THE EFFECT OF INSTRUCTIONAL FRAMING ON CHILDREN'S
TASK COMPLETION AND CLASSROOM COMPLIANCE

By

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ABSTRACT

To help children achieve academic goals, teachers must have specific, easy to administer, effective classroom management techniques. In the present study the potential of the “framing effect” for classroom management was explored. The term “framing effect” refers to the finding that people’s choices are affected by changes in how a situation is described or “framed”. Framing studies with adults have consistently shown that decisions made by adults are affected by the manner in which information is presented to them. The present study extended framing research from adult contexts to children in the classroom. It examined whether the way in which a teacher frames an instruction, makes a difference in children’s decisions to follow instructions.

Approximately 100 grade three and four students were instructed by their teachers (a) to complete an academic task and (b) to comply with a behavioral request, in two separate experiments. The teachers used unframed, and positive and negative framed instructions, including both individual and group consequences. The resulting student behavior was recorded. Analysis of group means was done using a-priori contrasts to determine if there was a treatment (framing) effect.

Results confirmed the hypotheses that framed instructions would result
in a reliably higher rate of task completion and behavioral compliance than unframed instruction. Improvement rates in task completion and behavioral compliance ranged from 20% to 30% over the five classes, and 20% to 70% in 32 out of 40 contrasts in individual classrooms. There was no reliable difference in task completion or behavioral compliance between positive or negative framing or between group or individual consequences. Exploratory analysis indicated no reliable sex difference.

Qualitative analysis indicated teachers were unanimous in their impression that the framed instructions were effective in increasing children's appropriate responses to instructions.

Future research might include the investigation of sex differences in framing response at various grade levels, investigation of the effect of the use of a time limit as a framing component, and the relationship between different framing components and personality constructs.
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DEDICATION

This thesis is dedicated to my mother, Rose Solymos, who sets no boundaries for her love and generosity, and who always sees a glass half-full.
CHAPTER ONE

INTRODUCTION

Teaching is an extremely complex activity. It has been estimated that elementary teachers engage in more than 500 separate verbal exchanges with individual students per day (Jackson, 1968). Because of the number of people involved within a classroom, any single transaction can have multiple consequences, each requiring different reactions from the teacher. In light of this, it is not surprising that classrooms are difficult to manage; they are multidimensional and unpredictable (Doyle, 1986).

Teachers regard the ability to control a class as a matter of prime importance (cf. Merrett & Wheldall, 1993). Consistent with this, research on effective teaching has indicated the importance of classroom conditions that depend directly on the ability of teachers to organize and manage their classrooms (Everston, 1989). In a research synthesis rating the importance of particular “Curriculum and Instructional Variables” most likely to influence learning, Wang, Haertel, and Walberg (1990) found that the

"...key to effective instructional design is the flexible and appropriate use of a variety of instructional strategies, while maintaining an orderly classroom environment. The highest overall rating in this scale was for use of techniques...to control classroom disruptiveness." (p.35).
Clearly then, it would be beneficial for teachers to be aware of as many strategies as possible for preventing management problems within their classrooms in order to ensure that those problems that can be prevented, are prevented. Nevertheless, it is common to associate classroom management with discipline and, therefore, to focus on the misbehavior of children. However, studies examining student engagement (time on task) have directed attention to work-related behavior and ways to increase and sustain involvement in classroom events, thereby decreasing misbehavior (Doyle, 1986). This emphasis on sustaining involvement in classroom events is consistent with proactive management techniques. Researchers on classroom management have gradually shifted their focus away from discipline problems and corrective techniques, towards proactive management and preventative measures (Froyen, 1988).

Dealing with student discipline problems in the classroom using proactive management and preventative measures is in contrast to traditional models of classroom management. Traditional models tended to focus on how to correct problems once they have occurred. This often leads to the use of punishment. Punishment can generally be defined as taking away something desirable (e.g., the loss of a privilege) or imposing something unpleasant (e.g., extra work, insulting remarks). Although it may be
temporarily effective, the use of punishment may also produce an escalating round of conflict between student and teacher (Froyen, 1993). For example, if a teacher's response to unfinished homework is to assign extra homework, the student's response may be to refuse to comply with the teacher's request in an entirely different circumstance. "...Behavior problems do not occur in a vacuum. Students engage in certain behaviors as a result of numerous factors operating in the environment" (Smith & Misra, 1992, p.354).

Another important factor leading to emphasis on proactive management techniques is that teachers can no longer be certain that principals or parents will support their response to children's misbehavior (Froyen, 1993). They may even face the suggestion that either negligence or incompetence on the part of the teacher is largely responsible for the problems they encounter in their classrooms. This situation stems, in part, from the fact that response to misbehavior is extremely subjective and variable. Because a great deal depends on the personality of the teacher, the student and the classroom dynamics, the teacher has at least some chance of exacerbating, instead of helping the situation (Froyen, 1993). Rather,

"...teachers should first reduce the possibility that inappropriate behavior will occur; second, reinforce appropriate behavior when it occurs; and third, punish inappropriate behavior to minimize recurrence." (Smith & Misra, 1992, p.355).
Both teachers and students would benefit significantly if the occurrence of misbehavior was minimized, rather than be forced to deal with the misbehavior after it occurs. What teachers must do is structure teaching-learning events to maximize cooperation and compliance and prevent conflict. The present study was constructed with this goal in mind.

THE PROBLEM

The understandings teachers have of classroom management processes and classroom order have a substantial impact on how they manage their classrooms. However, there is a scarcity of research using cognitive models to articulate management principles (Doyle, 1986). It is hoped that the present study will add to this body of research by applying research from the field of decision-making to classroom management.

Decision-making as a form of cognition provides opportunities for the development of problem-solving processes and allows children experiences in generating, predicting, acting upon, and evaluating alternatives. Making decisions ultimately leads to the development of autonomy and independence (McNairy, 1985). In contrast to the volume of research on the effect of pre-decisional information on adult decision-making, there has been very little research concerned specifically with how pre-decisional information or framed
instruction might affect children's decisions within the classroom or elsewhere. Therefore, the extent to which the information framing effect would generalize to classroom-related decisions made by children as a result of framed instruction remains an open question. If the information framing effect does generalize to the classroom, it may be one proactive management technique that teachers could use to enhance task involvement and decrease the occurrence of inappropriate behavior in the classroom.

RATIONALE

Research in adult decision-making has shown that "information framing" produces a "framing effect" that influences one's decisions. The term framing effect refers to the finding that peoples' choices are affected by pre-decisional information in which there are differences in how a situation is described or framed (Tversky & Kahneman, 1981). That is, choices are dependent on how the presented information is framed or worded.

Information framing research with adults has taken place in non-academic contexts and has investigated how the labeling or framing of information affects a variety of judgments and decisions. Stimulus dimensions shown to be susceptible to framing effects in these studies include consumer product attributes, properties of gambling, contracts for labor negotiations and
student performance measures (Levin, Schnittjer, & Thee, 1988; Tversky & Kahneman, 1981). Methods of presenting these dimensions have ranged from listing attribute values to scenarios in which the framing manipulation is embedded within a story-like context. The effects of positive and negative information framing, as indicated by these studies, appear to be robust and pervasive.

Tversky and Kahneman (1984) have found that any decision problem takes the form of a choice between maintaining the status quo and accepting an alternative to it. The alternative may usually be said to have advantages as well as disadvantages. Disadvantages may be looked upon as losses, while advantages may be seen as gains. Generally, people have been found to be more averse to incurring losses than to achieving gains (Kahneman & Tversky, 1979). That is, when the loss or the probability of the loss is included in pre-decisional information, individuals are less willing to gamble than if that information had not been presented. In other words, the inclusion of negative information acts as a deterrent to taking a gamble. Tversky and Kahneman's (1979) findings on framing effects suggest that phrasing or framing information in positive terms (e.g., chances of winning a gamble) leads to more favorable associations than does framing the same information in negative terms (e.g., chances of losing the gamble).
Tversky and Kahneman (1981) found that choices were greatly affected by changes in the "context" or "framing" of problems. They found that when the information framing indicated a sure loss, individuals tended to choose a risk-taking alternative. Conversely, when the information framing indicated a sure gain, individuals tended to choose a risk-aversive alternative. They concluded that the way an instruction is framed greatly influences the decisions made. Further to this, Levin (1985) reported a difference between the effect of one- and two-attribute frames on choice. Specifically, individuals tended to avoid a gamble when they were aware there was a sure loss and the probability of that loss, but tended toward the gamble knowing there was a sure gain and the probability of that gain.

How children make decisions is a question still very much under discussion. This is partly due to the fact that exactly what cognitive processes children use to make decisions is a relatively recent area of research. In addition, there has been limited research into decision processes from a developmental perspective (Klayman, 1985). However, information framing, which is a form of pre-decisional information, has been shown in various studies to have significant effects on adults' decision-making (Tversky & Kahneman, 1981). An important implication of information framing is that "the preferences we construct depend on the questions we ask ourselves, and
hence the selection of questions is an essential part of the construction" (Shafer, 1986, p.40). In other words, preferences have to be looked upon as somewhat unstable and possibly as existing only in our minds. As a result, the pre-decisional information we present to children may influence their considerations and the questions they ask themselves, and may well be crucial to the decisions they ultimately make.

If we consider following teacher's instructions in the classroom a risk-aversive alternative and not following teacher's instructions in the classroom a risk-taking alternative, Tversky and Kahneman's findings (1981) suggest that we may be able to produce an instructional framing effect. That is, the way instructions are framed in the classroom may impact children's decisions to follow them. Because of the considerable effect information framing has on decision-making in general, it seems reasonable to believe that teachers can produce an instructional framing effect on children's decisions and subsequent behavior within the classroom. They may be able to increase task completion and behavioral compliance by "framing" their instructions.

Applied to the classroom, this may mean that if teachers include positive consequences attached to the desired behavior in their instructions, children will more likely attend to the gain, or the consequence attached to the appropriate behavior. Also, if the information regarding the negative
consequence attached to the non-preferred behavior is included in teacher's instructions, the children will more likely avoid the non-preferred behavior and the loss. Rather, they may be more likely to maintain the status quo, more so than if the negative consequence was not included. These speculations, in turn, suggest that a two-attribute frame including what is to be gained or lost and the probability of gaining or losing it will cause children to tend toward the compliant behavior.

The types of consequences generally used within a classroom may be divided into two broad categories: consequences based on group contingencies and consequences based on individual contingencies. The effect of individual and group contingencies for consequences has been studied in the context of modifying both academic and behavior problems. Conclusions on the effect of the use of individual and group contingencies for consequences in the classroom have been mixed. Thomas, Lee, and McGee (1987) found that individual contracts were more effective with certain age groups. Shapiro and Goldberg (1986) found no differences between types of group contingencies for consequences, although they found that students expressed preference for individual contingencies for consequences. Gresham and Gresham (1982) found interdependent group consequences to be most effective.
There is some evidence to suggest there is a difference in the decision made when framing includes group versus individual consequences. Paese, Bieser, and Tubbs (1993) found that the difference in risk preference became larger at the group level than at the individual level. They observed that when individuals share the same information frame for an impending group decision and the decision is not reframed prior to group discussion, framing effects at the group level appear to be stronger than those at the individual level. They concluded that when group members share a common frame of reference at both the individual and group levels, the group decision may polarize toward either greater caution or greater risk-taking, depending on whether the shared decision frame is positive (gains) or negative (losses). Paese et al's (1993) study may mean that in the classroom, a two-attribute positive or negative frame, with a group contingency for a consequence as the second attribute, may be even more effective than a two-attribute frame with an individual contingency for a consequence.

There are many variations of specific consequences available for teachers to use, both individual and group. Social reinforcers such as facial expressions, words, and proximity, activity reinforcers such as extra computer or physical-education time, and tokens, are all suitable (Smith & Misra, 1992). Teachers are most likely, however, to implement an intervention including
consequences when the required amount of time and resources are reasonable, when the intervention is not punitive and when it is perceived as being effective (Rosen, Taylor, O'Leary, & Sanderson, 1990). Instructional framing may be said to require reasonable amounts of time and resources and may be non-punitive. What remains to be demonstrated is the effectiveness of instructional framing. That is, do two-attribute, framed instructions have an effect (shown through previous research in non-academic contexts) on children's classroom compliance? A two-attribute framed instruction would include a teacher request, the consequence attached to that request, and the probability of that consequence occurring. If two-attribute, framed instructions do have an effect, is this effect large enough for practical use of framing as a classroom management strategy?

**THE SCOPE OF THE STUDY**

The present study applied information framing theory (Levin et al., 1985; Tversky & Kahneman, 1981) to children's task completion and behavioral compliance in the classroom. The effect of the framed instruction was determined by the responses of the children as recorded by the teacher. Analyses examined the difference between the effects of an unframed instruction (e.g., how teachers might ordinarily express an instruction), and the
effects of four contrived two-attribute framed instructions: (1) a two-attribute positive frame with a group contingency for a consequence; (2) a two-attribute positive frame with an individual contingency for a consequence; (3) a two-attribute negative frame with a group contingency for a consequence and (4) a two-attribute negative frame with an individual contingency for a consequence.

Compliance has traditionally been perceived as feminine sex-typed behavior, and more characteristic of girls (Brophy & Good, 1974). However, to the best of my knowledge only one study (Fagley & Miller, 1990) has reported a stronger framing effect for women than for men. In the absence of clear direction that the effect of framing is sex-typed, it was not possible to predict whether there would be an interaction between framing and sex. Therefore, for exploratory purposes only, data were analyzed for sex effect.

