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An exploration of communicated performance expectancies and argument quality on recipient cognitive and affective responses, agreement with message, self-expectancies, motivation, intentions and task performance

Scherer, Lisa Leahy, Ph.D.
The Ohio State University, 1989
AN EXPLORATION OF COMMUNICATED PERFORMANCE EXPECTANCIES
AND ARGUMENT QUALITY ON RECIPIENT COGNITIVE
AND AFFECTIVE RESPONSES, AGREEMENT WITH MESSAGE, SELF-EXPECTANCIES,
MOTIVATION, INTENTIONS AND TASK PERFORMANCE

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy
in the Graduate School of the Ohio State University

By

Lisa L. Scherer, B.S., M.A.

* * * * *

The Ohio State University
1989

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Copyright by
Lisa Leahy Scherer
1989
To Mark, Benjamin and Eric
ACKNOWLEDGEMENTS

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INTRODUCTION

"You see, really and truly, apart from the things anyone can pick up, the dressing and the proper way of speaking and so on, the difference between a lady and a flower girl is not how she behaves, but how she's treated. I shall always be a flower girl to Professor Higgins, because he always treats me as a flower girl, and always will; but I know I can be a lady to you because you always treat me as a lady, and always will."

(from George Bernard Shaw's Pygmalion)

Background

Over the past twenty years, George Bernard Shaw's play, Pygmalion, has been the source of inspiration for many researchers in education, psychology, and organizational behavior who propose that people ultimately become what others expect them to be. Analogies have been drawn between the plight of Eliza Doolittle, who is quoted above, and that of children with their teachers, employees with their supervisors, and human as well as animal subjects with their experimenters (e.g. Baxter & Bowers, 1985; Darley & Fazio, 1982; Eden, 1984; Livingston, 1969; Rosenthal & Jacobson, 1968; and Rosnow & Arkin; 1973). Common to all of these researchers is their belief in the validity of the self-fulfilling prophecy (SFP) effect, which was originally defined by Merton (1948) as "a false definition of the situation evoking a new behavior which makes the originally false conception come true" (p.195).
Currently, however, it refers to any belief or prophecy that ultimately causes its own fulfillment.

What has captured the fancy of organizational behavior theorists is the possibility that organizations can harness the self-fulfilling prophecy effect to increase American productivity, by making sure that managers and supervisors hold high expectations of performance for their employees (Baxter & Bowers, 1985; Eden, 1984; Eden & Ravid, 1982; Eden & Shani, 1982, King, 1971; Livingston, 1969; Weldon & Weldon, 1981). These theorists assert that managers or supervisors can function as prophets whose sent or transmitted performance expectations have a critical impact on subordinate performance beyond that which is determined by a subordinate's inherent ability, personality and various organizational influences. Specifically, they propose that an employee will perform at a higher level when a leader expresses high rather than average or low expectations of performance.

Despite the intuitive appeal of this proposition, there has been more enthusiasm than empirical data supporting the hypothesis that one person can influence the performance level demonstrated by another merely by expecting it. First, the research on the SFP effect in nonorganizational contexts, which is often cited by organizational theorists as a basis for their assertion, has yielded a number of nonsignificant results. A meta-analysis of over 300 SFP studies, conducted by Rosenthal & Rubin (1978), revealed that nonsignificant SFP effects were obtained in two-thirds of the studies. Second, the frequently cited, initial SFP study conducted by Rosenthal and Jacobson (1968) on teacher expectancy effects has been severely criticized by
psychometricians (Elashoff & Snow, 1971) for performing incorrect
analyzes on performance change scores and concluding significance when
none existed after the data were reanalyzed correctly. Third, the
generaliability of these studies to adult task performance is
questionable, since many of these studies examined the effect of
self-fulfilling prophecies on the performance of grade school children
on achievement tests (see Brophy, 1983, for a review of the classroom
SFP research and on the performance of rats in mazes and Skinner boxes

The organizational behavior research provides yet another reason to
be skeptical of the blanket assumption that the performance of one
individual will automatically increase or decrease as a function of the
level of performance expected by another. Not included in Rosenthal and
Rubin's (1978) meta-analysis were six studies conducted in
organizational settings that empirically examined the validity of what
will heretofore be referred to as the performance expectancy
confirmation effect. Three of these studies are uninterpretable due to
gross methodological flaws (Crawford, Thomas, & Fink, 1980; King, 1971;
Korman, 1971). Two studies, to be discussed later in greater detail,
did find that performance expectancies held by superiors and those
communicated by "experts" appeared to impact on subordinate performance,
a result they dubbed as the Pygmalion Effect (Eden & Ravid, 1982; Eden &
Shani, 1982). However, these researchers studied adult learning
performance and their research was plagued by nontrivial methodological

aThe Pygmalion effect is the enhanced performance of subordinates of
whom supervisors expect more.
flaws. The only study which examined task performance (Sutton, 1988) found that leader performance expectancies did not have any impact on the task performance of retailers, as measured by the quantity of their performance.

Overview of the Purpose and Goals of this Research

Given the research to date, it seems premature at this point to prescribe the sending of high expectations (cf. Livingston, 1969) or even the removal of average or low performance expectations (cf. Baxter & Bowers, 1985) in order to increase employee task performance. We still need more information regarding the conditions under which the performance expectations of one person affect another person's performance. In addition, we do not know the direction of this effect. For example, the self-verification research (Swann & Ely, 1984; Swann & Hill, 1982) provides evidence that low expectations could be motivating for a person holding high self-expectancies, a hypothesis opposite to that proposed by many original behavior theorists (cf. Baxter & Bower, 1985; Eden, 1984). Third, we do not understand the processes through which the performance expectancy confirmation effect occurs, because the potential mediators of the effect are still being identified and have only begun to be empirically examined.

This research was undertaken as a result of both the gap in our theoretical understanding of expectancy effects and the practical need to identify ways of increasing employee performance. Although the ultimate goal of this line of research is a well-specified causal model that delineates the processes through which, and the conditions under which, a target individual's performance is influenced by the
the expectations of another, the paucity of empirical evidence on this topic forces a more exploratory approach in this initial study.

The more immediate goals of this study are to determine the specific effect of sent performance expectancies on target performance as well as the effect of these expectancies on variables proposed as potentially mediating the performance expectancy confirmation effect. This study attempted to be very thorough in its identification and inclusion of intervening variables, to avoid the possibility of specification errors due to a "serious" unmeasured variables problem (James & Brett, 1984) in future tests of causal mediation. James and Brett (1984) define a serious unmeasured variables problem as a variable not included explicitly in a causal model that "has a unique, nonminor, direct influence on an effect...and is related at least moderately to a measured cause of the effect" (p. 318).

What follows in the next section is a review of the handful of studies that have suggested or empirically examined potential mediators of the performance expectancies confirmation effect. The reader should bear in mind that only one of these studies (Eden & Ravid, 1982) actually tested a variable as a mediator; the others merely examined the impact of sent performance expectancies on variables thought to mediate the performance confirmation effect. The purpose for reviewing this research was to identify all the relevant variables to be included in this study and to determine how they are affected specifically by sent expectancies. It will be demonstrated that the studies to be reviewed complement rather than contradict one another. In a sense, then, each of the potential mediators reviewed in the next section could be thought
of as snapshots of different parts of the entire process through which sent performance expectancies influence target performance.

Following the review and evaluation of potential mediators of the performance expectancy confirmation effect, this chapter focuses on factors believed to moderate the effect of sent performance expectancies on target self-expectancies. The latter discussion is based on research on behavioral confirmation, self-verification and persuasion and serves as a basis for the predictions regarding the specific effects of sent performance expectancies on the target variables identified by the mediator research.

Factors Proposed as Mediators of the Performance Confirmation Effect

To simplify further discussion, the person sending the expectancies will be referred to as the perceiver, expectancy sender or sender, and the person receiving the expectancy will be referred to as the target or the recipient. This section is organized according to the variables that researchers have proposed as being the primary mediators of expectancy effects. Both the potential mediators identified and the results obtained are discussed.

Expectancy Sender's Behaviors as Mediator

The effect of sender expectancies on sender behaviors has been studied primarily by educational theorists who have examined what is commonly referred to as teacher expectancy effects. Teacher expectancy effects refer to the differences in learning performance exhibited by children for whom the teacher holds different levels of performance expectancies. These studies will be briefly reviewed because of their focus on performance, albeit learning performance, since this variable
has been empirically examined by expectancy researchers in organizational settings. Most of the teacher expectancy studies have examined how specific teacher behaviors are affected by teacher expectancies. While it is acknowledged that expectancy processes may operate very differently with adults than with school-aged children, some of the same variables could potentially operate to mediate the effect of supervisor expectancies on employee performance.

**Type and amount of reinforcement contingencies.** Teachers have been found to vary the amount of reinforcement and punishment and to provide different reinforcement contingencies to students for whom they had been induced to expect high versus low performance (herewith referred to as high or low expectancy students). Low expectancy students are criticized more often for failure (Babad, Inbar & Rosenthal, 1982; Brophy & Good, 1970; Good, Cooper, & Blakely, 1980), praised less frequently for success (Babad, Inbar & Rosenthal; Brophy & Good, 1970; Good, Cooper, & Blakely, 1980; Meichenbaum, Bowers & Ross, 1969), smiled at less often (Chaiken, Sigler & Derlega, 1974; Rothbart, Dalfen & Barnett, 1971, and are rewarded more often for incorrect answers (Kleifeld, 1975; Weinstein, 1976).

**Amount of task relevant information and feedback given.** Teachers also tend to give more information to high expectancy students compared to low expectancy students. High expectancy students were given longer and more informative feedback to their questions (Cooper, 1979), and during class teachers often failed to provide any feedback to low expectancy students (Brophy & Good, 1970; Good, Sikes & Brophy, 1973). Furthermore, teachers spent more time teaching and less time
disciplining high expectancy students.

**Attention given.** Teachers give more overall attention to high expectancy students. Teachers paid more attention to high expectancy students and interacted with them more frequently (Adams & Cohen, 1974; Kester & Letchworth, 1972); they gave more eye contact (Chaiken, Sigler & Barnett, 1974; Rothbart, Dalfen & Barnett, 1971); and they seated them closer to themselves (Rist, 1970).

**Opportunity to learn and make mistakes.** The last teacher behavior that has been shown to be affected by teacher expectancies of scholastic achievement is the amount of opportunity given to learn and make mistakes. In general it has been found that low expectancy students are given less opportunity to learn and make mistakes. Teachers structured their activities more (Brophy & Good, 1974), called on them less often to respond to questions (Rubovits & Maehr, 1973), and waited less time for them to answer (Allington, 1980; Taylor, 1979).

**Implications of teacher expectancy effects for organizational performance.** One conclusion of the teacher expectancy research is that a teacher inadvertently acts on his/her beliefs about the performance potential of the students such that his/her behavior has a direct mediating effect on performance. Another possibility, suggested but not assessed by these studies is that the students are aware of this differential treatment, and those not getting preferential treatment become disheartened by the lack of interest and confidence of the teacher in their abilities, and they subsequently quit trying as hard to impress them (see reviews by Bellamy, 1975, and Good, 1980). Another point made by the teacher expectancy researchers is that it is not
clear, due to the myriad methodological and statistical flaws characterizing the teacher expectancy studies (see criticisms by Elashoff & Snow, 1971; Jensen, 1969; and Thorndike, 1968) whether the obtained differences in student learning performance could be attributed to increased performance of high expectancy subjects or depressed performance by low expectancy subjects or both. Since student perceptions and reactions were not assessed, it is impossible to ascertain the validity of this proposition.

Target Perceptions of Perceiver Behaviors as Mediators.

The potential mediating role of the target’s perceptions of the expectancy sender’s behavior has received little attention by organizational behavior researchers attempting to understand the processes underlying the performance confirmation effect. The research by Eden and Shani (1982) is the only study to explore the effect of sender performance expectancies on target perceptions of sender behaviors.

The study by Eden and Shani (1982) was the first to demonstrate a performance confirmation effect with adults in an organizational setting. This found that military trainees whose instructors were led to have high performance expectancies performed better on objective paper-and-pencil examinations than trainees whose instructors were induced to expect regular performance and trainees whose instructors were led to be uncertain about their expectancies.

Performance expectancies were induced by the researchers telling the instructors that trainees had high, regular, or unknown command potential. The instructors were asked to record this information into
their record to promote the success of the induction. Although the researchers were unable to observe the actual behaviors exhibited by the instructors, they did measure trainee perceptions of leader behavior at the end of the course. The questionnaire used to measure perceptions of leader behavior included items from Bowers and Seashore's (1966) four-factor theory of leadership (support, goal emphasis, work facilitation and interaction facilitation) as well as items developed by the authors (e.g. extent to which the instructor displayed confidence in trainees).

Due to high intercorrelations among the items of the questionnaire, factor analysis failed to reveal more than one factor, and the authors combined the responses into a single measure of leadership. This measure was submitted to an analysis of variance which revealed that trainees in the high expectancy condition gave higher average ratings of leadership than trainees in the unknown expectancy and the regular expectancy condition. Thus, trainee perceptions of the instructor's behaviors as well as target performance were affected by the instructor's performance expectancies. However, note that the target's perceptions of leader behaviors were not actually tested for their mediational role in producing the performance confirmation effect.

As the authors acknowledged, it is difficult to know whether differences in responses across the three groups reflected differences in actual leadership behavior, differences in perceptions of leadership behavior, differences in subordinate satisfaction with leadership, or some combination of these factors. Since manipulation checks revealed that the expectancy induction was believed by the instructors and given
the number of studies on teacher expectancy effects which have shown expectancy-based differential treatment of students, it is probably safe to assume that instructors' actual behavior towards trainees varied according to their expectancies. With regard to the other two variables, perceptions of leader behavior and satisfaction with the leader, the timing of the administration of the questionnaire makes it impossible to determine whether or not one or both of these variables might have mediated the obtained effect. Since the high expectancy trainees performed well, their high performance could have inflated their leadership ratings relative to the other groups. Alternatively, if leader behavior actually did vary across groups, it is likely that at least some of the trainees would have perceived these differences in the instructor's behaviors.

Target Perception of Leader's Beliefs and Self-Reported Work Motivation

Based on the results from studies conducted at three field sites, Korman (1971) proposed a very different model than the one proposed by Eden and Shani (1982). In this model, he asserts that employee perceptions of management's expectations of their task competence influences employee work motivation, which in turn affects the level of employee performance. Korman's operationalizations of constructs was poor, and he used inappropriate methodological and statistical techniques. However, since the conceptual model he proposes ties in with a later model proposed by Eden (1984), to be discussed below, and because there is some correlational support for the relationships he's asserting, the findings from Korman's (1971) study will be reviewed.
In the three studies reported, employee perceptions and work motivation were assessed via a questionnaire distributed to employees within each organization (Federal government office, bank, and a university), and performance was measured by obtaining performance evaluations and dichotomizing them into average and high performers. Questions supposedly assessing employee perceptions of management expectation level included such items as: (a) "the superiors believe that they do not have to watch you all the time in order to make sure that you are doing a good job"; and (b) "the management on my job seems to develop programs and policies which indicate they believe you are incapable of going any higher than you are in the organization." These questions appear to measure general perception of management expectations and not perceptions of specific levels of performance expected by management, and even this interpretation is questionable. Measures of self-reported work motivation were also questionable and included the following: (a) "the likelihood that I would be more motivated to work if I were on a different job is very small"; (b) "most of the time I have to force myself to go to work"; and (c) "in terms of actual work motivation, compared to the people around here, I would pace myself in the __________ile."

The analysis consisted of sign tests on the mean responses obtained to the questionnaire for each of the performance criterion groups (high and average). The results reported were that high performance employees scored higher than the average performance employees on the perceptions of expectations and motivation measures. Korman interpreted these results as supporting his model.
Besides the data analysis techniques used by Korman being flawed, there are two additional problems with his study that present problems for concluding support for his model. One problem with Korman's study is that the causal direction of his model was not demonstrated and therefore it is just as likely that past performance could explain variance in perceptions and motivation as the other way around. Unlike Eden and his colleagues (Eden & Ravid, 1982; Eden & Shani, 1982) who employed new recruits unfamiliar with their work as subjects, Korman's (1971) study was correlational, and subjects were experienced and familiar enough with their work that they had already gone through performance evaluations. Second, Korman never tested employee perceptions and interpretations of leader expectations for their mediational roles; he merely showed that both variables tended to be affected in the same way by management expectations.

On the positive side, however, data inspection indicates that the variables of Korman's (1971) model were positively correlated with one another. Keeping in mind the questionable operationalizations of Korman's variables, this could be construed as weak evidence that subordinate perceptions of supervisory expectations is positively related to subordinate motivation and performance. But perhaps Korman's most important contribution is that he was the first to highlight the importance of understanding the effect of sent performance expectations from the target's perspective. Conceptually, he viewed the target's perceptions and interpretations of a leadership expectations as being much more critical than the leaders' expectations themselves for predicting target motivation and performance.
Target's Interpretation of Expectancy Sender's Behavior

Darley and Fazio's (1980) proposed model of the behavioral confirmation effect, which postulates that trait-based or stereotypically-based behavioral expectancies of one person affect the specific behavior exhibited by another, suggests that a target's interpretation is critical to whether a behavioral confirmation effect is observed. Target interpretation of perceiver behavior is similar but not identical to perceptions of behavior, with the latter probably coming before the former in a sequence. Darley and Fazio (1980) propose that target interpretation is a cognitive variable that consists of the attributions the target makes regarding the cause of the perceiver's behavior. They propose that if the target interprets the perceiver's behavior as being due to perceiver dispositional characteristics or situational characteristics (attributions external to target individual), the target's behavior will not tend to confirm the prophecy. However, if targets interpret perceiver behavior as being a function of something about the targets themselves (internal attributions), then they will not likely behave in a manner that confirms the prophecy.

Unfortunately, this assertion has yet to be tested. It does seem reasonable that a subordinate's interpretation of why the leader is behaving in a certain way could affect whether he/she behaves and performs as expected. For example, if a target interprets a perceiver's performance expectancy as being attributable to factors external to the target, such as the leader being in a good mood or trying to get a good raise for him/herself, then the expected performance would probably not
occur. The important contribution of Darley and Fazio's (1982) is that they were one of the first expectancy researchers to cite the possibility that targets of sent expectancies actively process the contents and context of the expectancy communication and that their resulting interpretations mediate the impact of expectancies on behavior.

Leader Behavior, Target Effort \(\rightarrow\) Performance Beliefs and Motivation as Mediators

Eden (1984) proposes a five-variable model of the performance confirmation effect in work settings. He proposes that supervisor leadership behavior, subordinate self-expectancy and subordinate motivation are the three variables mediating the impact of supervisory expectancy on subordinate performance. This model will be reviewed and critiqued below.

As evidence that the level of target performance expected by a supervisor affects the amount and type of leadership behaviors exhibited towards the target, Eden (1984) cites the study by Eden & Shani (1982) reviewed above. It should be recalled that Eden and Shani (1982) did not support this linkage, since actual leader behavior on the part of the trainers was not observed. However, since they examined learning performance, one could infer from the research on teacher expectancy effects that a perceiver's beliefs about a target does influence the perceiver's behavior toward the target. Thus, leadership behavior does seem to be a plausible mediator; however, the particular types of leadership behaviors Eden are referring to is not clear.
The next and most critical linkage in the model is that supervisory leadership behavior affects subordinate self-expectancy. To reiterate, Eden (1984) defines self-expectancy as a person's belief or subjective probability that effort will result in performance. As evidence for this proposition, Eden (1984) cites a study by Eden and Ravid (1982) in which the self-expectancies of military trainees significantly mediated the effects of sent expectancies on trainee learning performance in a 7-week military clerical course. Eden & Ravid's (1982) study will be reviewed in detail, since it is the only study to date that has empirically examined potential mediators of sent performance expectancies on target performance in an organizational setting.

In this experiment, Eden and Ravid (1982) attempted to induce targets to hold varying levels of self-expectancies through two different methods. The indirect method, which replicated the expectancy induction used by Eden and Shani (1982) and is typical of the teacher expectancy research, consisted of an expert identifying certain individuals as having high potential and others as having average or low potential and then communicating this information to the leader person in charge. In this study, the leader expectancy manipulation consisted of a military psychologist informing training instructors that their trainees had either high, regular or unknown success potential. Training instructors were asked to record the success potential of each trainee in their files, and they were instructed not to tell the trainees their success potential classification.

Divergent from this indirect method of expectancy induction, Eden and Ravid (1982) were the first to attempt to induce targets directly to
hold certain self-expectancies. This direct method consists of someone communicating to an individual what their level of performance capability is. Eden and Ravid (1982) had a military psychologist communicate either high or average performance expectancies to trainees classified as having unknown potential in the leader expectancy manipulation. Specifically, each trainee was told by the military psychologist that based on extensive testing and research he or she had high or regular success potential.

Both the leader and the trainee expectancy manipulations took place prior to the beginning of training and were considered by Eden (1984) as being two ways of operationalizing leader behavior, the first of three variables proposed as mediators on the performance confirmation effect.

The second mediator proposed by Eden (1984), level of target self-expectancies were also examined in the Eden & Ravid (1982) study. Eden (1984) defined target self-expectancies as the target's belief that his/her effort level would translate to performance. Eden's (1984) rationale for this mediator was that the communication (through works or behavior) of high expectancies would cause targets to believe that they were capable of high performance (given high effort) whereas targets sent lower expectancies would have less confidence that they were capable of achieving high performance levels.

Self-expectancies were assessed before, during and after the course. Although trainees' self-expectancies did not differ by condition at the start of the program, trainees who were told directly that they had high success potential as well as those whose training instructors were led to believe that they had high potential (high sent expectancy
conditions) increased their self-expectancies during the course of the training.

Analysis of covariance was conducted with initial self-expectancy treated as a covariate to remove its effect on performance. The analysis revealed that the expectancy induction still had a small but significant effect on performance after removing the effects of initial self-expectancy. Targets receiving the high performance expectancies performed better than trainees told they had regular potential. However, since the direct effect of sent expectancies on performance was so small, Eden and Ravid (1982) concluded that "most, but not all, of the effects of induced expectancy operate via its influence on the individual's own expectations as hypothesized." (p. 360). Thus regular potential trainees performed worse than the high potential trainees, primarily because their self-expectancies were lower.

Although these data provide evidence that some type of target self-belief partially mediated the effect of the expectancy inductions on performance, they do not support Eden's (1984) contention that these self-expectancies are necessarily effort → performance (E → P) beliefs. Eden and Ravid (1982) measured self-expectancy by asking trainees to indicate whether they expected to perform better in the course than 20%, 40%, 60%, 80% or 100% of their fellow trainees. This is not a measure of a trainee's belief or subjective probability that his/her effort will lead to performance (E → P). An E → P belief could remain constant while this measure might show variability over time, depending on a target's his perceptions and evaluations of other trainees' abilities. Thus, the Eden and Ravid (1982) study provides
evidence that communicated performance expectancies influenced relative self-expectancies which in turn impact on performance.

Another problem with the study was the performance measure used. In addition to objective examination scores, the single composite of trainee performance consisted of weekly ratings of trainee performance conducted by the same instructors who were informed of the success potential of the trainees. The fact that these ratings were combined with examination results to provide the index of performance gives rise to the suspicion that perhaps the confound-free measure of performance (objective examination scores) did not yield significant results.

Despite these problems, with Eden and Ravid’s (1982) study, it remains plausible that some type of target expectancy or self-evaluation appeared to mediate the impact of the leader’s and the expert’s performance expectancy on target learning performance. However, the assumption of Eden’s (1984) model that these beliefs are $E \rightarrow P$ beliefs has yet to be empirically demonstrated.

The next linkage in Eden’s model (1984) is that a subordinate’s expectancy affects his or her motivation to exert effort. Eden defers to the expectancy theory of motivation (see Lawler, 1973; Campbell & Pritchard, 1976) to support this link between a target’s self-expectancy and his or motivation to exert effort. Eden (1984) claims that performance -- outcome instrumentalities are not the critical factor in determining motivational differences for high, regular, and low expectancy subordinates because all subordinates have learned and are exposed to the same instrumentality contingencies. Therefore, he argues, that given one person with a high self-expectancy and another
person with a low self-expectancy, both will know that a given level of performance will result in certain outcomes. Regardless of the merits or deficiencies of the expectancy theory of motivation, Eden does not provide any empirical evidence that targets' self-expectancy consists of \( E \rightarrow P \) beliefs or that targets think in terms of expectancies and instrumentalities. In addition, even if this linkage is plausible, it is incomplete because expectancy theory (see Campbell & Pritchard, 1976) can also predict what behaviors a person chooses to engage in as well as the level of effort he/she exerts. Applied to this paradigm, a low expectancy target individual might be more likely to choose to behave in ways that tend to increase the probability of failure. Livingston (1969) provides a case example of this possibility:

"unsuccessful salesmen . . . typically attempt to prevent additional damage to their egos by avoiding situations that might lead to greater failure. They either reduce the number of sales calls they make or avoid trying to 'close' sales when that might result in further painful rejection, or both" (p. 83)

It should also be noted that Eden (1984) is really proposing that four variables, not three, mediate the impact of supervisor expectations on subordinate performance. He does not state that target motivation level directly affects target performance; he argues instead that level of effort will mediate the effect of level of motivation (as measured by targets \( E \rightarrow P \) beliefs and an assumed constant level of \( P \rightarrow O \) beliefs) on the level of target performance. However, it should be noted that the level of target effort was not examined in any of the studies reviewed by Eden (1984).
To summarize what Eden (1984) is proposing and the parts of his model that have been substantiated, he claims that the level of a leader's performance expectancy, communicated directly or transmitted through their behaviors, influences a subordinate's expectancy that effort will lead to performance, which in turn has an impact on a subordinate's motivation to exert effort and subsequently affects his/her effort level and finally task performance. The part that is supported empirically, at least somewhat, is that the direct communication of performance expectancies and the indirect transmission of leader expectancies through leader behaviors affect some type of target belief about his/her relative capability to perform well on a task compared to others, which in turn affects the level of learning performance exhibited. What was also demonstrated but not proposed was that the level of leader performance expectancy had a significant effect on performance, once target self-expectancies were controlled for. However, this result might not have occurred had leader behavior been measured (rather than inferred) and controlled for.

Global Self-Esteem, Self-Perceived Task Competence, and Self-Consistency Motivation as Mediators

Korman (1970) proposed that the effect of a leader's performance expectancy on subordinate task performance is mediated by the subordinate's global self-esteem, his/her self-perceived task competence, and his/her motivation to be self-consistent. He defines a leader's performance expectancy as the level of competence expected of the subordinate. He never defines global self-esteem, but he defines
self-perceived task competence as the level of performance a person expects to achieve.

He tested part of his model in a laboratory study in which he examined the impact of subjects’ global self-esteem on their self-perceived task competence and performance. Self-perceived task competence was operationalized as the number of solutions subjects expected to generate to a brainstorming task, and global self-esteem was measured by the Ghiselli Self-Assurance Inventory. Chronic self-esteem did not affect self-perceived task competence. However, after a questionable partitioning of the data, he found that low self-esteem individuals with high performance expectancies were less likely to meet their goals than high self-esteem individuals with high expectancies.

Since low self-esteem individuals performed rather poorly, and high self-esteem individuals exhibited relatively high performance, Korman (1970) claimed that his assertion that people are motivated to maintain self-consistency was supported. Since subjects were not questioned in any way, it is difficult to know whether Korman’s explanation has any validity.

These results need to be interpreted cautiously. Korman (1970) partitioned the dependent variable and used multiple t-tests instead of analysis of variance to test the hypotheses. In addition, the mediating hypotheses were never examined, since subjects did not receive sent performance expectancies. Thus, the proposed model is in need of empirical verification.
Target Subjective Probability of Success, Task Attention, and Task Effort as Mediators

Jones' (1977) proposed model regarding the processes mediating the effect of self performance expectancies and performance has not been empirically examined, but it merits discussion since it complements and adds to the models previously discussed. Jones argues the key to performance is the target's subjective probability of success. This is defined as "an expectation greater than zero of achieving some goal." (p. 127). Jones (1977) claims that the greater one's subjective probability of success, the greater the likelihood that one will do whatever is required to achieve success and the better the person's task performance. Therefore, for a leader's expectancies to influence target performance they must first impact on the target's subjective probability of success.

The difference between Jones (1977) model and those previously discussed concern the process through which a person's subjective probability of success impact on performance. He suggests that a person's self-expectancy, or subjective probability of success, influence performance via attentional processes. Jones (1977) asserts that the type of task dictates the importance of these attentional processes in affecting performance. He proposes that a person's attention to the task at hand is more influential in determining performance on a skill-dependent task than an effort-dependent task.

A skilled task, argues Jones (1977), "requires much more close and constant attention" (p. 179) than an effort-dependent task, and therefore a person with a low subjective probability of success will
perform poorly on a skilled task, because that person's self-doubts destroy his or her ability to focus on the task. Referencing some of the test-anxiety literature (Marlett & Watson, 1968; Russell & Sarason, 1965), Jones (1977) predicts that a person with a low subjective probability of success behaves in the same way as a high test-anxious person. In summary, Jones (1977) claims that a person with a high subjective probability of success exhibits greater task concentration and more task-relevant behaviors and therefore performs well on skilled tasks, whereas a person with a low subjective probability of success gives less attention to the task, engages in more task-irrelevant behaviors and therefore performs poorly.

