THE VICISSITUDES OF DYAD PERFORMANCE AS MEDIATED BY EVALUATIVE COMMENTS, TASK DIFFICULTY, AND COMPETITION

By

ROBERT HOLLIS PAINTON

Bachelor of Science
Oklahoma State University
Stillwater, Oklahoma
1968

Master of Science
Oklahoma State University
Stillwater, Oklahoma
1976

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Thesis Approved:

Robert S. Schlottmann
Thesis Adviser

Ray T. Bu

Charles J. Murphy

Judith E. Dobson

Norman N. Durham
Dean of the Graduate College

PREFACE

This study is concerned with the influence of evaluative comments upon the task performances of small-group members. The primary objective is to render understandable the discrepancies in empirical findings reported by earlier research. An attributional approach is used which emphasizes subject perceptions of success or failure and the inferred causation of these outcomes to attempt this resolution.

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CHAPTER I

REVIEW OF THE LITERATURE

Introduction

Over the past three decades, periodic interest has been focused on the impact of evaluative comments uttered in group settings. Of particular concern have been the behavioral alterations displayed by group participants who only witness these comments rather than being direct recipients. This literature has investigated three general areas. One has been the extent of influence evaluative statements possess in group contexts. Whether all participants or only a few demonstrate behavioral changes following evaluative comments exemplifies this first area of study. The actual behavioral outcomes to be expected among group members, such as improving or worsening on some common task, represents a second emphasis in the literature. Thirdly, attempts to specify the process through which behavioral alterations occur have been made.

Coincidentally, the research applicable to this area is represented by three separate bodies of literature. The largest, and perhaps most familiar of these efforts, is the vicarious literature which consists of the imitative and observational learning research (Kazdin, 1973). Studies adhering to an implicit model proposed by Sechrest (1963) comprise the second excursion into the area. The third body of research is comprised of studies linked heuristically

to the indirect model proposed by Weiner, Weiner, and Hartsough (1971).

All of this research bears upon the processes and outcomes observed in a frequent social event. Two or more individuals are working simultaneously, but separately, on similar tasks when another person directs an evaluative comment to one of the participants but not the remainder. A specific case can be seen in the anecdote of two boys working on model airplanes. Their father enters the room, comments favorably to one of the youngsters but not the other (Lippert, 1975). Obviously, such occurrences would likely be frequent in school settings or any circumstance where training takes place.

The findings obtained by these separate bodies of research are known to be mixed (Drummond, 1973; Lippert, 1975; Painton, 1976). Despite a multiplicity of terminologies and models proposed to account for these findings, each seems to bear on identical behavioral phenomena (Drummond, 1973). Areas of agreement exist in this literature as a whole, but more germane to this dissertation are the presence of unresolved conflicts in reported findings. Particularly troublesome are the discrepant behavioral outcomes obtained by these researchers. The purpose of this dissertation was to more closely examine these discrepancies and thereby seek a resolution.

Review of the Literature

Numerous studies have found evaluative comments to have pervasive influence in groups. Kounin and Gump (1958) reported observational data which demonstrated verbal criticism to affect most students in a

classroom setting. Teachers were instructed to verbally censure the ongoing behavior of selected students in their classrooms. Students so addressed were observed to undergo immediate alterations in their behavior. These changes were consistently toward the cessation of the offending behaviors. Similar behavioral changes also occurred among subjects who observed the verbal censure but were not direct recipients. The intensity of these reactions varied, however. Observing students, whose behavior was most similar to that of the addressed student, and those who were physically nearest, underwent the greatest changes. These effects lessened among observing students as physical proximity increased and behavior patterns grew dissimilar in relation to the censured classmate. Strain, Shores, and Kerr (1976) reported similar behavioral alterations among subjects who observed a fellow participant receive verbal praise during a behavior modification experiment. The behavior of these observing subjects was described as becoming more appropriate. This spread of effect from addressed to observing subjects, variously termed "ripple effect" (Kounin and Gump, 1958) and "spill-over effect" (Strain et al., 1976), has been found in classrooms (Kounin and Gump, 1958; Sugimura, 1965a), small groups (Kazdin, 1973; Strain et al., 1976; Weiner et al., 1971) and subject pairs (Barnwell and Sechrest, 1965; Drummond, 1973; Lippert, 1975; Painton, 1976; Sechrest, 1963; Weiner and Weiner, 1973). General behavior tendencies (Kounin and Gump, 1958; Sechrest, 1962; Strain et al., 1976) as well as specific task performances (Barnwell and Sechrest, 1965; Drummond, 1973; Lippert, 1975; Painton, 1976; Sechrest, 1963; Sugimura, 1965a; Weiner and Weiner, 1973; Weiner et al., 1971) have evidenced immediate changes subsequent to evaluative statements. Subjects found susceptible to verbal comments from either

an addressed or observing position have included elementary school students (Barnwell and Sechrest, 1965; Kounin and Gump, 1958; Lippert, 1975; Sechrest, 1962, 1963; Sugimura, 1965a, 1965b, 1966; Weiner et al., 1971), college women (Drummond, 1973; Weiner and Weiner, 1973), and mentally retarded children (Kazdin, 1973; Lippert, 1975; Painton, 1976).

The issue which divides the literature concerns the actual changes which addressed and observing subjects undergo following the occurrence of evaluative statements. Obtained findings differ in terms of directionality and pattern of response demonstrated by subjects. "Directionality" refers to the increase, decrease, or stability of behavioral tendencies following evaluative comments, while "pattern" describes the uniformity or divergence of response tendencies exhibited by addressed versus observing subjects. Data reported by the vicarious, implicit, and indirect models conflict with one another in characteristic ways when the factors of directionality and pattern are considered. An additional variable which distinguishes these models is the type of influence verbal comments are assumed to exercise in small group settings. The vicarious proponents propose addressed and observing subjects receive identical stimulus conditions when evaluative comments occur. The implicit and indirect models, however, argue that observing subjects receive conditions which differ from those experienced by addressed subjects. All of the models are similar, however, in suggesting a non-direct influence, by evaluative comments, on observing subjects.

According to the vicarious reinforcement literature, qualitatively positive events should encourage the repetition of a behavior, while

events with a negative valence should discourage the later appearance of a behavior (Bandura, 1977). Hill (1970) explains that observers imitate the behavior of individuals whose actions are perceived as successful. This success is said to reinforce both the actor, by a direct means, and the observer, in a vicarious manner. A vicarious process then is one in which environmental events, be they reinforcement or punishment, impact observers in the same fashion as they do the direct recipients. Following these outcomes, addressed and observing subjects are assumed to respond in a uniform manner (Kazdin, 1973). Bandura, Ross, and Ross (1963) found subjects who viewed a film of an aggressive child succeeding in obtaining toys tended to emulate this aggressiveness in a later play situation. If the aggressive child was depicted in the film as being unsuccessful, the observing subjects were less prone to produce aggressive acts later. Bandura (1977) cited many studies obtaining this directionality of improvement following positive outcomes and decrements after negative consequences. These results have been generalized to the case of verbal reinforcements (Kazdin, 1973).

The implicit literature agrees with the vicarious position on directionality of subject response. Sechrest (1963) and later associated authors (e. g., Barnwell and Sechrest, 1965; Sugimura, 1965a, 1965b, 1966) noted positive consequences to have salutary, and negative outcomes, adverse effects on subsequent behavior. However, Sechrest (1962, 1963) maintained that addressed and observing subjects <u>diverge</u> in their patterns of response to particular verbal reinforcements. According to the implicit position, observers to evaluative comments use the other-directed comments to judge the adequacy of

their own behavior or performance, and alter their actions to gain future positive outcomes. Imitation, then, is not involved in the implicit model. Sechrest (1963) had subject dyads, drawn from first-, second-, and third-grade classrooms, work on jig-saw puzzles of moderate difficulty. Dyads were composed of same-sex individuals with similar levels of ability. Each subject was given a puzzle to complete separately, but in the presence of the other dyad member. After the puzzles were completed, one member of the dyad was verbally praised or criticized while the remaining participant observed this communication. In a control group, no evaluative statements were made. Following these comments, subjects traded puzzles and completed another work period. Sechrest (1963) found, as predicted, that verbal criticism resulted in slower puzzle completions among subjects explicitly addressed in that manner. However, subjects who witnessed another criticized, improved on the next trial. A similar divergence of response was evidenced by subjects who explicitly received praise versus subjects observing these comments. The explicitly praised subjects improved on a subsequent puzzle completion while the latter worsened. Thus, addressed and observing subjects were found to react as though impacted by reinforcements qualitatively opposite in nature (Sechrest, 1963). The directionality and divergent responses of subject performances reported by Sechrest (1963) have been confirmed by later implicit reinforcement studies (e. g., Barnwell and Sechrest, 1965; Sugimura, 1965a, 1965b, 1966).

Findings reported by Weiner et al. (1971) run counter to the directionality of subject response obtained by the vicarious and implicit reinforcement literature (Drummond, 1973). These authors

found improved performance to follow negative forms of reinforcement while positive forms served to maintain previously established performance levels. Kindergarten children were placed in small groups of four subjects or in dyads. Subjects were asked to copy simple geometric figures appearing on prepared task sheets for a total of six trials. After three trials, evaluative comments were directed to two subjects in the small group condition and one in the dyads. These statements consisted of verbal praise or criticism in the small groups but only praise in the dyad condition. Control groups did not receive any comments. Being praised directly and observing criticism were inferred to be positive reinforcements while direct criticism and observing praise were deemed negative reinforcements. Within the indirect model literature there have been no attempts to account for their results beyond the empirical validity of their findings. Marshall (1965) in reviewing the punishment literature on children, found most studies to report improved performance to follow such consequences, a position in agreement with the later indirect model. The divergence of response between addressed and observing subjects was found by Weiner et al. (1971) in apparent agreement with the implicit reinforcement literature.

Before continuing the review of the indirect reinforcement literature, a clarification in terminology is considered necessary. Both Sechrest (1963) and Weiner et al. (1971) incorrectly refer to the administration of criticism in their experimental designs as an instance of negative reinforcement. Brown and Weiner (1979, p. 142) define this term as the removal of a noxious stimulus. This subtractive process is not a feature of the implicit and indirect paradigms.

Rather, the criticism is added to the situation. This type of administration of an aversive stimulus is more correctly referred to as punishment. Apparently, the implicit and indirect researchers chose this label to reflect the positive or negative qualities of statements rather than their mode of presentation or expected performance consequences. For clarity in the present context, therefore, the term negative reinforcement is interpreted as denoting punishment.

The findings of Weiner et al. (1971) found support in later indirect reinforcement studies. Weiner and Weiner (1973) placed sixty undergraduate females in experimental dyads and asked them to draw circles in the empty spaces of a gridded task sheet. Six two-minute trials were completed. One member of the dyad was verbally praised or criticized following trial three in the treatment conditions but no comments were delivered to control groups. Again, positive forms of reinforcements (direct praise or observing criticism) resulted in performance being maintained. Performance increments occurred following negative forms of reinforcement (direct criticism and observing praise). Drummond (1973) found similar response directionality and pattern among college students in reaction to verbal praise received directly and indirectly.

An interesting aspect of the indirect reinforcement literature is a characteristic drop-off of performance by subjects who show initial increases following the observation of praise (indirect negative reinforcement). This effect was reported by Weiner et al. (1971) and Weiner and Weiner (1973). Lippert (1975) found this drop-off to follow both direct and observed praise among elementary students while being absent among institutionalized educably retarded subjects.

Painton (1976) reported a similar drop-off among socially adaptive institutionalized retardates after observed praise. The presence of such an effect cannot be determined in the vicarious or implicit literature due to their lack of repeated post-reinforcement trials.

An assumption common to the vicarious, implicit, and indirect literature, which can be questioned, is their attributing the behavioral outcomes obtained among addressed and observing subjects to evaluative comments operating as reinforcers or punishers. Striefel (1974) defines reinforcers as " . . . things (stimuli) which immediately follow a specific response, to make it more likely that the behavior (response) will occur again" (p. 7). A punisher would be an event which follows a behavior and makes it less likely to recur (Striefel, 1974). These definitions do not specify the nature of the processes involved, only the behavioral effects. Kazdin (1973) offers the criticism that such definitions could give rise to new reinforcement models for each set of different empirical findings, with the existence of the vicarious, implicit, and indirect models being a case in point. He argues instead that evaluative comments serve as reinforcers or punishers only to addressed subjects. In the case of observing subjects, these comments are operated upon as discriminative stimuli. In other words, evaluative comments through association with prior conditioning events would acquire a signaling function that previously experienced reinforcement or punishment situations were at hand, and therefore, behaviors learned as appropriate to those earlier contexts would be elicited. By virtue of two separate processes being involved, addressed and observing subjects could display most any combination of differing response patterns to a single utterance. In

support of his discriminative-stimulus hypothesis Kazdin (1973) found subjects who observed others being praised for either attentive or inattentive behavior to always exhibit a previously reinforced pattern of attentiveness. Kuznicki and Greenfield (1977) reported findings which also bring into question a reinforcement role for evaluative comments in the case of observing subjects. These authors found vicariously mediated forms of reinforcement to have little effect on the occurrence of imitative behavior among college students when the influence of status, competence, attractiveness, and prestige were removed from the observed model. Direct reinforcement accounted for the variability obtained on a measure of matching behavior between groups. Bandura (1977) reported instances where imitative behaviors were obtained in the absence of any observable reinforcement. These studies all suggest that an alternative interpretation to the function of evaluative comments would be one of an informational role rather than a strengthening or weakening of a behavioral tendency.

An informational role for verbal comments is suggested in the research of B. Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum (1972). Their conceptualization, however, does not maintain a reinforcing quality for statements if received directly and an informational function for vicarious receipt as hypothesized by Kazdin (1973). Instead, these authors suggest that evaluative comments serve to communicate information about a subject's success or failure in a given performance situation. Subsequent behavioral outcomes are then guided by the subject's beliefs about the cause of this success or failure rather than depending on the positive or negative valence of these comments. This causative determination is termed an "attribution" (Kelly, 1972). That

success and failure are issues in the vicarious, implicit, and indirect paradigms has been postulated on several occasions (Lippert, 1975; Painton, 1976; Sechrest, 1963; Weiner et al., 1971). Consequently, differing attributions about success or failure elicited by the experimental context of these paradigms could be the mediator of the reported performance discrepancies.

According to Decker (1976), contextual cues in social situations take on informational characteristics which can mediate interpersonal processes. To interpret or predict the outcome of an event, B. Weiner et al. (1972) state subjects operate as follows:

> That is, in attempting to explain the prior outcome (success or failure) of an achievement-related event, the individual assesses his own or the performer's ability level, the amount of effort that was expended, the difficulty of the task, and the magnitude and direction of experienced luck (p. 96).