The general research question in this study was as follows:

What is the effect of positively and negatively framed instructions, which include the consequences of behavior and the probability of the consequences occurring, on children's decisions to follow teacher instructions in the classroom?

The specific questions included the following:

1. Is there a difference in the effect of unframed instructions and two-attribute positive and negative framed instructions on student decisions when they are
asked to: (a) complete an academic task, (b) follow a behavioral instruction.

2. Is there a difference in the effect of two-attribute positive and negative framed instructions in 1(a) and 1(b) above when the student's decisions have consequences for: (a) self, (b) group.

These questions were addressed in two separate experiments. The first experiment involved academic instructions and the second experiment involved behavioral instructions. The second experiment was a replication of the first, with the exception of the dependent variable, and was done to demonstrate reliability of results. Before each experiment began, teachers were audio-taped from 270 to 360 minutes during teaching time with their classrooms. This was done to establish whether the teachers used primarily positive, negative or no consequences as part of their management procedures.

In Experiment One, classroom teachers presented an unframed instruction, a two-attribute positive, and a two-attribute negative framed instruction to students in their classroom requesting completion of an academic task. The frames were delivered with a group contingency for a consequence and with an individual contingency for a consequence. The dependent variable was the completion of the academic task. Experiment Two was a replication of Experiment One, differing only in the choice of the
dependent variable which required following a behavioral instruction.

The present study was conducted in a naturalistic environment, with teachers as research assistants. According to Erickson (1986),

"If classroom teaching in elementary and secondary schools is to come of age as a profession - if the role of the teacher is not to continue to be institutionally infantalized - then teachers need to take the adult responsibility of investigating their own practice systematically and critically, by methods that are appropriate to their practice" (p.57).

In this study, teachers were given the opportunity to be a part of the investigation by acting as research assistants. As such, they chose the consequences they felt comfortable using, and were responsible for delivering the frames and for recording the children's responses to the treatments. Their observations took place in the classroom as they were involved in day-to-day activities with their students. Teachers used their own judgments regarding where and when to use framed instructions and the extent to which compliance occurred. They were asked to complete a Social Skills Rating Scale for each student. In addition, teachers gave their impressions of the effectiveness of the framed instruction; discussed which frames they would subsequently be likely to use, and evaluated the prospect of using framing as a classroom management tool.

Because the children made the decisions, the unit of analysis was each
child's response as judged by the teacher. Teachers were expected to deliver the treatment uniformly. Although teachers were not a factor in the analyses, post-hoc analyses were done to determine if there was a teacher effect.

**Benefits of the Study**

There are several reasons why this study has significance for both theoretical literature and instructional practice. It adds to decision-making theory by extending information framing theory to educational practice. It provides evidence for the contention that the effects of two-attribute, positive and negative information framing may be generalized to decisions made by children in the classroom, a context not studied before. Thus, a contribution is made to the generalizability of framing theory.

In terms of potential practical benefit, the pre-decisional nature of information framing suggests it may be used as a preventative classroom management technique. The importance of preventative strategies in the classroom is evident when the implications of the decisions children make regarding their actions in the classroom are examined. A child's decision to follow teacher's instruction may enhance the classroom atmosphere the teacher wishes to maintain. A child's decision to complete a learning task also has serious implications for that child's learning and the teacher's ability to
teach. Evidence for the framing effect is presented in the Chapters to come.
CHAPTER TWO

REVIEW OF THE LITERATURE

The rationale used to establish the viability of framing of instructions by teachers to increase children's task completion and behavioral compliance was based on the research reviewed in this chapter. The review is organized into six major parts. The first part is an overview of theory and research on classroom management. The second part is a discussion of decision-making theories and research. The third part focuses specifically on decision-making in children and includes literature concerning children's use of pre-decisional information and decision characteristics. The fourth part is a review of pertinent research on the "framing effect" and includes research suggesting why information framing may be expected to affect the decision-making and subsequent behavior of children in the classroom. Part five includes research on teachers' use of individual and group consequences for children's classroom behavior. Part six summarizes the rationale for the development of the framed instructions as a classroom management technique.

PART ONE: CLASSROOM MANAGEMENT

Classroom management has been defined as the "provisions and
procedures necessary to establish and maintain an environment in which instruction and learning can occur" (Duke, 1979, p.xii). Classroom management has in the past, commonly been associated with discipline, control or similar terms suggesting management of unacceptable student behavior. Management of student behavior has been seen as a precursor to instruction (Doyle, 1986). During the 1960s and much of the 1970s, emphasis in management approaches was on discipline and what to do after the students misbehaved (Jones & Jones, 1986). These reactive methods focused on counseling to help children understand themselves and resolve their conflicts (Brophy, 1983). The counseling approaches used included Glasser's Reality Therapy (Glasser, 1965), Dreikurs' logical consequences (Dreikurs & Cassel, 1972), and Gordon's response to misbehavior through problem-solving and communication (Gordon, 1974). The early 1970s also saw the development of several action-oriented, behaviorally-based programs. Cantor's (1976) Assertive Discipline, which emphasizes control over disruptive student behavior, was one of the most popular programs. Recently, the traditional methods of classroom management, including discipline and control, have been supplemented by an emphasis on preventing behavior problems (cf. Gettinger, 1988).

The shift towards prevention of behavior problems in the classroom
parallels a general movement in society toward prevention of problems across the life-span in all community settings (Froyen, 1993). In education, this emphasis on prevention, including the planning for, and encouragement of productive behavior, has come to be known as “proactive classroom management.” Proactive classroom management has three characteristics that distinguish it from other management techniques: 1) it is preventative rather than reactive; 2) it integrates methods that facilitate appropriate student behavior with procedures that promote academic achievement using effective classroom instructional techniques; and 3) it emphasizes the group dimensions of classroom management. That is, the minimization of disruptive behavior by individuals is often accomplished through well-managed group activities (Gettinger, 1988).

Interest in proactive classroom management may be traced to Kounin’s (1970) study of elementary classrooms. Kounin and his colleagues analyzed videotapes of two types of classrooms: smoothly functioning, well-organized classrooms and ineffectively managed classrooms. The researchers expected to find differences in disciplinary techniques, but instead found similar reactions to student misbehavior. The differences in the classrooms existed in the actual occurrence of misbehavior. That is, more effective teachers were more skilled at proactive or preventative classroom management. Generally,
Kounin (1970) found that successful classroom management depended on teachers’ ability to “...monitor and minimize disruptions and to maintain high levels of work involvement among students” (cf. Gettinger, 1988, p. 230). He described the proactive behaviors characteristic of effective teachers as “withitness” (teachers’ ability to remain aware of what was happening in classrooms and communicating this awareness to the students); overlapping (attending to simultaneous events); smoothness and momentum in lessons, and group alerting (sustaining a group focus). The smoothness and momentum in lessons included continuous activity “signals” or “cues” to students. Management problems were observed to be more frequent when students had no clear signal or task on which to focus. Group alerting techniques included motivational comments.

Kounin’s (1970) findings provided the impetus for research in proactive management. Of particular interest for the present study were Kounin’s observations that a clear task focus, motivational comments and high-level work involvement were key to preventing misbehavior. Management effectiveness is often described as a function of student involvement in academic tasks (cf. Gettinger, 1988). Instructional framing may include motivational comments that help students to focus on task, and as a result help increase student’s task involvement and decrease misbehavior.
During the 1970s, research on "teacher effectiveness" was also growing. Gettinger's review (1988) indicated much of this research grew out of the process-product tradition of classroom research which she defined as the "relationships between teacher behaviors in the classroom (the processes of teaching) and student outcomes (the products)" (Gettinger, 1988, p.228). Brophy (1982) and Good (1979) indicated that teacher-effectiveness research clearly found that classroom management skills were very important for effective teaching. Researchers at the Research and Development Center for Teacher Education at the University of Texas-Austin demonstrated that teachers who have managerial problems in the first few days of school have continuing problems throughout the year, and that managerial success relates to student involvement and achievement (Emmer & Everston, 1981; Good, 1979). Among the instructional management behaviors of teachers that correlated strongly with achievement were "minimizing disruptions and discipline problems" (Brophy & Everston, 1976, p.51). Other research findings indicate that irrespective of any one instructional curriculum or program,

"...how effectively teachers manage their classes is related to students' progress in the acquisition of basic skills. Thus, it seems clear that effective managerial techniques, running classrooms with minimum disruption and maximum student task involvement, are strongly associated with student learning." (Gettinger, 1988, p.228).
In addition to findings confirming the importance of classroom management skills to learning, the shift in emphasis to proactive management and preventative measures has been due in part to the fact that, historically, counseling intervention programs for reducing behavioral difficulties have, at best, met with mixed success (Dodge & Crick, 1990). Emphasis on prevention has led to an attempt to understand the mechanisms involved in the development of aggression. To this end, a theory based on the understanding of how specific aggressive behavioral responses come about in social interactions began to take shape (Dodge & Crick, 1990). Bandura and Walters (1963) rejected psychoanalytic theory and developed a theory concerned with how children and adults operate cognitively on their social experiences and how these cognitive operations then come to influence their behavior and development (Grusec, 1992). Social cognitive theory considers the cognitive processes involved in an individual's responses to provocative social stimulus and

"...relies heavily on an understanding of how individuals perceive cues, make attributions and inferences about those cues, generate solutions to interpersonal cues and problems and make behavioral decisions about how to respond to those problems" (Dodge & Crick, 1990, p.9).

By understanding what specific cues affect behavior, behavioral change can be facilitated.
Social cognitive theory suggests that aggressive responses are not inevitable, rather, they are contingent on specific thoughts and patterns of processing information (Dodge & Crick, 1990). Individuals are believed to abstract and integrate information encountered in various social situations. Through this abstraction and integration they represent themselves and their environments in cognitions including response-outcome expectancies, perceptions of self-efficacy, and standards for evaluative self-reactions (Grusec, 1992). Social cognitive theory, therefore, lends itself to research aimed at preventing classroom problems. That is, if we could change behavior by changing the cues (information presented) being processed, we would be able to selectively present information that would be more likely to prevent behavior problems and disruption in the classroom. Consequently, teachers would be able to help children to choose appropriate behavior over inappropriate behavior, thereby not only helping to maximize learning, but enhancing the child's perception of self-efficacy and providing standards for evaluative self-reactions (Bandura & Walters, 1963).

Evertson (1985, 1989) found that teachers who have been trained in classroom management techniques had lower off-task rates, less inappropriate behavior, and were able to plan and implement routines that helped the year to begin effectively. Evertson (1989) theorized that although
the concepts presented to teachers were not new to them, they benefited from the opportunity to examine their own practice, and from having a rationale and a framework within which to fit the teaching techniques. This suggests that teachers who use instructional framing techniques should benefit from having a theoretical rationale within which to fit the use of consequences, as well as from the examination of their own practice.

In summary, as a result of research indicating the importance of skillful classroom management, the continuing difficulties teachers face in terms of behavior management in the classroom, the lack of success of traditional methods in preventing classroom problems and the general shift in society toward prevention of problems, current research in classroom management has shifted toward prevention of problems and proactive management (Froyen, 1993). Proactive classroom management research seems to indicate that when classroom management techniques are able to minimize disruptions and discipline problems, student learning increases (Gettinger, 1988). Similarly, when students are provided with a focus and motivational comments, and are engaged in academic tasks, disruptions are minimized. In addition, social cognitive theory suggests that inappropriate behavior is not inevitable, and may be influenced by the information that is presented and processed. Social cognitive theory purports that specific thoughts and
patterns of information processing determine specific behavior, and that if the information presented can be modified, then so can the resulting behavior (Dodge & Crick, 1990). This allows the conclusion that if teachers can provide students with information that will help them to choose appropriate behavior, classroom disruptions should decrease and student learning should increase. The present study set out to determine whether the information we provide to children in the classroom can help them make choices that will ultimately maximize their learning through increased task completion and behavioral compliance.

**PART TWO: DECISION-MAKING THEORIES AND RESEARCH**

Any behavior is the result of processing information to reach a decision from various options. In order to help children choose appropriate behavior over inappropriate behavior, we need to establish whether specific information presented to a child changes his or her choice of one behavior over another. Because there is not a great deal of research focusing on how children make decisions, it is necessary to rely on the extensive research on adult decision-making for theoretical and methodological guidance in understanding decision-making in children (cf. Davidson, 1991).

In one of the early reviews of research on decision-making, Slovic,
Fischhoff, and Lichtenstein (1977) stated that behavioral decision theory has two interrelated facets, normative and descriptive. Normative theory prescribes courses of action that conform to the decision maker’s beliefs and values, whereas descriptive decision theory describes those beliefs and values and the way in which individuals incorporate them into their decisions. In general, normative decision rules are designed to make maximum use of all the information relevant to the evaluation of each alternative in a choice situation. These rules imply a complete search of all the information available and a "compensatory" (choosing of options based on the most important dimensions) evaluation process. That is, "they involve a quantitative evaluation of each attribute of each alternative and a balancing of one attribute or dimension against another according to their relative importance or weight" (Klayman, 1985, p. 181).