Jones (1977) does not, however, specify the processes mediating a person's subjective probability of success and his/her performance on an effort-dependent task. He does suggest at one point, though, that persons with a low subjective probability of success might attempt to convince themselves that the task is too silly to waste their efforts. He does not state whether this reaction is likely to occur with effort- or skill-dependent tasks or both. However, since he assumes that effort-dependent tasks tend to be simple, he probably intended this reaction to be more probable when the task is effort-dependent.

**Summary of Mediators Proposed by the Performance Expectancy Confirmation Research**

It is clear from the review of the mediators that have been examined thus far by expectancy confirmation researchers that better executed and much more empirical research is needed to understand the processes mediating the effect of transmitted expectancies of performance on a
target individual's performance. The research to date is more speculative than empirical, making it very difficult to draw any firm conclusions regarding the processes mediating the performance confirmation effect.

The simplest model, which also enjoys the most empirical support is the three-variable model suggested by the research on teacher expectancy effects. This research suggests that a leader's expectation influences how he or she behaves with particular targets, such that preferential treatment (attention, information, feedback, praise, opportunity to learn) is accorded to only those targets for whom he/she holds high expectations for performance. This, in turn, explains the higher observed performance levels demonstrated by targets previously judged high in performance potential compared to those targets judged as having average or low performance potential.

Most of the research reviewed indicated a more complex model operating in which target evaluation of the sent expectancy or target self-expectancy for performance was emphasized as the most critical mediator of the performance confirmation effect. With regard to the former, Darley and Fazio (1980) focused on the target's interpretation of the expectancy holder's behavior, whereas Korman (1971) focused on the target's perceptions and interpretations of the expectancy holder's beliefs.

Those emphasizing the mediating role of the target's performance beliefs (Eden, 1984; Jones, 1977; Korman, 1970) proposed slightly different conceptualizations of what is meant by a target's performance expectancy. However, all of their models imply that a target's
performance would not change as a result of another's performance expectancy unless the transmitted expectancy somehow convinced the target to alter this or her own performance expectancies.

It is not clear which, if any, of the following beliefs would be influenced: (a) beliefs that effort will lead to performance; (b) beliefs regarding how well one will perform relative to others; (c) beliefs concerning the general level of performance one is capable of; (d) beliefs about the specific level of performance one is capable of; (e) beliefs regarding one's chances of task success; and (f) beliefs regarding one's chances of achieving a specific task goal. It is also not clear which of these beliefs would influence motivation, effort, and performance and whether these beliefs would be the same ones influenced by sent performance expectancies. It would greatly add to existing knowledge regarding the target-expectancy-as-mediator hypothesis if studies on sent performance expectancies would start taking multiple measures of multiple types of target beliefs.

The expectancy research produced three different process explanations to demonstrate how target self-expectancies influence target performance. The most frequently cited was a motivational explanation, which asserts that targets are motivated to exert effort on a task to the extent that they believe they are capable of achieving high performance. A second process proposed was an attentional one, which stated that the level of a target's belief that he/she will be successful influences the amount of task-relevant attention and concentration that is engaged in, which in turn directly affects performance on skill-dependent tasks. The third explanation assumed
that people are motivated to maintain consistency and that targets of
sent expectancies adjust their performance to a level that matches their
self-expectancies. Common to all explanations is the belief that the
relationship between target self-expectancies and performance is
veridical.

Given a liberal interpretation of the cumulated results of the
performance expectancy confirmation studies, these researchers appear to
predict the following set of events to be necessary in order to produce
a performance confirmation effect:

1. The expectancy sender initially forms an expectation of the
   level of a target's performance capability.
2. The sender transmits the performance expectation to the
   the target through direct communication or through behavior.
3. The target accurately perceives the sender's behavior and
   the transmitted performance expectancy.
4. The target interprets the sender's behavior and attributes
   cause to self.
5. The target modifies self-expectancies of performance
   in the direction of the expectancy sender's beliefs.
6. The target's level of motivation to exert effort adjusts
   to reflect self-expectancies.
7. The target's task behaviors (effort level/type of
   behaviors) are modified.
8. The target's performance confirms sender expectancy.

This depiction of the variables proposed by the expectancy research
as mediating the effect of sent expectancies on performance reveals a
number of places where the model could break down and sent expectancies would fail to produce an effect on target performance. The assumption of some organizational behaviorists that we can increase performance merely by expecting it is glaringly simplistic when one considers the difficulty of producing change between any two of the variables in the model.

**Evaluation of the Cumulative Mediator Model from the Performance Confirmation Studies**

The flow of events depicted in the cumulative mediator model is not necessarily accurate, but it is a useful heuristic for summarizing the number of factors that should probably be considered if one is trying to produce a performance confirmation effect. It is also useful for highlighting the weaknesses and omissions of the past mediator research. The model suggests that if we want to understand how sent performance expectancies affect targets, then we should control for the effects of behavior on targets. The teacher expectancy studies suggest that the expectancy sender’s behaviors have a direct impact on performance; thus, when expectancies are transmitted via leader behavior, one cannot easily determine whether changes in target performance are due to the behaviors themselves or whether they are due to the target accurately perceiving and interpreting perceiver behavior as an indication of his/her performance expectancy. One way to tease apart these processes is to examine how the direct communication of performance expectancies affects target self-expectancies, motivation and the other endogenous variables suggested by the model.
The model also highlights a weak linkage in the earlier "stages" of the proposed expectancy confirmation sequence. There is absolutely no consideration given to the possibility that the target's beliefs regarding the accuracy or validity of the sent expectancy may determine whether the target modifies his/her self-expectancies of performance. Those who have critiqued the general self-fulfilling prophecy paradigm have emphasized the importance of the target's prophecy. Solomon (1981) states "before expectations begin to guide behavior they must be believed" (p. 1452). Similarly, Henshel (1982) asserts that if a prophecy is not believed to be accurate or if it is too discrepant with a target's beliefs about the future, then the target will not alter his or her actions in accordance with it.

The omission of the target's belief in the accuracy of the sent performance expectancy implies that the expectancy researchers assume that when a sender communicates to the target he/she is capable of performing at level X, the target will passively accept the message as valid or true and will correspondingly modify his/her self-expectancies for performance. This seems highly unlikely; it seems more plausible that the target will react to and think about the believability and validity of the prophet's expectations and conclude that it is either basically true or invalid. Thus, what is being argued here is that the target's reactions to the expectancy communication and his/her concluding beliefs regarding the truth or validity of the performance prophecy should be added to the expectancy theorists' model as a variable that could potentially mediate the effect of sent performance expectancies on target self-expectancies.
Factors Influencing the Degree of Target Acceptance of the Sent Performance Expectancy

If the hypothesized sequence of variables mediating the performance confirmation effect is momentarily assumed to be accurate, the most important immediate goal of this line of research is to identify factors that determine whether a target accepts or believes in the validity of a sent performance expectancy. If the target doesn’t accept the prophecy, then the rest of the proposed model is moot. Unfortunately, neither the performance nor the behavioral confirmation research (see Darley & Fazio, 1980) address this question; both have tended to focus primarily on the expectancy sender’s (or perceiver’s) cognitions and behaviors. One exception to this tendency is demonstrated in the self-verification research by Swann and his colleagues (Swann & Ely, 1984; Swann & Hill, 1982) which challenges the assumptions of the behavioral confirmation paradigm. Another study, which suggests a variable that could moderate target acceptance of a sent expectancy is a study on labeling effects by Gurwitz and Topal (1978). Lastly, the persuasion research is replete with variables that affect the degree to which a recipient of a communication is persuaded by a message. These literatures are therefore very relevant for understanding when targets are more or less likely to believe and accept the communicated performance expectancy.

Self-Verification Research

Self-verification theory (Swann & Ely, 1984; Swann & Hill, 1982) proposes that targets will not confirm a sent expectancy if is inconsistent with the target’s self-concept. Swann and Hill (1982) looked at how people reacted to being labeled (dominant/nondominant) in
a way that was inconsistent with their self-images. When given the opportunity to interact with the perceiver who had labeled them, subjects attempted to counteract the inconsistent label. In a study by Swann and Ely (1984) perceivers were induced to form relatively certain or uncertain expectancies about targets that were inconsistent with the target's self-conceptions (introversion/extraversion). Results showed that behavioral confirmation tended to occur only when perceivers were certain of the expectancies and targets were uncertain of their self-concept, whereas the target disconfirmed the perceiver's expectancies when targets were certain of their self-concept regardless of the perceiver's level of certainty.

Labeling Research

A third study which examined the circumstances under which people will attempt to confirm or disconfirm expectancies or labels was conducted by Gurwitz and Topal (1978). In this study subjects were more likely to confirm negative traits imputed to them if they were presented with evidence that they and members of their group possessed these traits. If evidence was not presented, then subjects tended to act in a manner to disconfirm the trait.

Implications of Labeling and Self-Verification Studies

Taken together, these studies provide evidence that a target of an expectancy is an active information processor who does not automatically accept as valid the beliefs held by others, especially if the expectancy is discrepant with their self-concept. It seems likely that this would also occur in a performance context. It follows then that if a leader communicates a performance expectancy that is discrepant with a
subordinate's self-perceived task competence and if that subordinate is relatively certain of his/her beliefs, the subordinate will not change her self-expectancy and correspondingly she will not perform in accordance with the leader’s expectancy.

One implication of the self-verification and labeling studies is that the persuasiveness of the performance expectancy communication should have an impact on whether the target accepts the sent performance expectancy as valid or true. Although the persuasiveness of an expectancy communication has not been examined empirically, researchers have begun to note the merit of its application. In reviewing the organizational applications of the self-fulfilling prophecy effect, Baxter and Bowers (1985) state "the language of persuasion when internalized and manifested in self-persuasion results in heightened performance" (p. 69). Gist (1987), in her review of self-efficacy applications to organizational behavior, notes "self-efficacy may be involved in the Pygmalion effect through the persuasive influence of others holding positive expectations" (p. 477). She refers to Bandura’s self-efficacy theory (1977; 1982) in which he states that verbal persuasion from others is one of four ways self-efficacy beliefs change. Self-efficacy beliefs are defined as beliefs regarding one's capability of executing a behavior, which in this paradigm would translate to the belief that one is capable of performing at a certain level.

If target self-expectancies are to be changed in order to produce a performance confirmation effect then it is necessary to identify factors that will persuade the target to change those beliefs. The persuasion research is therefore relevant. Most of this research focuses on
attitude change as opposed to belief change, but it will be assumed that findings regarding attitude change are relevant and applicable to understanding and predicting belief change.

**Persuasion Research**

A review of the persuasion research quickly reveals that there is no single factor that can guarantee changes in beliefs, attitudes or opinions in all situations for all people. The research examining the traditional communication variables thought to produce persuasion (source, message, audience and channel) is fraught with contradictory results.

However, the conflicting findings have subsequently been attributed to false assumptions underlying the early persuasion studies. The early researchers believed that in order for attitude or belief change to occur, the recipient needed to comprehend and remember the contents of the persuasive appeal. This assumed that if comprehension and retention occurred, recipients would passively accept as true the contents of the persuasive appeal. It has since been suggested and empirically documented that targets or recipients of any type of persuasive communications are active information processors who can react very differently to identical persuasive messages communicated by identical people. This new paradigm for studying and understanding persuasion, called cognitive response theory, has received a substantial amount of empirical support (see Greenwald, 1968, and Petty, Ostrom & Brock, 1981, for a review of this literature).

This approach asserts that the cognitive responses or idiosyncratic thoughts, which are the products or results of processing the
information contained in a persuasive appeal, mediate or shape the amount of persuasion that results. This approach is commonly associated with thought listing procedures which require subjects to list all the thoughts they had while listening to a message immediately after hearing it. The polarity (positive/negative) and focus (source/message) of the recipients' self-generated thoughts and not the characteristics of the communication per se are thought to be the primary determinants of the amount of persuasion that occurs. Persons who generate predominantly positively polarized or favorable thoughts are predicted to be more persuaded by the advocacy or conclusion of the message (e.g., tuition should be raised) than people who generate predominantly negatively polarized or unfavorable thoughts, and this effect is more pronounced when thoughts are related to the message than the source of the communication (Greenwald, 1968).

It seems reasonable that a target's thoughts and reactions to an expectancy communication would mediate the amount of persuasion that occurs. However, cognitive response theory merely suggests that these thoughts are important mediators; the theory does not indicate which variables are likely to produce favorable message-relevant thoughts. This is critical to understanding which factors influence the degree to which a target is persuaded by a sent expectancy. If cognitive response theory is taken to an extreme, it would indicate that no variable will systematically produce changes in target self-expectancies. The Elaboration Likelihood Model (Petty & Cacioppo, 1981; Petty & Cacioppo, 1986) extends cognitive response theory and makes specific predictions regarding when and how attitudes are more likely to change. This model
The Elaboration Likelihood Model (ELM) of attitude change specifies two routes to persuasion. The first route, the central route, describes how attitudes are changed when people have the ability and motivation to process the arguments and information contained in a message. When ability and motivation to process the message are both high, the ELM model predicts that there will be more diligent consideration and thought given to the arguments of the message. Therefore, the quality of the arguments is predicted to determine the amount of attitude change that occurs through this route.

In contrast, people with low ability or motivation to process the arguments and information contained in the persuasive appeal are predicted to follow the peripheral route. Attitude change that occurs through this route "is not based on a careful consideration of message arguments, but is based instead on simple positive or negative peripheral cues or simple inferences that permit quick assessment of the advocacy" (Petty, Cacioppo, & Heasacker, 1984, p. 63).

The basic proposition then is that attitudes are sometimes changed through extensive cognitive work (central route), and at other times they can change with little cognitive effort (peripheral route). Consistent with the cognitive response framework, it is predicted that the cognitive responses elicited in the central route are likely to be message-relevant thoughts, whereas the peripheral route is predicted to produce source and other cue-focused thoughts. Response polarity, or the degree to which the thoughts are favorable or unfavorable to the message, is predicted to be affected by argument quality with more
favorable thoughts being listed by central route recipients hearing strong rather than weak arguments. Response polarity for the peripheral route is predicted to be affected by the presence or absence of cues, with positive cues evoking more favorable thoughts and negative cues producing more unfavorable thoughts.

The ELM model also predicts that an attitude formed through the central route will be held more strongly or with more confidence and will have a greater relationship with behavior than an attitude formed through the peripheral route. The logic here is that attitudes changed through the central route are accorded more thought, and because cognitive research indicates that a high degree of thought accorded to a belief or attitude increases the perception of its correctness (e.g. Tversky & Kahneman, 1973); the attitude is held with more confidence. Furthermore, because the strongly held belief is salient and accessible to the recipient and because it is assumed that people are motivated to hold correct beliefs (see Petty & Cacioppo, 1986), it is more likely that the strongly held attitude will guide behavior than a weakly held belief.

The first set of postulates of the ELM model, which concern the process through which attitudes change, have received impressive empirical support (see reviews by Petty & Cacioppo, 1986, and Eagly and Chaiken, 1984). The second set of proposals regarding the mechanisms through which attitudes predict behavior are currently being investigated.
Given the assumption that research on attitude change can be applied to research on belief change, there are a number of points made by the ELM researchers that are relevant for understanding how target self-expectancies can be changed. First, if the expectancy sender is perceived as an expert or as an attractive (likeable) person, self-expectancies may be changed in the absence of strong arguments supporting the sent expectancy. This might explain Eden and Ravid's (1982) finding which showed that targets modified their self-expectancies in the direction of the performance expectancy communicated by an expert (military psychologist). According to the ELM model, however, these self-expectancies would not be expected to endure, especially in the face of future obstacles or failures, because they would not be strongly held beliefs resulting from extensive cognitive effort.

Second, the proposition that positive or negative affect associated with the communication can also serve as a peripheral cue and influence attitude change suggests that targets receiving high expectancies (positive affect) might be more likely to change their attitudes than targets receiving average expectancies (negative affect). If this is the case, subjects receiving high performance expectancies would be less likely to scrutinize the arguments accompanying the sent expectancy. The research on affect also points to this possibility (see Isen, 1984, for a review; Isen, Means, Patrick & Nowicki, 1982). This research has found that people experiencing positively affective states are motivated to maintain this state. Consequently, these people
avoid negative stimuli and use less effortful task strategies, because exerting high effort (a negative event) threatens positive affect.

Third, the ELM proposes that a message that is personally relevant or involving for the target increases the likelihood that the message will be scrutinized (central route) and that attitude change will be a function of the quality of the arguments presented. The typical manipulation of involvement which has successfully produced this finding is whether some policy issue (raising tuition) will affect the target or someone else. The performance expectations communicated by a supervisor or even an experimenter would probably be as involving as the typical ELM manipulation, because it would involve the target’s "self," and information about the self is highly attended to and evaluated (Greenwald, 1980, 1980; Markus, 1977; Rogers, Kuiper, & Kirker, 1977). Therefore, one would expect that communications of performance expectancies would be processed through the central route, and therefore the quality of arguments presented would be very important in determining the amount of change in self-expectancies. The work by Swann and colleagues (Swann & Ely, 1984; Swann & Hill, 1982) on self-verification would also suggest that highly persuasive arguments are necessary for producing belief changes, especially in targets possessing relatively certain self-conceptions.

Thus, the ELM research suggests that the expertise of the expectancy sender, the presence of positive or negative affective cues in the communication, and the quality of the arguments accompanying the expectancy communication would contribute to changes in self-expectancies, but in different ways. In addition, the ELM suggests
the possibility that changes in self-expectancies that are the result of careful processing of the arguments of the message, as opposed to superficial processing of cues, will be held with more certainty and will better predict behavior. Thus, the apparent task of the prophet is to influence both the direction and magnitude of a target's self-expectancies to ensure that the desired behavioral changes and performance result.

A weakness of the ELM is that it is not clear what argument quality means substantively. ELM researchers define a strong argument as one that tends to elicit favorable thoughts from pretest subjects, and a weak argument as one which tends to produce unfavorable thoughts from pretest subjects. Argument quality is therefore defined operationally and not conceptually.

Fishbein and Ajzen (1972), however, do offer some insights into how one might persuade a target to modify his/her self-expectancy through careful attention to the content of the arguments. They claim that the single most important determinant of the persuasive impact of a message and the most understudied variable by persuasion researchers, is the content of the message. They argue that to be effective, the arguments and information contained in the message must directly or indirectly influence the primary beliefs that determine the target variable to be influenced (e.g., beliefs, attitudes, intentions, and behaviors). Given the importance that has been accorded to the mediational role of the target's self-expectancy in producing a performance confirmation effect, Fishbein and Ajzen (1972) would argue that the primary belief to be
influenced is the target's belief that he or she is capable of performing a task at a certain level.

These inferential beliefs might include the belief that one does or does not have the necessary qualities to perform the task or the belief that the environment will or will not pose obstacles to successful performance. If environmental factors are not seen as a hindrance, then the best way for a prophet to produce changes in target self-expectancies is to persuade them that they have the necessary qualities to perform the task. If the arguments accompanying the expectancy consist of strong and relevant evidence for expecting a certain level of performance, then self-expectancies would be more likely to change than if the evidence presented is perceived by the target as weak or irrelevant to task performance.

Summary of Research

It is evident from the research reviewed that it is not clear when people will confirm sent expectancies and when they will actively attempt to disconfirm them. The self-fulfilling prophecy studies (e.g., Rosenthal & Jacobson, 1968; Rothbart, Dalfen & Barnett, 1971; Weinstein, 1976), the organizational research on the Pygmalion Effect (e.g., Eden & Ravid, 1982; Eden & Shani, 1982) and the behavioral confirmation research (Darley & Fazio, 1980) provide evidence that people will tend to confirm the expectations they believe that others have for them.

On the other hand, the self-verification studies by Swann and his colleagues (e.g., Swann & Ely, 1984; Swann & Hill, 1982) and the labeling study by Gurwitz and Topal (1978) present equally compelling evidence that people will often go to great lengths to disconfirm the
expectancies they believe that others have for them. The underlying theme of these studies is that people's beliefs about themselves, particularly those beliefs held with some conviction, are not that malleable and easily influenced by the beliefs of another person. One element common to all these research paradigms, however, is the underlying assumption that target beliefs must change prior to any behavioral change.

What these studies do not address, however, is how target self-expectancies are changed to conform to the self-expectations of the prophet. The persuasion research reviewed, however, did suggest factors that might facilitate the target's acceptance of a communicated performance expectancy and cause the target to modify his or her expectations accordingly. Several studies by cognitive response theorists (see Petty, Ostrom, & Brock, 1981, for a review) have shown that targets of a persuasive appeal are more likely to agree with the position advocated in a message (in this case, the sent performance expectancy) if they react more favorably than unfavorably to the arguments brought forth to support the position, as indicated by their cognitive responses. Moreover, the summary of persuasion research findings given by the Elaboration Likelihood Model of Persuasion (Petty & Cacioppo, 1986), indicates that favorable reactions are more likely if the message contains strong arguments (central route) or if positive peripheral cues are present such as a highly credible source or positive message affectivity.

In summary, this research suggested that targets would agree with sent performance expectancies and modify their self-expectancies if the
performance expectancy was delivered by a credible person or if the expectancy communicated put them in a good mood or was accompanied by strong arguments. Also suggested by this research is the process through which sent expectancies impact on target self-expectancies. The expectancy communication would be predicted to affect cognitive and affective reactions, which in turn would impact on the amount of agreement with the message, which would ultimately affect self-expectancies.

Although Eden assumes that any changes in self-expectancies produced by the expectancy communication would lead to corresponding changes in performance, the persuasion research reviewed indicates that behavioral changes would occur only if the message was processed through the central route. This implies that changes in self-expectancy caused by the target attending to and thinking about the content of the expectancy message would be more likely to endure and impact on performance than changes in self-expectancies caused by target reliance on the peripheral cues present.

This Investigation

Overview

The purpose of this investigation was to understand how sent performance expectancies accompanied by weak or strong arguments from an expert source impact on target individuals. Although the primary goal of this research was to determine whether the quantity and quality of target performance would vary according to the performance level prophesized and the persuasiveness of the appeal, a second goal of this study was to determine how targets reacted cognitively, affectively and
behaviorally to the performance expectancy message. The specific target responses examined as potential mediators of the performance confirmation effect were the following: (a) the polarity and focus of the thoughts elicited by the expectancy communication (cognitive responses); (b) the degree of yielding to the performance expectancy message (message agreement); (c) the affective reactions to the message; (c) the strength and magnitude of target self-expectancies; (e) the motivation to exert effort on the task (motivation level); (f) the behavioral intentions to exert effort on the task (intentions); (g) the time spent working on the task (time spent); (h) target perceptions of effort exerted in performing the task (perception of effort); and (o) the perceptions of the difficulty of the task.

The final goal of the study was to reach some tentative conclusions regarding the processes through which the level of performance expected and the quality of the accompanying arguments influence each of the following critical target responses: (a) amount of agreement with the performance expectancy message; (b) level and strength of self-expectancies for task success; and (c) quality and quantity of performance.

Prior to discussing the specific predictions examined in this study, it is necessary to briefly review how level of sent performance expectancy and argument quality were manipulated. Level of sent performance expectancy was manipulated via the experimenter (prophet; expectancy sender) communicating to an individual subject (target) that she would be expected to exhibit average performance (average expectancy condition) or high performance (high expectancy condition) on a problem
solving task. As part of the sent expectancy manipulation, the experimenter also told each target individual that he or she had either an average or a high amount of personal qualities that were necessary to perform the task. In the weak arguments condition, the personal qualities listed were pretested as being positively valent but irrelevant to performing the task, whereas personal qualities pretested as positively valent and relevant to the task accompanied the performance expectancy provided to subjects in the strong arguments condition.

The hypotheses that follow are organized according to the variables predicted to have major mediating roles in determining how sent expectancies translate to performance. It should be noted that there are not predictions made based on target individual differences. It is acknowledged that individual differences will probably have an impact on various parts of the expectancy-performance sequence; however, due to the already complex nature of this investigation, it is beyond the scope of this study to address individual differences at this time.

**Predicted Effects of Level of Sent Expectancy and Argument Quality on Target Responses and Behaviors**

Assumptions underlying predictions. One critical assumption underlying the predictions listed below is that the content of the expectancy communication message would produce a rather high level of subject involvement with the message. That is, it was assumed that a high degree of message involvement and scrutiny would result from telling subjects that they have a high or average amount of personal qualities that are indicative of their competence in solving
interpersonal problems. According to Petty and Cacioppo (1984, 1986),
high message involvement produces a high degree of message relevant
thoughts, but these and other studies testing the viability of the
Elaboration Likelihood Model have never examined the cognitive responses
elicited by messages that provide people with self-relevant information.
The assumption of this study was that even within the high involvement
level expected from all subjects in this study, the propensity to
generate message focused thoughts would vary as a function of sent
expectancy level and argument quality when the communication is target
relevant. Instead it was assumed that the positivity or negativity of
the message interacts with the quality of the arguments supporting the
position advocated in a message to produce different responses,
including different types of cognitive responses. The last assumption
underlying the predictions, for which there was empirical support from a
pilot study, was that people would tend to consider themselves as having
above average ability to solve interpersonal problems, and they would
therefore tend to agree with and positively react to high sent
expectancies and disagree with and react negatively to average sent
expectancies.

Given that level of sent expectancy and argument quality were
predicted to have primarily an interactive effect on the targets' responses and behaviors, it is necessary to explain the logic behind the
form of the interaction predicted. First, it was assumed that targets
who received high performance expectancies supported by strong arguments
represented the ideal Pygmalion condition. One of the criticisms of all
the studies of this genre (self-fulfilling prophecy and behavioral
confirmation studies) was that they implicitly assumed that targets of sent expectations would automatically accept the prophecy as true and behave accordingly. The argument advanced here was that communicating high expectations has a positive impact on the target only to the extent that this message is accompanied by strong arguments and hence represents a persuasive appeal to the target regarding what he/she is capable of. Subjects in this condition were predicted to confirm the sent expectation through their cognitive, affective and behavioral responses.

Relatedly, it was assumed that targets receiving a high performance expectancy accompanied by weak arguments would be superficially convinced by the expectancy communication through their positive affective responses to the level of performance expected. Recall that one peripheral process through which people are persuaded by a communication is the presence of affective cues that cause them to rather quickly accept or reject the message. Messages that put people in a positive affective state have been predicted to cause more agreement with a message than messages which induce neutral states (Petty & Cacioppo, 1986). Therefore, subjects in this condition were predicted to be happy and peripherally persuaded by the expectancy communication, such that they would report agreement with the message and a high level of performance self-expectancies. However, their behavioral responses were not predicted to show confirmation of the high sent expectancy, because beliefs formed through the use of peripheral cues are not strongly held beliefs and correspondingly do not have the "staying power" to impact on behavior (Petty & Cacioppo, 1986). Thus,
the self-expectancies of subjects in this condition were predicted to be weakly held, and the performance of these subjects was predicted to be rather low and therefore contrary to the level of performance expected.

Similar to the high expectancy/strong arguments condition, the average expectancy/strong arguments condition was predicted to yield a performance confirmation effect, with the only difference between these conditions being the level of performance exhibited by the targets. Targets receiving strong arguments for expecting only average performance were predicted to be dejected and convinced by the sent expectancy. It was expected that subjects in this condition would not counterargue with the message content due to the strength of the arguments, but that they would attempt to "save face" by expressing negative thoughts toward the contextual aspects of the communication, such as the expectancy communicator and the experiment itself. Thus, it was predicted that subjects in this condition would generate negative, peripheral thoughts and report disagreement with the message, but that their level and strength of self-expectancies would be lower as well as their level of performance.

Lastly, it was assumed that the communication of weak arguments for average expectations would induce self-verification processes and ultimately lead to disconfirmation of the sent performance expectancy. These people would be motivated to maintain their self-conception of being at least above average, and in contrast to subjects receiving strong arguments for an average expectancy, these subjects would more easily be able to counterargue with the weak arguments provided and reject the message. It was further assumed that in thinking about the
content of the weak message and generating counterarguments to the expectancy communication, subjects in this condition would retrieve information contrary to the message and generate strong arguments for why they would be expected to perform at a high level. This implies that although subjects would generate negative message thoughts and report disagreement with the message, their self-expectancies and performance levels would be identical to those subjects in the Pygmalion condition.

To summarize the implications of the assumptions listed here, subjects receiving weak arguments for either average or high sent expectancies were predicted to ultimately disconfirm the expectancy and perform at a level contrary to the prophecy, whereas, subjects receiving strong arguments for both levels of expected performance were predicted to demonstrate a performance confirmation effect. Stated in another way, argument quality was predicted to differentially impact on target performance. Strong arguments were predicted to produce high performance in high expectancy subjects and average performance in average expectancy subjects, whereas weak arguments were predicted to have an opposite effect, with weak argument subjects receiving average expectancies performing at a higher level than those subjects receiving high expectancies.