Subsequent behavior can then be guided in accordance with the beliefs that the outcome is due to the attributed causation of ability, effort, task difficulty, or luck. B. Weiner et al. (1972) presented those contextual cues which define the attributional variables. Task difficulty was said to be based on social norms which convey how others do on a task. As the percentage or number of people succeeding increases, perceived difficulty decreases. Ability is inferred from the person's past success experience with the task or items of a similar nature. Luck is attributed when outcomes are variable or random. The final element, effort, is believed operative when outcomes covary with task persistence, fatigue, or muscular tension. Analysis of these variables determined two of their number to be stable in nature (e.g., ability and task difficulty), while the remaining pair was judged unstable (e.g., effort and luck).

Performance outcomes related to these four attributional elements were investigated by Frieze and B. Weiner (1972). These authors asked subjects to judge the causation of success or failure by others on an unspecified performance task. Subjects were provided data indicating a person's percentage of success on the task, the percentage of success on similar tasks, and the percentage of others successful at the task. Subjects were also told the person was administered the task again and either succeeded or failed. Given this information, subjects were asked to rate the degree to which ability, effort, task difficulty, and/or luck were responsible for the person's last task performance. Frieze and B. Weiner (1972) found subjects to attribute responsibility to the unstable factors (luck, effort) when the final outcome was at the greatest variance to past performance (luck when success occurred after a history of failure and effort when failing after a success history). Ability and task difficulty were selected as causal when the outcome was consistent with prior performance. Subjects rated performance as due to ability when the person's performance was variant to the percentage of success by others. Ability was inferred most often when the person always succeeded while others frequently failed. Ability was least inferred when the person never succeeded previously while others demonstrated a competency at the task. When the person rated had a failure history on the task, luck was increasingly inferred when this person succeeded in contrast to the increasing failure of others.

As noted earlier, these inferences are also used by subjects to predict the likelihood of future behavioral outcomes and, thus, may have applicability to task performances subsequent to evaluative

statements. B. Weiner et al. (1972) report atypical aspirations in achievement situations to be more numerous when prior success was thought to be due to luck or effort rather than ability or task difficulty. Aspiration level was defined by Frank (1935) as " . . . the level of future performance in a familiar task which an individual, knowing his past performance in that task, explicitly expects to undertake" (p. 119). An atypical shift occurs when a subject increases an aspiration following failure or decreases the predicted performance level after success. B. Weiner et al. (1972) reported subjects to increase persistence when failure was believed due to luck or poor effort. The opposite held when high ability or task difficulty was assumed in failure conditions. Persistence decreased in that context.

The role of competitiveness in attributional processes has been examined. Snyder, Stephan, and Rosenfield (1978) suggest that competition provokes ego-involvement. Snyder, Stephan, and Rosenfield (1976) found the outcomes of winning subjects in competitive tasks were attributed more frequently to luck by the losing than by the winning subjects. As noted by Kelly and Michela (1980), these attributions to situational rather than dispositional characteristics of the actor represent a different attributional outcome from that demonstrated in noncompetitive situations. In all situations, competitive or not, Jones and Nisbett (1972) found actors to make more situational attributions (task difficulty, luck) and observers to opt for dispositional attributions (ability, effort). According to Kelly and Michela (1980), most research supports the Jones and Nisbett (1972) position.

Statement of the Problem

Three models of social reinforcement have been reviewed which concern themselves with the processes and outcomes existent in group contexts where evaluative comments are delivered, selectively, among participants. These models have depended heavily upon the concept of reinforcement to account for their results. This dependence, in fact, has resulted in the implicit and indirect positions' postulating the transformation of a given statement's qualitative nature from positive to negative or vice versa when received vicariously. The behavioral effects which have been obtained, however, have also occurred in the apparent absence of reinforcement (Bandura, 1977).

A more reasonable interpretation of the findings would seem to be one in line with the concept that subjects are responding to informational characteristics of the situation. Evaluative comments are believed to primarily serve as signals of whether success or failure has occurred, with this state of affairs not necessarily being the same for addressed and observing subjects. Other aspects of the context are then used by subjects to determine the causation of perceived success or failure. Once determined, the attributional nature of this conclusion then serves as the guide for later task performances. The actual pattern and directionality of the performances are hypothesized to relate to the stability or instability of the attributional elements perceived as operative. As proposed by B. Weiner (1972), these elements are ability and task difficulty (stable) and effort and luck (unstable).

The factors deemed necessary to cause different attributional patterns and subsequent variations in subject performances are

believed present in the procedural differences existent between the vicarious, implicit, and indirect models. One such difference has been the nature of dependent measures used to assess behavior change. An obvious increase in cognitive demand is demonstrated in the experimental tasks of the implicit and vicarious studies compared to the simple tasks of the indirect reinforcement studies. The implicit theorists used jig-saw puzzles (Sechrest, 1963), arithmetic computations (Sugimura, 1965a) or coding problems (Sugimura, 1966), while indirect authors opted for simple repetitive pencil and paper tasks such as copying geometric forms (Lippert, 1975; Weiner et al., 1971), drawing circles on a gridded task sheet (Weiner and Weiner, 1973), or placing "X's" in the spaces of a prepared task booklet (Drummond, 1973). The more difficult performance tasks of the implicit studies are hypothesized to provoke attributions of success or failure to the stable elements of ability or task difficulty, while those of the indirect studies, being easy, elicit attributions to the unstable elements of effort or luck.

Another differential between the models reviewed is the prominence of competition in their designs. This variable seems of least importance to vicarious experiments where comparisons of subject performances were irrelevant. Sechrest (1963), however, postulated that at a minimum, the implicit paradigm elicits a quasi-competitiveness by asking subjects to complete similar tasks separately but simultaneously. This competitiveness was hypothesized to account for the divergence of performance by addressed and observing subjects in response to evaluative comments. Weiner and Weiner (1973), without empirical follow-up, suggested differences in competitive relationships between their

subject dyads compared to those of the implicit studies might account in part for their discrepant findings. Gnagey (1962) and Sugimura (1966), in apparent confirmation of the importance of competition to implicit reinforcement effects, found the performance of observing subjects to be unchanged when verbal comments were delivered under noncompetitive circumstances. This variable has not been investigated in subject dyads or the indirect reinforcement paradigm.

The different outcomes reported by the vicarious, implicit, and indirect studies are believed by the author to be due to the different attributional outcomes their procedures produce. The vicarious and implicit paradigms are postulated to produce attributions which emphasize the possession of ability to achieve success. Therefore, performance increments would follow experiences denoting success and decrements after failure. B. Weiner et al. (1972) report such performance outcomes when success or failure is attributed to stable factors (Ability or Task Difficulty). The indirect research, by virtue of their using easy tasks, promotes attribution to Effort (unstable element) to account for success. When unstable factors are attributed, performance increases after failure and decreases after success (B. Weiner et al., 1972). The implicit and indirect paradigms share a characteristic absent in the vicarious model, namely competition. This competition is held responsible for the divergence of addressed and observing subjects following the delivery of a specific evaluative statement. Inherent to competitive situations are the winner and loser outcomes. If praise indicates success, then the direct recipient of the praise would perceive this event as denoting being the winner. The observers to this event, however, would, by

implication, perceive themselves as having lost. In the case of the implicit reinforcement paradigm, the task is perceived as difficult, and requires greater ego-involvement to perform. Greater motivational effects can then be predicted subsequent to success or failure. Definite increments and decrements should be evidenced respectively. Easy tasks feature less ego-involvement; thus, subjects who succeed can be considered as saying, "So what?", therefore demonstrating no improvement on subsequent trials. Failure on easy tasks, however, can be anticipated to produce performance increments, since attributions to effort are relevant, to obtain future success.

The present study was designed to determine if the different patterns and directionalities of subject performances following evaluative comments reported by the vicarious, implicit, and indirect reinforcement models could be replicated by manipulating certain variables. These variables were competitiveness and task difficulty. The presence or absence of competition was determined by experimental instructions. Task difficulty varied from simple to complex by the use of similar experimental tasks which differed in level of complexity. Verbal instructions augmented this distinction. Evaluative comments of praise or criticism were directed to single members of subject dyads to produce the evaluative conditions of direct praise, observed praise, direct criticism, and observed criticism. Sufficient dyads to match these verbal comment groups, in number, were run under conditions of no comment. Repeated measures were taken of subject performances on the experimental task for a total of three trials. In addition, subjects were asked to complete a self-report questionnaire to assess the contribution of certain other variables to their

performances. A pilot study was completed to evaluate the effectiveness of experimental procedures and to assure the performance tasks were suitable.

List of Hypotheses

The following is a list of the hypotheses proposed accompanied by their respective rationales:

1. Addressed and observing subjects will display performance increments following praise when delivered in non-competitive by complex task conditions (vicarious reinforcement model). In noncompetitive situations, praise is predicted to convey success on the task to both addressed and observing subjects. Success on a difficult task is attributed to Ability, thus performance should improve on a subsequent completion as subjects have demonstrated their possession of the requisite skill to successfully do the task and greater motivational consequences accompany outcomes on tasks of a difficult nature.
2. Addressed and observing subjects will exhibit performance decrements following criticism delivered in noncompetitive by complex task conditions (vicarious reinforcement model). In noncompetitive situations criticism is expected to convey failure to both addressed and observing subjects. The task being difficult is predicted to elicit attributions to the stable factors of Ability or Task Difficulty, which preclude faring better on subsequent trials. Consequently, performance will decrease.

3. Subjects directly praised and observing criticism under complex task and competitive conditions will exhibit performance increments on post-reinforcement trials (implicit reinforcement model). In competitive situations, success information is proposed to be conveyed by directly received praise or observed criticism. When success is communicated following the completion of a difficult task, subjects attribute their success to Ability and, therefore, improve on subsequent trials since they are assured of possessing the skill to succeed.
4. Subjects directly criticized and observing praise under complex task by competitive conditions will exhibit performance decrements on post-reinforcement trials (implicit reinforcement model). Personally received criticism and observing another praised are proposed to convey failure in competitive situations. Subjects receiving failure information on difficult tasks are expected to attribute this failure to deficient ability at performing the task. Consequently, performance will decrease on subsequent attempts at the task.
5. Subjects directly praised and observing criticism under simple task by competitive conditions will not exhibit performance changes on post-reinforcement trials (indirect reinforcement model). Again, directly experienced praise or observing another criticized in a competitive situation convey success. When the task is simple, this success is

attributed to Effort, and to assure future success only a maintenance of performance is necessary. Motivational outcomes are considered low following simple or easy tasks.

6. Subjects directly criticized and observing praise under simple task by competitive conditions will exhibit performance increments on the first post-reinforcement trial (indirect reinforcement model). As previously proposed, the direct receipt of criticism or the observation of praise conveys failure information in competitive situations. In the case of a simple task, subjects are proposed as attributing the cause of this failure to Effort, an attributional element capable of being overcome on subsequent trials by increasing personal effort.
7. Subjects observing praise under complex task by competitive conditions will not differ in performance level from the first to second post-reinforcement trial (implicit reinforcement model). This prediction follows from hypothesis 4. Operating under an attribution of insufficient Ability to complete the task successfully, these subjects will perform similarly across all remaining trials.
8. Subjects observing praise under simple task by competitive conditions will exhibit a performance decrement from the first to the second post-reinforcement trial (indirect reinforcement model). This prediction relates to hypothesis 6. These subjects are predicted to be performing at a higher level on the first post-reinforcement trial since they are proposed to have experienced a failure which can be remedied

through Effort. A performance decrement is predicted on the next experimental trial, for not receiving an evaluative comment disconfirms their attribution that Effort is involved in success.

9. Subjects completing complex tasks will attribute their performance to Ability and Task Difficulty (stable attributional elements) to a greater degree than subjects completing simple tasks. Subjects are proposed to account for their perceived success or failure on a task by attributing causation to the elements of Ability, Task Difficulty, Effort, or Chance. Ability and Task Difficulty are proposed as the elements most likely to be chosen after completing a difficult task.
10. Subjects completing simple tasks will give higher ratings on the self-report questionnaire to items indicating Effort and Chance (unstable attributional elements) than subjects completing complex tasks. This prediction follows from hypothesis 9. Effort and Chance are the attributional elements most likely to be chosen to account for personal success or failure on an easy task.
11. Subjects receiving direct praise and observing criticism (success information) will give higher ratings of personal success on the self-report questionnaire than subjects receiving direct criticism or observing praise (failure information). Evaluative comments are proposed to convey success and failure information.

CHAPTER II

METHODOLOGY

Subjects

Subjects were 200 undergraduate women volunteers attending freshman or sophomore level psychology courses at the Oklahoma State University, Stillwater, Oklahoma. All subjects received research credit for participating which applied to their course grade. In addition, subjects who indicated a disbelief of the experimenter's truthfulness on a post-experimental measure were removed from the data pool. This disbelief was defined as selecting a rating of 1 through 3 on a 7-point scale ranging from "Not at All" to "Very Much." Subjects of one sex were chosen to avoid systematic biases related to gender of subjects and experimenter and sex differences in ability to perform the experimental task.

Task

Subjects completed one of two pencil and paper tasks. One of these tasks consisted of copying simple geometric designs while the second required subjects to draw the same designs in a reversed orientation. A total of forty designs were prepared with a different set of ten randomly determined designs selected for use on each of the three task sheets. Having different stimulus figures on each

task sheet was an attempt to assure any learning of the stimulus figures would be equally distributed across all trials.

Task sheets of white paper measuring .10 m wide by .35 m long were prepared with three rows of 25, .02 m X .01 m rectangles placed lengthwise across the page for a total of 75 items per page. Each rectangle was lined to produce two, .01 m X .01 m boxes. The upper box contained a stimulus figure and the lower box was empty. Assignment of stimulus figures to rectangles was done randomly. See Appendix A for a presentation of the Task Sheets as used in the study.

Procedure

Subjects were administered one of the 20 possible treatment combinations. The order of presentation was randomly determined. Treatment conditions were composed of all possible combinations of the five verbal comment conditions by two levels of task complexity by two competition conditions. Ten subjects were contained in each treatment combination. Evaluative comment conditions consisted of direct praise, observed praise, direct criticism, observed criticism, and no comment. Direct praise consisted of the following comment and behavior executed by the experimenter: "Very good! You really know how to do this" (while leaning toward the subject addressed and smiling). Direct criticism was as follows: "This isn't too good. You seem to be having a problem with this" (while leaning toward the addressed subject and frowning). Task levels were composed of simple and complex as determined by the nature of the task and instructional set. Subjects completing the simple task were instructed to copy into the lower empty box of each rectangle the design which appeared above it

and told the following: "Most college women find this task to be rather simple." The complex task consisted of subjects drawing the same stimulus figures in a reverse orientation with an instruction set as follows: "Most college women find this task to be rather complex." Competition conditions were comprised of competitive and noncompetitive and were introduced by verbal instructions alone. These instructions were as follows:

> Competitive: "I'm really interested in how well you can do in comparison to one another. The screen will keep you from being distracted and help you do your best."
>
> Noncompetitive: "I'm not interested in how you do in comparison to one another. For convenience I'm having two people do the task simultaneously. The screen helps to simulate your working alone."