Descriptive research has relied on normative models when studying how people perceive, process and evaluate probabilities. However, when normative models were found to be violated in all but very specific instances, they served only as the starting point from which the descriptive models were produced. Generally, researchers have concluded that because of the limitations of people’s information processing capacities, their judgments and decisions are subject to systematic bias, with the result that normative
decision models have not been very effective in predicting decisions that people make (see Einhorn & Hogarth, 1981; Kahneman & Tversky, 1984). Consequently, the descriptive models, which examine how people actually make decisions, rather than prescribing how people should make decisions, are the models most useful in current behavioral decision research (Fischhoff, 1988). Therefore, research within the field of behavioral decision theory has, more recently, focused on describing how people actually identify alternative options; how they identify possible consequences; how they assess the desirability and likelihood of those consequences occurring; and what decision rules they use to make a choice (Fischhoff, 1988). In addition, researchers began to look at how the underlying cognitive processes in probabilistic thinking were affected by the limitations of the thinker and the interaction of the demands of the task (Slovic et al., 1977). Much of this emphasis on the limitations of the thinker was due to Tversky and Kahneman's (1974) findings that pointed to the "heuristics" of representativeness, availability and anchoring. Their research indicated that these heuristics are used to simplify problems and may sometimes lead to large, systematic bias in decision-making.
Kahneman and Tversky hypothesized (1974) that judgmental bias in individual decision-making could be caused by reliance on heuristics such as "representativeness" and "availability". The "representativeness" heuristic is invoked when an outcome is highly representative of the process from which it originates. As a result, the probability of the outcome is judged to be high. In a classroom, the representativeness heuristic may become a factor in a situation where students do something that they feel is similar to an action usually rewarded by the teacher in order to experience the outcome, that is, a reward from the teacher. For example, the teacher may make an approving comment when one student helps another by explaining how to do a particular math problem. The representative heuristic may cause another student to give a math answer to a fellow student, expecting the teacher to reward the behavior with an approving comment.

The "availability" heuristic causes a bias whereby an event is judged likely or frequent if it is easy to imagine or recall relevant instances of that event. Events of frequent occurrence are usually easier to recall than instances of less frequent events. "Availability" is also affected by other factors unrelated to likelihood, such as familiarity, recency and emotional
saliency. As a result, reliance on "availability" may cause systematic bias (Kahneman & Tversky, 1974). In the classroom, this may be illustrated by consistency and predictiveness of teacher routines. The availability heuristic may cause students to incorrectly predict one event over another. For example, students in a class may have one teacher for two different subjects on alternating weeks. Even if a routine is clearly established, the students may inevitably anticipate the teacher will be teaching the subject they prefer every time he comes and feel disappointed when they find it is time for the subject they prefer less.

As problems become increasingly more complex, an important problem-solving component may be the ability to modify strategy using heuristics in order to balance relevant factors. This ability, in turn, may be developmental. Children may not have the techniques needed to simplify problem-solving as a result of their own limitations in thinking ability. It may follow that by providing children with pre-decisional information that reduces, as much as possible, the need for simplification through the use of heuristics, we may be able to help them use all of the information available to them to make appropriate and expected decisions.
FRAMEWORK FOR DECISION-MAKING

Regardless of the idiosyncrasies of an individual's processing ability and the specific situation involved, the steps people go through when making decisions are relatively consistent (Fischhoff, 1988; Kahneman, Slovic, & Tversky, 1982). Both the normative and behavioral perspectives use a similar framework for describing what people should be doing (in the normative perspective) or for analyzing what they actually do (in the behavioral perspective). The normative perspective maintains that individuals follow particular decision rules, whereas the behavioral models have not yet established generalized decision rules (Fischhoff, 1988; Kahneman et al., 1982). Furby and Beyth-Maron (1992) have outlined the steps in decision-making, for both the normative and the behavioral model, as follows:

1. The decision maker identifies the possible options. Any choice usually depends not only on the characteristics of the selected option but on the characteristics of the other options considered. Thus, the identification of all feasible options should be the first step in any process of decision-making. For a decision to engage in a particular behavior there are two options: to engage in it or not (e.g. Should I do what my teacher has asked me to do or not?). Other decisions may call for consideration of more than two alternatives.

2. Identify the possible consequences that may follow from each option. Typically, the possible consequences differ from option to option. Even if they were identical, one would still have meaningful decisions to make as long as the probabilities of consequences varied across options. By stating the consequence of a choice, the teacher makes it clear what the
consequence of the preferred option is. (What will happen to me if I do what my teacher asks?)

3. Evaluate the desirability of each of those consequences. By Furby and Beyth-Maron's (1992) definition, risk is present in a decision only if at least one possible consequence is valued negatively (i.e., entails some loss). By stating the consequence of the preferred choice, the teacher is able to make the student aware of the gain connected to the preferred choice, possibly enhancing the desirability of that choice. By stating the loss connected to the undesirable behavior, the teacher makes that choice less desirable. (If I do as the teacher asks I will be able to gain a point. If I do not do as she asks I will lose a point).

4. Assess the likelihood of those consequences. Whenever the likelihood of any of the possible losses is greater than zero but less than one, then risk perception is a potentially important element of the decision-making situation. It may follow that if the child perceives certain gain with no risk in an alternative, that alternative may be more attractive than another alternative. In the classroom, gain may be defined in various ways: i.e., there may be perception of status (gain) by not following the teacher’s directions; there may be attention gained by not complying with the teacher's instructions, etc. However, by stating the probability of the gain connected to the preferred behavior, the teacher lets the children know that there is a sure gain involved with the preferred behavior, but they are presented with a risk (e.g., Will they achieve their goal of attention or status?) when choosing the alternate behavior.

5. Combine the above according to some "decision rule" in order to identify the "best" option. A widely accepted criterion for the best option is that which maximizes one's well-being. One definition of "rational" behavior is choosing that option which appears to maximize well-being, given the decision maker's knowledge and beliefs (e.g., about consequence probabilities and values). Thus, using a given decision rule, the optimal choice depends on that decision maker's personal values and perceptions. In the present study, the goal was to have the children value the gain associated with the consequence of the preferred option more than the gain they perceived they would receive from the alternate option. In order to help them reach this decision, they had to be made aware that the choice of the inappropriate behavior involved a risk of losing something.
All of the steps in the decision-making process outlined above were of special interest in this study. These steps show why we would expect framed instruction to affect children's decisions to comply. This study was concerned with determining whether the specific wording of the options and their consequences would have an effect on decisions made by children in the classroom.

In summary, rather than follow the principles described in normative decision-making theory, research has established that people often rely on various heuristics or simplification techniques to help them make decisions about complex problems (Slovic et al., 1977; Einhorn & Hogarth, 1981). In addition, individuals tend to consistently follow a specific set of steps in order to reach a decision (Furby & Beyth-Maron 1992). Included in these steps is the identification of the options available and the consequences that follow those options, both of which can be identified in pre-decisional information.

**PART THREE: DECISION-MAKING IN CHILDREN**

Although adult decision-making has been studied extensively, much less is known about children's decision-making. In order to consider how framed instructions may affect children's decisions to comply, we need to examine what we do know about children's decision-making. This section will
examine the characteristics of children's decision-making and the characteristics of the instructional sets that may affect their decisions. The implications for the design of the present study are presented.

**INFORMATION PROCESSING**

We know relatively little about how decision-making skills develop (Pitz & Sachs, 1984). Most cognitive developmental research has treated decision-making strategies as hierarchical, with newer, better strategies superseding inferior ones. In addition, research on children's decision-making has focused on the development of cooperative and competitive behaviors and not on decision-making per se (Chao, Knight, & Dubro, 1986). Several recent studies have, however, used an information processing perspective to assess how children use information from varying instructional sets.

Information processing research shows that young children's performance on social decision-making tasks is often dependent on the match between the instructional set and the child's general information processing capabilities. That is, there seems to be evidence that age differences in social decision-making are connected to the ability of the child to apply the processes needed to complete the necessary cognitive steps (Chao et al., 1986). For example, young children have difficulty estimating the numbers in
sets larger than three or four (Gelman, 1972), do not take part in social comparison in some situations (Ruble, 1983), and despite knowing the processes required in a task, are not always able to execute them (Sternberg & Powell, 1983). This suggestion of task-specific cognitive demands and problem-solving is compatible with the inconsistencies in the developmental research. Chao et al. (1986) found that if young children (age range three to seven) have sufficient difficulty with the information processing requirements of a task, they may avoid making complex social decisions in favor of simpler social decisions. However, if the social decision-making situation forces the child to use appropriate strategies and/or provides and makes certain information salient, then young children may make complex social decisions. This finding is consistent with decision-making research. Decision-making research with adults suggests that they use simplifying techniques or heuristics when making complex decisions. If children are unable to apply certain simplifying techniques, they may be unable to make complex decisions and consequently avoid making them. The finding that children, when shown appropriate strategies, can make complex decisions is relevant to this study. It suggests that framed instructions, by making specific information salient, may have an effect on children's behavior choices. The need to make information more "usable" for children is supported by findings from research
on children's pre-decisional information gathering.

**Children's Use of Pre-Decisional Information**

Young children's pre-decisional information gathering may follow different, less adequate strategies than that of older children and adults. In Davidson's study (1991), seven- and eight-year-old children searched information exhaustively before making a decision. Their justifications indicated they used that information to make decisions. This may represent improvement in searching behavior in light of Vurpillot's (1968) finding that children younger than five or six, when required to inspect pictures of two house fronts and decide if they were the same or different, based their decisions on an incomplete comparison of critical features. Similarly, using a picture comparison task, Rothman and Potts (1977) found that kindergarten children preferred a strategy that was incomplete and required preliminary analysis of the problem situation, whereas fourth graders preferred a more accurate but exhaustive strategy. Davidson's (1991) results suggested that older children (seven and eight year olds) are more likely than younger children (five and six year olds) to use relevant information to guide their searches of pre-decisional information. Younger children are more likely to include less relevant information in their decisions. Davidson (1991)
concludes that although younger children did not search completely haphazardly, it was not clear how they made their decisions.

Jacobs and Potenza (1991) attempted to establish whether children used the representativeness heuristic identified by Kahneman and Tversky (1972, 1973) or baserates (the number of times something occurs) to make social decisions. They concluded that as children get older, they begin to use baserate information more often, using it in the social domain when no other information is available. At the same time, they found that the use of the representativeness heuristic increases with age for social decisions. Jacobs and Potenza's (1991) results seem to suggest that instructional framing will have an increasing effect on children as they get older. If their interpretation is correct, as children get older they collect sufficient information about the social situations they are in to use baserates when making a decision. Younger children (age 5, 6), on the other hand, are more likely to rely on personal preference when making their decisions. Older children may have had enough experience with the social consequences of compliance and non-compliance with teacher instructions, for framing to have a significant effect as a classroom management technique. For example, children in Grade Three or Four most often avoid hitting other children in full view of the teacher knowing there is likely to be an unpleasant social consequence in the form of
punishment or disapproval.

**RELEVANT DECISION CHARACTERISTICS**

Studies indicate that decisions of children as young as seven or eight years old are influenced by the characteristics of the decision task (Davidson, 1991). This is consistent with findings of studies with adults (Payne, 1976) and with 12-year olds (Klayman, 1985). Davidson (1991) found that children searched similar amounts of information for complex and noncomplex alternatives when presented with a hypothetical situation. This is in contrast to the finding that in real-life situations, children take more time and use more pre-decisional information for important decisions than unimportant ones (Davidson & Hudson, 1988). It may be that children make better decisions in real-world contexts, in the sense that they search information more thoughtfully and comprehensively. This finding suggests that a study involving children's decisions would achieve more realistic results if conducted in a real situation such as a classroom setting and with regular tasks.

Davidson and Hudson (1987) found that when a decision was irrevocable, young children took more time and were more consistent in their decisions. First- and third-graders modified their behavior as a result of decision reversibility, and also articulated the need to spend more time and
consider more options for irreversible decisions. In addition, first- and third-graders were shown to understand how the importance of a decision affects the decision-making process. Therefore, it seems that children do respond to manipulations of decision characteristics, and by extension they may also respond to framed instructions within the classroom.

In summary, research on children's decision-making, although limited, has provided some information regarding how children make decisions. The present study was influenced by this information. Firstly, children's decisions are related to their information-processing capacities (Chao et al., 1986). That is, pre-decisional information must be "usable" by the child; the child must be able to process it, if not, the child may avoid making a decision. Although use of the representativeness heuristic and baserates aid in simplifying information for social decisions, these simplification strategies have been found to increase as children get older (Jacobs & Potenza, 1991) and may not be assumed to be available to all children. This suggests that pre-decisional information presented to children must be as simply and clearly stated as possible to ensure that the majority of the children in the classroom will be able to use the information effectively. The instructional frames used in the study attempted to ensure this happened. In addition, because children are more likely to search information if the situation is real and if the decision is
irreversible (Davidson, 1991) the study took place in an actual classroom.

By incorporating what researchers have found about children's decision-making with what we know to be the effects of information framing as demonstrated in adult decision-making research, we may be able to provide teachers with a pro-active, preventative behavior management technique.

**PART FOUR: THE "FRAMING EFFECT"

The presentation of pre-decisional information may have an important impact on the decisions people make. One area of research that has explored this possibility is that of "information framing." Explanations and predictions of people's choices are often based on the assumption that these choices follow consistent, elementary rules. However, as discussed previously, these elementary requirements have been found to be systematically violated. Such violations have been well demonstrated within the perspective of information framing theory (Tversky & Kahneman, 1981). There are situations in the classroom, like many other situations, where the same choice alternatives may be differently described or in terms of relative gains or losses. For example, a classroom teacher may describe a situation negatively and say, "If you are not quiet, you will lose your gym time." Alternatively, the teacher might describe the same situation positively and say, "If you are quiet, you will
have gym." The teacher may also describe the situation in relatively neutral terms saying simply, "Please be quiet." Although all instructions describe the same situation, they are presented differently and each may have a different impact on the decision the children make.