Predicted effects of level of sent performance expectancy and argument quality on the polarity and focus of cognitive responses. The first set of hypotheses concern the effects of level of sent performance expectancy and argument quality on the polarity and focus of the target's thoughts or cognitive responses. First, the level of sent
expectancy was predicted to have a main effect on the proportion of positive message focused thoughts with the high expectancy subjects recording more positive message thoughts than the average expectancy subjects. In contrast, subjects in the average expectancy condition were expected to generate more negative message thoughts than subjects in the high expectancy condition. The same pattern of results was predicted for the polarity of the peripheral thoughts (thoughts directed toward the source or the experiment itself) generated as a function of the level of sent expectancy. Subjects in the high expectancy condition were predicted to generate more positive peripheral thoughts than subjects in the average condition, whereas average expectancy subjects were hypothesized to generate a greater proportion of negative peripheral thoughts than subjects in the high expectancy condition.

There were also predicted main effects of performance expectancy level on the predominate tendency of each given subject in a particular condition to generate positive or negative message or peripheral thoughts. These predictions for individual tendencies are similar to the predictions made about the overall pattern of responses expected for the conditions overall. High expectancy subjects were predicted to generate a greater proportion of positively polarized compared to negatively polarized message thoughts and a greater proportion of positively polarized compared to negatively polarized peripheral thoughts compared to subjects in the average expectancy condition for which an opposite pattern of results was expected. Given these predictions it was also hypothesized that high expectancy subjects would record more positively polarized thoughts overall, whereas average
expectancy subjects were predicted to generate more negatively polarized cognitive responses overall.

The predicted main effects, however, must be interpreted in light of the hypothesized interaction of sent expectancy and argument quality on the types of cognitive responses emitted. The predicted forms of the interactions are depicted in Figures 1 through 4. High expectancy subjects hearing strong arguments (the Pygmalion condition) were predicted to emit more positive thoughts directed toward the message and a greater proportion of positively compared to negatively polarized message thoughts than subjects in the other three conditions. In contrast, the self-verifying subjects in the average expectancy/weak arguments condition were predicted to generate more negatively polarized message thoughts than subjects in the other three conditions.

Similar to the predictions for the polarity of the message thoughts generated, argument quality was predicted to have the opposite effect on the tendency to generate positive versus negative peripheral thoughts. Subjects hearing weak arguments were not expected to scrutinize the message, because the irrelevance of the arguments presented in support of the high performance expectancy would be apparent and perhaps threaten the positive affect state of these superficially convinced subjects. However, by focusing on peripheral aspects of the expectancy communication the subjects in the high expectancy/weak argument condition could continue to believe in the prophecy and maintain their positive affective state. Thus, subjects in the high performance/weak argument condition were predicted to generate a higher proportion of positive peripheral thoughts and a greater proportion of positively
Figure 1. Predicted Proportion of Positive Message Thoughts and Negative Message Thoughts as a Function of Sent Performance Expectancy and Argument.
Figure 2. Predicted Proportion of Positive Peripheral Thoughts and Negative Peripheral Thoughts as a Function of Sent Performance Expectancy and Argument Quality.
Figure 3. Predicted Proportion of the Difference between Positive Message Minus Negative Message Thoughts as a Function of Sent Performance Expectancy and Argument Quality.
Figure 4. Predicted Proportion of the Difference Between Positive Peripheral Thoughts as a Function of Sent Performance Expectancy and Argument Quality.
compared to negatively polarized peripheral thoughts than the subjects in the other three conditions.

In contrast, subjects in the average expectancy/strong argument condition were expected to react negatively to peripheral aspects of the experiment rather than the message content, because the latter would be difficult to argue with due to the cogency and relevance of the arguments presented. Thus, these presumed dejected subjects were predicted to generate a greater proportion of negatively polarized peripheral thoughts than those subjects in the other three conditions.

The predictions for the polarity and focus of thoughts or cognitive responses emitted as a function of sent performance expectancy and the interaction of sent expectancy and argument quality are listed below.

1.a. High expectancy subjects will generate a greater proportion of positive message thoughts compared to average expectancy subjects.

1.b. Average expectancy subjects will generate a greater proportion of negative message thoughts compared to subjects in the high expectancy condition.

1.c. High expectancy subjects will generate a greater proportion of positive peripheral thoughts compared to subjects in the average expectancy condition.

1.d. Average expectancy subjects will generate a greater proportion of negative peripheral thoughts compared to subjects in the high expectancy condition.

1.e. High expectancy subjects will generate a greater proportion of positively compared to negatively polarized message thoughts
and a greater proportion of positively compared to negatively polarized peripheral thoughts compared to subjects receiving average expectancies.

1.f. High expectancy subjects will generate a greater proportion of positive thoughts overall compared to average expectancy subjects.

1.g. Average expectancy subjects will generate a greater proportion of negative thoughts overall compared to high expectancy subjects.

1.h. Sent expectancy and argument quality will have an interactive effect on the proportion of positively polarized message thoughts emitted, with subjects in the high expectancy/strong arguments condition generating a greater proportion of positive thoughts compared to subjects in the other three conditions.

1.i. Sent expectancy and argument quality will have an interactive effect on the proportion of negatively polarized message thoughts emitted, with subjects in the average expectancy/weak argument condition generating a greater proportion of negative thoughts compared to subjects in the other three conditions.

1.j. Sent expectancy and argument quality will jointly influence the proportion of positive, peripheral responses elicited, with subjects hearing weak arguments for high expectations generating a greater proportion of positive peripheral responses compared to the subjects in the other three conditions.
1.k. Sent expectancy and argument quality will jointly affect the proportion of negative, peripheral responses emitted, with subjects in the average expectancy/strong arguments condition generating a greater proportion of negative peripheral thoughts.

1.l. Sent expectancy and argument quality will interact to produce a greater proportion of positively compared to negatively polarized message thoughts in the high expectancy/strong arguments condition compared to the other three conditions.

1.m. Sent expectancy and argument quality will interact to produce a greater proportion of positively compared to negatively polarized peripheral thoughts in the high expectancy/weak arguments condition compared to the other three conditions.

Also examined were the proportion of neutral message thoughts, the proportion of neutral peripheral thoughts and the overall proportion of neutral thoughts. However, no explicit predictions were made for the effect of sent performance expectancy and argument quality on these dependent measures, due to a lack of theorizing and empirical attention accorded to them in understanding interpersonal expectancy effects.

**Predicted effects of level of sent performance expectancy and argument quality on the targets' affective responses.** Overall, targets receiving high expectancies were predicted to demonstrate positive affective responses to the expectancy communication, whereas those receiving average performance expectancies were predicted to have primarily a negative affective reaction to the expectancy communication. This prediction was based on the assumption that people would generally
react more positively when they are told they have high rather than merely average potential to perform some task.

It was also hypothesized that sent expectancy and argument quality would have an interactive effect on target affective responses. Subjects receiving strong and weak arguments for high expectancies were expected to react positively, whereas argument quality was predicted to differentiate subjects in the average expectancy condition who received strong arguments versus those who received weak arguments. Since targets in the average expectancy/weak arguments condition were predicted not to believe that the prophecy was accurate, it followed that they would not be saddened about it. In contrast, subjects receiving strong arguments for average expectancies were predicted to feel a greater degree of sadness or dejection. The form of the predicted interaction is depicted in Figure 5.

The predicted main effect for the level of sent expectancy and the hypothesized interaction of sent performance expectancy and argument quality on target affective responses are summarized in hypotheses 2.a and 2.b.

2.a. Subjects receiving high performance expectancies will have a more positive affective reaction to the expectancy communication than subjects receiving average expectancies.

2.b. Subjects receiving strong arguments for average performance expectancies will be significantly more dejected than subjects in the other three conditions.
Figure 5. Predicted Affective Reaction as a Function of Sent Performance Expectancy and Argument Quality.
Predicted effects of sent expectancy and argument quality on the extent to which targets report agreement with the message. It was predicted that self-reported agreement with the expectancy communication would not be sensitive to the nuances of the targets' idiosyncratic cognitive and affective responses to the message, and it would merely be a function of the level of expectation received. It was assumed that people tend to agree with messages that convey positive information about themselves, whereas they tend to disagree with messages containing information that is not as flattering. Furthermore, it was assumed that people are more likely to agree with messages that are congruent with their self-concept than messages that are contradictory to their self-image, and given that pilot research showed that people tend to believe that they have better than average ability to solve interpersonal problems, average sent expectancies were predicted to provoke more disagreement with the message than high sent expectancies. This hypothesized main effect for level of sent performance expectancy is summarized below in hypothesis 3, and because it is very different from the predictions for the other target responses, it is depicted in Figure 6.

3. Targets receiving high performance expectancies will report a higher degree of agreement with the expectancy communication than targets receiving average expectancies.

Predicted effects of level of sent expectancy and argument quality on targets' level of self-expectancy, motivation and intentions to exert effort. The level of sent performance expectancy was predicted to exert a main effect on the level of self-expectancy, motivation, and
Figure 6. Predicted Extent of Agreement with the Expectancy Performance Communication as a Function of Sent Performance Expectancy and Argument Quality.
intentions to exert effort. It was predicted that targets would expect
to perform at a high level and be motivated and intend to work hard at a
task when a credible prophet told them they are capable of high
performance. In contrast, it was hypothesized that when a credible
prophet predicts only average performance, targets would in turn expect
to perform at an average level and they would not be as motivated to
exert effort on the task as their high expectancy counterparts.

This predicted main effect is modified by the hypothesized
interactive effect of sent expectancies and argument quality on the
level of targets' self-expectancies, motivation and intentions to exert
effort. Targets' affective and cognitive responses were predicted to be
critical in determining the level of their self-expectancies for task
success. The superficially persuaded subjects in the high
expectancy/weak arguments condition and the message-involved Pygmalion
subjects in the high expectancy/strong arguments condition, both of whom
were expected to be happy in response to the expectancy message, were
predicted to believe that they were capable of high performance and
would correspondingly report high motivation and intention levels.

The same level of self-expectancies, motivation and intentions were
predicted for subjects in the average expectancy/weak argument
condition, but the cause of their responses were predicted to be
different. Recall that subjects in this condition were predicted to not
be persuaded that they were capable of only average performance, and
they were expected to engage in extensive cognitive processing to verify
their self-conceptions. As a result, these subjects were predicted to
generate strong arguments for expecting high performance, such that they
would serve as their own prophet and expect a high level of performance and they would be motivated and intend to work hard to prove that they were right.

In contrast, subjects in the average expectancy/strong argument condition were predicted to have significantly lower self-expectancies and correspondingly lower motivation and intention levels than subjects in the other three conditions. Recall that although these subjects were predicted to report disagreement with the expectancy communication, they were not predicted to be as likely to generate counterarguments in response to the message's content. As a result, these subjects were predicted to feel dejected and not feel as capable of performing well on the task as the other subjects. Moreover, these subjects were not predicted to feel very motivated or intend to work hard on the task, because they would feel that high performance wasn't worth trying for, since they lacked high potential for task success.

The predicted level of self-expectancy, motivation and intentions are summarized below, and the predicted interactions are depicted in Figure 7.

4.a. Subjects receiving high performance expectancies will report higher levels of self-expectancies, motivation and intentions to work hard on the task compared to subjects receiving average sent performance expectancies.

4.b. Subjects hearing strong arguments for average performance expectancies will report a significantly lower level of self-expectancies, motivation and intentions compared to subjects in the other three conditions.
Figure 7. Predicted Level of Self-Expectancies, Motivation and Intentions as a Function of Sent Performance Expectancy and Argument Quality.
Predicted effects of level of sent performance expectancies and argument quality on the targets' strength of self-expectancies, effort and performance. Predictions for strength of self-expectancies, effort and the quantity and quality of performance were based on two assumptions of the Elaboration Likelihood Model of persuasion (Petty & Cacioppo, 1986). The first assumption was that a high degree of message-relevant processing leads to beliefs held with greater certainty than beliefs held as a function of peripheral processing. The second assumption was that strongly held beliefs are more predictive of behavior than weakly held beliefs. Thus, targets expected to more deeply process the content of the expectancy communication were predicted to have strong self-expectancies that correspondingly would impact on their behavior. Hence, subjects receiving strong arguments for high expectancies and subjects receiving weak arguments for average expectancies were predicted to strongly believe that they would perform at a high level in addition to actually exerting the effort necessary to perform at a level consistent with their self-expectancies.

In contrast, subjects that were expected to engage primarily in peripheral processing of the content of the expectancy communication were predicted to report weakly held self-expectancies, which in turn would not be predicted to lead to strongly held self-expectancies or high effort and performance. Thus, subjects receiving strong arguments for average expectancies and those hearing weak arguments for high expectancies were predicted to not be certain of their self-expectancies, and it was expected that these subjects would not work
hard or perform at a high level. These predictions are summarized below and depicted in Figures 8 and 9.

5.a. Subjects in the high expectancy/strong arguments condition and subjects in the average expectancy/weak arguments condition will be more certain of their self-expectancies than subjects in the other two conditions.

5.b. Subjects in the high expectancy/strong arguments condition and subjects in the average expectancy/weak arguments condition will exert more effort in terms of the amount of time they spend on the task compared to subjects in the other two conditions.

5.c. Subjects in the high expectancy/strong arguments condition and subjects in the average expectancy/weak arguments condition will demonstrate a greater quantity of performance than subjects in the other two conditions.

5.d. Subjects in the high expectancy/strong arguments condition and subjects in the average expectancy/weak arguments condition will demonstrate a higher quality of performance than subjects in the other two conditions.

Predicted effects of level of sent performance expectancy and argument quality on postperformance effort and task perceptions. This study also examined the effects of sent expectancies and argument quality on targets' perceptions of the amount of effort they exerted on the task and their perceptions of task difficulty and task clarity. It was predicted that targets would not differentially perceive the task, since they all receive identical information regarding the task and
Figure 8. Predicted Strength of Self-Expectancy as a Function of Sent Performance Expectancy and Argument Quality.
Figure 9. Predicted Level of Effort and Task Performance as a Function of Sent performance Expectancy.
worked on the same task. Perception of effort was predicted to be
differentially affected by sent expectancy and target performance and
yield the same pattern of responses as those predicted for the level of
self-expectancies, motivation and intentions. That is, subjects in the
average expectancy/strong arguments condition were predicted to report
perceptions of lower effort levels than subjects in the other three
conditions. These predictions are summarized below.

6.a. Subjects' perceptions of task difficulty will not
significantly differ.

6.b. Subjects' perceptions of task clarity will not significantly
differ.

6.c. Subjects' perceptions of the amount of effort they exerted on
the task will be a function of the interactive effect of sent
expectancy and argument quality, with subjects in the average
expectancy/strong arguments condition reporting perceptions of
having exerted a lower level of effort than subjects in the
other three conditions.

Mediator Predictions

There were three major sets of mediational predictions that were
addressed in this study. The first question concerned the processes
that mediated the predicted effect of level of sent performance
expectancy on target agreement with or acceptance of the performance
expectancy. The second set of mediator predictions examined were the
processes that mediated the effect of the proposed main effect of
performance expectancy on self-expectancies and those that mediated the
effect of the proposed interaction of sent expectancy and argument
quality on self-expectancies. The last set of predictions concerned the mediators of the hypothesized interaction of sent expectancies and argument quality on the behavioral responses of the targets, specifically, the time spent on the task and the quantity and quality of performance.

It is necessary to point out that although several other mediational relationships could have been explored, the decision was made to only examine those relationships that have received the most theoretical and empirical attention prior to this study. The mediational predictions that follow build on the theory and logic underlying the previous set of predictions.

The first set of mediator predictions addresses the processes that mediate the impact of level of sent expectancy on the subjects self-reported agreement with the message. Recall that agreement with the expectancy message was predicted to be solely a function of the level of performance expected, with high expectancy subjects hypothesized to report more agreement than average expectancy subjects. It is an ongoing debate among persuasion researchers as to whether affective response or cognitive responses are the more critical mediators of the message's effect on target agreement. Swann, Griffin, Predmore, & Gaines (1987) summarize this debate and conclude that affective and cognitive responses are highly related and that the pursuit of which is better is fruitless. For this reason, both cognitive and affective responses are predicted to mediate the impact of level of sent performance expectancies on target agreement with the expectancy message.
The particular types of cognitive responses hypothesized to mediate the impact of the expectancy message on target agreement are the proportion of the difference between the quantity of positive message thoughts and negative message thoughts and the proportion of the difference between positive peripheral thoughts and negative peripheral thoughts. These cognitive response measures were chosen for a number of reasons. First, the proportion of the difference scores was selected because the predominate tendencies of the targets were thought to be most critical of target self-expectancies and performance. Second, since irrelevant thoughts have not been found to be critical to persuasion, an overall proportion of the difference between positive and negative thoughts was considered inappropriate. Third, the Elaboration Likelihood Model of persuasion proposes that people are persuaded through both peripheral and central processes, and hence the proportion of difference scores for both message and peripheral thoughts were proposed as mediators in addition to target affective responses.

To summarize, it was predicted that cognitive and affective response completely mediate the effect of the level of sent expectancies on target agreement with the message, such that the direct effect of the expectancy communication on agreement would disappear, once these mediators were controlled. The specific mediator hypotheses are listed below and depicted in Figure 10.

7a. The polarity of target's affective responses will mediate the impact of sent expectancies on target's agreement with the message.
Figure 10. Cognitive and Affective Responses Hypothesized to Mediate the Impact of Level of Sent Expectancy on Target Agreement with the Expectancy Communication.
7b. The predominate polarity of target's message thoughts, as measured by the proportion of the difference between the positive and negative message thoughts elicited, will mediate the effect of the level of sent expectancy on targets' agreement with the message. (It is necessary to point out that the purpose of this figure and all subsequent figures depicting predicted mediational processes is to aid the reader in comprehending the hypotheses. As such, only the particular treatments predicted to affect the outcome variable in question and the hypothesized mediators of that effect are represented. In testing these predictions, however, the effects of the treatments not represented were controlled).

7c. The predominate polarity of target's peripheral thoughts, as measured by the proportion of the difference between the positive and negative peripheral cognitive responses, will mediate the effect of the level of sent expectancies on target's agreement with the message.

The second set of mediator predictions were more complex due to partial mediation being hypothesized. It was predicted that the predominate cognitive and affective responses of the target would exert both direct effects on the level and strength of target self-expectancies as well as an indirect effect through their influence on target agreement with the expectancy communication.

An argument made throughout this chapter was that in order for a target's self-expectancy to change in the direction of the communicated performance expectancy, the target would first have to agree with the
sent expectancy. The extent of agreement with the expectancy communication has, in turn, been proposed as being a function of the predominate polarity of the target's affective and cognitive responses. Hence, agreement with the message was predicted to transmit some of the effects of cognitive and affective responses on the level and strength of target self-expectancies.

However, this prediction does not preclude the possibility that cognitive and affective responses would have an effect on the level and strength of target self-expectancies that is independent of the target's overall agreement with the expectancy. First, cognitive response theorists (e.g., Petty, Ostrom, & Brock, 1981) have argued that the polarity of cognitive responses are indirect but purer indices of the amount of persuasion that occurs, because they are not constrained as much by self-report biases elicited by scales. Thus, on methodological grounds, if one accepts the premise that the polarity of the cognitive responses elicited also represents how much the target agreed with the expectancy message, then cognitive responses would be predicted to impact directly on the level and strength of target self-expectancy.

Another reason for the prediction that cognitive responses would exert a direct effect on self-expectancies is more substantive. Recall that the Elaboration Likelihood Model of persuasion proposes that the focus of the cognitive responses dictates how enduring or powerful the persuasive appeal was, with positive message thoughts (central route) resulting in more enduring belief changes than positive peripheral thoughts. This would suggest that positive message thoughts and positive peripheral thoughts could differentially impact on the level
and strength of target self-expectancies, with positive message thoughts predicted to yield higher and more strongly held self-expectancies. In contrast, overall agreement with the message was not predicted to be differentially affected by the focus of the cognitive responses. Taken together, these predictions would indicate that the focus of the cognitive responses would exert a direct effect on self-expectancies, independent of target self-reported agreement with the message.

The polarity of target affective responses was also predicted to directly impact on self-expectancies. It was predicted earlier that sent expectancies and argument quality would not influence affective reactions and message agreement in the same way; that is, in this study the relationship between affect and agreement was not predicted to be veridical. Recall that it was predicted that only sent expectancies would have an effect on agreement, with the high expectancy conditions predicted to agree more strongly with the expectancy message than the average expectancy conditions. In contrast, affect was predicted to be a function of the self-expectancies and the interaction between sent expectancies and argument quality. The condition that differentiated the two predictions was the average expectancy-weak arguments cell, which was predicted to yield low agreement with the message but relatively high affect. Given the partial lack of veridicality between affect and agreement, two separate predictions were made. First, it was predicted that the hypothesized main effect of sent performance expectancy on affect would transmit influence to agreement, which in turn would impact on self-expectancies. In contrast, the predicted interaction between sent expectancies and argument quality on affective
reactions was predicted to directly transmit an interactive effect on level and strength of self-expectancies.

The specific predictions are listed below, and they are depicted in Figure 11.

8a. The predominate polarity of the peripheral thoughts elicited will mediate the impact of the level of sent expectancy on agreement with the message, and agreement will mediate the impact of the predominate polarity of the peripheral thoughts on the level and strength of self-expectancies.

8b. The predominate polarity of the message thoughts elicited will mediate the impact of the level of sent expectancy on agreement with the message, and agreement will mediate the impact of the predominate polarity of the message thoughts on the level and strength of self-expectancies.

8c. The predominate affective responses to the level of sent expectancy will have a mediating effect on agreement with the message which in turn will impact on the level and strength of self-expectancies.

8d. The predominate polarity of peripheral thoughts will mediate the interactive effect of sent expectancy and argument quality on the level and strength of self-expectancies.

8e. The predominate polarity of message thoughts will mediate the interactive effect of sent expectancy and argument quality on the level and strength of self-expectancies.
Figure 11. Cognitive and Affective Responses and Agreement with Expectancy Communication Hypothesized to Mediate the Impact of Level of Sent Performance Expectancy and the Interaction of Sent Performance Expectancy and Argument Quality on Level and Strength of Self-Expectancies.
8f. The predominate polarity of affective reactions will mediate
the interactive effect of sent expectancy and argument quality
on the level and strength of self-expectancies.

The final set of mediator hypotheses examined the variables proposed
to mediate the impact of the predicted interaction of sent performance
expectancy and argument quality on the time spent on the task and on the
quantity and quality of performance exhibited by the targets. The two
major variables predicted to mediate this effect were the predominate
polarity of the message thoughts and the strength of target self-
expectancies. Recall that the Elaboration Likelihood Model of
Persuasion predicts that beliefs or attitudes that are the result of
careful processing of the message content are more likely to be held
with more conviction and have an impact on behavior than peripheral
thoughts that tend to be fleeting. Therefore, the strength or certainty
with which a target holds a particular self-expectancy would be
predicted to be affected by the predominate polarity of the message
thoughts elicited by the expectancy communication. The strength of the
targets' self-expectancy would therefore be critical in determining how
hard they would work and how well they would perform.

The specific predictions are summarized below and are depicted in
Figure 12.

9a. Sent performance expectancy and argument quality will have an
interactive influence on the predominate polarity of message
thoughts elicited, which in turn are predicted to impact on
the strength of target self-expectancies, which will
Figure 12. Predominate Polarity of Message Thoughts and Strength of Self-Expectancies as Mediators of the Proposed Interactive Effect of Sent Expectancy and Argument Quality on Effort and Quantity and Quality of Performance.
correspondingly impact on the level of effort exerted (time spent on task).

9b. Sent performance expectancy and argument quality will have an interactive influence on the predominate polarity of message thoughts elicited, which will affect the strength of target self-expectancies, which will correspondingly predict performance quantity (quantity of solutions generated).

9c. Sent performance expectancy and argument quality will have an interactive effect on the predominate polarity of the message thoughts elicited, which will, in turn, affect the strength of target self-expectancies, which will ultimately predict the quality of target performance (quality of solutions generated).
METHODOLOGY

Overview

In a laboratory experiment subjects heard either weak or strong arguments supporting the communicated expectation that they would perform at a high or average performance level. Subjects listed their thoughts and reactions to the expectancy communication message, and responded to various questionnaires designed to assess their affective states, agreement with the message, self-expectancies, and behavioral intentions and motivation level. Subject responses to a bogus personality test served as the basis for the experimenter's performance expectancy. They then generated solutions to a hypothetical interpersonal dilemma and recorded their perceptions of the degree of difficulty of the task and degree to which they felt they exerted effort on the task.

Subjects and Design

Subjects were 92 undergraduate students enrolled in introductory psychology classes at Ohio State University who participated in partial fulfillment of a laboratory requirement. Subjects were randomly assigned to the cells of a 2 (higher or average sent expectancy) X 2 (strong or weak arguments) factorial design and were run individually. However, the data from five subjects were not included in the analyses because these subjects were acquainted with the experimenter. Thus, the data from 87 subjects were submitted to analysis (high expectancy/strong
arguments condition, \( n = 21 \); high expectancy/weak arguments condition, \( n = 23 \); average expectancy/strong arguments condition, \( n = 23 \); average expectancy/weak arguments condition, \( n = 22 \). The average age of the subjects was 21, and the average class rank was a sophomore. Thirty-nine subjects were male and 48 were female, and all were white.

**Manipulations**

**Argument quality.** Recall that in this study paradigm, argument quality is conceptualized as the strength of the evidence presented as a basis for the performance expectancy. One form of evidence that can be offered as a basis for a performance expectancy is the degree to which a person possesses personal qualities that are needed to perform well on a task. In this study, argument quality was manipulated by varying the relevance of the personal qualities needed to perform well on a solution generation task. All subjects read and were told that the level to which they possessed certain personal qualities predicted how well they would perform on tasks requiring them to generate a high quantity of high quality solutions to hypothetical personal dilemmas. Subjects in the weak argument condition were presented with a list of ten personal qualities judged to be highly irrelevant for predicting performance on the solution generation task, whereas subjects in the strong argument condition were presented with a different set of ten personal qualities judged as being highly relevant for predicting performance on the task. Appendix A contains the list of irrelevant personal qualities that were to be read by subjects in the weak argument condition, and Appendix B contains the set of relevant personal qualities that were read by subjects in the strong argument condition.
Pilot research for argument quality. Twenty-five introductory psychology students served as subjects in a study designed to determine which personal qualities would be perceived by an undergraduate sample as being relevant or irrelevant for predicting how well (or poorly) people could be expected to perform on a task that required them to generate high quality solutions to other people's problems. The total list of qualities rated on a 7-point scale for relevance or irrelevance to the task by these subjects can be found in Appendix C. These qualities were selected from Anderson's (1968) list of 555 trait-descriptive adjectives. Only adjectives rated by Anderson's subjects as being above average in likeableness (how likeable a person is who possesses the trait-adjective) and meaningfulness were included on the list to be rated. The mean rating of relevance was obtained for each adjective, those adjectives rated as highly irrelevant (M=1.7) were selected for the weak argument condition, and correspondingly, ten qualities rated as highly relevant (M=6.2) were chosen for the strong argument condition.

Level of sent performance expectancy. The level of sent performance expectancy was manipulated by the experimenter telling subjects that he/she expected them to perform very well or average on the solution generation task. The level of performance expectancy was communicated to subjects three different times: before the subjects saw their scores on a bogus personality inventory, while their looking at their scores and after they were finished looking at their results. On the first occasion, the experimenter stated: "I have your results here. Based on the profile of your personal qualities, I would expect you to (perform
very well/have average performance) on the solution generation task that
you will work on in a few minutes." The bogus percentile scores,
supposedly produced from a computer analysis of their responses to the
personality inventory, was then shown to the subject, along with a graph
of the subject's scores handwritten by the experimenter. The profiles
showed scores in the 80th and 90th percentile for the high expectancy
subjects and scores in the 40th and 50th percentiles for the average
expectancy subjects. Appendices D, E, F, and G include the fake
computer output as well as the hand graphed profile of the bogus
percentile scores for subjects in each of the four conditions (level of
performance expectancy by argument strength). After the experimenter
finished carefully explaining the meaning of the subjects' percentile
scores she stated "In general, your profile shows that you possess (a
very high amount/an average) amount of the qualities we have found to be
essential for the task of generating solutions to other people's
personal dilemmas." Pointing to the subject's overall profile score,
she also said "Given your overall profile score of (92.7/52.3), I am
confident that you will have (very high/average) performance on the
solution generation task." After the experimenter collected the
subjects' output, she communicated the performance expectancy for the
final time saying: "You should definitely (do very well/have average
performance) on the solution task."

Design Constants

**Expertise of the expectancy sender.** All subjects were exposed to an
expert source who played the role of the experimenter or researcher.
Four people served as experimenters in the study (two male and two
female). To maximize the perceived expertise of the researcher, the experimenter made status salient by introducing himself/herself as Dr. ______________ from Stanford University. To further increase the perceived expertise of the experimenter, references were made to the length of time that the researcher has been working on the federally-funded project and subjects were told that more than 100,000 subjects across the country had participated in the experiment.