Subjects were run in pairs. Upon entering the experimental area, subjects were directed to be seated at opposite sides of a .91 m by .91 m table altered for experimental purposes. A .91 m by .63 m partition divided the table top at the center to prevent subjects from viewing one another once seated. This screening was used to prevent an interdependence of task performances arising from cues derived from facial expressions of subjects during and following administration of experimental directions and treatments. Before each subject was a pencil and the first task sheet back side up. This task sheet had the first three items completed for instructional purposes. Subjects were informed they would be asked to complete a pencil and paper task and, as instructions continued, were asked to turn over their task sheets for viewing. Appendix B presents a complete sequential rendition of these experimental directions and the interspersing of experimental conditions followed

throughout the study. Subjects then completed the first task sheet. After a one-minute work period the experimenter picked up both task sheets, viewed them, and administered a predetermined evaluative comment to a randomly chosen member of the dyad. The task sheets were again viewed after Trial 2, but no further evaluative statements were made. In the no comment condition, task sheets were viewed, but no evaluative statements were delivered. A 40-second inter-trial interval was provided to allow for handling of materials, administration of comments, and dissipation of subject fatigue.

In this study, when an evaluative comment was made to one member of a dyad, two different treatment conditions were conceptualized as occurring simultaneously. The first was the communication implication of being addressed directly with those comments, while the second consisted of being privy to this communication but not a direct recipient. Thus, when the experimenter verbalized praise, addressed subjects had membership in the direct praise treatment condition, but observing subjects were incorporated into the observed praise condition. In the case of the no comment treatment, however, both subjects were considered to experience identical conditions and, therefore, were members of the same treatment condition. A quirk of this design, then, was that only one-half the number of dyads necessary in the other comment conditions needed to be run in the no comment treatment in order to obtain the same quantity of subjects for control and comparison purposes.

After Trial 1, subjects completed two additional trials. These post-treatment trials provided a means of determining immediate and remote treatment effects. Performances obtained in Trial 1 were

principally to assure understanding of instructions and provide a practice trial. However, Trial 1 also provided another means to complete an overall analysis of the effects of competition and task difficulty on performance. Random ordering of the presentation of treatment combinations was the means used to control for subject- and experimenter-based sources of bias.

Subjects were provided new task sheets for use on each trial. Form 1 of the task sheets was always used on Trial 1 since the first three items were already completed for instructional purposes. Form 2 and Form 3 of the task sheets were randomly selected for use on Trial 2 with the unchosen form used on Trial 3. Consequently, both alternative forms were used an equal number of times.

A self-report questionnaire was given to each subject after completion of all trials of the performance task. See Appendix C for a presentation of the questionnaire, first with items arranged by content area and, secondly, in the actual randomized arrangement used for the study. This questionnaire sought to investigate several processes hypothesized as present in dyadic performance situations where evaluative comments take place. Certain of the questions were directed toward determining the presence and degree of influence, upon subjects, of attributional processes considered operative in achievement settings (B. Weiner et al., 1972). Subject predictions about their own and their partner's future performance on the same task were assessed. Inquiries about perceived success and failure were also included. The final area covered was the degree to which subjects considered the experimenter was being truthful. The 23 subjects who indicated disbelief were culled from the experiment. This procedure

was adopted to remove from the data pool subjects who, for any number of reasons, rejected the experimental conditions. Subjects answered each item of the questionnaire on a scale from 1 (Not at All) to 7 (Very Much) to indicate their agreement, or lack thereof, to each statement.

Upon finishing the questionnaire, subjects were praised for their performance and cooperation to avoid and/or resolve any adverse reactions to their participation. They were asked to refrain from discussing their experience to avoid influencing future participants. Subjects were provided a debriefing memo regarding the nature of the experiment approximately one week after the end of the session in which they participated. Data were collected during two consecutive academic semesters. Appendix D presents the experimental design of the research.

Data Analysis

The performance data were analyzed with two separate overall analyses of variance. Of prime interest were the task performances exhibited by subjects on the final two trials. These data were examined with a 5 X 2 X 2 X 2 analysis of variance with repeated measures on the last factors (trials). The first factor was level of evaluative comment (direct praise, observed praise, direct criticism, observed criticism, and no comment). The second factor was level of competition (competitive and noncompetitive), while the third factor was task difficulty (simple versus complex). Subjects were nested within the evaluative comment by competition by task difficulty treatment combinations. The dependent variable was the number of designs completed. The no comment condition provided a control for practice,

fatigue, and other extraneous effects, as well as a comparison measure to assess treatment effects.

The second overall analysis was supplemental to the first and involved only Trial 1 data. A 2 X 2 analysis of variance was completed on that data. The same two levels of competition and task difficulty appearing in the initial analysis comprised the first and second factors of that univariate procedure. The dependent variable remained the same also. This separate analysis of Trial 1 provided a means to examine possible influences of competition and/or task difficulty on subject performances prior to the presentation of evaluative conditions.

Questionnaire data were analyzed with a series of multivariate and univariate analyses of variance. The independent variables in all of these procedures were identical to the evaluative comment, competition, and task difficulty factors which appeared in the performance task analysis. The dependent variable was the numerical rating circled by subjects to indicate their level of agreement with a questionnaire item. Responses were limited to scores from 1 (Not at All) to 7 (Very Much). Questions were grouped by content area to create multivariate variables of Stable (questions 5, 9, 10, and 14) and Unstable (questions 3, 4, 7, and 11) attributional categories. A similar grouping process was utilized to create the multivariate variables of Ability (questions 9 and 10), Task Difficulty (questions 5 and 14), Effort (questions 3 and 4), and Chance (questions 7 and 11) which were considered individual attributional elements. Questions 15 and 17 comprised the variable of success for the final multivariate analyses. Finally, subject responses on individual

questions were analyzed with a univariate analysis of variance, if the previous multivariate analysis was significant, or if the question had not been evaluated by earlier procedures.

A priori and a posteriori comparisons between means were completed on both performance task and questionnaire data to examine hypothesized treatment effects and unexpected areas of statistical significance, respectively. A priori tests consisted of t-tests, while the Tukey HSD procedure (Kirk, 1968, p. 88) was utilized in the a posteriori tests.

CHAPTER III

RESULTS

Questionnaire Data

Subjects responded to each of the 17 questionnaire items by marking 3 or below to indicate disagreement or 4 through 7 to suggest increasing agreement. Mean ratings for each question summed across experimental groups were 4 or above for all but the statements pertaining to performance being due to chance (items 7 and 11), personal performance remaining the same if repeating the task (item 8), and partner's performance worsening if completing the task again (item 6). The majority of the statements were rated, therefore, in the range of agreement. Table III, Appendix E, presents these means as well as the mean responses to each question by experimental groups. Analysis of the questionnaire was completed at several levels of complexity in order to assist in the interpretation of the performance data.

Stable Attributional Elements

Several of the questions were combined to form a conceptual unit which conformed to a Stable attributional factor. These questions, numbered as they appeared in the questionnaire, were as follows:

5. The task's difficulty determined my partner's performance.
9. Ability determined my partner's performance.

10. My performance was due to ability.

14. My performance was caused by the task's difficulty.

A 5 X 2 X 2 multivariate analysis of this Stable factor determined that subject ratings differed as a function of the difficulty level of the performance task, F (4,177) = 1.8331, $p < .05$. With the questions regrouped into the constituent elements of the Stable factor, namely Task Difficulty (items 5 and 14) and Ability (items 9 and 10), the differential response associated with the actual difficulty level of the task was maintained on the Task Difficulty element, F (2,179) = 3.2140, $p < .05$ but absent when considering the Ability element. See Tables IV, V, and VI in Appendix F for summaries of the Stable factor, Ability element, and Task Difficulty element multivariate analyses, respectively.

Univariate analyses were completed on each of the Stable attributional factor questions. These analyses were warranted in the case of questions 5 and 14 (Task Difficulty element) due to prior significant findings and for questions 9 and 10 (Ability element) because of their incorporation in this study's hypotheses (see List of Hypotheses, Chapter I). Only on question 14 was a significant main effect for task difficulty maintained, F (1,180) = 6.20, $p < .01$. See Tables XV, XIX, XX, and XXIV, in Appendix G for summaries of these univariate analyses. A comparison of means determined that subjects who completed the complex task gave higher ratings to the role of task difficulty in their performance than subjects who completed the simple task, t (180) = 2.489, $p < .01$ (see Appendix H for a listing of all a priori comparisons completed on questionnaire data). However, an interaction of competition with task difficulty was also found on

question 14, $\underline{F}$ (1,180) = 3.79, $\underline{p} < .05$. Subjects under competitive instructions rated task difficulty as operative in their performance regardless of the task's actual difficulty (see Table XXVIII, Appendix I). On the other hand, noncompetitive subjects rated the role of task difficulty more accurately. They rated the contribution of task difficulty significantly higher following completion of the complex task than the simple task. Competitive subjects also rated task difficulty as significantly more operative on the simple task than did their noncompetitive counterparts (see Table XXVIII, Appendix I). On question 9 a significant main effect for evaluative comment was found, $\underline{F}$ (4,180) = 2.80, $\underline{p} < .05$. Appendix G, Table XIX, presents summaries of the univariate analysis of question 9. Subjects observing criticism rated Ability as less operative in their partner's performance than did the no comment subjects (see Appendix H). An interaction of evaluative comment with competition was found in the univariate analysis of question 10, $\underline{F}$ (4,180) = 2.78, $\underline{p} < .05$ (see Table XX, Appendix G). All a posteriori comparisons of question 10 evaluative comment means were nonsignificant, however.

To summarize the Stable factor analysis, subject rating of the contribution of stable attributional elements (Task Difficulty and Ability) to task performance was determined to vary directly with increases in actual task difficulty. These ratings, however, were generally higher, when competition was introduced, regardless of the actual difficulty level of the task. Subjects were not found to attribute causation for their performance to Ability.

Unstable Attributional Elements

The following questions, numbered as they appeared in the questionnaire, comprised the Unstable attributional factor.

3. My effort on the task determined my performance.
4. My partner's effort on the task was responsible for her performance.
7. How I did on the task was a matter of luck.
11. My partner's performance seemed due to chance.

Questions 3 and 4 were conceptualized as forming the unstable attributional element of Effort while 7 and 11 constituted the unstable element of Chance. Multivariate analyses were completed with each of these groupings, summaries of which are presented in Tables VII, VIII, and IX in Appendix F. The analysis of all four questions via the Unstable factor yielded a significant main effect for both evaluative comment, F (16,541) = 1.8393, $p < .05$, and task difficulty, F (4,177) = 5.2553, $p < .01$. The multivariate analysis of the unstable element of Effort (questions 3 and 4) again found significant main effects for evaluative comment, F (8,358) = 2.1005, $p < .05$ and task difficulty, F (2,178) = 7.3537, $p < .01$. The multivariate analysis of the Chance element (questions 7 and 11) yielded only a main effect for task difficulty, F (2,179) = 3.5915, $p < .05$.

Each of these questions was then evaluated with a univariate procedure (see Tables XIII, XIV, XVII, and XXI, Appendix G). On questions 3 and 4 a main effect for Task Difficulty was maintained, F (1,180) = 14.73, $p < .001$ and F (1,180) = 7.82, $p < .01$, respectively. All subjects rated Effort as being a contributor to their own and the

partner's performance. In each case, subjects completing the simple task gave significantly higher ratings to effort than evidenced by subjects assigned the complex task, t (180) = 3.838, $p < .001$ (question 3) and t (180) = 2.796, $p < .01$ (question 4). See Appendix H for a listing of questionnaire a priori comparisons. The univariate analysis of question 7 (personal luck) found a significant main effect for evaluative comment, F (4,180) = 2.66, $p < .05$, task difficulty, F (1,180) = 7.22, $p < .01$, and an evaluative comment X competition X task difficulty interaction, F (4,180) = 3.03, $p < .05$. All subjects rated low the contribution on chance to their personal performance, but these ratings were significantly higher by subjects doing the complex task in comparison to the simple task, t (180) = 2.68, $p < .01$. Subject estimates of chance operating in their partner's performance was toward the "Not at All" end of the scale and did not vary by type of task. A posteriori comparisons of the evaluative comment X competition X task difficulty means for question 7 were nonsignificant. No treatment effects were obtained with the univariate analysis of question 11.

To summarize, the analysis of the unstable factor and its constituent questions indicated that while effort was held as influencing performance, chance was not. The influence of effort was held to be greater on the simple task than the complex.

Perceived Success

Questionnaire items assessing perceived success were listed and numbered as follows:

15. In general, I succeeded on the task.

17. Overall, my partner seemed to succeed on the task.

The mean responses for all groups combined were 4.5 for question 15 and 4.9 for question 17, which indicated subjects in general, viewed themselves and their partners as successful on the task (see Table III, Appendix E for a presentation of questionnaire means).

A multivariate analysis of questions 15 and 17 yielded a significant main effect for evaluative comment, F (8,358) = 2.4166, $p < .05$, and task difficulty, F (2,179) = 10.1596, $p < .01$ (see Table X, Appendix F). A significant main effect for task difficulty was maintained in the univariate analyses of both question 15, F (1,180) = 16.04, $p < .001$, and 17, F (1,180) = 7.62, $p < .01$. The evaluative comm nt main effect was only maintained in the univariate analysis of question 17, F (4,180) = 2.75, $p < .05$. See Tables XXV and XXVII, Appendix G, for summaries of the univariate analyses of questions 15 and 17, respectively.

Comparisons of group means were completed on questions 15 and 17. On question 15, subjects who received direct praise or observed criticism (success information) rated themselves as more successful than subjects receiving direct criticism or observed praise (failure information), t (180) = 1.7173, $p < .05$. Directly praised subjects rated their personal success (question 15) higher than the level rated by directly criticized subjects, t (180) = 2.1468, $p < .05$. However, when compared to the no comment condition, only the directly criticized subjects differed significantly, t (180) = 1.717, $p < .05$, with their ratings being lower than those of the no comment subjects (see Appendix H). Subjects who completed the simple task ranked themselves

as more successful than subjects completing the complex task on both item 15 and 17 (see Tables XXX and XXXI, Appendix I).