The term "framing effect" refers to the finding that subjects' choices are affected by changes in how a situation is described, or framed (Tversky & Kahneman, 1981). The essential feature of the framing effect is that a reversal in choices by subjects takes place as a result of different framing (Miller & Fagley, 1991; Tversky & Kahneman, 1981). For the classroom, the important implication of the information framing effect is that children's behavioral choices in the classroom may depend to some extent on how the teacher "frames" expectations.

The way in which information is presented, or framed, has been shown to affect many different types of decisions, including the choice between two alternative courses of action varying in risk (Kahneman & Tversky, 1979; Neale & Brazerman, 1985; Tversky & Kahneman, 1981), the decision whether to pursue a particular course of action (Levin, Johnson, Deldin, Carstens, Cressey, & Davis, 1986), and the evaluation of individual choice options (Levin, 1987; Levin, Johnson, Russo, & Deldin, 1985). Framing effects have been demonstrated in the description of consumer products, gambling, labor
negotiations, and student performance.

Methods of presenting framed descriptions have ranged from a simple listing of values to framing within a life-like situation context. An example of a simple listing of values is given below (Redelmeier & Tversky, 1992):

Decision 1: Choose between: (A) a sure gain of $240; (B) 25% chance to gain $1000 and 75% chance to gain nothing. (84% chose the sure gain).

Decision 2: Choose between: (C) a sure loss of $750; (D) 75% chance to lose $1,000 and 25% chance to lose nothing. (87% avoided the sure loss).

An example of a life-like situation is given below (Kahneman & Tversky, 1984):

Imagine that you have decided to see a play and paid the admission price of $10 per ticket. As you enter the theater, you discover that you have lost the ticket. The seat was not marked, and the ticket cannot be recovered. Would you pay $10 for another ticket? (Yes: 46%; No: 54%).

Framed another way:

Imagine that you have decided to see a play where admission is $10 per ticket. As you enter the theater, you discover that you have lost a $10 bill. Would you still pay $10 for another ticket? (Yes: 88%; No: 12%).

In the above example, although the loss in dollars is the same, the decision to buy another ticket is very different.
Information framing effects can occur without anyone being aware of the impact of the information frame on the ultimate decision. This is illustrated in the use of the terms "cash discount" and "credit card surcharge." These two labels frame the price difference as a gain (cash discount) or as a loss (credit card surcharge) by implicitly designating either the higher or the lower price as normal. Because losses loom larger than gains, consumers are less likely to accept a surcharge than to forego a discount (see Levin, 1988).

Levin (1988) examined the effect of the information frame on the evaluation of single-choice options. In a variety of tasks, the same objective information was evaluated more favorably when it was framed positively than when it was framed negatively. Subjects were more willing to take gambles when they were assessed in terms of "probability of winning" than when they were assessed in terms of "probability of losing." Student performance was rated more favorably when scores were expressed as "% correct" than when they were expressed as "% incorrect" (Levin, 1988).

Levin (1986) also found that if alternatives are incompletely described the choices individuals make are different than if information is completely described. If information is given in a "two-attribute" frame, that is, amount to be won and the probability of winning or losing, individuals have different reactions than if information is given in a "one-attribute" frame. If the
probability of winning or losing is omitted, individuals tend to make different choices. Levin (1986) found that when both pieces of information were presented, ratings were higher in the positive than in the negative condition. Subjects were more apt to choose the two-attribute gamble in the positive condition than in the negative condition. The implication of the finding is that individuals are deterred from taking a gamble when they are aware of the probability of losing, but when individuals are aware of the probability of winning they are more likely to gamble for the win. Individuals are more likely to maintain the status quo when facing equal probabilities of loss or gain (e.g., they have a greater aversion to loss than need for gain).

Given the robustness of the information framing effect, is it likely to provide an effective classroom management technique? The powerful information framing effect demonstrated with adults, makes it reasonable to assume that such an effect could be demonstrated in the classroom. Tversky and Kahneman's findings (1981) imply that children in the classroom might take a risk, if by taking that risk they had a chance of gaining something they valued. On the other hand, they would be less likely to take a risk if they had a chance of losing something of value. It may follow that if children had a 100% chance of gaining something of value, they would be more inclined to choose the option that provided this gain. In addition, if the children were
provided with an option that gave them 100% chance of a loss, they may be more inclined to choose the alternate option. Levin's (1988) findings suggest that children would be more likely to avoid a risk if they know the loss and the probability of the loss attached to the risk, than if they do not know the loss and the probability of the loss. They would also be more likely to choose an option if they know the gain attached to the option and the probability of the gain, than if they do not know the gain and the probability of the gain.

Therefore, it is possible that children may be more likely to follow the teacher's instructions if the instructions are framed to include what is to be gained or lost and the probability of the gain or loss. For example, the teacher might tell the children that if they complete the assigned questions they will have a 100% chance of improving their mark. An instruction could also be framed negatively. For example, the teacher could tell the children that if they do not complete the assigned questions, they have a 100% chance of lowering their mark. As long as the probability of the loss is included as a consequence of the non completion of the task, the children should be inclined to avoid the risk of the loss and, therefore, choose the alternate or preferred behavior. Conversely, if the positive frame includes the gain and the probability of the gain as a consequence of the preferred behavior, the children should be inclined to choose the preferred behavior.
The selection of appropriate contingencies for consequences for behavior is an important factor in developing an appropriate frame. Considerations and rationale for selection of contingencies for consequences are discussed next.

**PART FIVE: CLASSROOM CONSEQUENCES**

Classroom consequences may be positive or negative and are chosen to strengthen or weaken behavior. A reinforcer may be defined as any stimulus following a response that encourages that response to be repeated. Reinforcement is the process of strengthening a behavior. Positive reinforcement involves the presentation of desirable consequences that are likely to strengthen behavior. Negative reinforcement involves the removal of unpleasant consequences, and is also likely to result in the strengthening of behavior. On the other hand, negative consequences occur as a result of undesirable behavior and are likely to decrease the undesirable behavior (cf. Bowd, McDougall & Yewchuk, 1994).

There are two broad categories of contingencies for consequences used in classrooms: individual and group. There are three types of group contingencies described by Litow and Pumroy (1975). Independent group contingencies require the same response of all individuals in the group, but
access to reinforcement (consequences) is based only on each individual's response. This is illustrated when a teacher gives a criterion for consequences which must be fulfilled by every individual before any individual gets the reward. Interdependent group contingencies make access to consequences dependent on the collective performance of all members of a group. For example, an interdependent contingency would be operating if a teacher announced that the average of all scores must be nine out of ten correct for any student to be reinforced. Dependent group contingencies make access to consequences based on the performance of a selected member of the group (Shapiro & Goldberg, 1986).

Some researchers have found that the use of peers for contingency management may have stronger effects than teacher-managed contingencies (McLaughlin, 1981) and establish peers as an important source of control for classroom behavior (Gresham & Gresham, 1982). Gresham and Gresham (1982) consistently found the interdependent condition to be the most effective group performance contingency for reducing disruptive behavior. Pigott, Fantuzzo, Heggie, and Clement (1984) and McReynolds, Gange, and Speltz (1981) also found the interdependent group performance conditions showed greater change in desired performance. Kazdin and Geesey (1977) and Shapiro, Albright, and Ager (1986) compared group dependent reinforcement
contingencies to independent reinforcement contingencies in improving the classroom behaviors of individual students. They found support for the position that earning reinforcement for oneself and the group was superior to earning support for oneself. However, Shapiro and Goldberg (1986) did not find differences between the two.

Reviews of the literature on the effect of individual and group contingencies for consequences in the classroom suggest that group contingencies are equivalent in performance to individual contingencies (Hayes, 1976; Litow & Pumroy, 1975; McLaughlin, 1974). This appears to be true whether target responses are academic or behavioral (cf., Shapiro & Goldberg, 1986). No definite conclusions can be drawn regarding relative effectiveness. Rather, choice of contingencies may need to be based on acceptability of treatment (Witt & Elliott, 1985) or ease of implementation (Shapiro & Goldberg, 1986). Interdependent group consequences may be more efficient for the teacher as it means that the behavior of a large group of students rather than individual behavior has to be monitored. In addition, interdependent group contingencies have been found to be at least as effective as other types of group contingencies. For these reasons, interdependent group as well as individual contingencies for consequences were used as part of the instructional frame in this study.
It is important to note that when choosing consequences for individual students, the same consequences may be viewed differently by different students. Age differences, cultural values and home environment all influence the kinds of reinforcements children value (cf. Bowd et al., 1994). For example, additional physical education may be perceived by one student as a positive consequence and be perceived by another as a negative consequence. Therefore, when choosing consequences for use in the classroom, it is important that teachers are aware of individual student’s perceptions of the consequences used.

**PART SIX: CONSIDERATIONS IN THE DEVELOPMENT OF FRAMED INSTRUCTIONS**

When developing the framed instructions for classroom teachers there were several factors considered. Firstly, the steps that adults (Furby & Beyth-Maron, 1990) and possibly children go through before reaching a decision and the implications of this process were incorporated. These steps include the identification of options and consequences, and the subsequent choice of option (which is dependent on the value the options and consequences hold for the individual). Secondly, a method of presenting this information in a way that would predispose children to choose the appropriate behavior was needed. The answer came from information framing research. The work of
Tversky and Kahneman (1981) on risk-taking indicated that individuals will avoid the sure loss and tend toward the sure gain. In addition, people tend to prefer the status quo than to suffer loss. Levin's (1986) findings concerning completely and incompletely described alternatives, or one- and two-attribute frames, indicated that individuals are more likely to avoid risk when they know what is to be lost and the probability of the loss, and tend toward the gain when they know what is to be gained and the probability of the gain. Next, the characteristics of the task as a function of children's behavior when making decisions were considered. Finally, the types of contingencies for consequences that would be used as a result of research on the effectiveness of different contingencies was included.

In the present study, the teacher instructions were presented specifying the options and their consequences, along with the likelihood that the consequences would occur. The instructional frames indicated the specific "chance of gaining" or the specific "chance of losing" a named consequence. For example, "Your group has a 100% chance of earning a sticker if your behavior allows you to stay in the group," illustrates a positive frame. Alternatively, "Your group has a 100% chance of losing a sticker if your behavior causes you to leave the group," illustrates a negative frame. The deliberate framing of the options and their consequences was predicted to
affect the children's decision to follow the teacher's instruction.

**SUMMARY**

Literature was reviewed in the areas of classroom behavior management, decision-making, information framing effects, including the effects of positive and negative framing, and individual versus group consequences as applied to children in the classroom. The application of information framing theory to classroom management, within the context of children's decision-making regarding their behavior in the classroom, was explored.

Given the complexity of the teaching activity and the significant management problems that can occur within the classroom, it is essential that teachers have access to effective, proactive strategies for preventing management problems. A theory that lends itself to delineating such strategies is social cognitive theory. Social cognitive theory suggests that behavior occurs as a result of the type of information being processed as well as the pattern of processing. This in turn suggests that by presenting information in a specific way, encompassing specific considerations, some inappropriate behavior in the classroom could be prevented.

The choice of appropriate behavior over inappropriate behavior
involves decision-making. Researchers in the area of decision-making have found that individuals use various simplifying heuristics to make it possible for them to process complex information. Within the field of decision-making, information framing research has established how the manner in which information is presented influences the decisions individuals make. The "framing effect" has been studied with adults in various contexts and has been found to be robust and pervasive. There is very little information regarding the framing effect on children's decisions.

Children's cognitive characteristics, as well as the characteristics of the specific decision, have an impact on how children make decisions and on the kind of decisions they make (Davidson & Hudson, 1987, 1988). How children process information and use decision rules when they are processing pre-decisional information are crucial factors in their ability to make "rational" decisions. Research on children's decision-making has recently begun to examine the process of their decision-making. This research has found that young children's social decision-making depends on the match between processing ability and the information presented. Although it is uncertain how young children use decision rules, they do appear to follow different, and less adequate strategies than older children or adults. At the same time, young children appear to use more pre-decisional information when the situation is
real than when it is presented hypothetically. Children also seem to take more
time and are more consistent in their decision-making when the decision is
irreversible.

Research on the effect of individual and group contingencies for
consequences has produced mixed results. There does not appear to be
consensus on which contingency is most effective. Choice of a contingency
may be best based on acceptability and ease of use.

In light of the research reviewed, the present study asked, “What is the
effect of positively and negatively framed instructions, which include the
consequences of behavior and the probability of the consequences occurring,
on children’s decisions to follow teacher instructions in the classroom?”

The implications of information framing for children's decisions
suggested an opportunity for teachers to help children make appropriate
choices within the classroom. Consequently, the effect of framed instructions
on children's decisions with respect to teacher instructions became the focus
of the present study. Chapter Three describes the methodology that was used
to carry out the study.
CHAPTER THREE

METHOD

This study set out to determine if framing of instructions by teachers would have an effect on children’s task completion or behavioral compliance in the classroom. This chapter begins with a discussion of the methodological issues pertinent to the study including the participation of teachers as researchers, teacher bias, and the use of pre-treatment tapes. Each of Experiments One and Two are then described, including the design, sample, procedure, instructions to teachers, specific frames used, hypotheses and analyses.

METHODOLOGICAL ISSUES

Teacher bias as a result of teacher expectation was a possible source of error in this study. Teacher expectations have been established as important determinants of both teacher-pupil interactions and achievement outcomes (Brophy & Evertson, 1981, 1971; Brophy & Good, 1979; Good, 1981). That is, teachers who expect students to be successful and treat them as if they will be successful are likely to see them succeed, while teachers who expect failure from children and treat them as if they will fail, are likely to
see them fail (Good & Brophy, 1987).