The experimenter's script for producing a perception of credibility proceeded as follows: "Hello, I'm Dr. Scherer. Before we get started, I'd like to give you a little background about this research project and tell you what you will be doing today. I am primarily interested in how people solve various types of problems and what types of individuals tend to be better problems solvers. For the past two years I and my other four colleagues have examined what types of individuals are best at generating good solutions to other people's interpersonal conflicts and personal dilemmas. We started this project at Stanford University, which is our home base, but since we were fortunate enough to receive federal funding for the project we were granted leaves of absence to collect data from people across the United States. My last count shows that over 100,000 adults between the ages of 18 and 45 have participated in this research project, and for the next few weeks we'll be doing our research in Columbus, both with college students and other adults in the community."

Credibility cues in the experiment. Related to the source-related credibility cues, it was also important to this research endeavor to maximize the credibility of other cues in the experiment. Of concern
here was the possibility that some aspect of experiment would not ring true or believable, causing subjects to become suspicious about the credibility and expertise of the experimenter, which would introduce unwanted variability in subject responses. It would have been highly undesirable for subjects to doubt the cover story for the experiment before the expectancy manipulations were even conducted.

The most important credibility cue in this experiment is the face validity of the instrument used to produce the subjects' profiles of personal qualities. The credibility of this cue was maximized in four ways: (a) subjects responded to instruments that pilot subjects believed to be capable of generating the personal qualities used for the argument quality manipulation, (b) subjects indicated their responses on a computer scan sheet (c) subjects were shown the computer room where their inventory responses would supposedly be analyzed, and (d) the experimenter presented the results of the analysis of the subject's responses to the inventory by showing subjects mock computerized output.

Dependent Measures

Cognitive responses to the performance expectancy communication.

Recall that cognitive responses are defined as "those thoughts that pass through a person's mind as he or she receives and reflects upon a message designed to change beliefs, attitudes or behaviors" (Cacioppo & Petty, 1981, p. 310). In this study, they were the thoughts the subject generated as the subject received the expectancy communication. Specifically of interest to this research endeavor was the polarity and focus of the cognitive responses elicited by the expectancy communication. Two independent raters blind to experimental condition
classified the cognitive responses according to their polarity and focus. Interrater reliability was .94 and disagreements were resolved through discussion with a neutral third party. The polarity and focus of the cognitive responses were then combined to form the composite cognitive response variables of interest to this study. In the section below, the conceptual and operational meaning of these variables are discussed. This will be followed by a summary of the cognitive response composites that served as the dependent variables.

Polarity of cognitive responses. The polarity of a cognitive response refers to the "degree to which the response is in favor of the referent or opposed to the referent" (Cacioppo & Petty, 1981, p. 319). The referent is what in general the person was responding to, which in this study, was the expectancy communication. Response polarity consisted of positively polarized, negatively polarized and neutral thoughts elicited by the expectancy communication.

Operationally, positively polarized or favorable responses are statements that are positive toward or supportive of any aspect of the expectancy communication, including the expectancy sender. The following types of statements were classified as favorable thoughts: (a) statements agreeing with some aspect of the expectancy message ("I know I'll do well on this task"); (b) statements of positive associations to the expectancy communication ("This reminds me of the time my coach told me that he knew I could get a hit to win the ball game and I did"); (c) statements that support the validity of the experimenters' performance expectancy or the arguments offered ("You know, a lot of people have told me that I'm real diplomatic"); and (d)
statements of positive affect ("I'm thrilled with the results!").

Negatively polarized or unfavorable responses are statements that are negative toward or in opposition to some aspect of the expectancy message or sender. The following types of statement were classified as unfavorable thoughts: (a) statements disagreeing or challenging some aspect of the expectancy communication ("92.7! I think not"); (b) statements of negative associations ("This guy's a real know-it-all just like my Dad"); (c) statements that challenge the validity of the arguments given or the performance expectancy itself ("So I'm not very neat--what does that have to do with my ability to come up with solutions to problems"); and (d) statements of negative affect, including sadness, disappointment, and anger ("I'm so bummed out").

Neutral cognitive responses are thoughts that express no affect either in favor of or in opposition to the expectancy communication or sender. Examples of neutral thoughts were: "The experimenter is tall"; "The tests says I am logical"; and "I wonder what my cat is doing right now."

Focus of cognitive responses. What is being called the "focus" of a cognitive response in this study is typically referred to as the "target" of a cognitive response, but since this study refers to the recipient of the expectancy communication as the target, the term "focus" will be substituted for "target." The focus of a cognitive response refers to "at what the response is directed" (Cacioppo & Petty, 1981, p. 319). Cognitive response theorists have traditionally examined three focus dimensions: source-focused thoughts, message-focused thoughts, and thoughts irrelevant to the communication. Source thoughts
are those related to the communicator, and message thoughts are those directed toward the content of the message. Irrelevant thoughts are those not related to any aspect of the source, message, or the experiment.

In this study, another focus dimension was added: experiment-focused thoughts. These were thoughts that were directed at some aspect of the experiment. Examples of these thoughts included: "This experiment is looking at a lot of things"; and "This experiment is interesting." The distinction made in this study between experiment-focused thoughts and irrelevant thoughts was that irrelevant thoughts were those totally unrelated to any aspect of the experiment. For example, an irrelevant thought recorded by one subject was "I wonder what my cat is doing now."

The reason this distinction is important is that experiment-focused thoughts seemed more appropriately categorized with source thoughts as types of peripheral thoughts. I would submit that the polarity of both source thoughts and experiment thoughts could be indicative of the degree to which the subject agrees with the conclusion (sent expectancy) of the message (albeit through a peripheral route). In contrast, irrelevant thoughts appear to suggest that the mind of the subject is somewhere else.

Formation of the cognitive response composites. For each subject 12 cognitive response composites were formed. Cognitive response researchers have formed two types of composites, one based on the quantity of a type of response and the other based on the proportion of a type of thought out of the total number of thoughts recorded by a
subject. Proportions were used in this study, because it was felt that
the goals of this research would be better served by examining the
relative tendencies of subjects to record one type of thought or
another.

The proportion of cognitive responses overall having a particular
polarity was of interest to this study. Thus, the proportion of
positive thoughts, the proportion of negative thoughts and the
proportion of neutral thoughts were three of the composites formed for
each subject. Of particular interest, however, were the polarity of the
message-focused thoughts and peripheral-focused thoughts. Hence the
three message by polarity composites were the proportion of positive
message-focused thoughts, the proportion of negative message-focused
thoughts, and the proportion of neutral message-focused thoughts, and
the three peripheral by polarity composites were the proportion of
positive peripheral thoughts, the proportion of negative peripheral
thoughts, and the proportion of neutral peripheral thoughts. As
suggested by Petty and Cacioppo (1984), I formed a measure which
consisted of the proportion of the difference between the number of
positive message-focused thoughts and the number of negative message-
focused thoughts. Two other difference composites were formed as well:
the proportion of the difference between the number of positive and
negative peripheral thoughts and the proportion of the difference
between all positive and all negative thoughts. All proportions were
based on the total number of cognitive responses generated.

Scale measurement of target responses. Scales were developed by
this researcher to provide measures of affective responses, amount of
agreement with the expectancy communication, level and strength of self-expectancies for success, motivation level, intentions to exert effort, and perceptions of effort expended and task difficulty. Each scale was factor analyzed and factor loadings and corrected item-total correlations were examined to determine which items would be included to form the composite measure for each particular variable. The details of these analyses and the resulting final composites formed are discussed in the Results Chapter. The original scales to which the subjects responded are depicted in Appendices H through N.

Behavioral responses of the target. Effort and performance were the two major types of behavioral outcomes examined in this study. Effort was operationalized as the amount of time spent thinking about and recording solutions to a hypothetical interpersonal dilemma. The performance dimensions examined were the quantity and quality of solutions generated to the problem. Two measures of performance quantity were used: one was based on a count of the total number of solutions generated to the problem as unitized by the subject, and the other was based on the total number of components of the solutions generated to the problem. Research by Scherer and Billings (1986) and Scherer (1988) revealed that a single solution generated to a problem can contain one or multiple components.

Two types of solution quality were assessed in this study. The first one defines the quality of a solution as the resolving power of the solution, or the degree to which it addressed and resolved the conflicting aspects or objectives inherent in the problem. This definition of the quality of a solution was proposed by Upshaw (1975).
Ratings of the resolving power (on an eight-point scale) of the solutions to the stimulus problem used in this study already existed from two previous studies (Scherer and Billings, 1986; Scherer, 1988), and these ratings were applied to the solutions generated by subjects in this experiment. The two specific resolving power measures computed for each subject were the average resolving power of the set of solutions generated and the number of high quality or resolving solutions generated (solutions rated five and above on the eight-point resolving power scale).

The second definition of solution quality examined in this study was solution specificity. Specifically, it refers to the degree to which a solution provides specific as opposed to vague ideas regarding how to deal with a problem. This measure of quality has not, to this author's knowledge, been utilized in any previous research.

Two graduate students blind to experimental condition assessed solution specificity using a three-point scale. Solutions receiving a three, the highest rating of specificity, were solutions which explained explicitly what needed to be done and how and/or when it needed to be accomplished. An example of a solutions receiving a rating of three follows: "Make an appointment to speak with Dr. Johnson at his convenience and calmly explain that there were problems working with Dr. Bundt involving his lack of guidance and high expectancy." A rating of two was given to solutions that were explicit regarding what needed to be done but did not comment on how or when the proposed action was to occur. An example of a solution rated a two follows: "Explain to Dr. Johnson the time-conflict problems that have arisen from working with
Dr. Bundt." A rating of one was given to any solution that was vague regarding what exactly needed to be done. A solution given a rating of one follows: "Explain the situation to Dr. Johnson." Interrater reliability was .95 and disagreements were resolved through discussion with a neutral third party.

Stimulus Materials

Inventory. The Need for Cognitive Scale (Cacioppo & Petty, 1982) and the thinking/feeling and judging/perceptive scales of the Myers-Briggs Type Indicator (Briggs & Myers, 1977) comprised the inventory that subjects completed for the presumed purpose of providing information on the degree to which they possessed traits needed to generate high quality solutions to hypothetical personal dilemmas. The inventory consisted of a total of 64 items, and based on the reports of pilot subjects, the content and length of the inventory had high face validity for producing the list of personal qualities used to manipulate argument quality. The inventory is presented in Appendix 0.

Personal dilemma. The hypothetical personal dilemma for which subjects generated solutions is a multifaceted problem describing the woes of an overworked college student facing conflicting objectives in her role as a research assistant. (See Appendix P). This dilemma, which was developed by Pitz, Sachs, and Heerboth (1980), has been reported by subjects in other research contexts as being interesting, easy to understand but fairly difficult to resolve, and representative of the type of problem a college student might face.

Procedure

The manipulation of source credibility occurred first, and it was
followed by the experimenter giving an overview of what would occur during the experiment. The overview emphasized that the subject's major task was to generate as many high quality solutions as he/she could to a hypothetical personal dilemma, and that certain personal qualities were very predictive of the quality of the solutions a person generated to this type of problem. Subjects were then told that an inventory, developed by the experimenter and her research team from Stanford, provided information regarding the degree to which people possessed the personal qualities needed to perform well on the solution generation task. Subjects recorded their responses to the inventory on a standardized answer sheet that the experimenter then presumably took to the computer room to be analyzed. Before leaving the room for a few minutes, the experimenter gave subjects a written description of the research project to read, which provided the first part of the argument quality manipulation and defined solution quality. After returning to the room, the experimenter performed the manipulations of level of performance expectancy and arguments quality.

Immediately following the expectancy communication, cognitive responses were obtained using the thought-listing procedure developed by Brock (1967) and Greenwald (1968), which asks subjects to list all the thoughts that occurred to them as they read or listened to and reflected upon a message. The specific thought-listing instructions used in this study were a modified version of the instructions described by Cacioppo and Petty (1981). The specific thought-listing read by subjects in this study are described in Appendix Q. Following one of Cacioppo and Petty’s (1981) suggestions for unitizing subjects' cognitive responses
so that they could then be coded and analyzed, subjects were provided
with a response sheet depicting several 1-inch by 6-inch rectangular
boxes in which subjects were asked to record their thoughts, one thought
per box. Appendix R depicts the response sheet that subjects used for
recording their thoughts.

This was followed by the administration of the message agreement,
affect, self-expectancy, motivation level and effort intentions scales.
(See Appendices H through L).

Lastly, subjects were given as much time as they needed to generate
solutions to the interpersonal problem depicted in Appendix P. Upon
completion of the task, subjects completed the perception of effort
(Appendix M) and the task perception (Appendix N) scales. Subjects were
then debriefed and thanked for their participation.
RESULTS

Overview

This chapter consists of three major sets of analyses. In the first section the formation of the scales used to represent each of the dependent measures are discussed. Following this section is a presentation of the results for the first set of hypotheses, which examine the direct effects of sent performance expectancy and argument quality on each of the dependent variables. In the final section, evidence for each of the mediational hypotheses are examined.

Formation of Dependent Variable Composites

The goal of the first set of analyses was to produce unidimensional scales to form internally consistent composite measures of the dependent variables. The steps involved in forming the composites are described below. Following this discussion, the results for the composite analyses are presented. Principle axis factor analysis was performed on the original items for each variable. Following the recommendation of Gorsuch (1983), the screen test was the primary criterion used to determine the number of factors to extract. Also examined were the eigen values and the proportion of common variance accounted for by each factor. Following factor extraction, promax rotation of the scales yielding more than one factor was performed, since there was no a priori evidence that the resulting factors would be orthogonal. The promax rotation method is highly recommended by statisticians (e.g., Gorsuch,
1983; Stevens, 1986), because it yields highly interpretable solutions, and it generates the correlations among the factors, which dictate whether an orthogonal or an oblique rotation is more appropriate. After obtaining interpretable factors, final communality estimates and corrected item-total correlations were examined to determine if the deletion of any item would improve the internal reliability (coefficient alpha) of the scale.

The scales measuring agreement with the expectancy communication, motivation level, intentions to exert effort and perceptions of effort exerted each yielded one-factor solutions with no items deleted. The factor pattern loadings and the final communality estimates for these scales are presented in Table 1.

The affect scale also produced a one-factor solution, but consideration of the final communality estimates, the corrected-item correlations and the content, three items were deleted. The remaining four items were similar to a dejection factor reported by Van Hook and Higgins (1988). Hence, these items were combined to form an upbeat/dejection scale, and the remaining three items were deleted.

As expected the four task perceptions items yielded an unambiguous two-factor solution, with two items forming the perception of task clarity scale and the other two items representing the perception of task difficulty scale. The factor analysis results for these scales are presented in Table 2.

Lastly, factor analysis of the level of self-expectancy items yielded a five-factor solution, according to the screen test and considerations of interpretability (see Table 3). A three-factor
Table 1

Factor Pattern Loadings and Final Communality Estimates for Original Scales Yielding One-Factor Solutions

<table>
<thead>
<tr>
<th>Scales</th>
<th>N</th>
<th>Factor pattern loadings</th>
<th>Final communality estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreement with expectancy communication</td>
<td>87</td>
<td>.86</td>
<td>.74</td>
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<tr>
<td>Agreement with expectancy</td>
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<td>.83</td>
<td>.68</td>
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<tr>
<td>Agreement with arguments</td>
<td></td>
<td>.85</td>
<td>.73</td>
</tr>
<tr>
<td>Overall agreement with total message</td>
<td></td>
<td>.85</td>
<td>.73</td>
</tr>
<tr>
<td>Level of Motivation</td>
<td>87</td>
<td>.84</td>
<td>.72</td>
</tr>
<tr>
<td>Want to do well on task</td>
<td></td>
<td>.85</td>
<td>.72</td>
</tr>
<tr>
<td>Important to do well on task</td>
<td></td>
<td>.86</td>
<td>.74</td>
</tr>
<tr>
<td>Motivation to try to achieve high performance</td>
<td></td>
<td>.86</td>
<td>.74</td>
</tr>
<tr>
<td>Intentions to Exert Effort</td>
<td>87</td>
<td>.89</td>
<td>.81</td>
</tr>
<tr>
<td>Intentions to think hard when performing task</td>
<td></td>
<td>.89</td>
<td>.79</td>
</tr>
<tr>
<td>Intentions to spend time needed to perform well</td>
<td></td>
<td>.89</td>
<td>.79</td>
</tr>
<tr>
<td>Intention to experiment with different strategies to perform well</td>
<td></td>
<td>.85</td>
<td>.79</td>
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<tr>
<td>Overall intention to exert a high degree* of effort</td>
<td></td>
<td>.92</td>
<td>.85</td>
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<tr>
<td>Perceptions of Effort Exerted</td>
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<td>.48</td>
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<tr>
<td>Overall perception of effort</td>
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<td>.86</td>
<td>.74</td>
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<td>Perception of cognitive effort</td>
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<td>.74</td>
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<td>Perception of time spent</td>
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<tr>
<td>Perception of degree of experimentation pursued</td>
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<td>Affect Polarity</td>
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<tr>
<td>Sad-happy</td>
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<tr>
<td>Angry-calm*</td>
<td></td>
<td>.56</td>
<td>.32</td>
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<tr>
<td>Tired-energetic*</td>
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<td>.32</td>
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<tr>
<td>Depressed-upbeat</td>
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<td>.80</td>
<td>.64</td>
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<tr>
<td>Unsure-confident</td>
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<td>.54</td>
<td>.39</td>
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<tr>
<td>Displeased-pleased</td>
<td></td>
<td>.65</td>
<td>.73</td>
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<tr>
<td>Disappointed-delighted</td>
<td></td>
<td>.64</td>
<td>.47</td>
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</tbody>
</table>

Note. All scales accounted for more than 95% of the common variance.

*Items deleted from affect scale due to low final communality estimates and low corrected item-total correlations.
Table 2

Factor Pattern Loadings with Varimax Rotation on Task Perceptions

<table>
<thead>
<tr>
<th>Task perceptions</th>
<th>Factors</th>
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<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>1. Easy-difficult</td>
<td>.76</td>
</tr>
<tr>
<td>2. Simple-complex</td>
<td>.79</td>
</tr>
<tr>
<td>3. Ambiguous-straight forward</td>
<td>.08</td>
</tr>
<tr>
<td>4. Confusing-clear</td>
<td>.27</td>
</tr>
</tbody>
</table>
Table 3
Factor Pattern Loadings with Promax Rotation for Types of Target Self-Expectancies

<table>
<thead>
<tr>
<th>Types of self-expectancy</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
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<tbody>
<tr>
<td>1. Self-efficacy</td>
<td>.17</td>
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<td>.13</td>
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<td>.37</td>
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<td>.19</td>
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<td>5. Relative self-expectancy</td>
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<td>.00</td>
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<td>7. Self-efficacy</td>
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<td>.03</td>
<td>.11</td>
<td>.00</td>
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<td>8. Self-efficacy</td>
<td>.08</td>
<td>.87</td>
<td>.07</td>
<td>.07</td>
<td>.07</td>
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<tr>
<td>9. Self-efficacy</td>
<td>.04</td>
<td>.10</td>
<td>.17</td>
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<td>.01</td>
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<td>10. Effort—performance</td>
<td>.07</td>
<td>.02</td>
<td>.10</td>
<td>.07</td>
<td>.58</td>
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<tr>
<td>11. Relative self-expectancy</td>
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<td>.34</td>
<td>.14</td>
<td>.04</td>
<td>.34</td>
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<td>12. Relative self-expectancy</td>
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<td>.73</td>
<td>.01</td>
<td>.04</td>
<td>.15</td>
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<td>13. Self-efficacy</td>
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<td>.03</td>
<td>.09</td>
<td>.21</td>
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<td>15. Relative self-expectancy</td>
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<td>.16</td>
<td>.04</td>
<td>.15</td>
<td>.03</td>
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<td>16. Relative self-expectancy</td>
<td>.91</td>
<td>.20</td>
<td>.06</td>
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<td>.11</td>
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<tr>
<td>17. Relative self-expectancy</td>
<td>.91</td>
<td>.07</td>
<td>.00</td>
<td>.20</td>
<td>.06</td>
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<tr>
<td>18. Relative self-expectancy</td>
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<td>.04</td>
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<td>.19</td>
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<tr>
<td>19. Relative self-expectancy</td>
<td>.09</td>
<td>.01</td>
<td>.93</td>
<td>.18</td>
<td>.03</td>
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<tr>
<td>20. Relative self-expectancy</td>
<td>.07</td>
<td>.00</td>
<td>.93</td>
<td>.18</td>
<td>.03</td>
</tr>
</tbody>
</table>

Note. The item numbers correspond to the item numbers of self-expectancy scales found in Appendix J. Item 10 is not included here, because it measures instrumentality.

*aSelf-expectancy relative to adults.
*bSelf-expectancy relative to experts.
*cSelf-expectancy relative to college students.
*dItems used to form the preliminary self-expectancies relative to adults and scale.
*eItems used to form the preliminary self-efficacy scale.
*fItems used to form the preliminary self-expectancies relative to experts scale.
*gItems used to measure effort performance expectancies.
solution was expected, with one factor representing self-efficacy items, a second representing self-expectancy beliefs relative to adults and students (similar to others), and a third set measuring self-expectancies relative to experts (dissimilar others). Although these factors were obtained as expected, a task perception factor and an effort → performance factor also were obtained. Once individual items were examined, the task perception factor was not surprising (e.g., this task is challenging). What was unexpected was that the effort → performance belief did not load on the self-efficacy scale as expected, regardless of the number of factors extracted. Although one should not overinterpret the results of this study, the issue of whether self-efficacy and effort → performance beliefs are the same constructs merits further examination, especially since the predominate tendency is to assume they are synonymous (see Bandura, 1986). For purpose of this study, however, the one measure of effort → performance self-expectancy formed one scale, and the three predicted scales were the other three composites formed. The task perception factor was not analyzed further.

To enhance the homogeneity of each of the self-expectancy subscales, the three scales with multiple items were factor analyzed. One item was deleted from the self-efficacy scale, and one item was deleted from the self-expectancy relative to experts scale to improve the internal reliability of each scale. These self-expectancy subscale items and the deleted items are depicted in Table 4. The items forming the composite measures of the strength of self-expectancies corresponded to those items selected to form the level of self-expectancy subscales. For
Table 4

Factor Pattern Loadings and Final Communality Estimates from Factor Analysis of Self-Expectancy Subtests

<table>
<thead>
<tr>
<th>Scales</th>
<th>n</th>
<th>Factor pattern loadings</th>
<th>Final communality estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy</td>
<td>87</td>
<td>.64</td>
<td>.41</td>
</tr>
<tr>
<td>Task within scope of abilities*</td>
<td></td>
<td>.80</td>
<td>.80</td>
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<tr>
<td>Expect to perform very well</td>
<td></td>
<td>.83</td>
<td>.70</td>
</tr>
<tr>
<td>Given personal qualities will perform successfully</td>
<td></td>
<td>.79</td>
<td>.63</td>
</tr>
<tr>
<td>Given past accomplishments will perform successfully</td>
<td></td>
<td>.77</td>
<td>.59</td>
</tr>
<tr>
<td>Overall will perform successfully</td>
<td></td>
<td>.77</td>
<td>.59</td>
</tr>
<tr>
<td>Self-expectancy relative to adults and students</td>
<td>86</td>
<td>.77</td>
<td>.59</td>
</tr>
<tr>
<td>Better/worse performance relative to adults</td>
<td></td>
<td>.75</td>
<td>.56</td>
</tr>
<tr>
<td>Better/worse performance relative to students</td>
<td></td>
<td>.89</td>
<td>.79</td>
</tr>
<tr>
<td>Better solutions relative to ___% adults</td>
<td></td>
<td>.81</td>
<td>.86</td>
</tr>
<tr>
<td>More high quality solutions relative to ___% adults</td>
<td></td>
<td>.89</td>
<td>.79</td>
</tr>
<tr>
<td>Self-expectancy relative to experts</td>
<td>86</td>
<td>.41</td>
<td>.17</td>
</tr>
<tr>
<td>Better solutions than experts*</td>
<td></td>
<td>.78</td>
<td>.62</td>
</tr>
<tr>
<td>More high quality solutions relative to ___% experts</td>
<td></td>
<td>.78</td>
<td>.61</td>
</tr>
</tbody>
</table>

*Item deleted from self-efficacy scale due to low final communality estimates and low corrected item-total correlations.

*Item deleted from self-expectancy relative to experts scale due to low final communality estimates and low corrected item-total correlations.
example, the strength of self-expectancy assessments that accompanied the four items included in the level of self-efficacy scale formed the strength of self-efficacy scale.

The coefficient alpha reliability for each scale and corresponding descriptive statistics are presented in Table 5. Note that all scales have reliabilities of at least .83 and several are above .90. Nunnally (1978) states that coefficient alpha reliabilities above .80 are more than adequate for basic research purposes and that very little attenuation occurs at this level.

Further examination of Table 5 reveals that the observed ranges of responses for most variables were quite broad. Also noteworthy are the overall means. First, across all subjects, there was a slight tendency for subjects to disagree overall with the expectancy communication. Second, responses to the self-efficacy and the effort $\rightarrow$ performance expectancies tended to be high, whereas the relative self-expectancy scales tended to be lower. The mean response to the task perception scales indicated that overall subjects found the task moderately difficult and moderately clear. Lastly, it should be noted that one subject failed to respond at all to the self-expectancy items yielding a sample size of 86 for the level and strength of the two scales measuring self-expectancies relative to others.

Results for Level of Sent Expectancy and Argument Quality on Target Responses, Effort, and Performance

Univariate analyses of variance were performed on each of the dependent variables to determine which target responses were affected by the level of performance expected and the quality of the arguments
Table 5
Descriptive Statistics for All Target Response Scales

<table>
<thead>
<tr>
<th>Scales</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Potential range</th>
<th>Coefficient range</th>
<th>Coefficient alpha</th>
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</thead>
<tbody>
<tr>
<td>Agreement with expectancy—communication</td>
<td>87</td>
<td>4.51</td>
<td>1.75</td>
<td>0-10</td>
<td>0-700</td>
<td>.90</td>
</tr>
<tr>
<td>Affect polarity</td>
<td>87</td>
<td>5.84</td>
<td>1.25</td>
<td>1-6</td>
<td>2-8</td>
<td>.85</td>
</tr>
<tr>
<td>Level of self-efficacy</td>
<td>87</td>
<td>6.91</td>
<td>1.35</td>
<td>1-9</td>
<td>2-8</td>
<td>.87</td>
</tr>
<tr>
<td>Strength of self-efficacy</td>
<td>87</td>
<td>82.34</td>
<td>13.33</td>
<td>0-100</td>
<td>45-100</td>
<td>.85</td>
</tr>
<tr>
<td>Level of effort—&gt;performance self-expectancy</td>
<td>87</td>
<td>7.54</td>
<td>1.64</td>
<td>1-9</td>
<td>2-9</td>
<td>—</td>
</tr>
<tr>
<td>Strength of effort—&gt;performance self-expectancy</td>
<td>87</td>
<td>89.93</td>
<td>12.62</td>
<td>0-100</td>
<td>50-100</td>
<td>—</td>
</tr>
<tr>
<td>Level of self-expectancy relative to adults and students</td>
<td>86</td>
<td>43.00</td>
<td>12.28</td>
<td>2-107</td>
<td>10-67</td>
<td>.85</td>
</tr>
<tr>
<td>Strength of self-expectancy relative to experts and students</td>
<td>86</td>
<td>78.45</td>
<td>20.32</td>
<td>0-100</td>
<td>20-76</td>
<td>.83</td>
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<tr>
<td>Level of self-expectancy relative to experts</td>
<td>86</td>
<td>24.32</td>
<td>21.97</td>
<td>0-100</td>
<td>0-90</td>
<td>.97</td>
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<tr>
<td>Strength of self-expectancy relative to experts</td>
<td>86</td>
<td>67.98</td>
<td>26.77</td>
<td>0-100</td>
<td>0-100</td>
<td>.96</td>
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<td>Level of motivation</td>
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<td>7.56</td>
<td>1.89</td>
<td>0-10</td>
<td>1-10</td>
<td>.90</td>
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<tr>
<td>Level of Intentions to exert effort</td>
<td>87</td>
<td>7.99</td>
<td>1.39</td>
<td>0-10</td>
<td>4-10</td>
<td>.94</td>
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<tr>
<td>Perceptions of effort</td>
<td>87</td>
<td>6.67</td>
<td>1.56</td>
<td>0-10</td>
<td>2-10</td>
<td>.85</td>
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<tr>
<td>Perceptions of task difficulty*</td>
<td>87</td>
<td>4.24</td>
<td>1.62</td>
<td>1-8</td>
<td>2-7</td>
<td>.96</td>
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<tr>
<td>Perceptions of task clarity*</td>
<td>87</td>
<td>3.41</td>
<td>1.62</td>
<td>1-8</td>
<td>1-8</td>
<td>.90</td>
</tr>
</tbody>
</table>

*The higher the value, the easier the task was perceived.

The higher the value, the clearer the task was perceived.
supporting the expectancy. Recall that a major premise of this study is that we can better predict when performance confirmation effects are more likely to occur if we study this phenomenon from the target's perspective. Because so little information exists regarding how targets respond to sent expectancies, beyond how much their learning performance improves or decreases, multiple target responses were examined here.