In summary, perceived success was found to increase as a function of the ease of the task and type of evaluative comment, with the latter influence being limited to personal success ratings. Evaluative comments of praise and observing another criticized were similar in promoting increases in perceived success. Direct criticism and observing praise led to decrements in perceived success.

Miscellaneous Questions

All of the remaining questions were analyzed with univariate analyses of variance. The following is a listing of those questions with their numbering as designated on the questionnaire.

1. My partner's performance would be the same if doing the task again.
2. My partner would do better if repeating the task.
6. My partner would do worse if repeating the task.
8. My performance would remain the same if repeating the task.
12. I would do better if completing the task again.
13. I believe the experimenter was being truthful.
16. I would do poorer if trying the task again.

Means for these questions are presented in Table III, Appendix E. See Tables XI, XII, XVI, XVIII, XXII, XXIII, and XXVI in Appendix G.

From among the univariate analyses completed on the remaining questions, areas of significance were few (see Tables XI, XII, XVI, XVIII, XXII, XXIII, and XXVI in Appendix G). A significant evaluative comment X competition X task difficulty interaction, F (4,180) =

2.57, $p < .05$, on question 1 was found to feature no significant differences between means by a posteriori comparisons. A similar fate befell significant findings of the analyses of questions 2, F (1,180) = 4.07, $p < .05$, for task difficulty, and 13, F (4,180) = 2.37, $p < .05$, for evaluative comment. The univariate analysis of question 8 yielded a significant main effect for task difficulty, F (1,180) = 5.38, $p < .05$ (Table XVIII, Appendix G). While all subjects disagreed with this statement, ratings were more toward the agreement range when completing the simple task than when completing the complex task (see Table XXIX, Appendix I). No significant effects were obtained in the univariate analyses of questions 6, 12, or 16 (Tables XVI, XXII, and XXVI, Appendix G). In summary, subject ratings of their own and their partners' future performance tended to remain unchanged as a function of membership in the experimental groups.

Performance Data

Obtained means for the evaluative commext X competition X task difficulty groupings across all trials are presented in Table XXXII, Appendix J. Within the overall analyses of the performance data, significant findings were sparse. A significant main effect for task difficulty was evidenced in the 2 X 2 analysis of Trial 1, F (1,180) = 184.09, $p < .001$, and the 5 X 2 X 2 X 2 analysis of Trials 2 and 3, F (1,196) = 117.87, $p < .001$. Tables I and II present summaries of these respective analyses. An a posteriori examination of the task difficulty factor determined subjects to complete a significantly greater number of designs on the simple task compared to the complex task (see Tables XXXIII and XXXIV, Appendix K) within both analyses.

An additional significant finding in the 5 X 2 X 2 X 2 analysis was a main effect for trials, F (1,180) = 97.00, $p < .001$. Subjects increased in performance from Trial 2 to Trial 3 (see Table XXXV, Appendix K). All remaining effects in both analyses failed to exhibit statistical significance.

TABLE I

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
FOR TRIAL 1 OF PERFORMANCE TASK

Source	df	MS	F	P
Between Subjects				
B (Competitiveness)	1	168.8049	1.13	NS*
C (Task Difficulty)	1	17057.0440	117.87	.001
BC	1	43.2451	.30	NS
Subjects within Groups	196	144.7146		

*NS = Nonsignificant

TABLE II

SUMMARY TABLE FOR ANALYSIS OF VARIANCE OF TRIALS 2 AND 3 OF PERFORMANCE TASK

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comments)	4	99.1038	.42	NS*
B (Competitiveness)	1	71.4023	.30	NS
C (Task Difficulty)	1	43618.3250	184.09	.001
AB	4	52.1088	.22	NS
AC	4	358.8662	1.51	NS
BC	1	0.2026	.00	NS
ABC	4	157.1212	.66	NS
Subjects within Groups	180	236.9397		
Within Subjects				
D (Trials)	1	1636.2026	97.00	.001
DA	4	16.8088	1.00	NS
DB	1	2.7225	.16	NS
DC	1	60.0625	3.56	NS
DAB	4	28.0037	1.66	NS
DAC	4	25.3063	1.50	NS
DBC	1	3.8025	.23	NS
DABC	4	11.2212	.67	NS
D X Subjects within Groups	180	16.8686		

*NS = Nonsignificant

Since hypotheses concerning the performance of subjects as a function of membership in different evaluative comment X competition X task difficulty X trials treatment combinations were tendered, a priori comparisons were completed to evaluate these predictions (see Appendix L). As postulated (Hypothesis 5), subjects

experiencing the direct praise X competition X simple task difficulty condition and subjects performing under observed criticism X competition X simple task difficulty failed to differ in performance from their no comment comparison groups (2-tailed t tests), t (180) = .87, $p > .05$, t (180) = 1.5789, $p > .05$, respectively. Also, as expected (Hypothesis 7), subjects observing praise under conditions of competition X complex task difficulty did not evidence performance changes from Trial 2 to Trial 3 when compared to their no comment counterparts (2-tailed t tests), t (180) = -1.3066, $p > .05$, t (180) = -1.0344, $p > .05$. The remaining six hypotheses predicting task performance differences between experimental groups were not supported.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

This study represented an effort to resolve the conflicts in findings reported by the vicarious, implicit, and indirect reinforcement literature. As noted in Chapter I, Review of the Literature, procedural differences existed between their investigations of the influence of praise and criticism in group contexts. These differences were thought to have created settings which varied in their possession of competition between subjects and task difficulty. In conjunction with these aspects of the setting, the additional factor of a subject being the direct recipient or observer to evaluative comments was held to result in the conflicting patterns and directionalities of task performances obtained by the reviewed reinforcement models. Further, this study maintained that the influence of evaluative comments could be more accurately appreciated as serving an informational role to an attributional process determining subject performances rather than as a reinforcement or response strengthening process. The underlying premise of this study maintained that evaluative comments served to determine perceived success or failure by the subjects and that subsequent performances were guided by the subjects' attribution of causation for that outcome. Hypotheses 1 through 8 predicted performance outcomes as the product of an interaction of perceived success or failure, competitiveness

and task complexity. Hypotheses 9 through 11 were related to outcomes on the questionnaire which were predicted to vary in accordance with experimental variables believed to promote differential perceptions of success or failure and causative attributions by subjects.

Analysis of the performance task and questionnaire data found little support for the hypotheses advanced in this study. This lack of statistical support was particularly characteristic of the performance data where only two of the eight hypotheses made were found tenable. The meaningfulness of those findings was judged questionable, however, since both (Hypotheses 5 and 7) predicted an absence of performance changes. This judgement was made in the context of results indicating a general lack of performance differences between treatment groups and their no comment comparison groups. Then, too, on simply statistical grounds, the likelihood of one or more spuriously significant differences between groups in this study was .64 according to the formulation of Hays (1965, p. 488). Hypotheses 9, 10, and 11 which were related to outcomes on the questionnaire fared somewhat better. Partial support of Hypothesis 9 was obtained since subjects attributed their performance to the stable attributional factor of Task Difficulty to a greater degree when completing the complex task. However, ratings of Task Difficulty were consistently greater across task levels when competition was present, but varied directly with increases of task complexity among noncompetitive subjects. Hypothesis 10 also received partial support, since the unstable attributional element of Effort was perceived as more operative on simple than complex tasks for self-performance and partner-performance. The unstable attributional element of Luck

was rated toward the "Not at All" end of the questionnaire, regardless of the task level completed. However, this rating by subjects doing the complex task was less negative than for subjects completing the simple task. As predicted by Hypothesis 11, sub ects receiving evaluative comments suggesting success (direct praise and observing criticism) gave higher success ratings on personal performance than subjects who received failure comments (direct criticism and observed praise). This finding was tempered by the outcome that subjects tended to rate their performance as successful regardless of the evaluative comment received.

The results indicated task performances to be the result of Task Difficulty and Trials. Since subjects would be expected to complete less items of a complex task, this outcome has little meaning beyond verifying a successful manipulation of the task difficulty variable. However, the systematic changes across trials warranted closer examination. As can be seen in Figures 1 and 2, an overall trend for subjects completing the Simple task was to increase in performance from trial to trial. Figures 3 and 4 illustrate performance tended to be stable from Trial 1 to 2 and then increased on Trial 3, by subjects assigned the complex task. These observations suggest practice and/or learning effects were perhaps responsible in determining subject performances despite experimental procedures to control for these effects. The delay in improvement by subjects completing the complex task is consistent with a longer learning period being required before performance could noticeably change.

Another possibility, however, was a systematic bias, originally designed to maintain comparability of experimental conditions, being

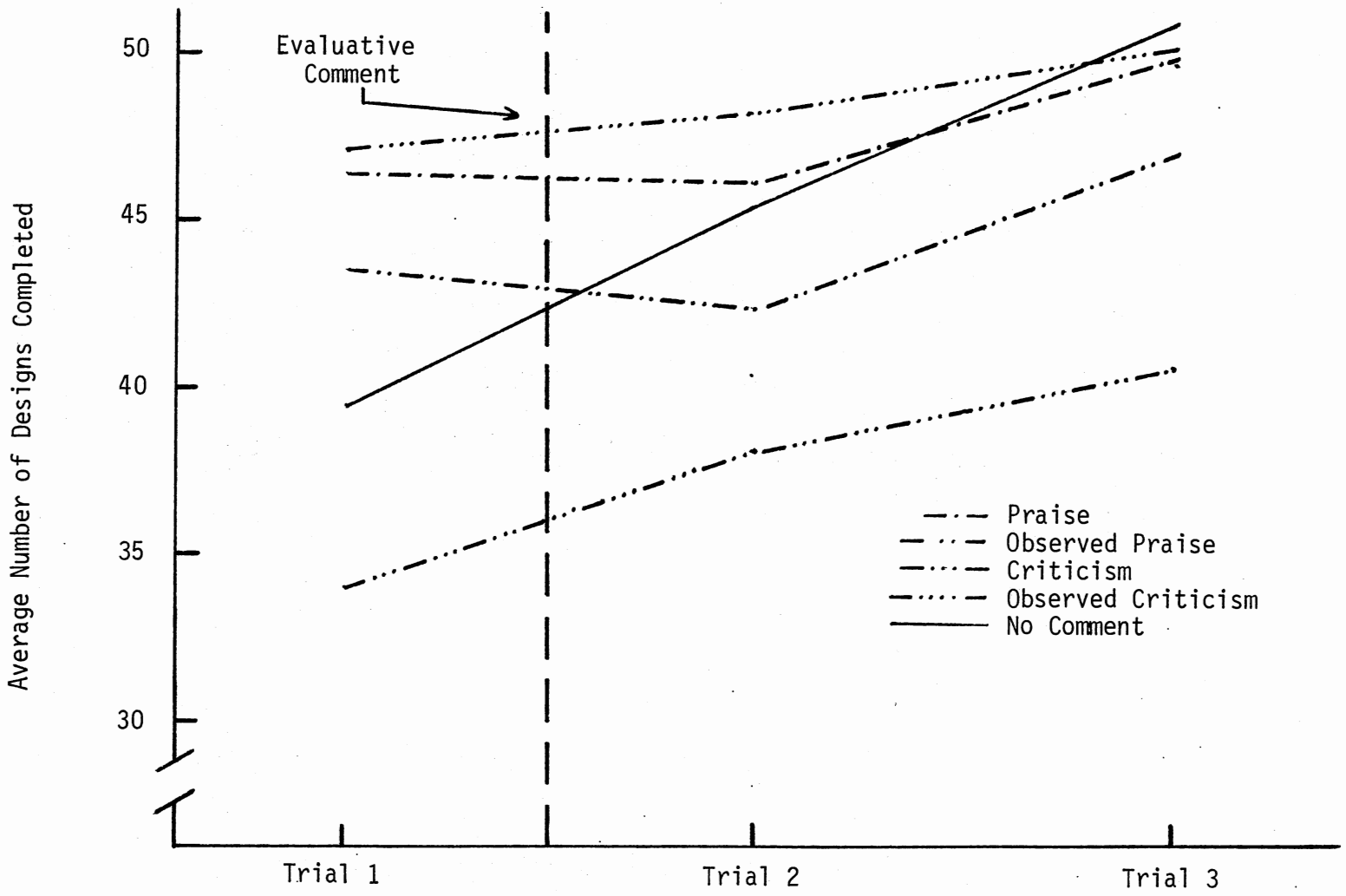

Figure 1. Average Performance of Evaluative Comment by Competitive by Simple Task Treatment Groups Across Trials

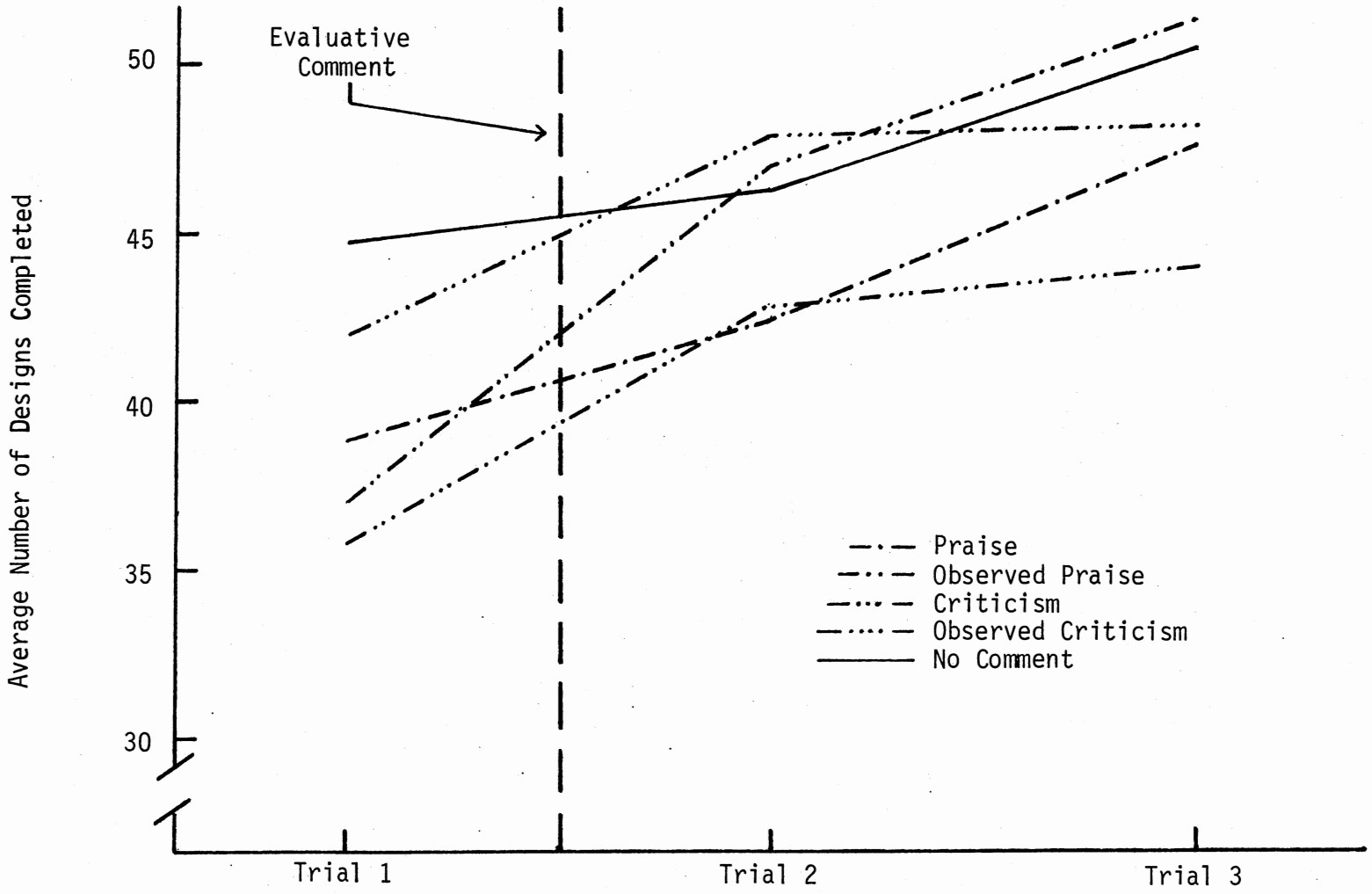

Figure 2. Average Performance of Evaluative Comment by Noncompetitive by Simple Task Treatment Groups Across Trials