Analyses of teacher bias examined for teacher expectation effect and systematic error in their observations. This was accomplished by having the teachers administer the Social Skills Rating Scale-Teacher Form (SSRS-TF). The SSRS-TF provides ratings of cooperation; assertiveness; self-control; externalizing behavior; internalizing behavior; hyperactivity and academic competence. The teacher ratings from the SSRS-TF were correlated with the teacher observations of task completion and behavioral compliance to examine for teacher bias and subsequent statistical adjustment if needed.

Pre-treatment audio-tapes of all five classrooms were made before the study began. The goal of the audio-taping was to sample the type of instructions routinely given by the classroom teachers. The tapes established if the teachers in the study used unframed instructions (ex., “Could we just use hands?”) or framed instructions (ex., “If I don’t get more cooperation than I’m getting now we are going to put these away.”). Framed instructions were those teacher instructions articulating consequences. If the teachers did include consequences in their instructions, were the consequences positive or negative? This aspect of the design was employed in order to establish if it was reasonable to assume that teachers used unframed instructions. In addition, reaction by students to the frames used in the study may have been
influenced by the teachers' use of consequences before the study. If the teachers used predominately positive or negative consequences the students may have reacted to the frames as a result of this. A sample of pre-treatment classroom activity and teacher comments would provide some explanation if there were differences between classrooms in framing effects. That is, the audio-taped data might be helpful in explaining possible differences in classroom level analyses.

OVERVIEW

There were two experiments in this study. Five Grade Three and Four classroom teachers from three different schools participated voluntarily in each experiment. Before the experiments began, the classrooms involved were audio-taped during class instructional time. The total time taped was 270 minutes for Teacher A and 360 minutes for Teachers B, C, D, and E. After the audio-taping, the teachers completed the Social Skills Rating System-Teacher Form-Elementary Level (SSRS-TF) for each student. The experiments began once the audio-taping and the SSRS-TF were completed.

INTRODUCTION TO EXPERIMENT ONE

Experiment One contrasted the effect of an unframed instruction (no
consequences included in the instruction), with a two-attribute positive, and a two-attribute negative frame requesting completion of an academic task. The positive and negative frames were delivered with individual and group contingencies for consequences.

Teachers observed and recorded, for each student, the number of questions completed out of the total number of questions assigned. Their observations were recorded as compliance with the instruction, partial compliance with the instruction, or non-compliance with the instruction. Task completion received a score of two, partial task completion a score of one, and non-completion of the task received a score of zero. The relationship between actual observed completion of an academic task and teacher rated Academic Competence on the SSRS-TF was analyzed to examine for teacher bias in the observation of individual student task completion. In addition, task completion as a result of individual and group contingencies for consequences was examined. The data were also examined for sex effect.

Experiment One: Completion of an Academic Task

A). DESIGN

Experiment One was a one-factor within subjects design. The within
factor had four experimental “framing” treatments. Students in each of the classrooms in the study were randomly assigned to one of five groups, and each group was exposed to an unframed instruction and four different experimental treatments, namely:

1) Positive frame-group consequence - treatment one.
2) Positive frame-individual consequence - treatment two.
3) Negative frame-group consequence - treatment three.
4) Negative frame-individual consequence - treatment four.

The format of the experimental design is presented in Table 1 below.

Table 1
Experimental Design Format

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Unframed Instruction</th>
<th>Treatment 1</th>
<th>Treatment 2</th>
<th>Treatment 3</th>
<th>Treatment 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive Frame</td>
<td>Negative Frame</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Group 1 (Subjects 1-5)*</td>
<td>Group 2 (Subjects 6-10)</td>
<td>Group 3 (Subjects 11-15))</td>
<td>Group 4 (Subjects 16-20)</td>
<td>Group 5 (Subjects 21-23)</td>
</tr>
<tr>
<td>2</td>
<td>Group 1 (Subjects 1-5)</td>
<td>Group 2 (Subjects 6-10)</td>
<td>Group 3 (Subjects 11-15)</td>
<td>Group 4 (Subjects 16-20)</td>
<td>Group 5 (Subjects 21-25)</td>
</tr>
<tr>
<td>3</td>
<td>Group 1 (Subjects 1-4)</td>
<td>Group 2 (Subjects 5-9)</td>
<td>Group 3 (Subjects 10-13)</td>
<td>Group 4 (Subjects 14-17)</td>
<td>Group 5 (Subjects 18-20)</td>
</tr>
<tr>
<td>4</td>
<td>Group 1 (Subjects 1-5)</td>
<td>Group 2 (Subjects 6-10)</td>
<td>Group 3 (Subjects 11-15)</td>
<td>Group 4 (Subjects 16-20)</td>
<td>Group 5 (Subjects 21-22)</td>
</tr>
<tr>
<td>5</td>
<td>Group 1 (Subjects 1-5)</td>
<td>Group 2 (Subjects 6-10)</td>
<td>Group 3 (Subjects 11-14)</td>
<td>Group 4 (Subjects 15-19)</td>
<td>Group 5 (Subjects 20-22)</td>
</tr>
</tbody>
</table>

*Subjects were numbered sequentially after random assignment to the 5 conditions
b). Sample

Classrooms were chosen on a teacher volunteer basis. Participants were children from Grades Three or Four from different schools in Kelowna, British Columbia. These grades were chosen because previous research has indicated that younger children (second grade) searched information with little regard for whether the information was related to the task (Davidson, 1991). As a result, it was possible that framed instructions would not have a significant effect on the decisions of children second grade or lower. In order to establish an instructional framing effect, it seemed most logical to focus on children in Grade Three or higher.

The goal of the study was to contrast the difference between an unframed instruction and positive and negative framing effects on children's behavior in the classroom, regardless of the socio-cultural background of the children. The literature reviewed (Chapter Two) did not indicate socio-cultural background as a significant factor in previous framing studies and there was no indication that incorporating socio-cultural background would be fruitful. However, the classrooms in the study were relatively homogeneous, located within middle-class, predominately white neighborhoods.

The number of boys and girls in the study was approximately equal.
The number of boys for each frame ranged from 50 to 53 and the number of girls ranged from 53 to 56. Numbers varied due to absences. Research has suggested that there are differences in compliance between males and females (Brophy & Good, 1974; Fagley & Miller, 1990). However, as discussed in Chapter Two, there is not sufficient research to predict the relationship between gender and framing effect. Nevertheless, the data were explored for differences in the degree of compliance between boys and girls.

c). Procedure

Before the experiment began, teachers were audio-taped for a minimum of 270 minutes of instructional time using a tape recorder. After the classrooms were audio-taped, the teachers were required to complete the SSRS-TF for each student in their classroom. The SSRS-TF provided Social Skill, Problem Behavior, and Academic Competence ratings. Teachers were not informed about the experiments to come when they completed the SSRS-TF and audio-taped instruction in their classrooms in order to protect the integrity of the treatment.

Upon completion of the SSRS-TF, teachers were given the Observation Record Forms (ORF), (see Appendix A) for each treatment condition. Teachers observed naturally occurring behaviors after delivering unframed or
framed instructions. To enhance ecological validity, they were given the freedom to deliver the frames when they felt it was most appropriate. Teachers recorded when they observed what they considered to be compliance in task completion, partial compliance in task completion or non-compliance in task completion. Teachers determined their own subjective parameters for indicating task completion for which a score of 2 for compliance was awarded. Similarly, they established parameters for partial compliance for which a score of 1 was awarded, and parameters for non-compliance for which a score of 0 was awarded. The measurement was defined as interval because the observations recorded were not distinctly categorical. That is, compliance by definition included partial compliance. In addition, teachers established their own “compliance”, “partial compliance” and “non-compliance” intervals based upon personal judgment, much as is done when completing a Likert scale.

There were five different ORFs for each Experiment, one for the unframed instruction and one for each treatment condition or framed instruction. The unframed instruction and each framed instruction was presented once to each student in each of the groups. Each ORF included the unframed or the framed instruction the teacher was required to use, as well as a pre-selected list of the students who were to receive that specific
unframed or framed instruction.

Repeated measures designs are susceptible to sequence effects and carryover effects. This should be considered whenever the possibility exists that exposure to one treatment will have an influence on the effect of another treatment (Howell, 1987). To counter the carryover effect in this study, treatment sequences were assigned by means of a Latin square. Each teacher started with the unframed instruction (UR) and continued with the positive frame with group consequence (PG), the positive frame with individual consequence (PI), the negative frame with group consequence (NG), and the negative frame with individual consequence (NI). The instructions were delivered to each student in the entire class in five separate rounds. For example, in classroom one, students 1-5 received the unframed instruction, students 6-10 received treatment 1, students 11-15 received treatment 2, students 16-20 received treatment 3 and students 21-23 received treatment 4. After students 21-23 received treatment 4, students 1-5 received treatment 1 and so on. Therefore, each student received an unframed or framed instruction before any student received a second treatment. Thus, each student had a total of one unframed instruction and four framed instructions delivered to him or her. Teachers were asked to deliver the unframed and framed instructions within a time period that was realistic for their classroom.
This timetable varied depending on the specific activities and "opportune situations" within each classroom.

The class was randomly divided by me into five groups (approximately 20% of the class per group), each of which received an unframed instruction and one of the treatments from the teacher. The instructions given were one of the following:

1) Unframed instruction.
2) Positive frame-group consequence - treatment one.
3) Positive frame-individual consequence - treatment two.
4) Negative frame-group consequence - treatment three.
5) Negative frame-individual consequence - treatment four.

The order for the administration of the framing instructions in Latin squares rotation is given below in Table 2:

Table 2
Order of Framing: Latin Squares Rotation

<table>
<thead>
<tr>
<th>Round 1</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Group 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unframed Instruction</td>
<td>Treatment 1</td>
<td>Treatment 2</td>
<td>Treatment 3</td>
<td>Treatment 4</td>
</tr>
<tr>
<td>Round 2</td>
<td>Treatment 1</td>
<td>Treatment 2</td>
<td>Treatment 3</td>
<td>Treatment 4</td>
<td>Unframed Instruction</td>
</tr>
<tr>
<td>Round 3</td>
<td>Treatment 2</td>
<td>Treatment 3</td>
<td>Treatment 4</td>
<td>Unframed Instruction</td>
<td>Treatment 1</td>
</tr>
<tr>
<td>Round 4</td>
<td>Treatment 3</td>
<td>Treatment 4</td>
<td>Unframed Instruction</td>
<td>Treatment 1</td>
<td>Treatment 2</td>
</tr>
<tr>
<td>Round 5</td>
<td>Treatment 4</td>
<td>Unframed Instruction</td>
<td>Treatment 1</td>
<td>Treatment 2</td>
<td>Treatment 3</td>
</tr>
</tbody>
</table>

Note: Treatment = Framed Instruction
The unframed instruction was the first instruction delivered in Round one. Treatment 1 had the teacher pose a two-attribute instruction that was positively framed and included a group consequence. Treatment 2 had the teacher pose a two-attribute instruction that was positively framed and included an individual consequence, addressed to the individual student involved. Treatment 3 had the teacher pose a two-attribute instruction that was negatively framed and included a group consequence. Treatment 4 had the teacher pose a two-attribute instruction that was negatively framed and included an individual consequence.

Each teacher was provided with multiple copies of each of the five different Observation Record Forms (ORF). One copy of each form was used to record observations for each round of treatment delivery. That is, the teacher used the unframed instruction and the instructional frames one, two, three, and four for the first round of treatment. This meant that each child in the classroom had one of the frames delivered to him or her in this first round. The process was repeated for rounds two, three, four, and five. By the end of the fifth round each child had received the unframed instruction and the four treatments or framed instructions. This meant there were a total of five requests and observations (data points) per child.

The purpose of the ORF was twofold. It standardized the framing used
by the teachers and included the essential components of the framed instructions. These components consisted of the frame's positive or negative designation; the probability that a consequence would occur (100%) and provision for a consequence. The standardization was necessary to ensure the teachers included these components. In order to promote ecological validity, teachers were free to choose when to administer the frames and they were free to choose specific consequences. That is, the times when teachers would be most likely to use the frames outside of the experiment would generate the most valid results. Similarly, the consequences teachers used had to be consequences they would feel comfortable using. If not, teachers would be unlikely to use the technique (Rosen, 1990). Some of the consequences teachers used were points; tickets (for a draw); gym time and free time. The ORF was also designed to simplify the recording process. The ORF included:

1. Written instructions;
2. The necessary components of the framed instruction for the completion of an Academic Task;
3. A randomly organized roster of the names of the students who were given the respective treatment in each round;
4. Space in which to record whether the instruction was made;
5. Space in which to record whether the instruction resulted in task completion, partial completion or non-completion.
Instructions to Teachers

Teachers were informed of the importance of including the consequence and the probability of the consequence for each instruction. The specific instructions given to the teachers were as follows:

"Pose the instructions below to each of the students in your class whose names appear on this sheet. Indicate whether the instruction was made of each student by checking the 'yes' or 'no' column under the section 'Instruction Made'. Indicate the response made by each student by checking 'compliance', 'non-compliance' or 'partial compliance' under the 'Response Made' column. If 'partial compliance' is checked, indicate the number of items completed out of the total numbers assigned."

The response for compliance received a score of two; the response for partial-compliance received a one; and the response for non-compliance received a score of zero.

