
14														1.00	-.18	-.14	.55	-.15	.29	.19	.20	.28	.05
15															1.00	.38	-.08	.06	.07	-.01	.05	-.14	.05
16																1.00	-.03	-.01	.02	-.06	-.01	-.05	-.05
17																	1.00	-.28	.20	.12	.13	.18	-.02
18																		1.00	.04	.02	-.06	.04	.07
19																			1.00	.12	.49	.12	.08
20																				1.00	.04	.11	.02
21																					1.00	.17	.11
22																						1.00	.11
23																							1.00