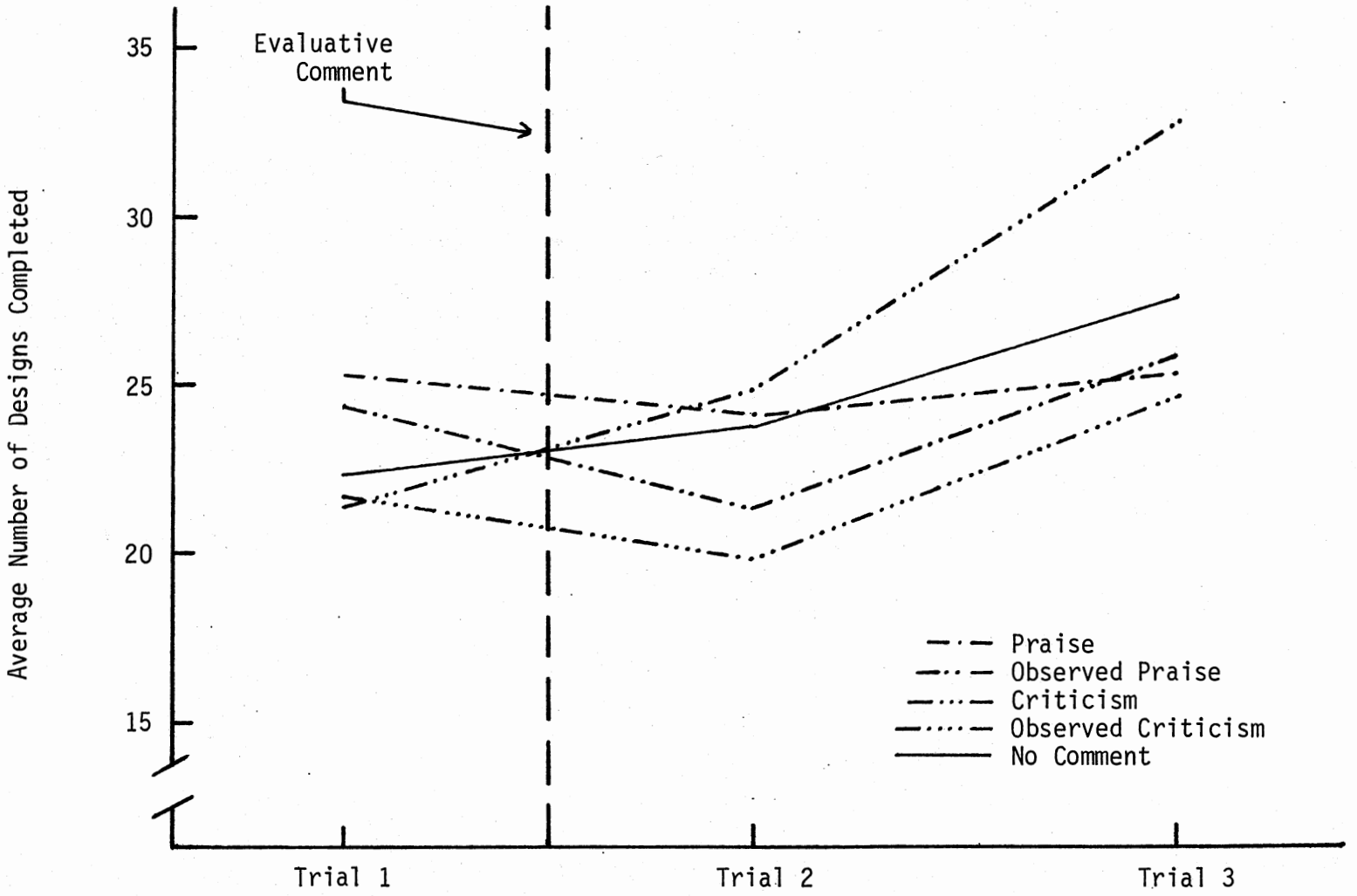

Figure 3. Average Performance of Evaluative Comment by Competitive by Complex Task Treatment Groups Across Trials

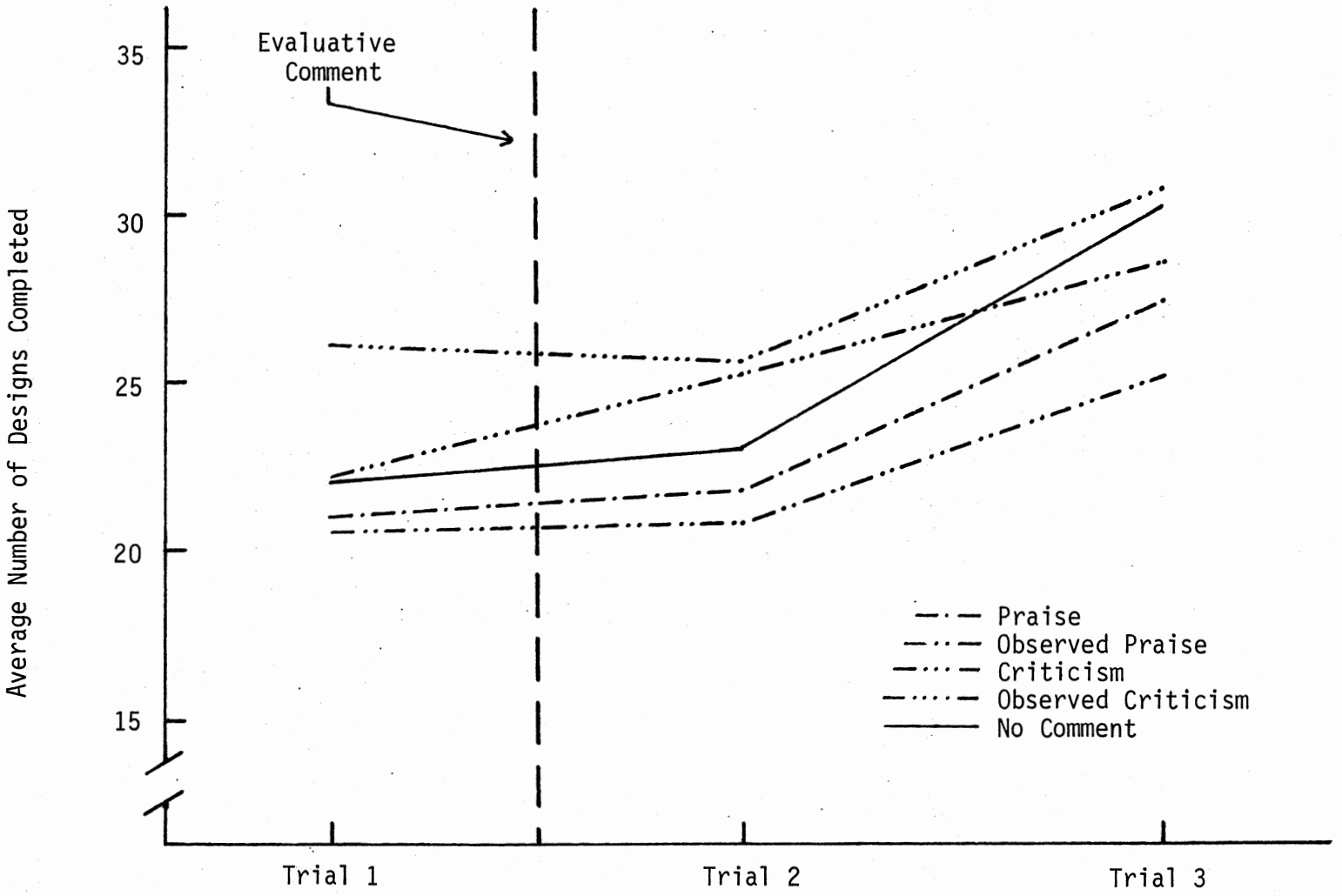

Figure 4. Average Performance of Evaluative Comment by Noncompetitive by Complex Task Treatment Groups Across Trials

responsible for the performance changes across trials. As can be recalled, subject task sheets were viewed by the experimenter following each trial for every treatment group. Perhaps this procedure served to re-administer the variable of competitiveness after each trial and, unfortunately, across all groups. An examination of the graphed data, again, illustrates performances tended to be steeper after Trial 2 for most groups, a time at which an implied competitiveness based on experimenter behavior possessed an immediacy which the other experimental manipulations lacked. The trend for all groups to display performance increments after Trial 2 could be a reflection of the comparability of the setting produced by this viewing of task sheets.

In addition, this implied competitiveness could have differentially influenced the various treatment groups. As can be recalled, subjects were told they were either competing or not competing on the tasks. The noncompetitive groups might have been affected more greatly due to a contrast of what the experimenter said and what he did during the session. Perhaps the tendency for most of the noncompetitive groups to have greater increases after Trial 2 than competitive groups (Figures 2 and 4 versus 1 and 3), reflected this process. Also, the no comment groups might have been influenced more greatly through the experimenter's behavior serving as a principal cue for self-evaluation of performance, thus accounting for their changes across trials. Notably, the greatest changes from Trial 2 to 3 were observed among the noncompetitive by no comment groups, regardless of the task being simple or complex (Figures 2 and 4). This observation is consistent with an expectation that this

experimental condition would be the most influenced by behavioral cues from the experimenter.

Given the presence of a systematic bias which differentially influenced treatment groups, a lack of significant findings would not be surprising. Particularly if the groups most influenced were those serving as comparison groups to assess treatment effects. The possibility of treatment effects being masked or altered is reflected in the performance trends of competitive groups (Figures 1 and 3) initially being more variable from Trial 1 to Trial 2 but more uniform from Trial 2 to Trial 3, and the increments evidenced by the no comment groups across trials. Such a disruption could also underlie the current lack of treatment effects being evidenced for evaluative comments and competition that were obtained in prior research, which used verbal statements and directions similar to the present effort.

The fact that the questionnaire data only partially supported their related hypotheses might also have been due to the intrusion of experiential factors. More than simply the administration of evaluative comments could have entered into a subject's perception of success or failure. In addition to a preconceived notion about probable achievement based on their prior histories with pencil and paper tasks, subjects had the additional information of their actual performance on the experimental task across three trials. Perhaps, by the time an assessment of perceived success or failure was completed via the questionnaire (all performance trials completed), personal experience had begun to take precedence over the information conveyed by the evaluative comments. Since performance increased across trials, success ratings would seem more likely following completion

of all trials rather than after only Trial 1. Subject ratings of the contribution of Chance, Effort, Ability, and Task Difficulty to their performance also might have been a final judgement which was modified as experience with the task increased.

In addition, subject self-reports might have fallen victim to the desire by subjects to observe common rules of social behavior in their evaluations. For instance, all subjects rated themselves as having succeeded, as well as their partners. These ratings occurred despite evaluative comments which conveyed differential success and failure to members of each dyad. Perhaps modesty and a hesitancy to criticize their partners accounted for the failure of subjects receiving praise and observed criticism to have higher personal ratings of success and to designate their partners as unsuccessful. In a more personal vein, subjects could have been defending against the threat of possible failure when Task Difficulty was chosen to account for performance under competitive conditions, regardless of the actual complexity of the experimental task.

While not being productive in the sense of supporting the hypotheses advanced in this study, the results are useful in guiding future research procedures in the area. A pencil and paper task remains an attractive choice for use due to its ease of administration and scoring. However, increasing the amount of exposure to the task prior to experimental trials is recommended to avoid contamination of results by learning effects. The tasks chosen for this study were similar in the motor skills required for their completion but differed at the perceptual level. The simple task involved copying while the complex task required subjects to develop a reversed perception of

the stimulus item and then render this perception in graphic form. Subjects completing the complex task were frequently observed to react to critical comments by becoming more cautious with their drawings, a consequence which in spirit might have substantiated a hypothesis implying a salutary effect for criticism but would not be reflected in increments of items completed. Consequently, a performance task should be selected which would reflect treatment effects in a unidimensional fashion. Perhaps an experimental task on a perceptually similar level but differing in required motor output would be suitable. When competition is under investigation, viewing task sheets following each trial is considered a procedural error and should be avoided. In fact, designs lacking repeated measures could be used to study the area, with an immediate advantage of removing concerns about carry-over effects. Finally, in assessing attributional processes, measures taken during the experiment's completion rather than following are suggested to avoid the likelihood of post-experimental results being a composite or cumulative outcome.

Unfortunately, the sought after resolution of the conflicts in results reported by the vicarious, implicit, and indirect reinforcement literature remains unattained. The author's interest in gaining a better understanding of the processes determining behavioral reactions to evaluative comments in social settings remains active for many reasons. Being able to anticipate the response of others to evaluative comments has obvious practical utility in such endeavors as parenting, education, and psychotherapy. Perhaps the procedural factors discussed will prove useful in future investigations of the area. Hopefully, such research will not await yet another

fortuitous "observation" that people who witness others receive evaluative comments seem to display behavioral alterations.