The procedures were discussed with the teachers before the start of the experiment. The wording for the unframed instruction and the treatment conditions one through five are given below. Individual teachers supplied the particular consequence for appropriate behavior so that it was consistent with what had already been established within the classroom. In addition, as identical consequences are perceived differently by individual students, teachers were free to consider the effect of particular consequences on
individual children, and select those that would be most effective. As a result, the particular consequences used by the teachers may have varied. The time limit allowed to complete the questions and the number of questions assigned may have varied. However, the framed instructions made it very clear what the consequence and the probability of receiving the consequence was to be. Because the number of questions and the time limits varied, brackets have been placed around the examples given below.

**Specific Frames - Completion of an Academic Task**

The specific instructional frames were as follows:

**Unframed Instruction:**

"(John), please finish the questions."

**Treatment One: Positive Frame with Group Consequence.**

"(Carol), if you finish these (5) questions within the next (10) minutes, there is a 100% chance that your group will receive a (point)."

**Treatment Two: Positive Frame with Individual Consequence.**

"(Matt), if you finish these (5) questions within the next (10) minutes, there is a 100% chance that you will receive a (higher mark)."

**Treatment Three: Negative Frame with Group Consequence.**

"(Susan), if you do not finish these (5) questions
within the next (10) minutes, there is a 100% chance that your group will lose (10 minutes gym time).

**Treatment Four: Negative frame with individual consequence.**

"(Don), if you do not finish these (5) questions within the next (10) minutes, there is a 100% chance that you will lose (free time)."

Each teacher was asked to give the above instructions to each of the students whose name appeared on each form. Responses were recorded on the forms provided. I collected the completed forms.

Before the experiment began, teachers were asked whether they believed they would be able to comply with the demands of the task. I helped to solve any anticipated problems that teachers anticipated. For example, Teacher D was concerned the children would wonder why she was "...talking differently." We decided the best approach would be to tell the students she was gathering information that would help us to help children learn. In addition, I was available to discuss solutions for any unforeseen problems that occurred during the experiment.

It was anticipated that teachers would cooperate in this experiment because of the immediate, demonstrable benefit that might ensue as a result of their participation. I visited the classrooms at least once during every week throughout the duration of the experiment to ensure that any concerns or
INTRODUCTION TO EXPERIMENT TWO

Experiment Two contrasted the effect (on behavioral compliance) of an unframed instruction, with a two-attribute positive, and a two-attribute negative frame requesting behavioral compliance. The positive and negative frames were delivered with an individual and a group contingency for a consequence. The student's response was observed and recorded as compliance with the instruction or non-compliance with the instruction. Where compliance with the instruction was recorded, the teacher was asked to indicate the duration of compliance as follows: (1) 5 minutes or less; (2) five to ten minutes; (3) more than 10 minutes. When compliance for ten minutes to the length of the activity was recorded, a score of three was awarded; when compliance for under ten minutes was recorded, a score of two was awarded; when a compliance for five minutes or less was recorded, a score of one was awarded and when non-compliance was recorded, a score of zero was awarded. The effect on compliance of the individual and group contingencies for consequences was also examined. In addition, the relationship between actual behavioral compliance and teacher ratings of Social Skills and Problem Behaviors on the SSRS-TF was analyzed to examine for teacher bias in the observation of
individual student compliance.

**EXPERIMENT TWO: BEHAVIORAL COMPLIANCE**

Experiment Two was identical to Experiment One with the exception of the dependent variable. The design, subjects and procedure were exactly the same. The difference between Experiment One and Experiment Two was that the former focused on students' completion of an academic task, whereas the latter focused on the students' compliance with a specific classroom control instruction as shown in the examples below.

**SPECIFIC FRAMES-COMPLIANCE WITH A BEHAVIORAL INSTRUCTION**

**Unframed Instruction:**

"(Jill), please sit quietly."

**Treatment One: Positive frame with group consequence.**

"(Bob), if you **sit quietly** for the next (5) minutes, there is a **100% chance** that your group **will receive** a (free time)."

**Treatment Two: Positive frame with individual consequence.**

"(Ann), if you **sit quietly** for the next (5) minutes. there is a **100% chance** that you **will receive** (extra gym time)."
Treatment Three: Negative frame with group consequence.

"(Michael), if you **do not sit quietly** for the next (5) minutes, there is a **100% chance** that your group will **lose** (their turn)."

Treatment Four: Negative frame with individual consequence.

"(Molly), if you **do not sit quietly** for the next (5) minutes, there is a **100% chance** that you will **lose** (a point)."

B). HYPOTHESES

Tversky and Kahneman's (1981) information framing theory and findings relating to the framing effect in decision-making under conditions of risk and Levin's (1986) findings on decision-making as a result of one or two-attribute frames generated the hypotheses of this study. In this case, the framed instructions were two-attribute framed instructions (gain or loss and the probability of achieving that gain or loss). The first predictions were made concerning the difference in the task completion and behavioral compliance of children receiving an unframed instruction from their teachers and children receiving a two-attribute framed instruction. Components of framing examined for effect on task completion and behavioral compliance were the positive or negative orientation of the frame (Tversky & Kahneman, 1981), and individual and group contingencies for consequences (Hayes, 1976; Litow & Pumroy,
On the basis of previous studies involving individual and group consequences, a prediction was made regarding task completion and behavioral compliance as a result of the inclusion of individual or group contingencies in the framed instructions. Studies seem to indicate that group and individual contingencies may be equivalent in effectiveness in the management of both academic and behavioral responses.

There was a potential rival hypothesis as a result of possible teacher expectation bias. To determine if this was a factor, the correlation between constructs as rated by teachers on the SSRS-TF before the study took place and actual task completion and behavioral compliance by the students was examined. This hypothesis was based on findings that teachers who expect students to be successful and treat them as if they will be successful are likely to see them succeed, while teachers who expect failure from children and treat them as if they will fail, are likely to see them fail (Good & Brophy, 1987).

Would those students rated highly by teachers in "academic competence" or "social skills" be high in actual task completion and behavioral compliance? Would those students rated highly by teachers in "problem behaviors" be low in actual task completion and behavioral compliance?

Finally, due to research indicating the sex typing of compliance in the
classroom (Brophy & Good, 1974), the effect of sex on task completion and behavioral compliance was studied.

Analysis focused on testing the following specific hypotheses in each of the Experiments:

**HYPOTHESIS ONE:**

The average (a) task completion in Experiment One; (b) compliance in Experiment Two, will be greater under treatment one (positive frame, group consequence) in comparison to the unframed instruction.

**HYPOTHESIS TWO:**

The average (a) task completion in Experiment One; (b) compliance in Experiment Two will be greater under treatment two (positive frame, individual consequence) in comparison to the unframed instruction.

**HYPOTHESIS THREE:**

The average (a) task completion in Experiment One; (b) compliance in Experiment Two will be greater under treatment three (negative frame, group consequence) in comparison to the unframed instruction.

**HYPOTHESIS FOUR:**

The average (a) task completion in Experiment One; (b) compliance in Experiment Two will be greater under treatment four (negative frame, individual consequence) in comparison to the unframed instruction.

**HYPOTHESIS FIVE:**

The average response under treatment one (positive frame, group consequence) will be equal to the average response under treatment two (positive frame, individual consequence).
**HYPOTHESIS SIX:**

The average response under treatment three (negative frame, group consequence) will be equal to the average response under treatment four (negative frame, individual consequence).

**HYPOTHESIS SEVEN:**

The average response under treatment one (positive frame, group consequence) will be equal to the average response under treatment three (negative frame, group consequence).

**HYPOTHESIS EIGHT** (Rival Hypothesis-Experiment One):

There will be a positive relationship between actual degree of task completion and teacher ratings of Academic Competence.

**HYPOTHESIS NINE** (Rival Hypothesis-Experiment Two):

There will be a positive relationship between actual degree of compliance and teacher ratings of Social Skill and Problem Behaviors.

**ANALYSES**

(1) **PRELIMINARY ANALYSES**

**AUDIO-TAPE DATA: PRE-TREATMENT**

Data concerning the participating teachers, as well as an assessment of the way in which the teachers tended to interact in the classroom before the experiment began were examined. Teachers agreed to audio-tape the equivalent of a day's instruction. Teacher comments from this tape that were
directed at students task completion or behavior were transcribed by me. The comments on the transcription were then independently coded by me and another qualified teacher, not involved with the study, as framed or unframed instructions. The pre-treatment audio-tapes were used to establish whether teachers used unframed instructions or comments in the course of their daily lessons and to explain possible classroom/teacher differences in task completion or behavioral compliance.

**SEX EFFECT**

Data were examined to establish if there was a difference in the effect of the framed instructions on task completion or behavioral compliance between boys and girls. For a clear test of the hypotheses, one question was pertinent: Will there be an interaction between sex and framing?

**(2) TEST OF HYPOTHESIS**

The hypotheses were statistically evaluated with *a priori* contrasts corresponding to the hypotheses. For each hypothesis, Dunn's method was used, and experimentwise error was controlled by Bonferroni's adjustment of alpha (Glass & Hopkins, 1984). The analyses were accomplished with the SYSTAT computer program.
The contrast matrix for the hypotheses is presented below in Table 3.

Table 3  
Contrast Matrix for Analyses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Contrast #</th>
<th>UR</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>1</td>
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<td>-1</td>
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<td>0</td>
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<td>0</td>
<td>-1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: UI=Unframed Instruction; T=Treatment (Framed Instructions).

Evaluation of Rival Hypotheses

Hypotheses eight and nine examined the relationship between degree of task completion in Experiment One and teacher ratings of Academic Competence for both the positive and negative conditions respectively. In Experiment Two, the relationship between the degree of behavioral compliance and teacher ratings of Problem Behavior and Social Skill was examined for both the positive and negative conditions.
CLASS/TEACHER LEVEL ANALYSES

The data were examined for a possible classroom/teacher effect on compliance. That is, did the individual teachers make a difference in task completion and behavioral compliance? Data were also examined to establish if the order in which the frames were administered had an effect on task completion and behavioral compliance. Effect sizes and improvement rates were calculated for contrasts that predicted mean differences (1-4).

(3) QUALITATIVE DATA

Additional information, in the form of qualitative data, is also presented. Pre-treatment audio-tapes of the teachers, as well as teacher comments, are examined.

Findings based on the analyses outlined above are presented in Chapter Four.
CHAPTER FOUR

RESULTS

Data were collected to establish if framing of instructions by teachers would influence children’s task completion or behavioral compliance in the classroom. Pre-treatment teacher data are presented first. The statistical test of the hypotheses and sex effect analyses are presented next. Teacher expectation and classroom/teacher level analyses are presented last.

PRE-TREATMENT TEACHER DATA

Five teachers from three different schools participated in the study. There were 109 children in total from five different classrooms and three different schools. Ten Grade Four teachers in schools in which I was working were asked if they would agree to participate. Of these ten, five agreed to take part in the study. These teachers were asked to audio-tape a day’s instruction in their classrooms. The pre-treatment tapes were used to determine if they used framed or unframed comments and instructions when addressing the children in their classes, and if these comments and instructions were of a positive or negative orientation. Table 4 below represents the pre-treatment audio-tape information:
Table 4
Pre-Treatment Audio-Tape Information

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Years Teaching</th>
<th>Grade</th>
<th>Class Size</th>
<th>Minutes Taped</th>
<th>Teacher Comments:</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>13</td>
<td>4</td>
<td>22</td>
<td>270</td>
<td>F=9% U=91%</td>
<td>Spelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100% rater</td>
<td>Mathematics</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>Agreement</td>
<td>Music</td>
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<td></td>
<td>LA</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>4</td>
<td>23</td>
<td>360</td>
<td>F=4% U=96%</td>
<td>Mathematics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100% rater</td>
<td>Music</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>Agreement</td>
<td>LA</td>
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<td></td>
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<td></td>
<td>Science</td>
</tr>
<tr>
<td>C</td>
<td>16</td>
<td>3/4 split</td>
<td>20</td>
<td>360</td>
<td>F=9%-14% U=86%-91%</td>
<td>Spelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>66%(2/3) rater</td>
<td>Mathematics</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>Agreement</td>
<td>Music</td>
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<td></td>
<td>LA</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Science</td>
</tr>
<tr>
<td>D</td>
<td>13</td>
<td>3/4 split</td>
<td>22</td>
<td>360</td>
<td>F=16%-21% U=79%-84%</td>
<td>Spelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78%(7/9) rater</td>
<td>Mathematics</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>Agreement</td>
<td>Music</td>
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<td>LA</td>
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<td>Science</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Writing</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
<td>3/4 split</td>
<td>22</td>
<td>360</td>
<td>F=11% U=89%</td>
<td>Spelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100% rater</td>
<td>Mathematics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Agreement</td>
<td>LA</td>
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<td></td>
<td></td>
<td>Science</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Journal</td>
</tr>
</tbody>
</table>

Note: LA=Language Arts; SS=Social Studies; F=Framed comments including a consequence; U=Unframed comments without a consequence.

Audio-tapes were transcribed by me, and relevant teacher comments were noted in written form. That is, any teacher comment and instruction addressing task completion or student behavior was written down for later
review. The comments and instructions were then rated by me and another qualified teacher, who did not participate in the study, to determine if the comments and instructions were framed or unframed.

**Teacher A**

The pre-treatment tape of Teacher A's classroom indicated that she verbally monitored much of the behavior in her class, but she rarely included a consequence, that is, framed her instructions (9% framed, 91% unframed). Teacher A tended to monitor student behavior with positive comments for appropriate behavior and negative comments for inappropriate behavior. She reminded the children of appropriate behavior and whether they were displaying it. She was positive when she noticed appropriate behavior. For example,

"Oh, I just love the way you listened."