These are important issues when one evaluates the appropriateness of multiple univariate tests. A continuing debate among psychometricians is when multiple univariate analyses are appropriate versus multivariate techniques. While some researchers argue, for example, that multivariate analysis of variables should always be used when there are multiple dependent variables, others believe it should rarely be used due to the ultra-conservative nature of the test.

Huberty and Morris (1989) have recently addressed this issue and have taken the moderate position that the use of either type of analysis strategy should depend on the purpose of the research. Two major criteria for determining whether multiple univariate tests are appropriate, according to Huberty and Morris (1989), is if the research is exploratory and if examining the separate effects of the independent variables on each dependent variable is conceptually important or informative.

They claim that multivariate analysis of variance is appropriate for situations in which it is theoretically meaningful to examine the effect of some treatment(s) on a group of conceptually related variables. Stevens (1986) reiterated this point, stating that empirical criteria, such as the correlations among a group of variables should not be the
basis for doing multivariate analysis of variance. Huberty and Morris (1988) noted that performing separate univariate analyses on variables that are intercorrelated will at worse yield results that are rather redundant.

Given that multiple measures of some dependent variables were taken in this study, particularly the various measures of subjects cognitive responses, there is some redundancy among the results of the univariate analyses that follow. However, since no one has previous examined the effect of sent expectancies on target cognitive responses and other dependent variables of this study, it was decided that multiple univariate analyses on various composites of the dependent variables would be conducted.

Results for cognitive and affective responses and target agreement with the expectancy. The first set of analyses were conducted to test the predictions that level of sent performance expectancy and argument quality would influence the focus and polarity of cognitive responses, the polarity of affective responses and target agreement with the sent expectancy. The correlations among these variables are presented in Table 6. As expected, many of the cognitive response measures were highly correlated.

Hypotheses 1a through 1g stated that level of sent expectancy would have an impact on the focus and polarity of the cognitive responses elicited, with high expectancy subjects predicted to list more positively polarized message and peripheral thoughts and average expectancy subjects predicted to generate more message and peripheral thoughts with negative polarities. An examination of the results
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<td>3. Proportion of positive</td>
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<td>.33**</td>
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<tr>
<td>4. Proportion of negative</td>
<td>-.84***</td>
<td>-.25*</td>
<td>-.48***</td>
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<tr>
<td>5. Proportion of neutral</td>
<td>.11</td>
<td>.01</td>
<td>-.24*</td>
<td>-.41***</td>
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<tr>
<td>6. Proportion of neutral</td>
<td>.13</td>
<td>.16</td>
<td>-.11</td>
<td>-.38***</td>
<td>.71***</td>
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<td>message thoughts</td>
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<tr>
<td>7. Proportion of positive</td>
<td>.81***</td>
<td>.20</td>
<td>.95***</td>
<td>-.46***</td>
<td>-.25*</td>
<td>-.12</td>
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<tr>
<td>8. Proportion of positive</td>
<td>.09</td>
<td>.51***</td>
<td>.27*</td>
<td>-.09</td>
<td>.00</td>
<td>.02</td>
<td>.02</td>
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<tr>
<td>peripheral thoughts</td>
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<tr>
<td>9. Proportion of negative</td>
<td>-.83***</td>
<td>-.07</td>
<td>-.37***</td>
<td>.91***</td>
<td>-.41***</td>
<td>-.33***</td>
<td>-.35***</td>
<td>-.12</td>
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<td>message thoughts</td>
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</tr>
<tr>
<td>10. Proportion of neutral</td>
<td>.05</td>
<td>.05</td>
<td>-.14</td>
<td>-.21*</td>
<td>.52***</td>
<td>.29**</td>
<td>-.13</td>
<td>-.04</td>
<td>-.20</td>
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<tr>
<td>11. Proportion of negative</td>
<td>-.03</td>
<td>-.83</td>
<td>-.21</td>
<td>.23*</td>
<td>.00</td>
<td>-.09</td>
<td>-.23</td>
<td>.06</td>
<td>-.16</td>
<td>-.02</td>
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</tr>
<tr>
<td>12. Proportion of difference</td>
<td>.06***</td>
<td>.34**</td>
<td>.06***</td>
<td>-.36***</td>
<td>.11</td>
<td>.16</td>
<td>.82***</td>
<td>.21*</td>
<td>-.75***</td>
<td>.05</td>
<td>-.25*</td>
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<tr>
<td>between positive and</td>
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<tr>
<td>negative thoughts</td>
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<td></td>
</tr>
<tr>
<td>13. Affective responses</td>
<td>.09</td>
<td>.26*</td>
<td>.26*</td>
<td>-.04</td>
<td>-.09</td>
<td>.14</td>
<td>.28**</td>
<td>.03</td>
<td>.11</td>
<td>-.18</td>
<td>-.28**</td>
<td>.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Agreement with expectancy</td>
<td>.52***</td>
<td>.06</td>
<td>.37**</td>
<td>-.43***</td>
<td>.02</td>
<td>.06</td>
<td>.40***</td>
<td>-.05</td>
<td>-.45***</td>
<td>-.03</td>
<td>.04</td>
<td>.47***</td>
<td>.03</td>
<td></td>
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<tr>
<td>communication</td>
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</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001, ****p < .0001.
presented in Table 7 for the main effect of level of sent expectancy on
the various measures of the polarity and focus of cognitive responses
shows that most of the predictions were supported. Support for the
predictions that level of sent expectancy would impact on the proportion
of negative message thoughts and the proportion of positive peripheral
thoughts was not obtained.

Table 8 shows that the mean differences between the high and average
expectancy groups were in the predicted direction. Subjects receiving
high expectancies generated a greater proportion of positive message
thoughts and a greater proportion of thoughts overall. In addition the
predominate polarity of the thoughts emitted by each subject (proportion
of the difference measures), for both message- and peripheral-focused
thoughts, was more positive for subjects in the high expectancy
condition. In contrast, average expectancy subjects generated a greater
proportion of negative peripheral thoughts and a greater proportion of
negative thoughts overall.

No predictions were made for thoughts with neutral polarities.
However, Table 7 shows that level of sent expectancy significantly
affected the proportion of neutral peripheral thoughts generated.
Table 8 indicates that subjects receiving average expectancies listed a
greater proportion of neutral peripheral thoughts.

There was also no main effect predicted for argument quality on
target responses; however, the proportion of negative message thoughts
and the predominate polarity of message thoughts was significantly
affected by the quality of the arguments supporting the expectancy.
Table 7

Analysis of Variance Results for Cognitive and Affective Target Responses and Agreement with Expectancy Communication as a Function of Level of Sent Performance Expectancy and Argument Quality

<table>
<thead>
<tr>
<th>Cognitive and affective responses and agreement with expectancy</th>
<th>Performance expectancy</th>
<th>Argument quality</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E</td>
<td>Prob</td>
<td>E</td>
</tr>
<tr>
<td>Proportion of positive message thoughts</td>
<td>13.33</td>
<td>.0005</td>
<td>--</td>
</tr>
<tr>
<td>Proportion of negative message thoughts</td>
<td>--</td>
<td>ns</td>
<td>8.05</td>
</tr>
<tr>
<td>Proportion of neutral message thoughts</td>
<td>--</td>
<td>ns</td>
<td>--</td>
</tr>
<tr>
<td>Proportion of positive peripheral thoughts</td>
<td>--</td>
<td>ns</td>
<td>--</td>
</tr>
<tr>
<td>Proportion of negative peripheral thoughts</td>
<td>7.24</td>
<td>.009</td>
<td>--</td>
</tr>
<tr>
<td>Proportion of neutral peripheral thoughts</td>
<td>4.67</td>
<td>.03</td>
<td>--</td>
</tr>
<tr>
<td>Proportion of positive thoughts</td>
<td>13.25</td>
<td>.0005</td>
<td>--</td>
</tr>
<tr>
<td>Proportion of negative thoughts</td>
<td>7.06</td>
<td>.009</td>
<td>--</td>
</tr>
<tr>
<td>Proportion of neutral thoughts</td>
<td>2.57</td>
<td>.11</td>
<td>--</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative message thoughts</td>
<td>10.96</td>
<td>.001</td>
<td>7.46</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative peripheral thoughts</td>
<td>7.24</td>
<td>.009</td>
<td>--</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative thoughts</td>
<td>14.85</td>
<td>.0002</td>
<td>7.43</td>
</tr>
<tr>
<td>Affective responses</td>
<td>7.66</td>
<td>.007</td>
<td>4.19</td>
</tr>
<tr>
<td>Agreement with expectancy communication</td>
<td>13.62</td>
<td>.0004</td>
<td>--</td>
</tr>
</tbody>
</table>

Note. N = 87. Non-significant F-values are not reported, and ns refers to a non-significant result.
Table 8
Mean Cognitive and Affective Responses and Agreement with the Expectancy as a Function of the Level of Sent Performance Expectancy

<table>
<thead>
<tr>
<th>Level of sent expectancy</th>
<th>high</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive and affective responses and agreement with expectancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of positive message thoughts</td>
<td>.32</td>
<td>.12</td>
</tr>
<tr>
<td>Proportion of negative peripheral thoughts</td>
<td>.02</td>
<td>.08</td>
</tr>
<tr>
<td>Proportion of positive thoughts</td>
<td>.35</td>
<td>.15</td>
</tr>
<tr>
<td>Proportion of negative thoughts</td>
<td>.20</td>
<td>.36</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative message thoughts</td>
<td>.14</td>
<td>-.14</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative peripheral thoughts</td>
<td>.02</td>
<td>-.06</td>
</tr>
<tr>
<td>Proportion of neutral peripheral thoughts</td>
<td>.01</td>
<td>.05</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative thoughts</td>
<td>.15</td>
<td>-.21</td>
</tr>
<tr>
<td>Affective responses</td>
<td>6.20</td>
<td>5.49</td>
</tr>
<tr>
<td>Agreement with expectancy communication</td>
<td>5.16</td>
<td>3.86</td>
</tr>
</tbody>
</table>

Note. The higher the number, the greater the proportion for the cognitive responses, the greater the positivity of the affective responses and the higher the agreement with the expectancy.

*a n = 43.
*b n = 44.
Table 9 shows that subjects receiving weak arguments generated more negative message thoughts than subjects receiving strong arguments. In addition, the predominate polarity of the message thoughts generated was more negative for subjects hearing weak arguments.

Sent expectancy was predicted to interact with argument quality in affecting the polarity and focus of the cognitive responses generated (prediction 1h through 1m). Three of the six predicted interactions were obtained, but the predicted form of the interactions was obtained for only one of these cognitive response variables. In addition, interactions were found for two additional cognitive response variables for which there were no prior predictions. Each of these interactions are discussed separately below.

Because some interactions were predicted and some were not for the set of cognitive response variables as well as for other dependent measures it was decided that the Duncan posthoc test, a moderately liberal posthoc test, would serve as the best compromise for maximizing power without extensive capitalizing on chance (see Hays, 1981, pp. 431-435). To maintain consistency, the Duncan posthoc test was performed on the four cell means (with an alpha level of .05) for each variable in the study that yielded an interaction. The results of the Duncan posthoc tests for interpreting the interactions obtained for the cognitive response variables are discussed separately below.

Hypothesis 1h predicted that subjects in the high expectancy/strong arguments condition would generate a greater proportion of positive message thoughts than subjects in the other three conditions. An examination of the mean proportion of positive message thoughts for each
Table 9

Mean Cognitive and Affective Responses and Agreement with the Expectancy as a Function of the Quality of the Arguments Given

<table>
<thead>
<tr>
<th>Cognitive and affective responses and agreement with expectancy</th>
<th>Argument quality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>strong(^a)</td>
</tr>
<tr>
<td>Proportion of negative message thoughts</td>
<td>.14</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative message thoughts</td>
<td>.11</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative thoughts</td>
<td>.09</td>
</tr>
<tr>
<td>Affective responses</td>
<td>5.57</td>
</tr>
</tbody>
</table>

*Note.* The higher the number, the greater the proportion for the cognitive responses, the greater the positivity of the affective response and the higher the agreement with the expectancy. The means for only those cognitive and affective responses for which there was a main effect for sent expectancy are presented here.

\(^a\)\(n = 43.\)

\(^b\)\(n = 44.\)
sent expectancy/argument quality condition presented in Table 10. The results of the Duncan posthoc test, denoted by the subscripts for each mean, indicate that the predicted form of the interaction for the proportion of positive message thoughts was supported. This interaction is depicted in Figure 13.

Hypothesis 1i predicted that sent expectancy and argument quality would have an interactive effect on the proportion of negatively polarized thoughts generated, but as Table 7 indicates, only a main effect for argument quality was obtained for this cognitive response variable.

An interaction was obtained for the proportion of positively polarized peripheral thoughts and the predominate polarity of peripheral thoughts. However, the form of these interactions was different than expected. It was hypothesized that subjects receiving weak arguments for high expectancies would generate a greater proportion of positive peripheral thoughts than subjects in the other three conditions (prediction 1j) and that the predominate polarity of peripheral thoughts would be significantly more positive for this condition (prediction 1m). However, the Duncan posthoc test on the cell means (depicted in Table 10) show the proportion of positive peripheral thoughts was significantly higher for subjects receiving strong arguments for high expectancies (see Figure 14). In addition, the predominate polarity of the peripheral thoughts was significantly more positive for subjects in the high expectancy/strong arguments condition compared to the other conditions (see Figure 15).
Table 10

Cell Means for Target Responses as a Function of the Interaction Between Level of Sent Performance Expectancy and Argument Quality

<table>
<thead>
<tr>
<th></th>
<th>High expectancy</th>
<th>Average expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>strong arguments</td>
<td>weak arguments</td>
</tr>
<tr>
<td>Target responses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of positive thoughts</td>
<td>.464&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.247&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Proportion of positive message thoughts</td>
<td>.405&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.229&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Proportion of positive peripheral thoughts</td>
<td>.048&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.017&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative peripheral thoughts</td>
<td>.041&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.009&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Proportion of difference between positive and negative thoughts</td>
<td>-.37&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.07&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Affective responses</td>
<td>6.24&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.16&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Level of effort --&gt; performance self-expectancies</td>
<td>7.67&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>8.09&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Resolving power of solutions</td>
<td>4.11&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.39&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Quantity of resolving solutions</td>
<td>2.38&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.38&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Specificity of solutions</td>
<td>1.92&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>1.87&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note. Means not sharing the same subscripts (a,b) are significantly different from one another according to the Duncan posthoc test. The higher the number, the greater the proportion for the cognitive responses, the greater the positivity of affective responses and the higher the agreement with the expectancy. The means for only those variables that were significantly affected by the interaction of sent expectancy and argument quality are presented here.

<sup>a</sup>n = 21.
<sup>b</sup>n = 22.
<sup>c</sup>n = 23.
<sup>d</sup>n = 21.
Figure 13. Mean Proportion of Positive Message Thoughts as a Function of Level of Sent Expectancy and Argument Quality.
Figure 14. Mean Proportion of Positive Peripheral Thoughts as a Function of Level of Sent Expectancy and Argument Quality.
Figure 15. Mean Proportion of Difference Between Positive and Negative Peripheral Thoughts.
Contrary to predictions 1k and 1l, the proportion of negative peripheral thoughts and the predominate polarity of the message thoughts was not a function of the interaction between sent expectancy and argument quality.

Given that subjects in the high expectancy/strong arguments condition generated a greater proportion of positive message thoughts and a greater proportion of positive peripheral thoughts compared to subjects in the other three conditions, the unpredicted obtained interactions for the proportion of positive thoughts overall and the predominate polarity of thoughts overall is not surprising. Figures 16 and 17 depict these interactions.

In summary, three major patterns emerged. First, the cognitive responses of subjects receiving high performance expectancies tended to be positive, whereas average expectancy subjects tended to generate more negatively polarized responses, particularly negatively polarized peripheral thoughts. Second, subjects receiving weak arguments generated more negative cognitive responses than those hearing strong arguments. Lastly, subjects receiving strong arguments for high expectancies generated more positively polarized thoughts overall, regardless of the focus, compared to the other three conditions.

The affective responses of subjects confirmed predictions 2a and 2b. It was hypothesized that the affective reactions of high expectancy subjects would be more positive than average expectancy subjects. This prediction was supported with high expectancy subjects tending to be more upbeat ($M=6.20$) and subjects receiving average expectancies feeling more dejected ($M=5.48$). An unpredicted result was that those receiving
Figure 16. Mean Proportion of Difference Between Positive and Negative Thoughts as a Function of Level of Sent Performance Expectancy and Argument Quality.
Figure 17. Mean Proportion of Positive Thoughts as a Function of Level of Sent Expectancy and Argument Quality.
weak arguments were more upbeat (M=6.11) than subjects hearing strong arguments (M=5.57). The obtained main effects must be interpreted in light of the obtained interaction between the level of sent expectancy and argument quality. As presented in Table 10 and depicted in Figure 18, the predicted form of the expected interaction was obtained, with subjects in the average expectancy/strong arguments condition reporting a greater degree of dejection than the more upbeat subjects in the other three conditions.

The predicted main effect for agreement with the sent expectancy (prediction 3) was obtained. Subjects who received high performance expectancies reported more agreement with the sent expectancy (M=5.16) than subjects who received average expectancies (M=4.56).

Results for level of self-expectancy, motivation and intentions. Sent expectancy and argument quality were predicted to affect the level of target self-expectancies, motivation level, and intentions to exert effort in the same manner. Hypothesis 4a predicted that subjects sent high expectancies would report higher levels of self-expectancies, motivation and intentions relative to subjects sent average expectancies. This hypothesis was partially supported. Table 11 presents the variables for which a significant main effect or interaction was obtained. No significant results were obtained for level of self-expectancy relative to adults and students or for motivation level. However, significant main effects were obtained for sent expectancy on level of self-efficacy, level of effort to performance self-expectancies, level of self-expectancies relative to
Figure 18. Mean Affective Response as a Function of Level of Sent Expectancy and Argument Quality.
Table 11

Analysis of Results for Level and Strength of Self-Expectancies, and Intentions as a Function of Level of Sent Performance Expectancy and Argument Quality

<table>
<thead>
<tr>
<th>Level and strength of self-expectancies and intentions</th>
<th>Performance expectancy</th>
<th>Argument quality</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of self-efficacy</td>
<td>n</td>
<td>F</td>
<td>Prob</td>
</tr>
<tr>
<td>87</td>
<td>9.99</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td>Level of effort—performance self-expectancy</td>
<td>87</td>
<td>4.15</td>
<td>.04</td>
</tr>
<tr>
<td>Level of self-expectancy relative to experts</td>
<td>86</td>
<td>5.69</td>
<td>.02</td>
</tr>
<tr>
<td>Intentions to exert effort</td>
<td>87</td>
<td>2.36</td>
<td>.07</td>
</tr>
<tr>
<td>Strength of self-efficacy</td>
<td>87</td>
<td>7.30</td>
<td>.008</td>
</tr>
<tr>
<td>Strength of self-expectancy relative to adults</td>
<td>86</td>
<td></td>
<td>ns</td>
</tr>
</tbody>
</table>

Note. Non-significant F-values are not reported, and ns refers to a non-significant result. Only variables of this set for which a significant main effect or interaction are reported here.
experts, and intentions to exert effort. As Table 12 depicts, the mean level of self-expectancies and intentions to exert effort was higher for subjects in the high expectancy condition compared to those in the average expectancy condition. As expected there was no main effect for argument quality on any of these variables.

An interaction was also predicted for this set of variables, with the average expectancy/strong arguments condition predicted to demonstrate lower levels of self-expectancies, motivation and intentions compared to subjects in the other three conditions (prediction 4b). The only variable for which an interaction was obtained was the level of effort to performance self-expectancy measure; however, the form of this interaction was not predicted. As presented in Table 10, subjects receiving weak arguments for average expectancies reported a lower level of effort --> performance self-expectancies compared to subjects hearing weak arguments for high expectancies. In contrast strong arguments did not differentially affect the level of this self-expectancy for average and high expectancy subjects. This interaction is depicted in Figure 19. It is important to note, however, that this effort --> performance measure was based on one scale item, and since it was the only self-expectancy scale for which an interaction was obtained, the stability of this result is questionable.

Overall, level of self-expectancy and intentions to exert effort were affected by the level of sent expectancy, with subjects receiving high expectancies reporting higher levels of self-expectancies and intentions to exert effort.
Table 12

Mean Level and Strength of Self-Expectancies and Intentions as a Function of Level of Sent Expectancy

<table>
<thead>
<tr>
<th>Level of sent expectancy</th>
<th>Potential range</th>
<th>high</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of self-efficacy</td>
<td>1-9</td>
<td>7.33</td>
<td>6.49</td>
</tr>
<tr>
<td>Level of effort→performance self-expectancy</td>
<td>1-9</td>
<td>7.88</td>
<td>7.20</td>
</tr>
<tr>
<td>Level of self-expectancy relative to experts</td>
<td>0-100</td>
<td>29.86</td>
<td>18.94</td>
</tr>
<tr>
<td>Intentions to exert effort</td>
<td>0-10</td>
<td>8.36</td>
<td>7.63</td>
</tr>
<tr>
<td>Strength of self-efficacy</td>
<td>0-100</td>
<td>86.05</td>
<td>78.70</td>
</tr>
</tbody>
</table>

Note. The higher the number, the greater the level of self-expectancy, motivation and intentions. The means for only those variables of this set that were significantly affected by sent expectancy are presented here.

\(^{a}n = 43.\)

\(^{b}n = 44.\)
Figure 19. Mean Level of Effort $\rightarrow$ Performance Self-Expectancies as a Function of Level of Sent Performance Expectancy and Argument Quality.
Results for strength of self-expectancies. It was predicted that sent expectancy and argument quality would exert only an interactive effect on the strength of target self-expectancies, with the subjects in the average expectancy/weak arguments condition and the high expectancy/strong arguments condition being predicted to have stronger self-expectancies than subjects in the other two conditions (prediction 5a). However, subjects did not appear to discriminate very much between their assessments of the level and the strength of their self-expectancies. Table 13 shows that the correlations among the level and strength of self-expectancy measures were correlated, indicating that the higher the level of the self-expectancy, the stronger the self-expectancy was.

It is therefore a little surprising that the results for strength of self-expectancy were dissimilar to those obtained for the level of self-expectancy. Table 11 shows that sent expectancy had a significant main effect on only one of the four strength measures: strength of self-efficacy. As the means indicate in Table 12, subjects receiving high performance expectancies held their self-efficacy beliefs and more strongly than subjects receiving average performance expectancies. Table 11 also shows an unpredicted strength of self-expectancies relative to adults and students was primarily influenced by the quality of the arguments provided. Subjects receiving strong arguments had stronger self-expectancies for this measure (M=83.12) than subjects receiving weak arguments (M=73.68).

Results for effort and performance. The general prediction for the behavioral target responses was that subjects in the average
Table 13

Correlations Among Level and Strength of Self-Expectancies

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Level of Self-efficacy</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Strength of Self-efficacy</td>
<td>.57***</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Level of effort-&gt; performance beliefs</td>
<td>.25*</td>
<td>.10</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Strength of effort-&gt; performance beliefs</td>
<td>.07</td>
<td>.25*</td>
<td>.54****</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Level of self-expectancy relative to adults/students</td>
<td>.49***</td>
<td>.45****</td>
<td>.10</td>
<td>.05</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Strength of self-expectancy relative to adults/students</td>
<td>.25*</td>
<td>.55****</td>
<td>-.04</td>
<td>.12</td>
<td>.51***</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Level of self-expectancy relative to experts</td>
<td>.42***</td>
<td>.39***</td>
<td>.13</td>
<td>.10</td>
<td>.51***</td>
<td>.36***</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>8. Strength of self-expectancy relative to experts</td>
<td>.05</td>
<td>.24*</td>
<td>.09</td>
<td>.25*</td>
<td>.34**</td>
<td>.41****</td>
<td>.17</td>
<td>--</td>
</tr>
</tbody>
</table>

Note. N=86.

*p<.05, **p<.01, ***p<.001
expectancy/weak arguments condition and those in the high expectancy/strong arguments condition would exert the most effort and perform at the highest level relative to subjects in the other two conditions. The predicted interaction for effort, as measured by the amount of time spent (prediction 5b), was not obtained, nor were there any main effects for this variable. Similarly, the predicted interaction of the treatments on perceptions of effort was not obtained; there were no significant effects for this variable.

In addition, there were no effects obtained for the two measures of performance quantity (quantity of ideas and quantity of solutions), and thus prediction 5c was not supported.

The predicted lack of significance for perceptions of task difficulty and clarity, was supported. All targets tended to perceive the task similarly, as predicted by hypotheses 6a and 6b.

Perhaps the most significant set of results of this study were the interactions obtained for the quality of performance measures (see Table 14). As stated in prediction 5d, the quality of the solutions generated were predicted to be a function of both sent expectancy and argument quality, with the highest quality performance predicted for subjects in the average expectancy/weak arguments condition and the high expectancy/strong arguments condition.

The two measures of resolving power, namely the average resolving power of the set of solutions and the quantity of resolving solutions, yielded identical results. This is not surprising given that the two measures are conceptually related and were significantly correlated with
Table 14

Analysis of Variance Results for Quality of Solutions Generated as a Function of Level of Sent Expectancy and Argument Quality

<table>
<thead>
<tr>
<th>Solution quality measures</th>
<th>Performance expectancy</th>
<th>Argument quality</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Prob</td>
<td>F</td>
</tr>
<tr>
<td>Average resolving power</td>
<td>-- ns</td>
<td></td>
<td>-- ns</td>
</tr>
<tr>
<td>Average Quantity of resolving solutions</td>
<td>-- ns</td>
<td></td>
<td>-- ns</td>
</tr>
<tr>
<td>Average specificity</td>
<td>-- ns</td>
<td></td>
<td>5.88</td>
</tr>
</tbody>
</table>

Note. N=87. Non-significant F-values are not reported, and ns refers to a nonsignificant result.
one another (see Table 15). Figures 20 and 21 show that the form of the interaction was as predicted, with subjects in the high expectancy/strong arguments condition and those in the average expectancy/weak arguments condition generating more resolving (high quality) solutions and sets of solutions with higher average resolving power than subjects in the average expectancy/strong arguments condition and those in the high expectancy/weak arguments condition. The means for each condition are presented in Table 10.

The form of the interaction obtained for the average specificity of the solution set was as predicted for three of the four conditions. Consistent with the prediction and depicted in Figure 22, subjects in the average expectancy/weak arguments condition generated solutions with a high level of specificity, whereas subjects in the average expectancy/strong arguments condition generated solutions with a low level of specificity. The high expectancy/weak arguments condition yielded solutions with higher specificity than expected, resulting in there being no significant differential effect of argument quality on solution specificity for subjects in the high expectancy condition. In addition, an unexpected main effect for argument quality on solution specificity was obtained. Subjects in this weak arguments condition generated solutions with higher specificity (M=2.01) than subjects in the strong arguments condition (M=1.79), with 1 representing the lowest specificity and 3 representing the highest specificity.

In summary, effort and performance quantity were not affected by the level of sent expectancy and argument quality, whereas the quality of the performance observed was primarily a function of the interaction of
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quality of solutions</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Quantity of ideas</td>
<td>.70***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Average specificity</td>
<td>-.21</td>
<td>.12</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Average resolving power</td>
<td>-.21**</td>
<td>-.04</td>
<td>.37***</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Average quantity of resolving solutions</td>
<td>.29</td>
<td>.32**</td>
<td>.19</td>
<td>.69***</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Time spent</td>
<td>.20</td>
<td>.51***</td>
<td>.34**</td>
<td>.02</td>
<td>.08</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Perceptions of effort</td>
<td>.02</td>
<td>.01</td>
<td>.09</td>
<td>.22*</td>
<td>.14</td>
<td>.27#</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Intentions to exert effort</td>
<td>-.06</td>
<td>-.05</td>
<td>-.02</td>
<td>.22*</td>
<td>.15</td>
<td>.21*</td>
<td>.62***</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Motivation level</td>
<td>-.06</td>
<td>-.04</td>
<td>-.08</td>
<td>.15</td>
<td>.12</td>
<td>.13</td>
<td>.41**</td>
<td>.73***</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Perceptions of task clarity</td>
<td>-.08</td>
<td>.12</td>
<td>-.03</td>
<td>-.04</td>
<td>.12</td>
<td>-.17</td>
<td>-.27**</td>
<td>-.20</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Perceptions of task difficulty</td>
<td>-.29**</td>
<td>-.06</td>
<td>.17</td>
<td>.19</td>
<td>.08</td>
<td>.12</td>
<td>.27**</td>
<td>.13</td>
<td>.11</td>
<td>.33**</td>
<td>--</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001.
Figure 20. Mean Quantity of Resolving Solutions as a Function of Level of Sent Expectancy and Argument Quality.
Figure 21. Mean Resolving Power for the Set of Solutions Generated as a Function of Level of Sent Expectancy and Argument Quality.
Figure 22. Mean Specificity of Solution Set of Function of level of Sent Expectancy and Argument Quality.
sent expectancy and argument quality. Moreover, the high performing conditions across all quality measures were the average expectancy/weak arguments condition and the high expectancy/strong arguments condition.