CHAPTER V

SUMMARY

The purpose of this study was to evaluate the variation in subject response to evaluative comments delivered within differing contexts. More specifically, subject performance on a pencil and paper task was compared as a function of praise, criticism, or the observation of each subsequent to being assigned a simple or complex task and operating under competitive or noncompetitive directions. Subjects were run in pairs and completed three trials of the task. Between Trial 1 and Trial 2, an evaluative comment was directed to one member of the dyad or no comment was made. The no comment condition served as a comparison condition to evaluate treatment effects. Trial 1 served as an instructional phase with Trials 2 and 3 serving to assess immediate and remote treatment effects. All subjects completed a questionnaire assessing achievement and attribution issues following completion of the task. Hypotheses advanced were derived from the premise that evaluative comments serve an informational role in determining subject perceptions of success or failure and that subsequent task performances are mediated by an attributional process as to the cause of the achievement outcome.

The results did not support any of the hypotheses related to the performance task but partial support of the hypotheses concerning the achievement and attribution issues was obtained. Subjects

receiving success information (praise or observing criticism) gave higher ratings for personal success than did subjects receiving failure information (criticism or observing praise). Subjects were likely to attribute to Effort as determining their performance on the simple task. In competitive situations, subjects were likely to attribute to Effort as determining their performance on the simple task. In competitive situations, subjects were likely to attribute their performance to Task Difficulty, regardless of the actual difficulty level of the task, but attributions to Task Difficulty increased as the actual task difficulty became more complex in noncompetitive situations.

The lack of support for the performance task hypotheses was discussed in terms of experimental procedures believed responsible in compromising the statistical analyses completed. Suggestions to remedy these problems were presented.

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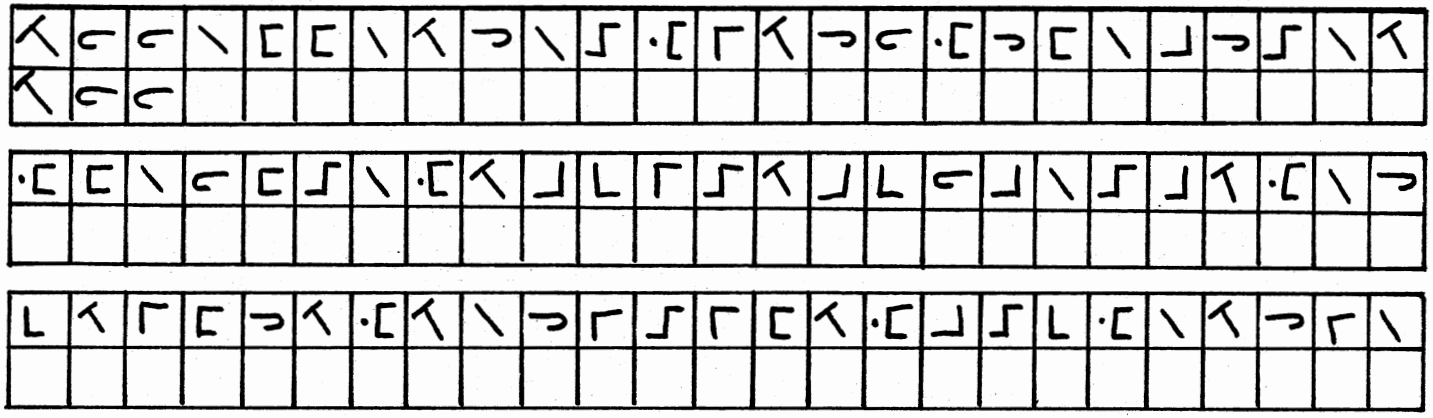
APPENDICES

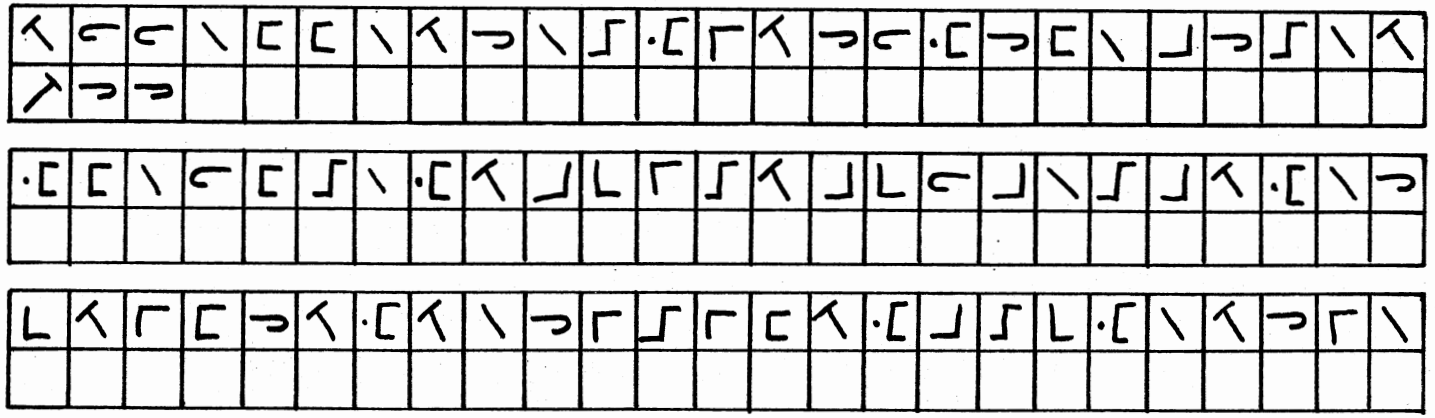
APPENDIX A

SAMPLE TASK SHEETS

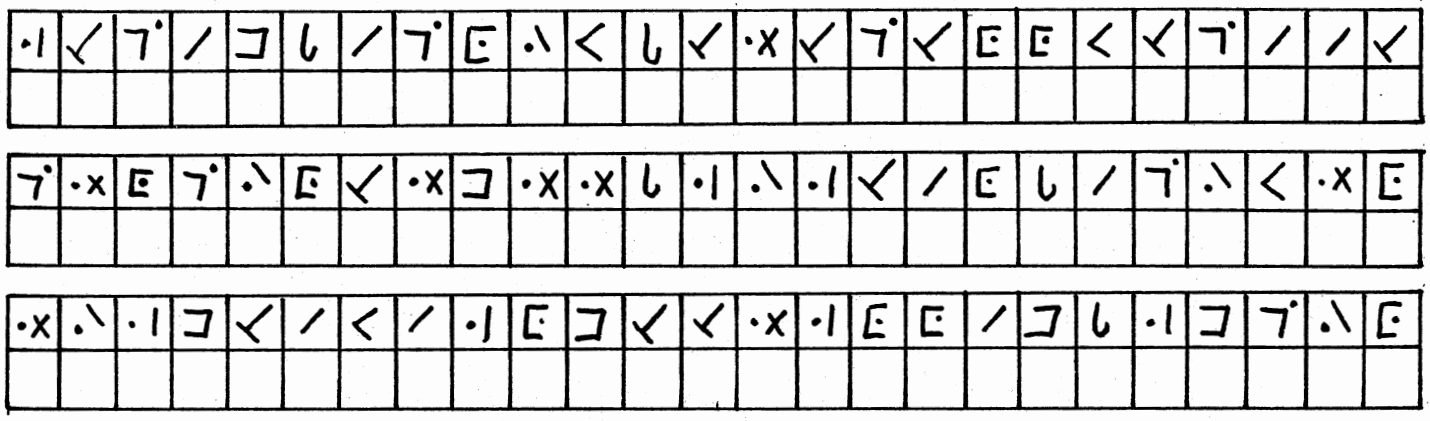
INSTRUCTIONAL TASK SHEET - SIMPLE TASK



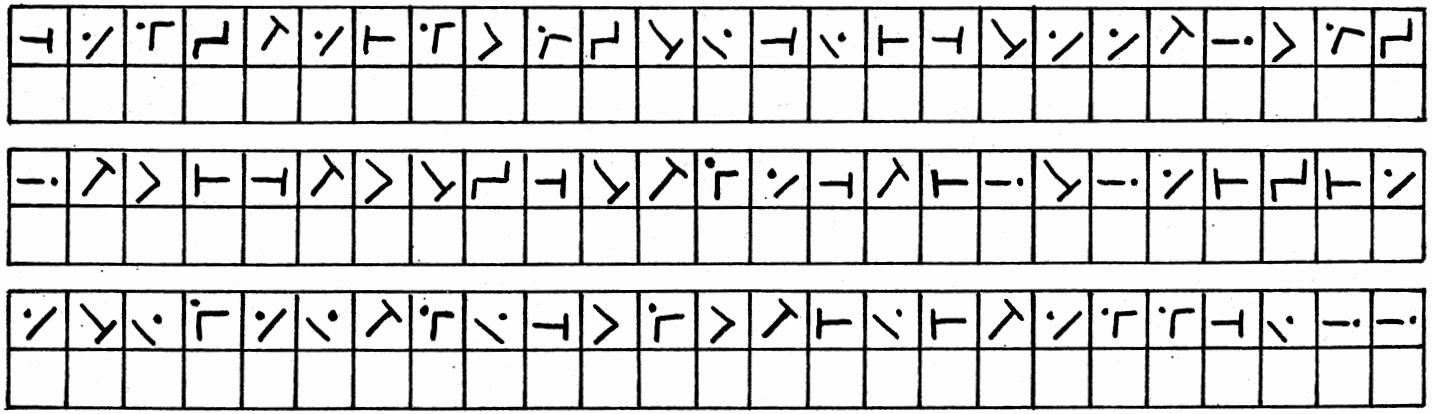
INSTRUCTIONAL TASK SHEET - COMPLEX TASK



EXPERIMENTAL TASK SHEET - FORM 1



EXPERIMENTAL TASK SHEET - FORM 2



APPENDIX B

EXPERIMENTAL DIRECTIONS

INSTRUCTIONS

"In a moment you will be asked to do a pencil and paper task."

Competitive: "I'm really interested in how well you can do in comparison to one another. The screen will keep you from being distracted and help you do your best."

Noncompetitive: "I'm not interested in how you do in comparison to one another. For convenience, I'm having two people do the task simultaneously. The screen helps to simulate your working alone."

"Please turn over your paper. Notice that the page has three rows of rectangles which have designs in their upper parts but their lower parts are empty."

Simple: "Your task is to copy into each empty box the design which appears above it. Most college women find this task to be rather simple."

Complex: "Your task is to draw into each empty box the reverse of the design which appears above it. Most college women find this task to be rather complex."

"As you can see, the first three boxes are done correctly. Please examine them closely" (pause). "When I say, 'Begin,' start working and do the boxes in order without skipping any. When you finish a line go on to the next. If you make an error, simply put the correction over it. Keep working until I say, 'Stop.'"

"Ready? Begin."

APPENDIX C

SELF-REPORT QUESTIONNAIRE

QUESTIONNAIRE ITEMS BY CONTENT

ATTRIBUTIONAL ELEMENTS

How I did on the task was a matter of luck.

My performance was due to ability.

My performance was caused by the task's difficulty.

My effort on the task determined my performance.

My partner's performance seemed due to chance.

Ability determined my partner's performance.

The task's difficulty determined my partner's performance.

My partner's effort on the task was responsible for her performance.

PREDICTIONS

I would do better if completing the task again.

My partner would do better if repeating the task.

My performance would remain the same if repeating the task.

My partner's performance would be the same if doing the task again.

I would do poorer if trying the task again.

My partner would do worse if repeating the task.

BELIEF IN EXPERIMENTAL INSTRUCTIONS

I believe the experimenter was being truthful.

PERCEIVED SUCCESS

In general, I succeeded on the task.

Overall, my partner seemed to succeed on the task.

QUESTIONNAIRE

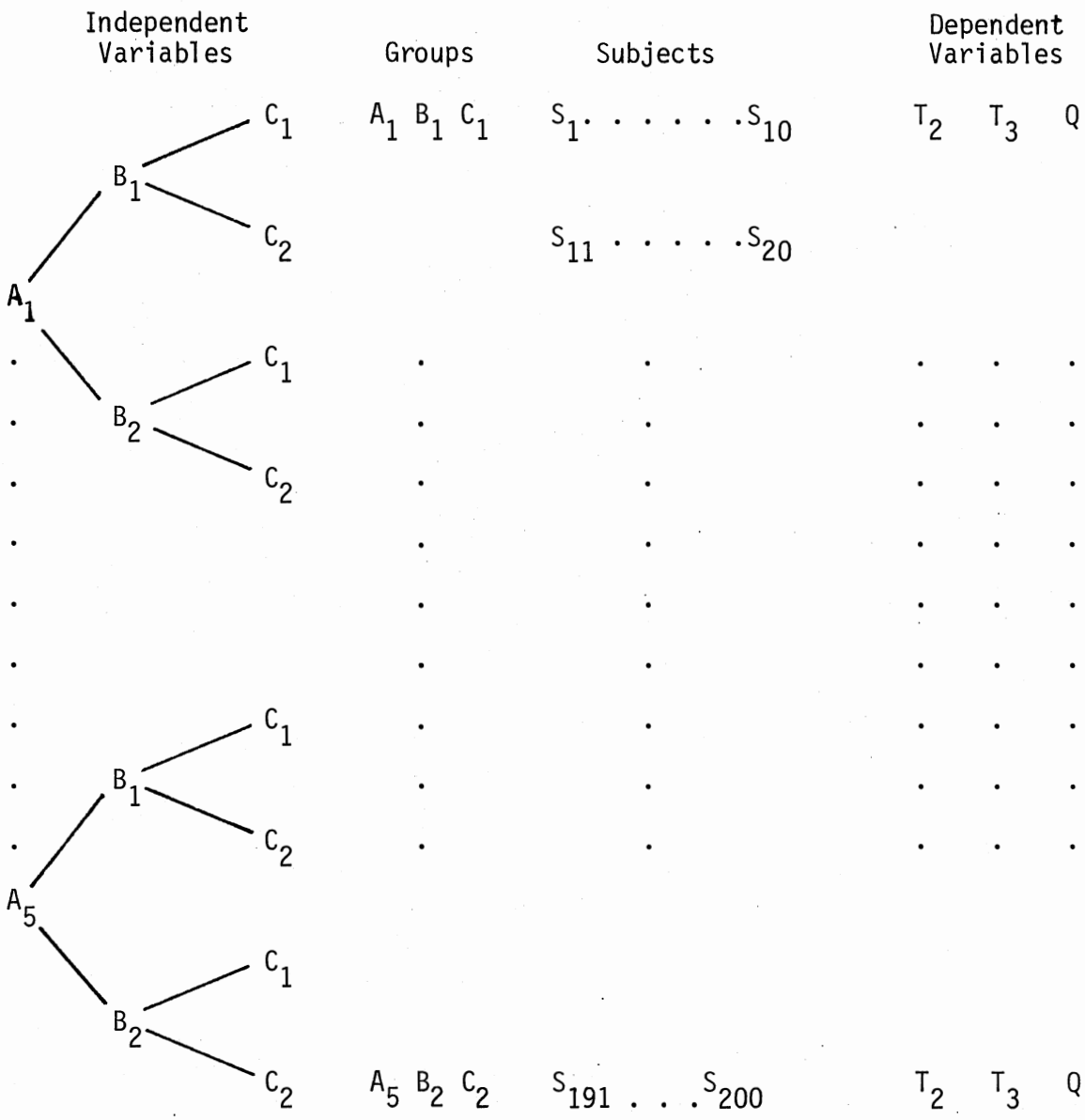
Please answer each of the questions below by circling the number which best fits your response.