The general tone of the classroom was positive and happy, but quite noisy. Teacher A often reminded the children to be quiet:

"Who's making noises over there?"
Shhh..., my goodness what a busy bunch of organizers we have here."

"It's really hard to concentrate when a lot of people are talking out."

"We don't call out."
"We're wasting all sorts of time getting ready. Every time that you stop playing, your mouth starts going."

"I can't believe how loud you guys are today. Shhhh..... Who's.."

"I am getting tired of saying this over and over again."

**Teacher B**

The tapes of Teacher B's classroom indicated that he often allowed the children to work independently or in groups. When working in groups, the classroom noise level was fairly high. Teacher B seemed to be very quiet, rarely commenting on the activity in the class, with a generally positive style. He did not interfere with student activities and was seldom heard asking anyone to be quiet or generally monitoring behavior. Teacher B did not usually include consequences with his instructions (4% framed, 96% unframed). However, he did occasionally point out inappropriate behavior. For example,

"John, this is a classroom, there is no room for hooting and hollering... save it for the outside."

"We are going to see the new school..... don't want to have them say how poorly behaved the Grade Fours are."

Teacher B's comments immediately resulted in quiet from the class.

On the third of Teacher B's tapes (out of four), another teacher came into the class to teach. This teacher was an older woman with many years of
teaching experience. Her tolerance for the noise level in the classroom appeared to be less than that of Teacher B's. Soon after she arrived in the class, she said,

"Would you please sit down. I have a problem with people not doing what I ask them to do...this is the third time, would you please sit down?"

The students worked very quietly after this comment, so quietly that the classroom sounded empty on the tape.

**Teacher C**

The tapes made in Teacher C's classroom characterize her style as firm, clear and specific. She sometimes used consequences (14% framed, 86% unframed). For much of the recorded time on the tapes Teacher C was teaching the class and asking for individual input. She insisted on participation:

"I want to hear from people who never put their hands up. I have the same people answering and thinking for you. I want you to do some thinking too."

When she was teaching, her class was very quiet. When some of the students were whispering during a class discussion, Teacher C was firm and swift in her reaction. She also suggested a negative consequence for the students' behavior.

Teacher C: "Sit up here. If that continues, all three of you
will be spending time with me. Do you know what we are talking about?"

The student gave an incorrect answer.

Teacher C (to another student):

"No. Do you know what we are talking about?"

The second student also gave an incorrect answer.

Teacher C,

"No. When we're trying to assist in the classroom, I want everyone's attention. You've disrupted us, you owe us an apology."

Another example of Teacher C clarifying consequences:

"I don't want to police the game. If we can't play fairly then we can't play the game."

Teacher D

The tapes indicated that Teacher D had a very positive but firm style when giving instructions or making requests of students. She sometimes used negative consequences (21% framed, 79% unframed). For example:

"You have to get these done in the next five minutes. If not, I might have to ask you to work on your own. If the team is working well, fine. If not, ...."

"Would you return to your seat please and on your way you can take a point off because I already asked you."

If students behaved inappropriately, Teacher D intervened immediately.
For example, students were asked to go to their desks to work in pairs for a Science experiment. Some students began to laugh and Teacher D immediately said,

"Excuse me!"

The appropriate response from the children was also immediate. Teacher D did not ask the class verbally for their attention; rather, she rang a bell when she wanted the class to listen to her.

Teacher D felt that her class was a challenge, but that they had learned by the month of May that when she made a request of them, she meant what she said.

**Teacher E**

Teacher E generally directed the students in a positive way and sometimes used negative consequences in her directions (11% framed, 89% unframed). Teacher E tended to monitor the students' behavior for them. For example,

"Justin, I don't think you should be sitting beside John because you tend to chat."

"O.K., what do you do when you're finished, Brandon?"

Teacher E also pointed out when students were doing "the right thing". For example:
"That's sure concentrating. That's good."

Teacher E sometimes used punishment:

"If we're not using our time wisely, we'll just go on to this and you'll have it for homework."

Teacher E felt that her class was the most challenging class she had taught. My observation of the students in her class indicated the students were often off-task, and seemed to have great difficulty understanding directions and subsequently completing work. In addition, the class included children who intensely disliked each other. They refused to sit near one another and were continually monitoring each other in efforts to get one another "in trouble".

SUMMARY OF TEACHER DATA

Teacher data from the pre-treatment audio-tapes indicated that the percentage of framed instructions given by teachers ranged from 9% to 21%, but the majority of their comments, from 79% to 96% were unframed, that is, without consequences. Indeed, the majority of their comments were not instructive, rather they were descriptive or anecdotal. While it was impossible to tell from the audio-tape what, if any, non-verbal consequences were provided by the teachers, the salient information in this study was the framing, or lack of framing, present in the verbal comments and was apparent on the
audio-tape. Four out of five teachers used negative consequences for behavior and three out of five used praise. Teacher A used praise ("I just love the way you listened") when commenting on student’s behavior, as well as, negative consequences, but most often reflected the children’s behavior back to them in an approving or disapproving way without using consequences ("We don’t call out"). Teacher B generally did not use consequences for behavior during the time taped, but sometimes commented on the children’s behavior (telling them how they should behave). Teacher C generally used negative consequences, (e.g., “you will be sitting with me”, “you owe an apology”; “…then we can’t play the game”). Teacher D used praise (“Thanks Josh. Good choice”), negative consequences (“...if not, I might have to ask you to work on your own”), and comments indicating her approval or disapproval of the children’s behavior (“I would say that Carly and Katie know how to manage themselves”). Teacher E used praise (“That’s good”) and punishment (“...you’ll have it for homework”). Teachers C, D and E all used group as well as individual consequences.

All of the teachers seemed capable of delivering the frames with consequences. However, there were differences in the teachers’ use of consequences. Teacher D appeared to be more explicit in her expectations than the other teachers, and more inclined to attach consequences to her
instructions. Teacher B, on the other hand, was much less inclined than the other teachers to give verbal direction or feedback. Teacher A, while very much inclined to give verbal feedback, was unlikely to attach consequences to behavior. This pre-treatment data suggested there was some possibility of a difference in the results obtained by individual teachers. Teacher D seemed to be the teacher who was operating most closely to treatment conditions before treatment began. She even commented that by this time of the year (May), her students knew that, "When I say something, I mean it."

The exact time in which the teachers were able to deliver the unframed and the framed instructions varied. However, they were all delivered between the time span of May 4 and June 25, 1994.

**EXPERIMENT ONE: COMPLETION OF AN ACADEMIC TASK**

**STATISTICAL TEST OF HYPOTHESES**

The within-subject multiple measurement design of the experiments in this study has highly restrictive assumptions for ANOVA. Not only the standard assumptions for ANOVA have to be met, but also the covariances between all pairs of treatments have to be equal to meet the compound symmetry assumption (Glass & Hopkins, 1984). However, when a within
subject experiment is evaluated as a whole, false conclusions can be avoided
by examining the outcome of both a univariate ANOVA and a MANOVA.
Because there were five treatments in each experiment, it was possible to use
ANOVA viewing each treatment as one variable measured over five times, or
to use MANOVA, viewing each of the five treatments as separate variables.

According to Wilkinson (1990), when both univariate and multivariate
results corresponding to the hypothesis converge to the same conclusion, the
conclusion drawn about the effects is trustworthy. Both analyses of
Experiment One converged to the same conclusions. The test of the
treatment effect was $F(4,372)=4.59$, $MSe=0.16$, $p<.05$ in univariate analysis,
and Wilk's Lambda=0.89, $F(4,90)=2.91$, $p<.05$ in multivariate analysis.
Consequently, there was no threat to interpretation of statistical results.
Moreover, compound symmetry is required only in the evaluation of the
experiment as a whole, and the single degree of freedom contrasts that
unpacked the treatment effects are not affected.

Although treatments were rotated, there was at least some possibility of
an order effect on the unframed instruction. However, analysis of variance
indicated no reliable order effect, $F(4,98)=2.89$, $MSe=.33$, $p<.07$. 
**SEX EFFECT**

A question of interest was whether children's reaction to the academic framed instructions varied by sex. There were no statistically reliable differences in average reaction of boys and girls under any of the framed instructions in task completion. The descriptive statistics are reported in Table 5.

Table 5
**Means (M), Standard Deviations (SD), and t-test Results by Frame and Sex**

<table>
<thead>
<tr>
<th>Frame</th>
<th>Boys</th>
<th>Girls</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>UI</td>
<td>51</td>
<td>1.62</td>
<td>.69</td>
</tr>
<tr>
<td>PG</td>
<td>50</td>
<td>1.90</td>
<td>.30</td>
</tr>
<tr>
<td>PI</td>
<td>53</td>
<td>1.79</td>
<td>.50</td>
</tr>
<tr>
<td>NG</td>
<td>51</td>
<td>1.84</td>
<td>.46</td>
</tr>
<tr>
<td>NI</td>
<td>53</td>
<td>1.89</td>
<td>.38</td>
</tr>
</tbody>
</table>

*Note.* Uneven n's are due to student absences. t is based on pooled variance.

UI=Unframed Instruction; PG=Positive Group; PI= Positive Individual; NG= Negative Group; NI=Negative Individual.

An examination of Table 5 shows that the most similar responses by boys and girls were on the positive frame with the individual consequence (PI) and the negative frame with the individual consequence (NI). The most
variable reaction based on sex was under the unframed instruction (UI), but this difference was not statistically reliable. Consequently, the concern that sex may be a potential compounding factor in the evaluation of the hypotheses was ruled out.

**CONTRAST ANALYSES-TEST OF HYPOTHESES**

The dependent variable means are reported and illustrated in Figure 1.

![Figure 1: Mean Task Completion under Framing Conditions](image)

**Note:** UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual.
The dependent variable means, that is the means for completion of an academic task for each of the conditions, were found to be different. As predicted, all of the framed conditions had greater average compliance than did the unframed condition. The positive frame with the group consequence (PG) and the negative frame with the individual consequence (NI) appear to be have been the most effective frames.

The contrast matrix for the hypotheses is shown in Table 6.

Table 6
**Contrast Matrix for the Hypotheses**

<table>
<thead>
<tr>
<th>Contrast</th>
<th>UI</th>
<th>PG</th>
<th>PI</th>
<th>NG</th>
<th>NI</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (H1): UI vs PG</td>
<td>1</td>
<td>-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2 (H2): UI vs PI</td>
<td>1</td>
<td></td>
<td>-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3 (H3): UI vs NG</td>
<td>1</td>
<td></td>
<td></td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>C4 (H4): UI vs NI</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>-1</td>
</tr>
<tr>
<td>C5 (H5): P vs N</td>
<td></td>
<td>1</td>
<td>1</td>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td>C6 (H6): Gr vs I</td>
<td></td>
<td>1</td>
<td>-1</td>
<td>1</td>
<td>-1</td>
</tr>
</tbody>
</table>

**Note.** C=Contrast. H=Hypothesis. UI= Unframed Instructions; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual; P=Positive; N=Negative; Gr=Group; l=Individual.
As predicted, *F* tests reported in Table 7 below revealed that all contrasts between the unframed instruction and the framed instructions (C1-C4) were statistically reliable.

**Table 7**

**Contrast Analyses for Task Completion**

<table>
<thead>
<tr>
<th>Contrast</th>
<th>MSe</th>
<th>F (1,93)</th>
<th>p</th>
<th>ES (r)</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (H1): UI vs PG</td>
<td>.48</td>
<td>9.85</td>
<td>.00*</td>
<td>.31</td>
<td>30%</td>
</tr>
<tr>
<td>C2 (H2): UI vs PI</td>
<td>.49</td>
<td>4.22</td>
<td>.04*</td>
<td>.21</td>
<td>20%</td>
</tr>
<tr>
<td>C3 (H3): UI vs NG</td>
<td>.39</td>
<td>6.08</td>
<td>.02*</td>
<td>.25</td>
<td>24%</td>
</tr>
<tr>
<td>C4 (H4): UI vs NI</td>
<td>.34</td>
<td>10.16</td>
<td>.00*</td>
<td>.32</td>
<td>30%</td>
</tr>
<tr>
<td>C5 (H5): P vs N</td>
<td>.57</td>
<td>.02</td>
<td>.89</td>
<td>.01</td>
<td>2%</td>
</tr>
<tr>
<td>C6 (H6): Gr vs I</td>
<td>.48</td>
<td>.20</td>
<td>.66</td>
<td>.05</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Note:* C=Contrast. H=Hypothesis. UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Individual; NI=Negative Individual; P=Positive; N=Negative; Gr=Group; I=Individual; ES=Effect Size; IR=Improvement Rate. *p<.05.

There was no reliable difference between the effect of the positive and negative frames (C5) and the effect of the individual and group consequences (C6). Effect sizes (ES) as well as improvement rates (IR) are included (cf.
Rosenthal, 1991). Contrast analyses one through four indicated increased compliance under framed instructions and supported the main thesis of the study. Improvement rates varying from 20% to 30% imply the practical utility of framed over unframed instructions.

**Teacher Expectation: A Rival Hypothesis**

A rival explanation for the data could be that teacher expectation influenced judgments regarding observation of task completion. This rival hypothesis was examined. The teacher ratings of academic competence on the SSRS-TF for the children were correlated with overall actual task completion to establish if teacher observations of task completion after the delivery of framed instructions was influenced by the teacher’s knowledge of their students.