Results from the multivariate analysis of variance. Multivariate analysis of variance (MANOVA) tests were performed on sets of dependent variables to determine the overall effect of sent expectancy and argument quality on conceptually related target responses. Huberty and Morris (1988) point out that by accounting for the correlations among the variables in a set, MANOVA tests can potentially reveal significant effects for a set of variables that are not apparent from the separate univariate tests on those same variables.

The sets of variables formed were based on theoretical considerations rather than empirical ones, but the formation of sets using a conceptual similarity criterion tended to produce sets of variables that were also intercorrelated. (See also Kirk, 1971, and Stevens, 1986, for discussions of ways for determining how variables can be grouped for analysis). Cognitive and affective responses formed one set, since these variables were hypothesized to mediate the effect of sent expectancy and argument quality on target agreement with the expectancy. The two cognitive measures included were the predominate polarity of the peripheral thoughts and the predominate polarity of message thoughts. These two measures succinctly represented the overall pattern of the polarity and focus of the cognitive responses generated, and prior research indicated these variables to be critical indicators of target thoughts. The level of sent expectancy measures were combined to form the second set, and the strength of sent expectancy measures
formed the third set. Level and strength of self-expectancies were put in separate sets, because prior research indicated that they would be differentially affected by sent expectancies and would impact on behavior differently. Motivation and intentions to exert effort formed the fourth sent, due to their similar emphasis on future effort. Lastly, the two quantity of performance measures (quantity of ideas and solutions) were included in the fifth set, and the three quality measures (the two resolving power measures and the specificity measure) formed the final set.

Table 16 presents the result of the MANOVA tests performed on all sets of target responses except the performance quantity set, for which no significant effects were obtained. Using a 10% error rate for assessing the significance of MANOVA's that is recommended by psychometricians (e.g., Gorsuch, 1983; Stevens, 1986; Huberty & Morris, 1988), it can be seen from Table 16 that the level of sent performance expectancy had a main multivariate effect on all target responses except for the quality of performance set. In addition, the set of cognitive and affective responses and the quality of performance measures were significantly affected by the quality of the arguments provided and by the interaction of sent expectancy and argument quality. There was also some evidence for an interactive effect of independent variables on the level of self-expectancies.

To conclude, the predictions for the effect of sent expectancy on target responses were largely supported. Compared to targets receiving average expectancies, targets receiving high performance expectancies had more positive affective and cognitive responses to the expectancy
Table 16

Multivariate Analyses of Target Responses

<table>
<thead>
<tr>
<th>Target responses</th>
<th>n</th>
<th>Wilk's Exact F</th>
<th>Prob F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive and Affective Responses</td>
<td>87</td>
<td>F(3,81)=6.20</td>
<td>.0003</td>
</tr>
<tr>
<td>Sent expectancy</td>
<td></td>
<td>F(3,81)=3.60</td>
<td>.01</td>
</tr>
<tr>
<td>Argument quality</td>
<td></td>
<td>F(3,81)=3.42</td>
<td>.028</td>
</tr>
<tr>
<td>Interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Self-Expectancy</td>
<td>86</td>
<td>F(4,79)=3.22</td>
<td>.02</td>
</tr>
<tr>
<td>Sent expectancy</td>
<td></td>
<td>F(4.79)=0.46</td>
<td>ns</td>
</tr>
<tr>
<td>Argument quality</td>
<td></td>
<td>F(4.79)=1.85</td>
<td>.12</td>
</tr>
<tr>
<td>Interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strength of Self-Expectancy</td>
<td>87</td>
<td>F(4,80)=2.03</td>
<td>.09</td>
</tr>
<tr>
<td>Sent expectancy</td>
<td></td>
<td>F(4,80)=1.53</td>
<td>ns</td>
</tr>
<tr>
<td>Argument quality</td>
<td></td>
<td>F(4,80)=0.44</td>
<td>ns</td>
</tr>
<tr>
<td>Interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation and Intentions</td>
<td>87</td>
<td>F(2,82)=3.65</td>
<td>.07</td>
</tr>
<tr>
<td>Sent expectancy</td>
<td></td>
<td>F(2,82)=0.63</td>
<td>ns</td>
</tr>
<tr>
<td>Argument quality</td>
<td></td>
<td>F(1,17)=1.17</td>
<td>ns</td>
</tr>
<tr>
<td>Interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of Solutions</td>
<td>87</td>
<td>F(3,81)=1.05</td>
<td>ns</td>
</tr>
<tr>
<td>Sent expectancy</td>
<td></td>
<td>F(3,81)=3.49</td>
<td>.02</td>
</tr>
<tr>
<td>Argument quality</td>
<td></td>
<td>F(3,81)=4.79</td>
<td>.004</td>
</tr>
<tr>
<td>Interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. ns refers to non-significant.
communication, expressed more agreement with the sent expectancy, reported higher levels and strengths of self-expectancies, and were more likely to intend to exert effort on the task. The polarity of cognitive and affective responses and the quality of the solutions generated were affected by the quality of the arguments provided and by the interaction of sent expectancy and argument quality. The high expectancy/strong arguments condition tended to produce cognitive responses that were significantly more positive than those produced in the other three conditions. Subjects in the average expectancy/strong arguments condition indicated more dejection on the affect scale compared to the other conditions. Finally, the quality of the solutions produced tended to be highest in the high expectancy/strong arguments condition and the average expectancy/weak arguments condition. Results for the mediator predictions are presented in the next section.

Results for the Mediator Predictions

The results for three major sets of mediational predictions are presented in this section. The first set of results tested the predictions for the mediators of sent expectancy and argument quality on the target agreement with the expectancy. The second set of results examined the mediators for level and strength of self-expectancy. Lastly, the mediators of sent expectancy and argument quality on target performance was examined.

Hierarchical regression analyses were employed to evaluate the mediational predictions (Cohen & Cohen, 1983). Covariance structure modeling analyses were inappropriate for this type of study for two reasons. First, this type of analysis is a confirmatory technique that
is best utilized in situations where there has been a great deal of prior theorizing and empirical attention granted to provide the basis for specifying causal paths. This study is exploratory, because so few studies have bothered to examine any mediators of the effect of sent expectancy on target responses and behaviors. Those that have explored the mediators (e.g., Eden & Ravid, 1982) for this effect have focused on the behavior of the expectancy sender and the self-expectancies of the target. The second reason for not using covariance structure modeling is that this study lacks the sample size to be needed to perform these analyses.

In using regression analyses to test mediational hypotheses, Judd and Kenny (1981) listed three requirements for mediational interpretations to be appropriate. First, the independent variable(s) must affect the outcome. Second, the independent variable(s) must affect the proposed mediator, and the mediator must have an effect on the outcome when the independent variables are controlled. Third, to claim full mediation the treatment should exert no significant effect upon the outcome when the mediating variable is controlled. If the first two requirements are satisfied but not the third, then partial mediation of the treatment is demonstrated.

The steps suggested by Judd and Kenny (1981) for testing mediational hypotheses were followed in this study. Thus, only the mediators for significant treatment-outcome relationships were examined.

**Results of the mediational analyses for predicting target agreement.**

Two types of cognitive responses as well as affective responses were predicted to mediate the obtained main effect of sent expectancy on
agreement with the expectancy. The cognitive response measure predicted to mediate this effect were the proportion of the predominate message thoughts generated (prediction 7b) and the proportion of predominate peripheral thoughts generated (prediction 7c).

Previous analyses have shown that the first step in demonstrating mediation, namely, that there is a significant relationship between a treatment and an outcome, has been met. The first analysis depicted in Table 17 reports this result in regression terminology and shows the unique proportion of variance in target agreement accounted for by level of sent expectancy. One part of the second step in demonstrating mediation was also met, since sent expectancy had a significant impact on the two proposed cognitive response mediators and on the affective responses (treatment affects first mediator). The effect of the proposed mediators on the outcome, the other part of the second step in showing mediation, are depicted in analyses 2 through 7 of Table 17. Table 17 shows that the predominate polarity of peripheral thoughts generated as well as the predominate polarity of message thoughts generated each added to the prediction for target agreement whereas target affective responses did not. Hence, the last part of step two in showing mediation was demonstrated for the two cognitive response measures. In addition, Table 17 reveals that each cognitive response measure made a significant contribution to the prediction of target agreement independent of the other two predicted mediators combined (analyses 5 and 6), with the predominate polarity of message thoughts contributing the largest independent increment in variance (analysis 5).
Table 17

Incremental Predictive Utility of Target Response for Prediction of Agreement with the Sent Expectancy

<table>
<thead>
<tr>
<th>Analysis predictors</th>
<th>Agreement with expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R²</td>
</tr>
<tr>
<td>1. [Argument quality (AQ), Sent performance expectancy*Expectancy argument quality]</td>
<td>.007</td>
</tr>
<tr>
<td>(PE*AQ) + Sent performance</td>
<td>.147</td>
</tr>
<tr>
<td>2. (PE, AQ, PE*AQ) + Predominate polarity of message thoughts (MG)</td>
<td>.147</td>
</tr>
<tr>
<td></td>
<td>.324</td>
</tr>
<tr>
<td>3. (PE, AQ, PE*AQ) + Predominate polarity of peripheral thoughts (PH)</td>
<td>.147</td>
</tr>
<tr>
<td></td>
<td>.184</td>
</tr>
<tr>
<td>4. (PE, AQ, PE*AQ) + Affective responses (AR)</td>
<td>.147</td>
</tr>
<tr>
<td></td>
<td>.156</td>
</tr>
<tr>
<td>5. PE, AQ, PE*AQ, PH, AR</td>
<td>.188</td>
</tr>
<tr>
<td>+ MG</td>
<td>.362</td>
</tr>
<tr>
<td>6. (PE, AQ, PE*AQ, MG, AR)</td>
<td>.336</td>
</tr>
<tr>
<td>+ PH</td>
<td>.362</td>
</tr>
<tr>
<td>7. (PE, AQ, PE*AQ, PH, MG)</td>
<td>.355</td>
</tr>
<tr>
<td></td>
<td>.362</td>
</tr>
</tbody>
</table>

Note. SR² coefficients are squared semipartial multiple correlations of variables with agreement with the expectancy.

*p < .08.  **p < .06.  ***p < .001.  ****p < .0001.
These cognitive responses variables, however, did not fully mediate the impact of level of sent expectancy on target agreement, because the third step in testing for full mediation indicated that the effect of sent expectancy on agreement was still significant after controlling for the mediators ($SR^2 = .039, p < .05$).

These results indicate that level of sent expectancy exerted a direct effect on target agreement and that the predominate polarity of message and peripheral thoughts partially mediated the effect. Figure 23 depicts these relationships.

To summarize, the predicted mediation of the sent expectancy-agreement effect by affective responses (prediction 7a) was not supported. However there was some support for the prediction that the predominate polarity of message thoughts and the predominate polarity of peripheral thoughts were mediators of this effect (prediction 7b and 7c), but these variables only partially mediated the effect of sent expectancy on target agreement with the message.

Results of the mediational analyses for predicting level and strength of self-expectancy. The second set of mediator predictions examined mediators of the obtained main effect of sent expectancy on the level and strength of self-expectancies. Only mediators of the level and strength measures for which significant effects were obtained were examined. Also examined were the mediators of the obtained interaction of sent expectancy and argument quality on the level of effort to performance self expectancy. Hence, the reader should note that, step one in showing mediation has been demonstrated. Table 18 shows the effect of sent expectancy on the three measures of self-expectancy that
Figure 23. Standardized Regression Weights and Significance Levels for Variables Predicting Target Agreement with the Sent Expectancy.
Table 18
Incremental Predictive Utility of Target Cognitive and Affective Responses and Agreement with the Sent Expectancy for Prediction of Levels of Sent Expectancy

<table>
<thead>
<tr>
<th>Analysis predictors</th>
<th>Level of self-efficacy</th>
<th>Level of effort—&gt;performance self-expectancies</th>
<th>Level of self-expectancies relative to experts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$SR^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. [Argument quality (AQ), Sent performance expectancy (PE)] + PE*AQ</td>
<td>.122</td>
<td>.050</td>
<td>.063</td>
</tr>
<tr>
<td>PE*AQ</td>
<td>.124</td>
<td>.002</td>
<td>.093</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2. (AQ, PE*AQ) + PE</td>
<td>.027</td>
<td>.043</td>
<td>.007</td>
</tr>
<tr>
<td></td>
<td>.124</td>
<td>.097****</td>
<td>.070</td>
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<tr>
<td>3. (PE, AQ, PE*AQ) + Predominate polarity of message thoughts (MG)</td>
<td>.124</td>
<td>.093</td>
<td>.070</td>
</tr>
<tr>
<td>Predominate polarity of peripheral thoughts (PH)</td>
<td>.129</td>
<td>.005</td>
<td>.099</td>
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<tr>
<td>4. (PE, AQ, PE*AQ) + Predominate polarity of peripheral thoughts (PH)</td>
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<td>.093</td>
<td>.070</td>
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<tr>
<td>Predominate polarity of peripheral thoughts (PH)</td>
<td>.125</td>
<td>.001</td>
<td>.096</td>
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<tr>
<td>5. (PE, AQ, PE*AQ) + Affective responses (AR)</td>
<td>.124</td>
<td>.093</td>
<td>.070</td>
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<tr>
<td>Predominate polarity of peripheral thoughts (PH)</td>
<td>.182</td>
<td>.058***</td>
<td>.102</td>
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<tr>
<td>6. (PE, AQ, PE*AQ, MG, PH, AR) + MG</td>
<td>.184</td>
<td>.107</td>
<td>.070</td>
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<tr>
<td>Predominate polarity of peripheral thoughts (PH)</td>
<td>.189</td>
<td>.005</td>
<td>.144</td>
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<tr>
<td>7. (PE, AQ, PE*AQ, MG, AR) + PH</td>
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<td>.137</td>
<td>.099</td>
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<td>Predominate polarity of peripheral thoughts (PH)</td>
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<td>.053***</td>
<td>.144</td>
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<td></td>
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<tr>
<td>9. (PE, AQ, PE*AQ) + Agreement with expectancy</td>
<td>.124</td>
<td>.093</td>
<td>.070</td>
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<tr>
<td>Agreement with expectancy</td>
<td>.125</td>
<td>.001</td>
<td>.095</td>
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<td></td>
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<tr>
<td>10. (PE, AQ, PE*AQ, MG, PH, AR) + Agreement with expectancy</td>
<td>.189</td>
<td>.143</td>
<td>.101</td>
</tr>
<tr>
<td>Agreement with expectancy</td>
<td>.190</td>
<td>.001</td>
<td>.145</td>
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</table>

Note. $SR^2$ coefficients are squared semipartial multiple correlations of variables with level of sent expectancy. Level of self-expectancies relative to adults and students is not presented here, because it was not significantly affected by the treatments.

*p < .05.  **p < .01.  ***p < .001.
were significant and the unique proportion of variance accounted for by the main effect (analysis 2). Analysis one of Table 18 depicts the unique proportion of variance accounted for by the interaction of the treatments on the level of effort --> performance self-expectancies. Mediators of the level of self-expectancy effect will be examined prior to the mediators of the strength of self-expectancy effects.

Predictions 8a through 8c state that sent expectancy and argument quality affect cognitive and affective responses, which in turn exert an effect on the level of self-expectancy through their effect on target agreement with the expectancy. As stated earlier, the effect of sent expectancy on the cognitive and affective responses has already been demonstrated, thus establishing the relationship between the treatment and the first proposed set of mediators. Second, it has also been shown that affective responses do not mediate the impact of sent expectancy on target agreement, and thus prediction 8c was not plausible because the first mediator (affective response) did not significantly impact on the second proposed mediator (target agreement). Predictions 8a and 8b were possible, however, since the two cognitive response measures significantly affected target agreement. The subsequent analyses for these two predictions, which examined the effect of target agreement on level of self-expectancy revealed that target agreement only affected self-expectancy relative to experts (as Table 18 indicates) target agreement accounted for a significant unique proportion of variance in this measure of level of self-expectancy beyond that which was accounted for by the other variables (analysis 10). Only partial mediation of these variables on self-expectancy relative to experts was obtained,
however, since level of sent expectancy continued to significantly impact on relative to expert self-expectancies after all the mediators were entered first (SR$^2 = .038$, $p < .05$).

Not predicted was that affective reactions would mediate the impact of sent expectancy on the level of self-expectancy, without operating first through their influence on target agreement. Results for level of self-efficacy, however, showed that affective reactions made a significant, unique contribution to the prediction of level of self-efficacy (analysis 8). Thus, sent expectancy impacted on affective reactions which in turn affected level of self-efficacy. Partial rather than full mediation was demonstrated, however, because sent expectancy still had a significant direct effect on level of self-efficacy when controlling for the other variables (SR$^2 = .098$, $p < .001$).

Also unexpected was that effort $\rightarrow$ performance self-expectancies appeared to be somewhat mediated by the predominate polarity of the message thoughts. This cognitive response variable only marginally added to the prediction of level of effort $\rightarrow$ performance expectancy beyond that which was predicted by the main effect of sent expectancy and the interaction of the independent variables. Not surprisingly, the level of effort $\rightarrow$ performance was primarily a function of the direct effect of the independent variables, because these effects were still significant, even when controlling for all the variables occurring earlier in the causal chain (SR$^2 = .044$, $p < .05$).

To summarize, results indicated that predictions 8a and 8b were plausible given the data, for only self-expectancies relative to experts, although partial mediation rather than full mediation was
demonstrated. Recognizing the existence of a direct effect, results for self-expectancies relative to experts also suggest that sent expectancies impacted on the cognitive responses of the targets, which in turn affected the extent of target agreement with the expectancy, with target agreement predicting the level of self-expectancy relative to experts. Results for level of self-efficacy suggest both a direct effect of sent expectancy and that sent expectancy impacted on the targets’ affective reactions to the message, which in turn predicted the level of self-efficacy reported. Lastly, results for the level of effort $\rightarrow$ performance self-expectancy appeared to be primarily a function of the direct effect of sent expectancies; however, there was some evidence indicating it was plausible that the effect of sent expectancy on the level of effort $\rightarrow$ performance-beliefs were somewhat mediated by the predominate polarity of the message thoughts elicited by the expectancy communication. These results are depicted in Figure 24.

Part of predictions 8d through 8f was that affective and cognitive responses would mediate the interactive effect of sent expectancy and argument quality on the level of self-expectancy. However, an interaction of the independent variables was obtained for only effort $\rightarrow$ performance self-expectancies. There was some evidence that the predominate polarity of message thoughts mediated the impact of the interactive effect of sent expectancy and argument quality on the level of effort $\rightarrow$ performance self-expectancies. Controlling for the other variables, the predominate polarity of message thoughts accounted for marginal additional variance in level of effort $\rightarrow$ performance beliefs beyond that accounted for by the interaction of the independent
Figure 24. Standardized Regression Weights and Significance Levels for Variables Predicting the Level of Different Types of Self-Expectancies.
variables (analysis 6). Again, however, most of the influence of the interaction of sent expectancy on level of effort \(\rightarrow\) performance self-expectancies was transmitted directly \(\text{SR}^2 = .040, p < .05\).

Predictions 8d through 8f also stated that cognitive and affective reactions would mediate the interactive effect of sent expectancy and argument quality on the strength of self-expectancies. Since there was no interactive effect of the independent variables on strength of self-expectancies, mediator analyses were not pursued. Moreover, cognitive and affective reactions and target agreement did not mediate the obtained main effect of sent expectancy on performance.

Prediction 9c stated that the predominate polarity of the message thoughts elicited and the strength of self-expectancies would mediate the interactive effect of sent expectancy and argument quality on the quality of the solutions generated. Earlier analysis, which showed that strength of self-expectancies were not a function of the interaction between sent expectancy between sent expectancy and argument quality, demonstrated that this predicted chain of events was implausible.

Results of the mediational analyses for predicting the quality of the solutions generated. There were no significant effects obtained for effort (time spent on task) and quantity of performance, and hence predictions 9a and 9b were not plausible. However, there was a significant interactive effect of sent expectancy and argument quality on each of the three measures of quality (average resolving power, quantity of resolving alternatives, and average specificity), and due to the significance obtained for these treatment-outcome relationships (step one in showing mediation), mediational analyses were conducted for
these variables. The mediators for the obtained main effect for argument quality on average specificity were not pursued, however, since obtained main effects should be interpreted in light of any obtained interactions (see Hays, 1981). However, since the multivariate analyses reported earlier indicated that the set of cognitive and affective reactions were significantly affected by sent expectancy and argument quality (first linkage of part two in showing mediation), further tests of mediation for this set of variables on the quality of the solutions generated were conducted.

Analysis 3 of Table 19 shows that the linkage between cognitive and affective responses and the two resolving power measures of quality was plausible. The set of cognitive and affective responses added significantly to the prediction of average resolving power and quantity of resolving alternatives beyond the contribution made by the main effects and the interaction of the independent variables. However, the set of cognitive and affective reactions did not fully mediate the obtained interaction of sent expectancy and argument quality on the two resolving power measures. After controlling for the main effects and the mediator set, the interaction of sent expectancy and argument quality still accounted for a significant unique proportion of the variance in average resolving power ($SR^2 = .062, p < .05$) and in the quantity of resolving alternatives ($SR^2 = .081), p < .05$). The set of cognitive and affective variables did not account for additional variance in the average specificity of solutions beyond that which was accounted for by the interaction of the treatment.
<table>
<thead>
<tr>
<th>Analysis predictors</th>
<th>Average resolving power</th>
<th>Average resolving solutions</th>
<th>Average specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$SR^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>1. [Sent performance expectancy (PE), Argument quality (AQ)] + PE * AQ</td>
<td>.025</td>
<td>.065**</td>
<td>.022</td>
</tr>
<tr>
<td>2. (PE, PE * AQ) + AQ</td>
<td>.085</td>
<td>.125</td>
<td>.110</td>
</tr>
<tr>
<td>3. (PE, AQ, PE * AQ) + Cognitive and affective responses (CRAFT)</td>
<td>.110</td>
<td>.025</td>
<td>.124</td>
</tr>
<tr>
<td>4. (PE, AQ, PE * AQ, CRAFT) + Agreement with expectancy (AGREE)</td>
<td>.165</td>
<td>.055**</td>
<td>.124</td>
</tr>
<tr>
<td>5. (PE, AQ, PE * AQ, CRAFT, AGREE) + Level of self-expectancy (LEVELSE)</td>
<td>.170</td>
<td>.005</td>
<td>.204</td>
</tr>
<tr>
<td>6. (PE, AQ, PE * AQ, CRAFT, AGREE, LEVELSE) + Strength of self-expectancy (STRENGTH)</td>
<td>.177</td>
<td>.007</td>
<td>.204</td>
</tr>
<tr>
<td>7. (PE, AQ, PE * AQ, CRAFT, AGREE, STRENGTH) + LEVELSE, STRENGTH</td>
<td>.173</td>
<td>.004</td>
<td>.206</td>
</tr>
<tr>
<td>8. (PE, AQ, PE * AQ, CRAFT, AGREE, LEVELSE, STRENGTH) + Motivation and Intention to exert effort</td>
<td>.180</td>
<td>.003</td>
<td>.206</td>
</tr>
</tbody>
</table>

Note. $SR^2$ coefficients are squared semipartial multiple correlations of variables with level of sent expectancy.

* $p < .07$.  ** $p < .05$.  *** $p < .01$.  

Table 19
Incremental Predictive Utility of Target Responses for Prediction of Quality of Solutions Generated
Analyses 3 through 8 presented in Table 19 were conducted to determine whether any of the other sets of variables examined in this study added to the predictions for the quality of solutions generated. The analyses for average resolving power and quantity of resolving solutions indicated that none of the other sets of variables contributed significantly to the obtained interaction. However, agreement with the expectancy and the level of self-expectancy set accounted for a significant proportion of the variance in average specificity beyond that which was accounted for by the interaction by the treatments. Agreement with the expectancy had to be discounted as a mediator, since there was no interaction of sent expectancy and argument quality obtained for this variable.

It is, however, plausible that the level of self-expectancies set mediated the impact of the treatment interaction on the average specificity of the solutions generated, since the multivariate analysis of variance results demonstrated an interactive effect of sent expectancy and argument quality on the set of level of self-expectancies. Analysis 7 for average specificity, presented in Table 19, shows that level of self-expectancy contributed significantly to the prediction of average specificity even when controlling for strength of self-expectancies and the sets of variables occurring earlier in the proposed causal chain. Level of self-expectancy only partially mediated the interaction of the treatments on the average specificity of solutions since the interactions remained significant even after controlling for all sets of variables ($SR^2 = .055$), $p < .05$).
To summarize, the data suggest that the set of cognitive and affective reactions partially mediated the interactive effect of sent expectancy and argument quality on the average resolving power for the solutions and on the quantity of resolving solutions generated. In contrast, the level of self-expectancies set appeared to partially mediate the impact of the interaction of the treatments on the average specificity of the solutions generated. The relationships obtained for resolving power and specificity and depicted in Figures 25 and 26 respectively.
Figure 25. Standardized Regression Weights and Significance Levels for Variables Predicting Resolving Power of Solutions.
Figure 26. Standardized Regression Weights and Significance, Levels for Variables Predicting Specificity of Solutions.
DISCUSSION

Summary of Results

Overall trends. There were two primary objectives driving this research endeavor. The first objective was to determine whether the quality of the arguments accompanying a sent performance expectancy moderated the impact of the level of sent expectancy on target responses and performance. The results showed that there was a significant interaction of sent expectancy and argument quality on the cognitive and affective responses generated and on the quality of the solutions generated. Several target response variables were solely affected by the level of sent expectancy, and only two target response variables were solely affected by the quality of the arguments provided.

The second major objective of the study was to identify variables that mediated the impact of sent expectancy and argument quality on target agreement with the message, target self-expectancies and target performance. Results for the mediator analyses demonstrated overall that cognitive and affective responses were the primary mediators of the treatment effects on message agreement, level of self-expectancies, and quality of performance. However, partial rather than full mediation was demonstrated in all of the mediational analyses.

Summary of results for level of sent expectancy on target responses. It was predicted that the level of sent expectancy and the interaction of sent expectancy and argument quality would impact on all target
responses except for strength of self-expectancies, performance and task perceptions. The predicted main effect of sent expectancy on target responses was largely supported. Consistent with predictions, subjects receiving high expectancies as opposed to average expectancies tended to generate more positive message thoughts, more positive thought overall, and fewer negative peripheral thoughts and fewer negative thoughts overall. In addition, the predominate polarity of message thoughts, peripheral thoughts and thoughts overall tended to be more positive for high expectancy as opposed to average expectancy subjects.

Also consistent with prediction, high expectancy subjects compared to average expectancy subjects tended to report more positive affective responses, more agreement with the message, higher levels of self-expectancy and higher intentions to exert effort. The scale for self-expectancies relative to adults and students was the only self-expectancy measure not affected by level of sent expectancy. Lastly, as expected, perceptions of task difficulty and task clarity did not vary as a function of sent expectancy.

An unpredicted result was the effect of sent expectancy on the strength of self-expectancy beliefs. High expectancy subjects reported stronger self-efficacy beliefs than average expectancy subjects. Also unpredicted was the main effect of argument quality on the strength of self-expectancies relative to adults and students. Targets hearing strong arguments were more certain of their beliefs relative to adults and students than targets hearing weak arguments. The predicted effect for sent expectancy on the proportion of negative message thoughts
generated and on the proportion of positive peripheral thoughts was not obtained.

**Summary of results for argument quality on target responses.** Although argument quality was not predicted to exert a main effect on any of the dependent variables, results indicated that the quality of the arguments provided affected the proportion of negative message thoughts, the predominate polarity of peripheral thoughts, affective responses, the strength of self-expectancies relative to adults and students, and the specificity of the solutions generated.

The proportion of negative message thoughts and the strength of self-expectancies relative to adults and students were solely affected by argument quality. Subjects receiving weak arguments generated a greater proportion of negative message thoughts and their self-expectancies relative to adults and students were more weakly held than subjects hearing strong arguments.

The affective responses of targets hearing strong arguments were more positive than the affective responses of targets receiving weak arguments. Finally, the average specificity of the solutions generated was higher (more specific) for subjects hearing weak arguments than those receiving strong arguments.

**Summary of results for the interaction of sent expectancy and argument quality on target responses and performance.** The findings for the predicted interaction of sent expectancy and argument quality on target responses and performance were the most critical tests of the logic behind this research endeavor. The obtained interactions of sent expectancy and argument quality on the proportion of positive message
thoughts generated, the polarity of affective reactions reported and the quality of solutions generated supported the reasoning behind this set of predictions.

As predicted subjects in the ideal Pygmalion condition, as represented by the high expectancy/strong arguments condition, generated a greater proportion of positive message thoughts compared to subjects in the other three conditions. Also consistent with prediction, the subjects receiving strong arguments for average performance expectancies were more dejected, as indicated by their affective responses, compared to subjects in the other three conditions. Lastly, the predicted high performing conditions, namely the Pygmalion condition (high expectancy/strong arguments) and the self-verification condition (average expectancy/weak arguments), tended to produce higher quality solutions, as measured by resolving power, than the other two conditions. The form of the treatment interaction on average specificity was in the identical direction as the prediction. However, the high expectancy/strong arguments condition did not produce significantly more specific solutions than the high expectancy/weak arguments and the average expectancy/strong arguments conditions, even though the Pygmalion condition was not significantly different from the highest performing self-verification condition.