		Not at All -- Very Much						
1.	My partner's performance would be the same if doing the task again.	1	2	3	4	5	6	7
2.	My partner would do better if repeating the task.	1	2	3	4	5	6	7
3.	My effort on the task determined my performance.	1	2	3	4	5	6	7
4.	My partner's effort on the task was responsible for her performance.	1	2	3	4	5	6	7
5.	The task's difficulty determined my partner's performance.	1	2	3	4	5	6	7
6.	My partner would do worse if repeating the task.	1	2	3	4	5	6	7
7.	How I did on the task was a matter of luck.	1	2	3	4	5	6	7
8.	My performance would remain the same if repeating the task.	1	2	3	4	5	6	7
9.	Ability determined my partner's performance.	1	2	3	4	5	6	7
10.	My performance was due to ability.	1	2	3	4	5	6	7
11.	My partner's performance seemed due to chance.	1	2	3	4	5	6	7
12.	I would do better if completing the task again.	1	2	3	4	5	6	7
13.	I believe the experimenter was being truthful.	1	2	3	4	5	6	7
14.	My performance was caused by the task's difficulty.	1	2	3	4	5	6	7
15.	In general, I succeeded on the task.	1	2	3	4	5	6	7
16.	I would do poorer if trying the task again.	1	2	3	4	5	6	7
17.	Overall, my partner seemed to succeed on the task.	1	2	3	4	5	6	7

APPENDIX D

EXPERIMENTAL DESIGN

EXPERIMENTAL DESIGN



A Type of Evaluative Condition	B Level of Competition	C Task Difficulty
1. Direct Praise	1. Competitive	1. Simple
2. Observed Praise	2. Noncompetitive	2. Complex
3. Direct Criticism		
4. Observed Criticism		
5. No Comment		

S = Subject T = Trial Q = Questionnaire

APPENDIX E

QUESTIONNAIRE DATA MEANS

TABLE III

GROUP MEANS FOR QUESTIONNAIRE ITEMS

Groups	Question Number 1	2	3	4	5	6	7	8	9
A_1 B_1 C_1	4.2	5.3	5.0	4.8	4.0	1.9	2.9	3.1	4.5
A_1 B_1 C_2	2.9	5.3	4.9	5.0	4.9	2.2	2.2	3.0	5.1
A_1 B_2 C_1	4.0	5.0	5.5	5.2	4.5	2.0	1.9	4.1	4.1
A_1 B_2 C_2	4.2	4.7	4.0	4.2	4.0	2.2	3.6	3.0	3.4
A_2 B_1 C_1	3.4	5.9	4.8	4.9	4.1	1.9	2.1	3.1	4.7
A_2 B_1 C_2	4.5	5.9	5.3	5.4	4.8	1.8	3.2	3.1	4.3
A_2 B_2 C_1	4.3	4.6	5.6	5.8	4.5	2.0	3.3	3.4	4.4
A_2 B_2 C_2	3.8	5.6	4.7	5.0	4.5	2.5	3.6	3.1	3.8
A_3 B_1 C_1	4.0	4.5	5.2	5.3	5.1	1.6	2.1	3.0	4.2
A_3 B_1 C_2	3.2	5.3	4.5	4.9	4.8	2.1	3.5	2.6	3.5
A_3 B_2 C_1	4.5	4.8	5.6	5.5	4.1	2.7	3.6	4.3	4.1
A_3 B_2 C_2	4.3	5.3	4.3	5.2	5.0	1.9	3.3	3.4	4.6
A_4 B_1 C_1	4.4	4.9	5.8	5.6	5.1	2.2	2.4	3.9	3.6
A_4 B_1 C_2	3.4	5.9	5.0	4.3	4.1	1.7	2.2	2.4	3.5
A_4 B_2 C_1	3.5	4.7	5.4	4.7	4.1	2.0	1.8	2.8	3.0
A_4 B_2 C_2	3.9	5.4	4.8	4.8	4.3	2.4	3.2	3.7	4.2
A_5 B_1 C_1	4.8	5.4	4.9	5.0	4.3	1.6	2.0	3.9	4.7
A_5 B_1 C_2	4.5	5.1	3.9	4.0	5.5	1.9	2.4	3.0	4.6
A_5 B_2 C_1	4.8	5.2	5.7	5.8	4.5	2.1	1.9	3.7	4.6
A_5 B_2 C_2	3.7	5.7	4.3	4.5	5.4	2.0	2.6	2.6	4.9
$\overline{X}$	4.0	5.2	5.0	5.0	4.6	2.0	2.7	3.3	4.2

TABLE III (Continued)

Groups	Question Number 10	11	12	13	14	15	16	17
A_1 B_1 C_1	4.3	2.7	4.7	5.7	3.8	4.9	1.7	5.2
A_1 B_1 C_2	5.3	2.1	5.6	6.4	4.8	4.7	2.4	4.5
A_1 B_2 C_1	4.3	2.0	5.1	5.9	3.5	4.7	2.2	4.9
A_1 B_2 C_2	3.1	2.9	3.6	6.1	4.0	4.6	3.0	4.8
A_2 B_1 C_1	5.0	2.8	5.1	5.9	4.2	4.4	1.9	5.2
A_2 B_1 C_2	4.2	2.3	5.6	6.2	4.6	4.7	2.3	5.3
A_2 B_2 C_1	4.1	3.0	4.4	6.2	3.8	4.5	2.6	5.4
A_2 B_2 C_2	3.7	3.1	5.1	6.5	5.4	3.6	2.4	5.1
A_3 B_1 C_1	4.2	2.3	4.6	6.0	4.9	4.6	1.7	5.0
A_3 B_1 C_2	3.8	3.5	5.4	5.6	4.5	4.0	2.4	4.8
A_3 B_2 C_1	4.7	2.9	5.2	5.9	3.6	4.8	2.3	4.9
A_3 B_2 C_2	4.8	2.9	4.9	5.7	4.1	3.5	2.1	4.4
A_4 B_1 C_1	3.7	2.8	4.8	5.8	4.3	5.3	2.6	5.1
A_4 B_1 C_2	4.3	3.1	5.3	5.6	5.0	4.3	2.0	4.3
A_4 B_2 C_1	4.2	2.1	5.0	6.0	3.6	5.0	2.2	4.5
A_4 B_2 C_2	4.0	2.6	4.6	5.7	4.1	3.8	2.6	4.0
A_5 B_1 C_1	4.4	2.4	5.2	6.2	4.3	4.6	2.2	4.9
A_5 B_1 C_2	4.4	2.3	4.6	6.7	3.2	4.4	1.6	4.6
A_5 B_2 C_1	4.5	2.1	5.2	6.4	3.1	5.1	1.8	5.8
A_5 B_2 C_2	5.0	2.7	5.7	6.4	4.9	4.4	1.9	4.8
$\overline{X}$	4.3	2.6	5.0	6.0	4.2	4.5	2.2	4.9

A_1 = Praise
A_2 = Observed Praise
A_3 = Criticism
A_4 = Observed Criticism
A_5 = No Comment

B_1 = Competitive
B_2 = Noncompetitive

C_1 = Simple Task
C_2 = Complex Task

$\overline{X}$ = Question Mean for All Groups

APPENDIX F

SUMMARY TABLES OF MULTIVARIATE PROCEDURES COMPLETED ON QUESTIONNAIRE ITEMS

TABLE IV

SUMMARY TABLE FOR MULTIVARIATE ANALYSIS OF VARIANCE OF QUESTIONNAIRE STABLE ATTRIBUTIONAL ELEMENTS

Source	Approximate F Statistic	df	P
Between Subjects			
A (Evaluative Comment)	1.3703	16, 541	NS*
B (Competition)	.6798	4, 177	NS
C (Task Difficulty)	1.8331	4, 177	.05
AB	1.1100	16, 541	NS
AC	.7738	16, 541	NS
BC	2.1489	4, 177	NS
ABC	1.3428	16, 541	NS
Subjects within Groups			

TABLE V

SUMMARY TABLE FOR MULTIVARIATE ANALYSIS OF VARIANCE OF QUESTIONNAIRE ABILITY ATTRIBUTIONAL ELEMENTS

Source	Approximate F Statistic	df	P
Between Subjects			
A (Evaluative Comment)	1.6540	8, 358	NS*
B (Competition)	.2748	2, 179	NS
C (Task Difficulty)	.1410	2, 179	NS
AB	1.4367	8, 358	NS
AC	.4286	8, 358	NS
BC	1.5697	2, 179	NS
ABC	1.6213	8, 358	NS
Subjects within Groups			

*NS = Nonsignificant

TABLE VI

SUMMARY TABLE FOR MULTIVARIATE ANALYSIS OF VARIANCE OF QUESTIONNAIRE TASK DIFFICULTY ATTRIBUTIONAL ELEMENTS

Source	Approximate F Statistic	df	P
Between Subjects			
A (Evaluative Comment)	1.0691	8, 358	NS*
B (Competition)	1.2874	2, 179	NS
C (Task Difficulty)	3.2140	2, 179	.05
AB	.5910	8, 358	NS
AC	.8270	8, 358	NS
BC	2.0585	2, 179	NS
ABC	1.6256	8, 358	NS
Subjects within Groups			

TABLE VII

SUMMARY TABLE FOR MULTIVARIATE ANALYSIS OF VARIANCE OF QUESTIONNAIRE UNSTABLE ATTRIBUTIONAL ELEMENTS

Source	Approximate F Statistic	df	P
Between Subjects			
A (Evaluative Comment)	1.8393	16, 541	.05
B (Competition)	1.1842	4, 177	NS*
C (Task Difficulty)	5.2553	4, 177	.01
AB	.5053	16, 541	NS
AC	.6048	16, 541	NS
BC	1.3881	4, 177	NS
ABC	1.3493	16, 541	NS
Subjects within Groups			

*NS = Nonsignificant

TABLE VIII

SUMMARY TABLE FOR MULTIVARIATE ANALYSIS OF VARIANCE FOR QUESTIONNAIRE EFFORT ATTRIBUTIONAL ELEMENTS

Source	Approximate F Statistic	df	P
Between Subjects			
A (Evaluative Comment)	2.1005	8, 358	.05
B (Competition)	.4327	2, 179	NS*
C (Task Difficulty)	7.3537	2, 179	.01
AB	.3932	8, 358	NS
AC	.7744	8, 358	NS
BC	2.1226	2, 179	NS
ABC	.9801	8, 358	NS
Subjects within Groups			

TABLE IX

SUMMARY TABLE FOR MULTIVARIATE ANALYSIS OF VARIANCE FOR QUESTIONNAIRE CHANCE ATTRIBUTIONAL ELEMENTS

Source	Approximate F Statistic	df	P
Between Subjects			
A (Evaluative Comment)	1.5345	8, 358	NS*
B (Competition)	2.0149	2, 179	NS
C (Task Difficulty)	3.5915	2, 179	.05
AB	.5989	8, 358	NS
AC	.3584	8, 358	NS
BC	.5186	2, 179	NS
ABC	1.8487	8, 358	NS
Subjects within Groups			

*NS = Nonsignificant

TABLE X

SUMMARY TABLE FOR MULTIVARIATE ANALYSIS OF VARIANCE FOR QUESTIONNAIRE SUCCESS RATINGS

Source	Approximate F Statistic	df	P
Between Subjects			
A (Evaluative Comment)	2.4166	8, 358	.05
B (Competition)	.8277	2, 179	NS*
C (Task Difficulty)	10.1596	2, 179	.01
AB	.8620	8, 358	NS
AC	.9698	8, 358	NS
BC	1.4324	2, 179	NS
ABC	.5124	8, 358	NS
Subjects within Groups			

*NS = Nonsignificant

APPENDIX G

SUMMARY TABLES OF UNIVARIATE PROCEDURES COMPLETED ON QUESTIONNAIRE ITEMS

TABLE XI

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 1

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	2.7200	1.49	NS*
B (Competition)	1	1.4450	.79	NS
C (Task Difficulty)	1	6.1250	3.35	NS
AB	4	2.5200	1.38	NS
AC	4	1.5250	.83	NS
BC	1	.6050	.33	NS
ABC	4	4.7050	2.57	.05
Subjects within Groups	180	1.8272		

TABLE XII

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 2

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	1.7625	.94	NS*
B (Competition)	1	3.1250	1.67	NS
C (Task Difficulty)	1	7.6050	4.07	.05
AB	4	1.7875	.96	NS
AC	4	1.66750	.89	NS
BC	1	.4050	.22	NS
ABC	4	1.0925	.58	NS
Subjects within Groups	180	1.8694		

*NS = Nonsignificant

TABLE XIII

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 3

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	1.8700	.91	NS*
B (Competition)	1	.1800	.09	NS
C (Task Difficulty)	1	30.4200	14.73	.001
AB	4	1.2300	.60	NS
AC	4	1.4200	.69	NS
BC	1	6.4800	3.14	NS
ABC	4	1.1800	.57	NS
Subjects within Groups	180	2.0656		

TABLE XIV

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 4

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	2.1925	1.22	NS*
B (Competition)	1	1.1250	.63	NS
C (Task Difficulty)	1	14.0450	7.82	.01
AB	4	1.2870	.72	NS
AC	4	1.4575	.81	NS
BC	1	.8450	.47	NS
ABC	4	3.0325	1.69	NS
Subjects within Groups	180	1.7950		

*NS = Nonsignificant

TABLE XV

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 5

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	2.4425	.81	NS*
B (Competition)	1	1.6200	.54	NS
C (Task Difficulty)	1	4.5000	1.49	NS
AB	4	.5075	.17	NS
AC	4	2.6625	.88	NS
BC	1	.0000	.00	NS
ABC	4	3.3875	1.12	NS
Subjects within Groups	180	3.0256		

TABLE XVI

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 6

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	.2325	.21	NS*
B (Competition)	1	4.2050	3.72	NS
C (Task Difficulty)	1	.2450	.22	NS
AB	4	.2425	.21	NS
AC	4	.2825	.25	NS
BC	1	.0450	.04	NS
ABC	4	1.8825	1.66	NS
Subjects within Groups	180	1.1317		