The form of the interaction of the treatments on the proportion of positive peripheral thoughts and the predominate polarity of peripheral thoughts was not consistent with the predictions for these variables. Contrary to prediction, the high expectancy/strong argument condition, instead of the high expectancy/weak argument condition, tended to
produce more positively polarized peripheral thoughts overall and more positively as opposed to negatively polarized peripheral thoughts.

As a result of the superiority of the high expectancy/strong arguments condition in producing both positive message and peripheral thoughts, an unpredicted treatment interaction on the proportion of positive thoughts overall and on the predominante polarity of thoughts overall was obtained. High expectancy/strong arguments subjects generated more positive thoughts overall and more positive as opposed to negative thoughts overall.

Sent expectancy and argument quality were predicted to interact to affect level of self-expectancy; however, only the effort to performance self-expectancy appeared to be a function of the treatment interaction. However, the form of the interaction was not as predicted. The high expectancy/strong arguments condition as well as the average expectancy/weak arguments condition were predicted to yield the highest level of self-expectancy. Results indicated, however, that the high expectancy conditions did not significantly differ by argument quality. In contrast, weak arguments accompanying high sent expectancies did result in higher effort to performance self-expectancies compared to weak arguments accompanying average sent expectancies.

Summary of the results of the mediational analyses. In the first set of mediational analyses, potential mediators of the relationship between sent expectancies and target agreement with the expectancy were examined. Although full mediation was predicted, results showed that the predominante polarity of message thoughts and the predominante polarity of peripheral thoughts only partially mediated the effect of
sent expectancy on target agreement with the expectancy. Contrary to prediction, affective responses did not mediate the interaction of the treatment effects on target agreement with the expectancy.

The second set of mediator predictions proposed that cognitive and affective responses and target agreement fully mediated the impact of sent expectancy on the level of target self-expectancies and on the level of motivation and intentions to exert effort. Target motivation level was not significantly affected by the treatments, so no mediator analyses were conducted for this variable. Results for the other variables showed that the predominate polarity of message thoughts and target agreement partially mediated the impact of sent expectancy on only the level of self-expectancy relative to adults and students. Intentions were not mediated even partially by the cognitive and affective response.

The effect of sent expectancy on the level of self-efficacy beliefs was partially mediated by affective reactions. In addition, the predominate polarity of message thoughts partially mediated the main effect of sent expectancy and the interaction of the treatments on the level of effort to performance beliefs held. Recall that there were no significant effects for the treatments on the level of self-expectancies relative to adults and students.

It is necessary to remind the reader that because set expectancy and argument quality did not have the predicted interactive effect on the strength of self-expectancies, the proposed mediator analyses were not conducted. Since sent expectancy did have a main effect on two strength of self-expectancy measures, mediator analyses for these variables were
pursued. The results of these analyses showed that none of the variables examined here was found to mediate the obtained effects. Last, the predictions regarding the mediators of the treatment interaction on the quality of the solutions were not supported. However, the set of cognitive and affective responses partially mediated the effect of the interaction of the treatments on the resolving power of the solutions, whereas the set of level of self-expectancy measures appeared to partially mediate the treatment interaction effect on the average specificity of the solutions generated. Recall that no significant effects were obtained for effort (time spent), perceptions of effort, and the quantity of solutions generated, and therefore no mediational analyses were conducted for these variables.

Interpretation and Implications of the Results

The results suggest that there were both predicted and unpredicted trends in the way targets responded to the expectancy communication. Interpretations and implications of the results for each set of variables are discussed below.

Interpretation and implications of target cognitive responses. The pattern of cognitive response generated by targets indicated that positive thoughts that were focused on both the content of the expectancy communication and on the peripheral issues surrounding the communicated were elicited by high sent expectancies and particularly by high sent expectancies accompanied by strong arguments. Hence, the focus of the positive thoughts generated did not differ as a function of the quality of the arguments supporting the high sent expectancies. These results suggest that high sent expectancies, especially those
especially those supported by strong arguments, elicit favorable reactions to all aspects of the expectancy communication and not merely favorable responses to the message. That is, focusing on the content of the expectancy communication did not preclude targets in this study from also focusing on the contextual (peripheral) aspects of the communication.

The rationale underlying the prediction that the focus of thoughts elicited by high expectancy target would differ was that targets have both a limited cognitive capacity and low motivation to process information, and would therefore tend to produce either peripheral or message thoughts. One explanation for why this didn't occur is that targets hearing positive self-deviant information might not act as cognitive misers; instead they might enjoy reflecting on their positive qualities and the positive aspects of the source and the experiment (peripheral aspects) which acknowledged their positive qualities. Another potential explanation for these results that is consistent with the cognitive miser assumption is that the high credibility of the source and the contextual aspects of the experiment were consistent with the positive nature of the high sent expectancies and therefore easily absorbed into an overall general positive reaction to all aspects of the expectancy communication. Perhaps variation in the focus of cognitive responses generated by targets receiving high expectancies would have occurred if the credibility of the source differed.

Another interesting trend that emerged from the results for cognitive responses was that targets receiving average expectancies tended to generate negative and neutral peripheral thoughts but not a
greater proportion of negative message thoughts. Although targets receiving strong arguments were predicted to avoid focusing on the content of the message, targets receiving weak argument for average expectancies were expected to engage in a great deal of counterarguing with the expectancy communication. An examination of the actual cognitive responses produced by targets receiving weak arguments for average expectancies revealed that very few subjects in this condition questioned the relevance of the arguments provided in support of the expected performance level. In fact, none of the subjects receiving average expectancies focused very much on the cogency or relevance of the arguments presented. Instead the cognitive responses of targets receiving average expectancies suggested that these targets actively attempted to avoid thinking about the content of the expectancy message and preferred instead to both comment on (neutral thoughts) and denigrate (negative thoughts) the expectancy communicator and aspects of the experiment.

One explanation for these results is that once targets were told that they were average and could expect to perform at an average level (which was communicated both before and after the arguments were provided), they didn't attend to the content of the expectancy message, including the relevance of the arguments. Perhaps they negatively evaluated the conclusion that they were average and wanted to further distance themselves psychologically from the origin of the negatively, namely, the expectancy communication. If they avoided processing the content of the expectancy message, then one would not expect a high degree of counterarguing with the content of the expectancy message.
Interpretation and implications for target affective responses. Consistent with the pattern of results obtained for cognitive responses, targets receiving high expectancies were happier overall than targets receiving average expectancies. In addition, targets receiving strong arguments for average expectancies were more dejected than targets in the other three conditions. The reasoning behind the obtained interaction was that targets receiving strong arguments for being average would not be able to easily counterargue with the arguments provided, and they would therefore feel the most dejection as a result of the sent expectancy. If this logic correctly explains the dejection of the average expectancy/strong arguments subjects, then it is not clear why the upbeat targets of the average expectancy/weak arguments condition did not generate more counterarguments to the message. Since subjects receiving weak arguments for average expectancies were upbeat, they must have dismissed the sent expectancy to remain so positive; however, their cognitive responses did not reflect this. Moreover, if subjects in the average expectancy/strong arguments condition were relatively more persuaded by the sent expectancy compared to average expectancy/weak arguments subjects, then this difference should have been reflected in the results for target agreement, which it was not. It is therefore not clear why subjects receiving weak arguments for average expectancies were significantly more upbeat than those hearing strong arguments for average expectancies, given the results for the variables examined in this study.

Interpretation and implications for target agreement. As predicted, the targets of high expectancies, regardless of the quality of the
arguments accompanying the message, reported more agreement with the sent expectancy than targets receiving average expectancies. It was suggested earlier that self-enhancement motivation would dictate that targets would tend to agree with positive self-relevant information and disagree with what they perceived as negative self-relevant information. It is also plausible, however, that self-consistency motivation could have produced these results. Since pilot subject all believed that they were above average, high expectancy subjects might have reported greater agreement with the expectancy communication than the average expectancy subjects because the content of the communication was more consistent with their self-assessments.

Interpretation and implications for level and strength of self-expectancies. The prediction that targets receiving strong arguments for average expectancies would report the lowest levels of self-expectancies compared to the other three conditions was not supported. In addition, the predicted interactive effect of the treatments on the strength of self-expectancies was not supported. The obtained main effect of sent expectancy on target agreement and on all but one measure of level of self-expectancy suggests that subjects receiving high expectancies were persuaded by the expectancy communication and therefore expected to perform at a high level, whereas those receiving average expectancies demonstrated more disagreement with the sent expectancy but reported lower levels of self-expectancies overall. Furthermore, it should be noted that even though targets receiving strong arguments for high expectancies appeared to attend to the content of the expectancy communication more than the targets in the other
conditions (as demonstrated by the greater proportion of positive message thoughts generated in this condition), this tendency did not differentiate the level or strength of the self-expectancies reported by subjects in this condition. One implication of these results for high expectancy subjects is that perhaps the process through which targets are persuaded by sent expectancies are not as critical to predicting the level and strength of their self-expectancies as the degree to which they are persuaded by the sent expectancy.

It should also be noted that measures of the level of self-expectancy tended to be correlated with one another and the level and strength of each self-expectancy measure tended to be positively correlated. However, some measures of level self-expectancy were affected by the level of sent expectancies, one measure was not affected and one was affected by the treatment interaction as well. In contrast, whereas two measures of strength of self-expectancy were affected only by the main effect of sent expectancy and one of these two significant strength measures corresponded to a level of self-expectancy measure that was not significant. In other words, there was little consistency in results across measures except that the significant effects that were obtained were due to the main effect of sent expectancies. The self-efficacy measure was the only self-expectancy measure to demonstrate both level and strength differences as a function of level of sent expectancy.

It is difficult to know how to interpret this set of results without further information. Given the different pattern of results that emerged for self-efficacy versus effort to performance
self-expectancies, perhaps we cannot assume that effort to performance beliefs are identical to self-efficacy beliefs as Bandura (1986) suggests. Moreover, relative self-expectancies, which are very different types of beliefs compared to self-efficacy beliefs and effort to performance beliefs, were similarly affected by sent performance expectancies. One rather obvious implication of these results is that more studies are needed which investigate multiple types of self-expectancies within one study, so we can learn more about these constructs. Another implication of these results suggests that perhaps there are situations in which the related constructs of self-efficacy and effort to performance beliefs behave similarly and other situations in which the constructs behave differently. Relatedly, there are situations, perhaps, in which the different constructs of relative self-expectancies and self-efficacy beliefs might be similarly affected by a manipulation. It should also be pointed out that the pattern of results obtained for these self-expectancy measures might be due to nuances in the wording of the items for these scales and other types of measurement error.

**Interpretation and implications for motivation and intentions.** The motivation of targets to exert effort did not vary across treatments, yet target intentions did vary as a function of level of sent expectancy. One explanation for these results is that a target might intend to work hard at a task but not feel particularly motivated to do so. There were no incentives offered for high performance; the experimental participants were merely fulfilling a course requirement. Another possibility for the lack of significant results for motivation
could be that the particular measures used might not have been sensitive to real underlying differences.

Given the lack of incentives, at least extrinsic ones, the higher intentions reported by high expectancy subjects must have been due to some other reason. Perhaps high expectancy subjects felt the need to demonstrate that the prophecy was correct. Alternatively, these targets' responses might have been driven by a high level of positive affect that caused them to evaluate everything in a positive, optimistic light. However, if the latter was the case, one might expect the high expectancy subjects to also report higher levels of motivation, which they did not.

Interpretations and implications for effort, performance quantity and performance quality. The discrepancy between the nonsignificant findings for effort and quantity of performance and the significant effects obtained for quality could be due to a number of things. One, the task of generating a relatively high number of alternatives might have been easy for all subjects thus, producing little variation in the quantity of solutions produced across all conditions. On the other hand, producing high quality solutions (resolving or specific solutions) might be objectively more difficult and allow for a greater range of responses. If, however, the task of generating high quality solutions is more difficult, then one might expect high performing subjects to spend more time on the task. This did not occur in this study, because there were no significant differences across subjects in the amount of time spent on the task.
A second explanation for why there were discrepant findings for quantity and quality, which does not necessarily contradict the first explanation offered, is that solution quality was emphasized throughout the study. Quality was emphasized in the expectancy communication in the description of the task read by subjects, and in the measures of self-expectancies. One aspect of the expectancy communication directed toward high expectancy subjects was, for example, that they would generate a high quantity of high quality alternatives. While waiting for the results of the bogus personality test, one set of materials read by all subjects was a description of the problem solving task they would work on as well as a definition of solution quality and examples of high and low quality solutions. Lastly, the measures of level of self-expectancies emphasized the targets' beliefs in being able to produce general high quality solutions. It was not as though quantity was explicitly deemphasized or that subjects were told to disregard quantity but rather quality always accompanied quantity expectations.

If one assumes that all targets attended to the quality cues while relatively ignoring quantity, then those subjects most willing to demonstrate high performance would be expected to direct their energies toward generating as many high quality solutions they would think of instead of newly populating their answer sheet with numerous mediocre solutions.

Interpretations and implications of the mediator analyses. One should not overinterpret the results of the mediator analyses, because these analyses were exploratory. First, the direction of causality might be different from the one presumed in this study. Second, the
presence of other unmeasured variables, which might have accounted for some of the relationships, cannot be disproved. Bearing these caveats in mind, and despite the significant direct effects obtained, the data are consistent with the model proposed. Targets' immediate cognitive and affective responses to an expectancy communication help predict their agreement with the expectancy, the level of their self-expectancies, and the quality of the performance. In addition, these results suggest that perhaps targets' immediate reactions to sent expectancies are more critical in determining the quality of their performance than any changes in self-expectancies for task success. The latter would be consistent with the conclusions reached by Swann (1987) who states "it is inappropriate to assume that self-conceptions are frightfully frail cognitive structures that change at the drop of a hat" (p. 1044).

A final point that should be made concerns the failure of self-expectancy strength to mediate the impact of the treatments on performance. Unlike the research by Swann and his colleagues (Swann and Hill, 1982; Swann, Pelham and Chidester, 1988; and Swann, 1987), which was partially the basis for this prediction, this study did not treat strength of self-expectancies on an independent variable and partition subjects into high and low strength groups. The goal of this study was to assess how the strength of self-expectancies were affected by level of sent expectancy and argument quality, and therefore strength was allowed to vary as a function of the treatments. The significant effects for strength of self-expectancies found using the Swann paradigm imply that the strength of targets' self-expectancies are perhaps more
dispositionally based and relatively resistant to environmental cues. If environmental cues such as sent expectancies and argument quality have relatively little effect on the strength of target self-expectancy, it is not surprising that strength failed to mediate the treatment effects on performance. Another related implication is that perhaps both the level and strength of self-expectancies are more easily influenced by environmental cues such as communicated performance expectancies when the traits or task implied by the expectancy are not central to the target’s self-concept than when they are more integral to the target’s sense of self.

Primary Contributions and Implications of the Study

Perhaps the most important contribution of this study is that it demonstrates the importance of studying interpersonal expectancy effects from the viewpoint of the target. The results provide evidence that targets are active information processors who respond to all aspects of the expectancy communication, including the evidence brought forth in support of the sent expectancy.

Of pragmatic significance for those looking for ways to increase employee performance are the obtained differential performance levels for high expectancy subjects receiving strong versus weak arguments. These results imply that communicating high performance expectancies is not by itself sufficient for producing high performance; it appears that targets need to believe that there is a rational basis for the prophecy before it affects their performance.

Another finding of practical significance is the difference in the quality of the performance between average expectancy subjects hearing
strong arguments and average expectancy subject hearing weak arguments. These results imply that employees who believe that their supervisor or some other significant person has good reason to expect average performance will correspondingly demonstrate depressed performance. Also implied here is that employees who believe that a significant other thinks they are not capable of high performance based on poor reasons or insufficient evidence might be motivated to disprove the expectancy and thereby demonstrate high performance. Although it would be unethical for a supervisor, for example, to deliberately communicate poor arguments for average performance expectancies in order to induce self-verification processes and ultimately increase subordinate performance, it is important to note that high performance could sometimes result from negative rather than positive forces in the organization.

Another implication of the results for subjects receiving strong arguments for average expectancies is that perhaps one could increase performance by identifying and eradicating any organizational norms or supervisory practices that might contribute to subordinates’ feeling they are incapable of high performance. The paradigm that guided this study, was that an expecter’s beliefs and behaviors are not nearly as important in predicting target performance as target interpretations and reactions to what he/she believes the expecter thinks. Thus, it is very possible that management may be unaware that subordinates might interpret their words or behavior as indicating that they don’t believe in their capability for high performance. Perhaps frequent feedback and increased emphasis on the positive aspects of an employee’s performance
would help curb substandard performance occurring as a result of negative organizational cues.

Another contribution of this study is that it highlights the importance of distinguishing among various types of self-expectancies when discussing or making predictions about performance confirmation effects. Results for the level and strength of the various types of self-expectancies suggest that although the beliefs might be related, they are not all affected in the same way or through the same processes. Replication of these results is clearly needed, however, before any strong conclusions can be reached.

An unexpected contribution of this study is that it underscores the fact that of the prescriptions coming out of the persuasion literature, particularly those implied by the Elaboration Likelihood Model (ELM) of persuasion, might not be applicable to situations in which the content of the message is primarily focused on the target of the communication. If the personal relevance of a communication dictates the target's level of involvement with a message, as suggested by the ELM, one could assume that all subjects in this study were highly involved with the message presented. Moreover, high involvement, according to ELM, dictates a high level of message-focused or central route processing. This study shows a relatively high level of peripheral responses (using the ELM definition of peripheral) by everyone, including high expectancy/strong arguments subjects. In addition, if the content of the message is not only self-relevant but negative, or threatening to the self esteem (e.g., strong arguments for average expectancies), then one would not
expect an extensive amount of what might be considered painful message-focused processing.

Implied by these discrepancies is the possibility that some of assumptions and precepts of the ELM might not generalize to paradigms in which the content of the message is integrally focused on the target. For example, what might be labelled as a peripheral response by the ELM, such as thoughts about the sender, might not at all be peripheral to the target of an expectancy, who is trying to determine the validity of the message being communicated by the sender.

Limitations of the Study

One major limitation of this study is the generalizability of the findings. Study participants did not know the expectancy sender prior to the study, and they were relatively unfamiliar with the task. Hence, new employees might be expected to be more influenced by sent expectancies than more experienced employees. It is not clear whether employees who have performed a task repeatedly and received feedback on their performance would be affected by the sent expectations of a supervisor or even a peer. Perhaps the evidence summoned to supported an expectancy would have to be all the more persuasive to convince experienced perhaps more resistant employees of their validity.

Another limit to the generalizability of the findings is whether other definitions and manipulations of argument quality would be as effective or perhaps more effective compared to the definition and manipulation of argument quality used in this study. In this study, argument quality was manipulated as the relevance of the evidence supporting the expectancy. The type of evidence used was the
personality qualities of the targets. It is possible that other types of evidence would work at least as well. For example, one type of evidence could be the target's past performance. Another type of evidence could be based on a prophet drawing similarities between the target and another person who is successful and admired.

Given the multiple ways of manipulating the relevance of the evidence accompanying a sent expectancy, one cannot be sure whether different types of evidence would produce the same pattern of results that was obtained in this study. Moreover, there might be other ways of defining argument quality besides the relevance of the evidence supporting the sent expectancy.

Another limit to the generalizability of the findings of this study involves the characteristics of the task. The task utilized in this study was a cognitive task perceived as moderate in difficulty, for which there were standards for assessing performance but no absolutes regarding right and wrong. Different results might emerge when different types of tasks are used.

Of particular interest to this researcher is how task difficulty would impact on the confirmation of sent expectancies. It is doubtful, for example, that sent expectancies would have much of an impact on the performance of targets if the task is very simple or highly difficult.

Another limitation of this study is that the mediator analyses pursued were exploratory and the results ambiguous. Due to the partial mediation findings the processes through which sent expectancies impact on target agreement, self-expectancies and ultimately performance are not at all clear. The results do suggest that the targets'
idiosyncratic reactions to sent expectancies probably play a key role in determining target performance, but even this conclusion is open to question given the rather strong direct effect of the treatments on the quality of the performance. It is possible that the study failed to capture all the pertinent cognitive responses of the subjects, and it is also possible that subjects monitored and censored some of their thoughts. Contrary to expectation, however, the level and strength of target self-expectancies did not appear to play a pivotal role in mediating the impact of sent expectancies on performance. Hence, based on this study, no strong statements can be made regarding the necessity of producing particular target responses or change in self-expectancies in order to produce a performance confirmation effect. Perhaps the most serious limitation of this study is that it does not address the duration of a performance confirmation effect and the implication this question has for the frequency with which performance expectancy should be communicated. Are changes in performance resulting from sent expectancies relatively short-lived phenomena that must be continually nourished by subsequent additional sent expectancies? Alternatively do performance changes that initially result from sent expectancies feed on themselves to affect future performance?

The answer to this question might partially depend on the process through which targets persuaded by the sent expectancy, if indeed, they are actually persuaded by the expectancy. This study does not provide information regarding whether the high expectancy targets who performed at a high level did so because they felt compelled to comply with the sent expectancy, or because they internalized, at least temporarily, the
content of the expectancy. One would expect internalization of a sent expectancy to result in more enduring changes in the target than those resulting from compliance processes.

Relevant to the duration issue is the fact that the study did not examine the effect of providing cues that contradicted the sent expectancy either before or after the task was completed. Thus, the duration of the effect in the face of conflicting evidence was not examined and therefore cannot be commented on based on this study.

Finally, the frequency with which a sent expectancy has to be communicated before it actually registers with the target and affects his or her beliefs or performance was not examined in this study and merits investigation. It is possible that certain types of targets compared to others need to hear expectancies a number of times before they attended to, correctly interpret and acted on the sent expectancies.

Future Research

One set of findings from this study that warrants follow-up studies are the significant effects obtained for the quality measures and the lack of significant effects found for effort and quantity. It was acknowledged earlier that these findings could have been due to the type of task and/or the relatively greater emphasis on quality communicated to subjects. If quantity were emphasized to the extension of quality in a future study using the same problem, perhaps the result obtained here would not replicate. In addition, a more difficult solution generation task might yield differential effects for quantity of solutions generated even with an emphasis on quality. Lastly, different measures
of quality besides resolving power and solution specificity need to be explored. Relatedly, future research using tasks other than solution generation tasks should attempt to define criteria for judging quality and not depend solely on quantity measures, which has so often been the case in the past.

A second point of departure for future research on performance confirmation could be the interaction of the timing of task information and the expectancy communication. If one assumes that communicating high expectancies produces positive affective states, then task information presented before the expectancy is communicated might be processed differently than when the expectancy is communicated prior to the task information. In this study, all subjects received extensive information about the task prior to receiving performance expectations. If performance expectations were communicated to targets prior to giving them information about the task, then the pattern of results for target responses and target performance might be different from the results obtained here. The expected differences in the processing of task information, based on the timing of the expectancy induction, was influenced by the research on affective influences on cognitive processing.

Affect researchers have proposed that positive affect causes processing deficits or at least processing differences when compared to neutral state processing (see Mackie and Worth, 1989). Worth and Mackie's (1987) study showed that subjects experiencing a positive mood engaged in less systematic processing of the presented message. Isen and her colleagues (Isen and Means, 1983; Isen, Means, Patrick and
Nowicki, 1982) have shown that people in a positive mood tend to use more truncated, heuristic processing strategies in dealing with information than people in a neutral mood.

In this study, since expectancies were communicated after targets learned about the task they would perform and how quality would be assessed, any affective response to the sent expectancy could not have affected their processing of the task information. On the other hand, if expectancies are communicated prior to the task information, then any affective response to the expectancy could impact on the processing of the task information. If high sent expectancies induce positive affect, to be specific, then subjects hearing high expectancies prior to the task information might process the task information in a less systematic, more heuristic manner. For example, one might predict that high expectancy subjects would generate a high degree of positive peripheral thoughts and few message thoughts. Moreover, due to inadequate attention directed toward the task instructions, perhaps the quality of the solutions generated by all high expectancy subjects would be poor. The pattern of results for this order of expectancy and task information would therefore be different from the results obtained for the order of events followed in the present study.

It is not clear what type of processing, and subsequent performance would characterize expectancy conditions receiving expectancies prior to other information. This predictions is more difficult, because we don’t really know whether communicating average expectancies induce neutral states, negative states or even positive affective states.
Another unanswered question that merits further investigation concerns the type of self-expectancy that is most predictive of performance. Relatedly, the study does not address whether it is better for a prophet to attempt to influence one type of self-expectancy or another. Two categories of beliefs, self-expectancies on an absolute level and relative to others, were targeted in this study, so it is not possible to determine which part of the expectancy communication was more or less persuasive or effective in producing performance confirmation effects. Recall that subjects were told that they possessed either a high or average amount of personal qualities relative to other adults and students, yet on a more absolute level they were told that they would perform well or at an average level on the task. It therefore might be enlightening if subsequent research would examine the effect of telling targets that they possess particular absolute level of some qualities that are predictive of their subsequent task performance. Alternatively, one could also investigate the effect of providing targets with only relative information and relative sent expectancies.

Bandura (1986) suggests that self-efficacy beliefs are the beliefs one should attempt to change and that are most predictive of task performance. The reasoning here is that a target could believe that he/she is best relative to others but still maintain a low level of self-efficacy for task success. Although this situation is possible, it is also plausible that providing information about a target’s potential relative to others might be more motivating and persuasive than telling them they possess a certain amount of some qualities (absolute level
information) for certain types of targets, particularly those competitive individuals driven by interpersonal comparison processes.

The later possibility brings up an entire area ripe for investigation. Individual differences in targets as well as expecters, which impact on the type of information seen as persuasive and on the tendency to obtain a performance confirmation effect, should be explored. From a sheer pragmatic view, it might be more important to identify the qualities characterizing effective prophets. Perhaps then managers could be trained to cultivate and emulate those qualities. On the other hand, it would also be useful to know what type of people are more easily influenced by sent expectancies or perhaps more helpful would be to know what types of people are influenced by what type of information. The effective utilization of the latter information, however, would necessitate an interpersonally sensitive prophet with some history with the target.

A recent meta-analysis of personality differences in prophets and targets that facilitates interpersonal expectancy effects was conducted by Cooper and Hazelrigg (1988). Although more of the studies included in the meta-analysis examined adult task performance, the review did include studies that examined personality moderators of teacher expectancy effects on learning performance. The meta-analysis suggested that the expecter's personality may be more influential than target personality in producing expectancy confirmation effects. Specifically, they found some evidence that expecters who have a greater need to influence others, who have a greater ability to encode nonverbal messages and who are better liked by their targets are better able to
produce behavior congruent with expectancies. The study also showed a tendency for targets who are more susceptible to social influence attempts and who are better decoders of nonverbal communication to conform to the sender's expectancy.

Although it is not clear whether the findings revealed in this meta-analysis would generalize to adult performance, the study does suggest the types of prophet and target personality dimensions that might help us to understand and predict when performance confirmation effects are more or less likely to occur. Given the paradigm used in this study, an examination of target's susceptibility to social influence would appear to be one individual difference variable that could moderate the effect of sent expectancy on performance.

A final goal for future studies on performance confirmation effects is to integrate the findings from these studies with other research that addresses leadership on motivational processes that could be utilized to increase performance. For example, the goal setting research would be a fruitful area of integration.

Hollenbeck and Klein (1987) propose situational factors and personal factors that could be predicted to impact on a person's expectancy of goal attainment, which in turn is predicted to impact on goal commitment. Under situational factors impacting on expectancy of goal attainment, the model lists "social influence: others' goals, goal commitment or performance" (p. 215). Given the results of this study, one might propose the addition of sent performance expectancies to this model. It would be relatively easy to add or substitute the measurement of target expectancy of goal attainment. To tap into the goal
commitment construct, which is predicted to be higher for those having higher expectancies of goal attainment (keeping goal attractiveness constant), one might devise a difficult if not unsolvable cognitive task and measure persistence on the task. If these two things are done, one could then examine the effect of sent performance expectancies on expectancy of goal attainment and goal commitment and explicitly test the mediational role of expectancy of goal attainment.

To conclude, there are several unanswered questions regarding the effect of sent performance expectancies on target responses and performance. However, given the rather dramatic differences in the quality of the performance exhibited by subjects receiving arguments of varying quality for average and high expectancies, future investigation of this phenomenon can be expected to provide information of both theoretical and practical importance.
APPENDIX A

IRRELEVANT PERSONAL QUALITIES FOR
THE WEAK ARGUMENT CONDITION
Personal Qualities as Predictors of Success in Generating High Quality Solutions to Hypothetical Interpersonal Conflicts

by

Stanford University Research Team:
Dr. Karmon Elliot
Dr. Scot Elliot
Dr. Jack Harmon
Dr. Lisa Scherer
Dr. Robert Taylor

(c)

1988
Our research has shown that some people are much better than others at generating high quality solutions to other people's interpersonal conflicts or personal dilemmas. Experts in interpersonal problem solving have found that solutions to these types of problems are ones which don’t advocate one person’s side or the other but instead tend to integrate and resolve the overt and subtle issues causing the conflicts between people.

People with a high degree of the qualities listed below are very good at coming up with high quality solutions to other people’s interpersonal problems. People who have an average amount of these personal qualities demonstrate average performance on tasks which require them to generate solutions to other people’s problems. Correspondingly, people having a low amount of these personal qualities tend to perform poorly on this type of task.

The personal qualities which best predict the quality or resolving power of the solutions a person generates to other people’s interpersonal conflicts are listed below along with their definition:

- **sentimental**: a person who has a tender nature and responds to a person, object, or idea based on feeling instead of reason.
- **studious**: a person who is thoughtfully attentive and diligent in his/her studies.
- **neat**: a tidy, orderly person.
- **romantic**: one who is susceptible to experiencing fantasies of love or romance.
- **punctual**: a prompt person who is always on time.
- **adventurous**: a highflying, spirited individual who is willing to take great risks to explore things unknown to him/her.
- **obedient**: one who is submissive to authority.
- **gentle**: a person who has a mild manner or disposition.
- **reserved**: a rather silent individual who does not tend to reveal his/her thoughts and feelings.
- **thrifty**: a person who wisely and economically manages his/her money.

In summary, people who are highly sentimental, studious, neat, romantic, punctual, adventurous, obedient, gentle, reserve, and thrifty perform better on tasks requiring them to generate high quality solutions to others’ personal dilemmas than people having a lower amount of these qualities.
APPENDIX B

RELEVANT PERSONAL QUALITIES FOR
THE STRONG ARGUMENT CONDITION
Personal Qualities as Predictors of Success in Generating High Quality Solutions to Hypothetical Interpersonal Conflicts

by

Stanford University Research Team:
Dr. Karmon Elliot
Dr. Scot Elliot
Dr. Jack Harmon
Dr. Lisa Scherer
Dr. Robert Taylor

(c)

1988
Our research has shown that some people are much better than others at generating high quality solutions to other people's interpersonal conflicts or personal dilemmas. Experts in interpersonal problem solving have found that solutions to these types of problems are ones which don't advocate one person's side or the other but instead tend to integrate and resolve the overt and subtle issues causing the conflicts between people.

People with a high degree of the qualities listed below are very good at coming up with high quality solutions to other people's interpersonal problems. People who have an average amount of these personal qualities demonstrate average performance on tasks which require them to generate solutions to other people's problems. Correspondingly, people having a low amount of these personal qualities tend to perform poorly on this type of task.

The personal qualities which best predict the quality or resolving power of the solutions a person generates to other people's interpersonal conflicts are listed below along with their definition:

diplomatic: one who is tactful and skillful in conducting negotiations between people and deals well in general with other people.

perceptive: a person who is capable of quickly and accurately understanding people and situations.

sensible: an individual who possesses and exhibits good practical judgment and sound sense.

realistic: one who responds accurately to the facts or reality of a situation and does not engage in fantasy thinking.

understanding: a person who accurately comprehends people and situations and responds with tolerance and sympathy to all concerned.

open-minded: one who is receptive to various viewpoints or ways of thinking about people and situations.

rational: an individual who uses sound and judicious reasoning

clear-headed: a clear-thinking individual who is not easily confused.

fair: a just and upright individual who gives equal consideration to the needs and viewpoints of all people involved in a situation

objective: one who approaches people and situations in an unbiased manner and avoids making prejudiced or one-sided judgments and conclusions.
In summary, people who are highly diplomatic, perceptive, sensible, realistic, understanding, open-minded, rational, clear-headed, fair, and objective perform better on tasks requiring them to generate high quality solutions to other people's personal dilemmas than individuals possessing a lower amount of these qualities.
APPENDIX C

TRAIT-ADJECTIVES RATED FOR TASK RELEVANCE
Please use the scale below to rate the degree to which you believe the following qualities or characteristics are relevant or irrelevant to a person’s ability to generate good solutions to other people’s problems involving interpersonal conflicts such as the dope problem you just worked on. Consider a good solution to be one that resolves the conflicting issues of the problem. Use the blanks provided to record your ratings.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Very Relevant</td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Very Irrelevant</td>
</tr>
</tbody>
</table>


1. ____ patient
2. ____ humorous
3. ____ cooperative
4. ____ clear headed
5. ____ self-assured
6. ____ respectable
7. ____ prompt
8. ____ sincere
9. ____ warm-hearted
10. ____ calm
11. ____ nice
12. ____ considerate
13. ____ diplomatic
14. ____ good natured
15. ____ thoughtful
16. ____ reliable
17. ____ soft-spoken
18. ____ attentive
19. ____ fair
20. ____ active
21. ____ literary
22. ____ clean
23. ____ thrifty
24. ____ daring
25. ____ punctual
26. ____ wise
27. ____ self-confident
28. ____ neat
29. ____ tidy
30. ____ persuasive
31. ____ popular
32. ____ curious
33. ____ exuberant
34. ____ responsible
35. ____ friendly
36. ____ romantic
37. ____ modest
38. ____ inventive
39. ____ honest
40. ____ easy going
41. helpful
42. decisive
43. interesting
44. frank
45. lively
46. neat
47. versatile
48. ambitious
49. rational
50. enterprising
51. creative
52. cultured
53. interesting
54. clear headed
55. sportsman like
56. adventurous
57. wholesome
58. artistic
59. witty
60. religious
61. fashionable
62. truthful
63. cheerful
64. honorable
65. tactful
66. courteous
67. considerate
68. dependable
69. thorough
70. cool headed
71. independent
72. well-bred
73. gentle
74. systematic
75. studious
76. analytical
77. moral
78. assertive
79. sophisticated
80. sympathetic
81. tolerant
82. composed
83. obedient
84. reserved
85. dependable
86. perceptive
87. objective
88. kind
89. thoughtful
90. soft-spoken
91. mature
92. energetic
112. From the adjectives and abilities listed on the previous page, please record the five words which you believe are the most relevant and the five words you believe are the most irrelevant for generating high quality solutions to other people's interpersonal problems.

The five adjectives or abilities that are most relevant:
1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________

The five adjectives of abilities that are most irrelevant:
1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________
APPENDIX D

BOGUS RESULTS OF PERSONALITY INVENTORY:
HIGH EXPECTANCY/STRONG ARGUMENTS CONDITION
Individual Test Results
Test ID: 100,241

Test Name: Problem Solving/Trait Inventory  
Principal Researcher: Dr. Lisa Scherer  
Primary Affiliation: Stanford University  
Data Base Accessed: U.S. PS-Trait Norms Data Set

<table>
<thead>
<tr>
<th>Problem Solving Traits</th>
<th>Raw Scores</th>
<th>Percentile Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. diplomatic</td>
<td>8</td>
<td>81</td>
</tr>
<tr>
<td>2. perceptive</td>
<td>10</td>
<td>98</td>
</tr>
<tr>
<td>3. sensible</td>
<td>8</td>
<td>85</td>
</tr>
<tr>
<td>4. realistic</td>
<td>9</td>
<td>96</td>
</tr>
<tr>
<td>5. understanding</td>
<td>9</td>
<td>91</td>
</tr>
<tr>
<td>6. open-minded</td>
<td>9</td>
<td>94</td>
</tr>
<tr>
<td>7. rational</td>
<td>10</td>
<td>99</td>
</tr>
<tr>
<td>8. clear-headed</td>
<td>8</td>
<td>88</td>
</tr>
<tr>
<td>9. fair</td>
<td>10</td>
<td>97</td>
</tr>
<tr>
<td>10. objective</td>
<td>10</td>
<td>98</td>
</tr>
<tr>
<td>11. Overall Profile Scores</td>
<td>92</td>
<td>92.7</td>
</tr>
</tbody>
</table>

Number of Respondents = 100,000 +  
Number of Items = 64  
Highest Score = 96.7  
Lowest Score = 5.3

Average Raw Score = 49.2  
Median/50th % Score = 50.6  
Standard Deviation = 7.19
APPENDIX E

BOGUS RESULTS OF PERSONALITY INVENTORY:
HIGH EXPECTANCY/WEAK ARGUMENTS CONDITION
## National Computer Systems
### MICROTEST Score

**Individual Test Results**

**Test ID:** 100,241

**Test Name:** Problem Solving/Trait Inventory  **Sort:** Data Cluster

**Principal Researcher:** Dr. Lisa Scherer  **Class:** Adults: 18-45 yrs.

**Primary Affiliation:** Stanford University  **Scoring:** Raw Scores

**Data Base Accessed:** U.S. PS-Trait Norms Data Set  **Percentiles**

<table>
<thead>
<tr>
<th>Problem Solving Traits</th>
<th>Raw Scores</th>
<th>Percentile Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. sentimental</td>
<td>8</td>
<td>81</td>
</tr>
<tr>
<td>2. studious</td>
<td>10</td>
<td>98</td>
</tr>
<tr>
<td>3. neat</td>
<td>8</td>
<td>85</td>
</tr>
<tr>
<td>4. romantic</td>
<td>9</td>
<td>96</td>
</tr>
<tr>
<td>5. punctual</td>
<td>9</td>
<td>91</td>
</tr>
<tr>
<td>6. adventurous</td>
<td>9</td>
<td>94</td>
</tr>
<tr>
<td>7. obedient</td>
<td>10</td>
<td>99</td>
</tr>
<tr>
<td>8. gentle</td>
<td>8</td>
<td>88</td>
</tr>
<tr>
<td>9. reserved</td>
<td>10</td>
<td>97</td>
</tr>
<tr>
<td>10. thrifty</td>
<td>10</td>
<td>98</td>
</tr>
<tr>
<td>11. Overall Profile Scores</td>
<td>92</td>
<td>92.7</td>
</tr>
</tbody>
</table>

**Number of Respondents = 100,000 +**  **Average Raw Score = 49.2**

**Number of Items = 64**  **Median/50th % Score = 50.6**

**Highest Score = 96.7**  **Standard Deviation = 7.19**

**Lowest Score = 5.3**
APPENDIX F

BOGUS RESULTS OF PERSONALITY INVENTORY:
AVERAGE EXPECTANCY/STRONG ARGUMENTS CONDITION
## Individual Test Results

Test Name: Problem Solving/Trait Inventory  
Sort: Data Cluster  
Principal Researcher: Dr. Jack Harmon  
Primary Affiliation: Stanford University  
Class: Adults: 18-45 yrs.  
Scoring: Raw Scores  
Data Base Accessed: U.S. PS-Trait Norms Data Set  

### Problem Solving Traits

<table>
<thead>
<tr>
<th>Trait</th>
<th>Raw Scores</th>
<th>Percentile Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>diplomatic</td>
<td>5</td>
<td>48</td>
</tr>
<tr>
<td>perceptive</td>
<td>6</td>
<td>53</td>
</tr>
<tr>
<td>sensible</td>
<td>4</td>
<td>46</td>
</tr>
<tr>
<td>realistic</td>
<td>7</td>
<td>55</td>
</tr>
<tr>
<td>understanding</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>open-minded</td>
<td>4</td>
<td>49</td>
</tr>
<tr>
<td>rational</td>
<td>6</td>
<td>52</td>
</tr>
<tr>
<td>clear-headed</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td>fair</td>
<td>7</td>
<td>52</td>
</tr>
<tr>
<td>objective</td>
<td>5</td>
<td>51</td>
</tr>
</tbody>
</table>

11. Overall Profile Scores 52 52.3

Number of Respondents = 100,000 +  
Average Raw Score = 49.2  
Number of Items = 64  
Median/50th % Score = 50.6  
Highest Score = 96.7  
Standard Deviation = 7.19  
Lowest Score = 5.3
APPENDIX G

BOGUS RESULTS OF PERSONALITY INVENTORY:
AVERAGE EXPECTANCY/WEAK ARGUMENTS CONDITION
**Individual Test Results**

**Test ID:** 100,241

**Test Name:** Problem Solving/Trait Inventory  
**Sort:** Data Cluster  
**Principal Researcher:** Dr. Jack Harmon  
**Class:** Adults: 18-45 yrs.  
**Primary Affiliation:** Stanford University  
**Scoring:** Raw Scores  
**Data Base Accessed:** U.S. PS-Trait Norms Data Set

<table>
<thead>
<tr>
<th>Problem Solving Traits</th>
<th>Raw Scores</th>
<th>Percentile Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. sentimental</td>
<td>5</td>
<td>48</td>
</tr>
<tr>
<td>2. studious</td>
<td>6</td>
<td>53</td>
</tr>
<tr>
<td>3. gentle</td>
<td>4</td>
<td>46</td>
</tr>
<tr>
<td>4. neat</td>
<td>7</td>
<td>55</td>
</tr>
<tr>
<td>5. romantic</td>
<td>5</td>
<td>50</td>
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<tr>
<td>6. adventurous</td>
<td>4</td>
<td>49</td>
</tr>
<tr>
<td>7. obedient</td>
<td>6</td>
<td>52</td>
</tr>
<tr>
<td>8. reserved</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td>9. punctual</td>
<td>7</td>
<td>52</td>
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<td>10. thrifty</td>
<td>5</td>
<td>51</td>
</tr>
<tr>
<td>11. Overall Profile Scores</td>
<td>52</td>
<td>52.3</td>
</tr>
</tbody>
</table>

**Number of Respondents = 100,000 +**  
**Average Raw Score = 49.2**  
**Median/50th % Score = 50.6**  
**Highest Score = 96.7**  
**Lowest Score = 5.3**  
**Standard Deviation = 7.19**
1. To what extent do you agree or disagree with the researcher's general assessment of your potential for generating high quality solutions to hypothetical personal dilemmas? Circle the number between 0 and 10 that best represents your belief.

0-------1------2------3------4------5------6------7------8------9------10
strongly strongly
disagree agree

2. To what extend do you agree or disagree with the researcher's specific prediction regarding how well you will perform the solution generation task in this experiment? Circle the number between 0 and 10 that best represents your belief.

0-------1------2------3------4------5------6------7------8------9------10
strongly strongly
disagree agree

3. In your opinion, how accurate, overall, was the profile the researcher presented to you earlier? Circle the number between 0 and 10 that best represents your belief.

0-------1------2------3------4------5------6------7------8------9------10
very very
inaccurate accurate
APPENDIX I

AFFECT POLARITY SCALE
Circle the number closest to how you are feeling right now

<table>
<thead>
<tr>
<th>Feeling</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td>angry</td>
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<td></td>
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<tr>
<td>tired</td>
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<td></td>
<td></td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>confident</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pleased</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>disappointed</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

sad, calm, energetic, upbeat, unsure, displeased, delighted
APPENDIX J

LEVEL AND STRENGTH OF SELF-EXPECTANCY SCALE
THIS QUESTIONNAIRE ASKS YOU TO INDICATE HOW WELL YOU THINK YOU WOULD DO ON A TASK REQUIRING YOU TO GENERATE A LOT OF HIGH QUALITY SOLUTIONS TO OTHER PEOPLE'S INTERPERSONAL PROBLEMS. A HIGH QUALITY SOLUTION IS ONE WHICH COMPLETELY RESOLVES THE CONFLICTING ISSUES IN THE PROBLEM.

PLEASE USE THE AGREEMENT SCALE BELOW TO INDICATE THE DEGREE TO WHICH YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS. RECORD THE NUMBER CORRESPONDING TO THE APPROPRIATE SCALE POINT IN THE BLANK PROVIDED.

Agreement Scale

1-----2-----3-----4-----5-----6-----7-----8-----9
strongly disagree strongly agree

1.____ This task is well within the scope of my abilities.

2.____ I would not anticipate many problems in performing this task.

3.____ I feel I am more qualified to perform this task than most other adults.

4.____ This task would not be much of a challenge for me.

5.____ I would expect to do better than most other adults on this task.

6.____ I would expect to generate better solutions than the experts.

7.____ I would expect to perform very well on this task.

8.____ My personal qualities and background increase my confidence that I will be able to perform this task successfully.

9.____ This task would be very challenging for me.

10.____ I feel that high performance on this task will lead to outcomes I consider to be important.

11.____ I feel that the amount of effort I put into this task will affect my performance level.

12.____ I would anticipate having more problems than other college students in performing this task.

13.____ My past experience and accomplishments increase my confidence that I will be able to perform this task successfully.
Circle the response that most accurately reflects your feelings for questions 14 and 15.

14. I would expect my performance on this task to be:
   a) much better than other adults in this country
   b) better than other adults in this country
   c) just a little better than other adults in this country
   d) about the same as other adults in this country
   e) just a little worse than other adults in this country
   f) worse than other adults in this country
   g) much worse than other adults in this country

15. I would expect my performance on this task to be:
   a) much better than other college students in this country
   b) better than other college students in this country
   c) just a little better than other college students in this country
   d) about the same as other college students in this country
   e) just a little worse than other college students in this country
   f) worse than other college students in this country
   g) much worse than other college students in this country

Fill in the blank with any number from 0 to 100.

16. I would expect to generate significantly better solutions than ______% of other adults.

17. I would expect to generate significantly more high quality solutions than ______% of other adults in this country.

18. I would expect to generate significantly better solutions than ______% of other college students in this country.

19. I would expect to generate significantly more high quality solutions than ______% of other college students in this country.

20. I would expect to generate significantly better solutions than ______% of the experts.

21. I would expect to generate significantly more high quality solutions than ______% of the experts.
PLEASE USE THE CERTAINTY SCALE BELOW TO INDICATE THE PERCENT TO WHICH YOU ARE CERTAIN OF THE BELIEFS YOU EXPRESSED ON THE LAST TWO PAGES.

0%----10----20----30----40----50----60----70----80----90----100%
CERTAIN

Record any number from 0 to 100 that corresponds to the certainty of the beliefs you expressed in the blanks provided.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22a. All things considered, how well do you expect to do on the solution generation task? Circle the number that comes closest to your expectation.

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
very poorly

22b. Please indicate the three most important reasons why you expect to perform at the level you indicated in Question 1 above.

a. 

b. 

c. 

23a. All things considered, how certain are you of your belief regarding how well you will do (indicated in Question 1 above)? Circle the percentage that comes closest to your certainty level.

0--10%--20%--30%--40%--50%--60%--70%--80%--90%--100%

23b. Please indicate the three most important reasons for your certainty level.

a. 

b. 

c. 
APPENDIX K

LEVEL OF MOTIVATION SCALE
For the following questions, please circle the number which most closely represents how you fell.

1.

0——-1——-2——-3——-4——-5——-6——-7——-8——-9——-10
I don't care how well I do on the solution generation task.
I want to do well on the solution generation task.

2.

0——-1——-2——-3——-4——-5——-6——-7——-8——-9——-10
It is very unimportant to me to do well on the solution generation task.
It is very important to me to do well on the solution generation task.

3.

0——-1——-2——-3——-4——-5——-6——-7——-8——-9——-10
I am not at all motivated to try to achieve high performance on the task.
I am very motivated to try to achieve high performance on the task.
APPENDIX L

INTENTIONS TO EXERT EFFORT
For the following questions, please circle the number which most closely represents what you intend to do.

1.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10</td>
<td></td>
</tr>
<tr>
<td>I intend to do very little thinking about possible solutions to the problems.</td>
<td></td>
</tr>
<tr>
<td>I intend to think as hard as possible solutions to the problem.</td>
<td></td>
</tr>
</tbody>
</table>

2.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10</td>
<td></td>
</tr>
<tr>
<td>I intend to spend much less time than is probably needed to generate good solutions to the problem.</td>
<td></td>
</tr>
<tr>
<td>I intend to spend as much time as is needed to generate good solutions to the problem.</td>
<td></td>
</tr>
</tbody>
</table>

3.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10</td>
<td></td>
</tr>
<tr>
<td>I do not intend to experiment with different strategies for generation good solutions.</td>
<td></td>
</tr>
<tr>
<td>I intend to do a lot of experimenting with different strategies for generating good solutions.</td>
<td></td>
</tr>
</tbody>
</table>

4.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10</td>
<td></td>
</tr>
<tr>
<td>Overall, I intend to exert a very low degree of effort on the task.</td>
<td></td>
</tr>
<tr>
<td>Overall, I intend to exert a very high degree of effort on the task.</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX M

PERCEPTION OF EFFORT SCALE
For questions 1 to 4 below, please circle the number which most closely represents your honest perceptions of the amount and type of effort you exerted on the solution generation task you just completed.

1. Indicate the overall level of effort you exerted in working on the solution generation task you just completed.

   0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
   very low                  very high
   effort  level

2. Indicate the degree of cognitive effort (degree to which you "strained your brain") you exerted in trying to come up with many good solutions as you could to the experimental problem.

   0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
   very low                  very high
   degree of cognitive effort
   (I didn’t nearly as hard as I could)

3. How much time did you spend working on the solution generation task?

   0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
   I felt I spent very little time on the task

4. Indicate the extend to which you experimented with different strategies for generating good solutions to the experimental problem.

   0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
   I did no experimenting

   I did a lot of experimenting
APPENDIX N

TASK PERCEPTION SCALE
The following scales are to be used to indicate your perceptions of the task of generating high quality solutions to interpersonal conflicts. A rating of "1" corresponds to the words at the very left of the numbers, a rating of "8" corresponds to the words at the very right of the numbers, and the numbers "2" through "7" corresponds to a perception that falls in between these two endpoints. Please circle the number that best reflects your perceptions.

very easy 1 2 3 4 5 6 7 8 very difficult
very simple 1 2 3 4 5 6 7 8 very complex
very ambiguous 1 2 3 4 5 6 7 8 very straight-forward
very clear 1 2 3 4 5 6 7 8 very confusing
very interesting 1 2 3 4 5 6 7 8 very boring
very time-consuming 1 2 3 4 5 6 7 8 not at all time-consuming
required high degree of intellect 1 2 3 4 5 6 7 8 required very little intellect
required high degree of effort 1 2 3 4 5 6 7 8 required very little effort
required more effort 1 2 3 4 5 6 7 8 more intellect than effort

Please indicate any other comments in the space below regarding the task of generating high quality solutions to interpersonal conflicts that I may have failed to ask you about in the questions above.
APPENDIX O

PERSONALITY INVENTORY
PART I: WHICH ANSWER COMES CLOSER TO TELLING HOW YOU USUALLY FEEL OR ACT? Circle the appropriate letter.

1. When you go somewhere for the day, would you rather
   (a) plan what you will do and when, or
   (b) just go?

2. Do you prefer to
   (a) arrange dates, parties, etc., well in advance, or
   (b) be free to do whatever looks like fun when the time comes?

3. Are you more successful
   (a) at dealing with the unexpected and seeing quickly what should be done, or
   (b) at following a carefully worked out plan?

4. Does following a schedule
   (a) appeal to you, or
   (b) cramp you?

5. Does the idea of making a list of what you should get done over a weekend
   (a) appeal to you, or
   (b) leave you cold, or
   (c) positively depress you?

(On this next question only, if two answers are true, mark both)

6. In your daily work, do you
   (a) rather enjoy an emergency that makes you work against time
   (b) hate to work under pressure, or
   (c) usually plan your work so you won’t need to work under pressure?

7. When you have a special job to do, do you like to
   (a) organize it carefully before you start, or
   (b) find out what is necessary as you go along?

8. When it is settled well in advance that you will do a certain thing at a certain time, do you find it
   (a) nice to be able to plan accordingly, or
   (b) a little unpleasant to be tied down?

9. Do you
   (a) rather prefer to do things at the last minute, or
   (b) find doing things at the last minute hard on the nerves?

10. Do you think that having a daily routine is
    (a) a comfortable way to get things done, or
    (b) painful even when necessary?
11. When you think of some little thing you should do or buy, do you
(a) often forget it till much later, or
(b) usually get it down on paper to remind yourself, or
(c) always carry through on it without reminder?

12. Is it harder for you to adapt to
(a) routine
(b) constant change?

13. When you start a big project that is due in a week, do you
(a) take time to list the separate things to be done and the order of doing them,
 or, 
(b) plunge in?

14. In getting a job done, do you depend on
(a) starting early, so as to finish with time to spare, or
(b) the extra speed you develop at the last minute?

15. Do you find the more routine parts of your day
(a) restful, or
(b) boring?

16. Do you more often let
(a) your heart rule your head, or
(b) your head rule your heart?

17. Is it a higher compliment to be called
(a) a person of real feeling, or
(b) a consistently reasonable person?

18. Do you usually
(a) value sentiment more than logic, or
(b) value logic more than sentiment?

19. Do you feel it is a worse fault to be
(a) unsympathetic, or
(b) unreasonable?

20. Would you rather work under someone who is
(a) always kind, or
(b) always fair?

21. Do you feel it is a worse fault
(a) to show too much warmth, or
(b) not to have warmth enough?

22. Are you more careful about
(a) people's feelings, or
(b) their rights?
PART II: WHICH WORD IN EACH PAIR APPEALS TO YOU MORE?
Think what the words mean, not how they look or how they sound.
Circle the appropriate letter.

23. a) scheduled  b) unplanned
24. a) systematic  b) spontaneous
25. a) impulse  b) decision
26. a) punctual  b) leisurely
27. a) systematic  b) casual
28. a) changing  b) permanent
29. a) orderly  b) easy-going
30. a) quick  b) careful
31. a) gentle  b) firm
32. a) thinking  b) feeling
33. a) convincing  b) touching
34. a) analyze  b) sympathize
35. a) justice  b) mercy
36. a) compassion  b) foresight
37. a) benefits  b) blessings
38. a) determined  b) devoted
39. a) firm-minded  b) warm-hearted
40. a) peacemaker  b) judge
41. a) soft  b) hard
42. a) forgive  b) tolerate
43. a) who  b) what
44. a) uncritical  b) critical
45. a) wary  b) trustful
46. a) agree  b) discuss
For each of the statements below, please indicate whether or not the statement is characteristic of you. If the statement is extremely uncharacteristic of you (not at all like you) please place a "1" on the line to the left of the statement; if the statement is extremely characteristic of you (very much like you) please place a "5" on the line to the left of the statement. You should use the following scale as you rate each of the statements below.

1------------2-------------3-------------4-------------5
extremely     uncertain     extremely
uncharacteristic characteristic

somewhat  somewhat
uncharacteristic characteristic

____47. I prefer complex to simple problems
____48. I like to have the responsibility of handling a situation that requires a lot of thinking
____49. Thinking is not my idea of fun.
____50. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.
____51. I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
____52. I find satisfaction in deliberating hard for long hours.
____53. I only think as hard as I have to.
____54. I prefer to think about small daily projects to long-term ones.
____55. I like tasks that require little thought once I've learned them.
____56. The idea of relying on thought to make my way to the top appeals to me.
____57. I really enjoy a task that involves coming up with new solutions to problems.
____58. Learning new ways to think doesn't excite me much.
____59. I prefer my life to be filled with puzzles that I must solve.
____60. The notion of thinking abstractly is appealing to me.
61. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

62. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.

63. It's enough for me that something gets the job done; I don't care how or why it works.

64. I usually end up deliberating about issues even when they do not affect me personally.
APPENDIX P

HYPOTHETICAL PERSONAL DILEMMA
Research

You will be helping Joan with the following problem.

In order to increase her job opportunities upon graduation, Joan decided to work as a research assistant with a faculty member in the psychology department during her junior and senior years. Joan was not sure who to work with, so she sought advice from the head of the department, Dr. Johnson. Dr. Johnson suggested that Joan work with his good friend, Dr. Bundt, since Dr. Bundt is well known in his field, has good job contacts, and has many other students working with him. After working with Dr. Bundt for two months, Joan has realized that she is not enjoying the job. The other students working with Dr. Bundt appear to be very happy, but Joan finds that she is not interested in the research project that she was assigned to work on. In addition, she finds that she has a lot of work to do that is very time-consuming, with very little guidance provided on how to do what is required. Dr. Bundt himself turns out to be unfriendly and difficult to please. Joan is not sure what to do.
APPENDIX Q

THOUGHT–LISTING INSTRUCTIONS
FOR OBTAINING COGNITIVE RESPONSES
I am now interested in what you were thinking about while I was discussing your personal qualities and my expectations regarding how well you will perform on the solution generation task. You might have had ideas all favorable to what I said, all opposed, all irrelevant, or a mixture of the three. Any case is fine, simply list what it was you were thinking about while I was speaking. The next page contains the form I have prepared for you to use to record your thoughts and ideas. Simply write down the first idea you had in the first box, the second idea in the second box, etc. Please put only one idea or thought in a box. You should try to record only those ideas that you were thinking during the time I was speaking to you. Please state your thoughts and ideas as concisely as possible...a phrase is sufficient. IGNORE SPELLING, GRAMMAR, AND PUNCTUATION. You will have 3 minutes to write your thoughts. Don’t worry if you don’t fill every space. Please be completely honest and list all of the thoughts that you had.
APPENDIX R
RESPONSE SHEET FOR RECORDING THOUGHTS
Please list all the thoughts that occur to you in the boxes below. Put only one thought in each box. I will stop you after 3 minutes.
REFERENCES


Administrative Science Quarterly, 11, 238-263.