*NS = Nonsignificant

TABLE XVII

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 7

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	6.2075	2.66	.05
B (Competition)	1	7.2200	3.10	NS*
C (Task Difficulty)	1	16.8200	7.22	.01
AB	4	1.0575	.45	NS
AC	4	.0575	.02	NS
BC	1	1.6200	.69	NS
ABC	4	7.0575	3.03	.05
Subjects within Groups	180	2.3311		

TABLE XVIII

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 8

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	.1825	.07	NS*
B (Competition)	1	4.5000	1.66	NS
C (Task Difficulty)	1	14.5800	5.38	.05
AB	4	2.5625	.94	NS
AC	4	1.0925	.40	NS
BC	1	.0800	.03	NS
ABC	4	4.4425	1.64	NS
Subjects within Groups	180	2.7122		

*NS = Nonsignificant

TABLE XIX

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 9

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	6.6575	2.80	.05
B (Competition)	1	1.2800	.54	NS*
C (Task Difficulty)	1	.0000	.00	NS
AB	4	3.4925	1.47	NS
AC	4	1.4375	.60	NS
BC	1	.9800	.41	NS
ABC	4	2.8925	1.21	NS
Subjects within Groups	180			

TABLE XX

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 10

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	1.4875	.71	NS*
B (Competition)	1	.7200	.34	NS
C (Task Difficulty)	1	.3200	.15	NS
AB	4	5.8075	2.78	.05
AC	4	1.1575	.55	NS
BC	1	1.2800	.61	NS
ABC	4	3.5175	1.68	NS
Subjects within Groups	180	2.0878		

*NS = Nonsignificant

TABLE XXI

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 11

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	2.0925	1.09	NS*
B (Competition)	1	.0000	0.00	NS
C (Task Difficulty)	1	2.8800	1.51	NS
AB	4	1.5375	.80	NS
AC	4	.8925	.47	NS
BC	1	1.6200	.85	NS
ABC	4	2.4575	1.29	NS
Subjects within Groups	180	1.9122		

TABLE XXII

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 12

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	1.0075	.50	NS*
B (Competition)	1	2.2050	1.10	NS
C (Task Difficulty)	1	.6050	.30	NS
AB	4	2.8675	1.43	NS
AC	4	1.1425	.57	NS
BC	1	4.8050	2.39	NS
ABC	4	4.4425	2.21	NS
Subjects within Groups	180	2.0083		

*NS = Nonsignificant

TABLE XXIII

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 13

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	3.0175	2.37	.05
B (Competition)	1	.2450	.19	NS*
C (Task Difficulty)	1	.4050	.32	NS
AB	4	.2325	.18	NS
AC	4	1.1675	.92	NS
BC	1	.4050	.32	NS
ABC	4	.2425	.10	NS
Subjects within Groups	180	1.27167		

TABLE XXIV

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 14

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	2.3325	.96	NS*
B (Competition)	1	6.1250	2.51	NS
C (Task Difficulty)	1	15.1250	6.20	.01
AB	4	2.8875	1.18	NS
AC	4	1.3375	.55	NS
BC	1	9.2450	3.79	.05
ABC	4	4.5325	1.86	NS
Subjects within Groups	180	2.4406		

*NS = Nonsignificant

TABLE XXV

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 15

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	1.9175	1.77	NS*
B (Competition)	1	1.8050	1.66	NS
C (Task Difficulty)	1	17.4050	16.04	.001
AB	4	.8425	.78	NS
AC	4	1.7175	1.58	NS
BC	1	3.1250	2.88	NS
ABC	4	.6125	.56	NS
Subjects within Groups	180	1.0850		

TABLE XXVI

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 16

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	1.5925	1.27	NS*
B (Competition)	1	2.6450	2.10	NS
C (Task Difficulty)	1	1.1250	.89	NS
AB	4	.5825	.46	NS
AC	4	1.4875	1.18	NS
BC	1	.0450	.04	NS
ABC	4	1.6575	1.32	NS
Subjects within Groups	180	1.2572		

*NS = Nonsignificant

TABLE XXVII

SUMMARY TABLE FOR UNIVARIATE ANALYSIS
OF VARIANCE FOR QUESTIONNAIRE
ITEM 17

Source	df	MS	F	P
Between Subjects				
A (Evaluative Comment)	4	3.3375	2.75	.05
B (Competition)	1	.0450	.04	NS*
C (Task Difficulty)	1	9.2450	7.62	.01
AB	4	1.4075	1.16	NS
AC	4	.5325	.44	NS
BC	1	.1250	.10	NS
ABC	4	.7125	.59	NS
Subjects within Groups	180	1.2139		

*NS = Nonsignificant

APPENDIX H

A PRIORI COMPARISONS COMPLETED ON QUESTIONNAIRE DATA

A PRIORI COMPARISONS COMPLETED ON QUESTIONNAIRE DATA

Hypothesis 9 (Partially Confirmed)

Question 9	$C_2 > C_1$	$t = 0$, df 180, NS
Question 10	$C_2 > C_1$	$t = .0225$, df 180, NS
Question 5	$C_2 > C_1$	$t = 1.2207$, df 180, NS
Question 14	$C_2 > C_1$	$t = 2.489$, df 180, $p < .01$

Hypothesis 10 (Partially Confirmed)

Question 3	$C_1 > C_2$	$t = 3.838$, df 180, $p < .001$
Question 4	$C_1 > C_2$	$t = 2.796$, df 180, $p < .01$
Question 7	$C_1 > C_2$	$t = 2.680$, df 180, $p < .01$
Question 11	$C_1 > C_2$	$t = 1.2200$, df 180, NS

Hypothesis 11 (Partially Confirmed)

Question 15	$A_1\ A_4 > A_2\ A_3$	$t = 1.7174$, df 180, $p < .05$
	$A_1 > A_3$	$t = 2.1468$, df 180, $p < .05$
	$A_4 > A_2$	$t = 1.2881$, df 180, NS

APPENDIX I

A POSTERIORI COMPARISONS OF QUESTIONNAIRE DATA

TABLE XXVIII

DIFFERENCES AMONG MEANS OF COMPETITION BY TASK COMPLEXITY INTERACTION ON QUESTION 14

Groups[a]	B_2 C_1	B_1 C_1	B_1 C_2	B_2 C_2
B_2 C_1 = 3.52	-	.9*	.78	.98*
B_1 C_1 = 4.30		-	.12	.20
B_1 C_2 = 4.42			-	.08
B_2 C_2 = 4.50				-

[a] B_1 = Competitive
B_2 = Noncompetitive
C_1 = Simple Task
C_2 = Complex Task

*Tukey's HSD Procedure Critical Value = .80, $p < .05$

TABLE XXIX

DIFFERENCES AMONG TASK DIFFICULTY MEANS FOR QUESTION 8

Groups[a]	C_2	C_1
[a]C_2 = 2.99	-	.54*
C_1 = 3.53		-

[a] C_1 = Simple Task
C_2 = Complex Task

*Tukey's HSD Procedure Critical Value = .45, $p < .05$

TABLE XXX

DIFFERENCES AMONG TASK DIFFICULTY MEANS FOR QUESTION 15

Groups[a]	C_2	C_1
C_2 = 4.20	-	.59*
C_1 = 4.79		-

[a] C_1 = Simple Task
C_2 = Complex Task

* Tukey's HSD Procedure Critical Value = .38, $p < .01$

TABLE XXXI

DIFFERENCES AMONG TASK DIFFICULTY MEANS FOR QUESTION 17

Groups [a]	C_2	C_1
C_2 = 4.66	-	.43*
C_1 = 5.09		-

[a] C_1 = Simple Task
C_2 = Complex Task

*Tukey's HSD Procedure Critical Value = .40, $p < .01$

APPENDIX J

PERFORMANCE TASK GROUP MEANS

TABLE XXXII

GROUP MEANS OF PERFORMANCE TASK
ACROSS ALL TRIALS

Groups	Trial 1	Trial 2	Trial 3
A_1 B_1 C_1	47.9	47.0	49.2
A_1 B_1 C_2	25.3	24.1	25.4
A_1 B_2 C_1	38.9	42.3	47.5
A_1 B_2 C_2	21.0	21.8	27.5
A_2 B_1 C_1	43.5	42.4	47.0
A_2 B_1 C_2	24.4	21.4	25.8
A_2 B_2 C_1	37.0	46.9	52.1
A_2 B_2 C_2	19.3	20.8	25.1
A_3 B_1 C_1	34.0	38.1	40.6
A_3 B_1 C_2	21.4	24.9	32.9
A_3 B_2 C_1	35.8	42.7	43.9
A_3 B_2 C_2	22.2	25.1	28.6
A_4 B_1 C_1	47.2	48.3	49.7
A_4 B_1 C_2	21.6	19.9	24.6
A_4 B_2 C_1	42.0	47.7	48.1
A_4 B_2 C_2	26.1	25.6	30.8
A_5 B_1 C_1	39.5	45.4	51.2
A_5 B_1 C_2	22.4	23.8	27.7
A_5 B_2 C_1	44.7	46.2	50.4
A_5 B_2 C_2	22.1	23.0	30.2

A_1 = Praise
A_2 = Observed Praise
A_3 = Criticism
A_4 = Observed Criticism
A_5 = No Comment
B_1 = Competitive
B_2 = Noncompetitive
C_1 = Simple Task
C_2 = Complex Task

APPENDIX K

A POSTERIORI COMPARISONS OF TASK PERFORMANCE MEANS

TABLE XXXIII

DIFFERENCE AMONG 2 X 2 ANOVA
TASK DIFFICULTY MEANS

Groups [a]	Complex C_2	Simple C_1
C_2 = 22.57	-	18.43*
C_1 = 41.00		-

[a] C_1 = Simple Task
C_2 = Complex Task

* Tukey's HSD Procedure Critical Value = 4.38, $p < .01$

TABLE XXXIV

DIFFERENCE AMONG 5 X 2 X 2 ANOVA
TASK DIFFICULTY MEANS

Groups [a]	Simple C_2	Complex C_1
C_2 = 25.45	-	20.88*
C_1 = 46.33		-

[a] C_1 = Simple Task
C_2 = Complex Task

* Tukey's HSD Critical Value = 5.6148, $p < .01$

TABLE XXXV

DIFFERENCE AMONG 5 X 2 X 2 ANOVA
TRIAL MEANS

Groups [a]	Trial 2 D_2	Trial 3 D_3
D_2 = 33.87	-	5.39*
D_3 = 39.26		

[a] D_2 = Trial 2
D_3 = Trial 3

* Tukey's HSD Procedure Critical Value = 1.49, $p < .01$

APPENDIX L

A PRIORI COMPARISONS OF TASK PERFORMANCE MEANS

A PRIORI COMPARISONS COMPLETED ON PERFORMANCE DATA

Hypothesis	(Unconfirmed)	
$A_1 B_2 C_2 C_2 > A_5 B_2 C_2 D_2$	t = -.6530	NS
$A_2 B_2 C_2 D_2 > A_5 B_2 C_2 D_2$	t = 1.1978	NS
Hypothesis 2	**(Unconfirmed)**	
$A_3 B_2 C_2 D_2 > A_5 B_2 C_2 D_2$	t = -1.1433	NS
$A_4 B_2 C_2 D_1 > A_5 B_2 C_2 D_2$	t = - .2722	NS
Hypothesis 3	**(Unconfirmed)**	
$A_1 B_1 C_2 D_2 > A_5 B_1 C_2 D_2$	t = .1600	NS
$A_4 B_1 C_2 D_2 > A_5 B_1 C_2 D_2$	t = -2.1232	NS
Hypothesis 4	**(Unconfirmed)**	
$A_3 B_1 C_2 D_2 > A_5 B_1 C_2 D_2$	t = -.5989	NS
$A_2 B_1 C_2 D_2 > A_5 B_1 C_2 D_2$	t = 1.3000	NS
Hypothesis 5	**(Confirmed)**	
$A_1 B_1 C_1 = A_5 B_1 C_1$	t = .87 (two-tailed)	NS
$A_4 B_1 C_1 = A_5 B_1 C_1$	t = 1.5789 (two-tailed)	NS
Hypothesis 6	**(Unconfirmed)**	
$A_3 B_1 C_1 D_2 > A_5 B_1 C_1 D_2$	t = -3.9744	NS
$A_2 B_1 C_1 D_2 > A_5 B_1 C_1 D_2$	t = 1.6333	NS

Hypothesis 7 (Partially Confirmed)

$A_2\ B_1\ C_2\ D_2 = A_5\ B_1\ C_2\ D_2$	$t = -1.3066$ (two-tailed)	NS
$A_2\ B_1\ C_2\ D_3 = A_5\ B_1\ C_2\ D_3$	$t = -1.0344$ (two-tailed)	NS
$A_2\ B_1\ C_2\ D_2 = A_2\ B_1\ C_2\ D_3$	$t = -2.5044$ (two-tailed)	$p < .05$

Hypothesis 8 (Unconfirmed)

$A_2\ B_1\ C_1\ D_2 > A_2\ B_1\ C_1\ D_3$	$t = -2.5044$	NS

VITA

Robert Hollis Painton

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE VICISSITUDES OF DYAD PERFORMANCE AS MEDIATED BY EVALUATIVE COMMENTS, TASK DIFFICULTY, AND COMPETITION

Major Field: Psychology

Biographical:

Personal Data: Born in Cherokee, Oklahoma, March 14, 1943, the son of Mr. and Mrs. Hollis A. Painton. Married August 10, 1973, to Susan Skinner.

Education: Graduated from Enid High School, Enid, Oklahoma, in June, 1961; received Bachelor of Science Degree in Psychology from Oklahoma State University in January, 1968; received Master of Science degree at Oklahoma State University, May, 1976; enrolled in doctoral program at Oklahoma State University, 1975-1976; completed requirements for the Doctor of Philosophy degree at Oklahoma State University in July, 1982.

Professional Experience: Social worker with Oklahoma Department of Institutions, Social and Rehabilitative Services (DISRS, currently Department of Human Services) at Enid State School for the Mentally Retarded, Enid, Oklahoma, 1968-1970; Psychological Technician with DISRS at Enid State School, 1971-1974; Program Director of Behavioral Habilitation Project at Enid State School (Federal Grant), 1974; graduate teaching assistant, Oklahoma State University, Department of Psychology, 1974-1976; internship in Clinical Psychology at the University of Arkansas Medical School (UAMS), Department of Psychiatry, 1976-1977; member of psychology staff, UAMS Department of Pediatrics, Division of Pediatric Neurology, Developmental Disability Center, 1977-1978; member of psychology staff, UAMS, Department of Psychiatry, Division of Child and Adolescent Psychiatry, Child Study Center, 1978-1982.