The constructs rated by teachers on the SSRS-TF that correlated positively with compliance were cooperation, assertiveness, self-control, and academic competence. The cooperation and self-control constructs correlated most highly with task completion under framed instructions. The correlations were weak, indicating the observations of task completion were not influenced by teacher expectation. The constructs that correlated most negatively with compliance were externalizing behaviors and hyperactivity. That is, those
students rated by teachers as having more externalizing and hyperactive behaviors, tended to be less compliant under all frames. The internalizing behavior ratings correlated negatively with all but the individual positive frame, with which they showed a small positive correlation. The unframed instruction tended to be most negatively related to the hyperactivity scale. The correlations and the corresponding Bonferroni probabilities are reported in Table 8.

Table 8

Pearson Correlation between SSRS-TF Subscales and Task Completion

<table>
<thead>
<tr>
<th>Instructional Frame</th>
<th>SSRS-TF</th>
<th>UI (n=100)</th>
<th>PG (n=100)</th>
<th>PI (n=105)</th>
<th>NG (n=100)</th>
<th>NI (n=104)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Cooperation</td>
<td>.23</td>
<td>.20</td>
<td>.34*</td>
<td>.29</td>
<td>.24</td>
<td></td>
</tr>
<tr>
<td>2-Assertiveness</td>
<td>.18</td>
<td>.17</td>
<td>.14</td>
<td>.19</td>
<td>.15</td>
<td></td>
</tr>
<tr>
<td>3-Self-Control</td>
<td>.23</td>
<td>.27</td>
<td>.22</td>
<td>.19</td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>4-Externalizing</td>
<td>-.24</td>
<td>-.21</td>
<td>-.10</td>
<td>-.30</td>
<td>-.13</td>
<td></td>
</tr>
<tr>
<td>5-Internalizing</td>
<td>-.23</td>
<td>-.07</td>
<td>.17</td>
<td>-.29</td>
<td>-.04</td>
<td></td>
</tr>
<tr>
<td>6-Hyperactivity</td>
<td>-.30</td>
<td>-.15</td>
<td>-.21</td>
<td>-.26</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>7-Academic Competence</td>
<td>.12</td>
<td>.18</td>
<td>.06</td>
<td>.27</td>
<td>.20</td>
<td></td>
</tr>
</tbody>
</table>

Note: n varies due to absences. Instructional Frames: UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual. p<.05 (after Bonferroni adjustment).
The Bonferroni probabilities indicated that academic competence, the most relevant construct, as rated on the SSRS-TF, did not covary reliably with the task completion observed by the teachers following the academic frames. Evidently, the rival hypothesis that teachers’ observation may be biased was unsupported, allowing meaningful interpretation of the outcome of the main hypotheses tests.

**Class/Teacher Level Analyses:**

The contrast analyses are based on data over five different classrooms and five different teachers. The treatment may have been statistically reliable as a result of large sample size and the resulting statistical power. However, classrooms typically have much smaller class sizes. A major objective of this study was to establish whether instructional framing was an ecologically valid classroom management technique. Therefore, although individual class sizes would mean low power and therefore loss of statistical significance, effect sizes were calculated for each classroom to determine the practical significance of the treatment. Figure 2 below represents the means for task completion under the unframed instruction and under each of the framed instructions for each Teacher. The graph illustrates that the unframed instruction generally resulted in lower task completion than did the framed
instructions.

Figure 2: Treatment Means by Teacher

Note: UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual.

Effect sizes and improvement rates for each of the contrasts predicting a directional difference, that is, Hypotheses 1 through 4 (the contrasts between the unframed and the framed instructions), are presented for each Teacher in Table 9 below. When the effect is of practical value and the null hypothesis is not rejected because of low power (small sample size), it is a
serious type II error (Glass & Hopkins, 1984). Type II error has been avoided by looking at the effect size for each of the contrasts at the classroom level instead of at statistical significance.

Table 9
Effect Sizes and Improvement Rates for Contrasts 1-4

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Teacher A n=22</th>
<th>Teacher B n=20</th>
<th>Teacher C n=18</th>
<th>Teacher D n=22</th>
<th>Teacher E n=12</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1(H1): UI-PG</td>
<td>.36 40%</td>
<td>.07 8%</td>
<td>.24 24%</td>
<td>.27 30%</td>
<td>.63 60%</td>
</tr>
<tr>
<td>C2(H2): UI-PI</td>
<td>.35 40%</td>
<td>.25 24%</td>
<td>.11 12%</td>
<td>.25 24%</td>
<td>.14 16%</td>
</tr>
<tr>
<td>C3(H3): UI-NG</td>
<td>.13 12%</td>
<td>0 0%</td>
<td>.24 24%</td>
<td>.21 20%</td>
<td>.73 70%</td>
</tr>
<tr>
<td>C4(H4): UI-NI</td>
<td>.35 40%</td>
<td>.39 40%</td>
<td>.24 24%</td>
<td>.18 20%</td>
<td>.58 60%</td>
</tr>
</tbody>
</table>

Note: UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual.

It is important to note that improvement rates in task completion under treatment conditions are for the most part, large enough to make a real difference in individual classrooms. In Teacher E's class, the negative group frame was extremely effective indicating a 70% improvement rate in compliance. It should also be noted that the children in Teacher E's
classroom generally appeared to have been most influenced by framing. Indeed, despite the small sample size per classroom, contrasts 1, 3 and 4, in Teacher's E classroom remained statistically significant, indicating a robust framing effect.

Of note is that Teacher E had the largest number of absences and therefore the fewest number of observations. Although there were 24 children in her class, she recorded only 12 observations. In comparison, Teacher A recorded 22 observations, Teacher B recorded 20, Teacher C recorded 18, and Teacher D recorded 22.

Two of the contrasts in Teacher B's class had effect sizes of low practical significance. The contrast between the unframed instruction and the positive group frame indicated an 8% percent improvement rate and the contrast between the unframed instruction and the negative group frame indicated no improvement under framed conditions.

**Experiment Two: Compliance with A Behavioral Instruction**

Analysis of results of Experiment Two, in addition to that described for Experiment One, includes analyses of covariation of compliance with the cooperation construct of the SSRS-TF. In Experiment Two, the cooperation construct of the SSRS-TF correlated significantly with actual compliance so it
was necessary to adjust for teacher expectation effect for meaningful interpretation of the treatment effects. This was done by analyses of covariance with cooperation as a covariate.

As in Experiment One, both univariate and multivariate analyses were done to ensure the standard assumptions for ANOVA were met as well as the compound symmetry assumption. Both univariate and multivariate analysis in Experiment Two converged to the same conclusion. The overall test of the treatment effect was $F(4,386)=7.21$, $MSe=.40$, $p<.05$ in univariate analysis, and Wilk's Lambda=.80, $F(4,96)=6.01$, $p<.05$ in multivariate analysis.

It was felt that there was at least some possibility of an order effect on the unframed instruction. However, analysis of variance indicated no reliable order effect, $F(4,103)=1.04$, $MSe=1.62$, $p<.17$.

**Contrast Analysis-Test of Hypotheses**

The hypotheses predicted a statistically reliable difference between the behavioral unframed instruction and the framed instructions. The hypotheses predicted no difference between the positive and negative and the group and individual frames. The contrast matrix for these hypotheses is shown in Table 10.
Table 10
Contrast Matrix for the Hypotheses

<table>
<thead>
<tr>
<th>Contrast</th>
<th>UI</th>
<th>PG</th>
<th>PI</th>
<th>NG</th>
<th>NI</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (H1): UI vs PG</td>
<td>1</td>
<td>-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2 (H2): UI vs PI</td>
<td>1</td>
<td></td>
<td>-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3 (H3): UI vs NG</td>
<td>1</td>
<td></td>
<td></td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>C4 (H4): UI vs NI</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>-1</td>
</tr>
<tr>
<td>C5 (H5): P vs N</td>
<td>1</td>
<td>1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td>C6 (H6): Gr vs I</td>
<td>1</td>
<td></td>
<td>-1</td>
<td>1</td>
<td>-1</td>
</tr>
</tbody>
</table>

Note. C=Contrast. H=Hypothesis. UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual. P=Positive; N=Negative; Gr=Group; I=Individual.

Contrast analyses indicated an increased rate of compliance under the framed conditions and supported the main thesis of the study. The positive frame with the group consequence (PG), the negative frame with the group consequence (NG), the negative frame with the individual consequence (NI) and the positive frame with the individual consequence (PI) all resulted in a reliable increase in degree of compliance from the degree of compliance under the unframed instruction. Positive or negative orientation of the frame did not reliably affect compliance. Similarly, the use of group versus individual
contingencies for consequences did not reliably affect compliance. The results are reported in Table 11.

Table 11
Contrast Analyses for Behavioral Compliance

<table>
<thead>
<tr>
<th>Contrast</th>
<th>MSe</th>
<th>F(3, 99)</th>
<th>p</th>
<th>ES(r)</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (H1): UI vs PG</td>
<td>.98</td>
<td>9.39</td>
<td>.00</td>
<td>.29</td>
<td>30%</td>
</tr>
<tr>
<td>C2 (H2): UI vs PI</td>
<td>.99</td>
<td>4.06</td>
<td>.01</td>
<td>.20</td>
<td>20%</td>
</tr>
<tr>
<td>C3 (H3): UI vs NG</td>
<td>.85</td>
<td>5.02</td>
<td>.00</td>
<td>.22</td>
<td>20%</td>
</tr>
<tr>
<td>C4 (H4): UI vs NI</td>
<td>.90</td>
<td>7.96</td>
<td>.00</td>
<td>.27</td>
<td>30%</td>
</tr>
<tr>
<td>C5 (H5): P vs N</td>
<td>1.46</td>
<td>1.89</td>
<td>.14</td>
<td>.14</td>
<td>14%</td>
</tr>
<tr>
<td>C6 (H6): Gr vs I</td>
<td>1.04</td>
<td>.54</td>
<td>.66</td>
<td>.07</td>
<td>7%</td>
</tr>
</tbody>
</table>

Note. C=Contrast. H=Hypothesis. UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG= Negative Group; NI=Negative Individual. P=Positive; N=Negative; Gr=Group; I=Individual.

Contrast analyses one through four indicated greater behavioral compliance as a result of framed instructions and supported the main thesis of the study. Improvement rates ranging from 20% to 30% imply the practical utility of framed over unframed instructions.
**SEX EFFECT**

A question of interest was whether the response to the behavioral frames differed by sex. Sex appears to have had an effect on compliance under the unframed instruction (UI) and the positive frame with an individual consequence (PI). The results are reported in Table 12.

**Table 12**

Means (M), Standard Deviations (SD), and t-test Results by Frame and Sex

<table>
<thead>
<tr>
<th>Frame</th>
<th>Boys n</th>
<th>M</th>
<th>SD</th>
<th>Girls n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>UI</td>
<td>53</td>
<td>2.11</td>
<td>1.17</td>
<td>55</td>
<td>2.66</td>
<td>.80</td>
<td>-2.82</td>
<td>106</td>
<td>.01*</td>
</tr>
<tr>
<td>PG</td>
<td>53</td>
<td>2.64</td>
<td>.71</td>
<td>56</td>
<td>2.73</td>
<td>.56</td>
<td>-.75</td>
<td>107</td>
<td>.46</td>
</tr>
<tr>
<td>PI</td>
<td>53</td>
<td>2.47</td>
<td>.99</td>
<td>56</td>
<td>2.80</td>
<td>.55</td>
<td>-2.17</td>
<td>107</td>
<td>.03*</td>
</tr>
<tr>
<td>NG</td>
<td>52</td>
<td>2.62</td>
<td>.77</td>
<td>55</td>
<td>2.70</td>
<td>.54</td>
<td>-.59</td>
<td>105</td>
<td>.56</td>
</tr>
<tr>
<td>NI</td>
<td>53</td>
<td>2.62</td>
<td>.79</td>
<td>56</td>
<td>2.77</td>
<td>.54</td>
<td>-1.13</td>
<td>107</td>
<td>.26</td>
</tr>
</tbody>
</table>

*Note.* Uneven n's are due to absences. t is based on pooled variance. UI= Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual. *p≤.05.
Univariate $F$-tests were conducted to determine effects of the independent variable of sex. These results are reported in Table 13. Within subjects, the treatment by sex interaction was not reliable. Therefore, different treatments did not vary reliably by sex. However, within subjects analyses did indicate a reliable treatment effect.

Table 13
Univariate ANOVA Results

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MSe</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>1.24</td>
<td>5.27</td>
<td>.02*</td>
</tr>
<tr>
<td><strong>Within Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>4</td>
<td>1.68</td>
<td>4.13</td>
<td>.00*</td>
</tr>
<tr>
<td>Treatment X Sex</td>
<td>4</td>
<td>.41</td>
<td>2.22</td>
<td>.07</td>
</tr>
</tbody>
</table>

*Note.* Greenhouse-Geiser Epsilon=.81; Huynh-Feldt Epsilon=.84. $p<.05$.

Treatment means for Experiment Two are graphed in Figure 3. The treatment means are shown for each sex. Treatment means indicate the girls tended to have a higher rate of compliance than the boys, under all but the unframed instruction.
Figure 3: **Mean Compliance under Framing Condition by Sex**

*Note:* UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual.

**Teacher Expectation: A Rival Hypothesis**

The Pearson product-moment correlation matrix in Table 14 shows some moderate correlations between the constructs of the SSRS-TF as rated by the teachers, and actual compliance. As in Experiment One, cooperation, assertiveness, self-control and academic competence correlate positively with compliance. Externalizing, hyperactivity and internalizing constructs all correlated negatively with compliance. Internalizing correlated negatively with all but the positive individual frame. Table 14 is presented below.
Table 14
Pearson Correlations between SSRS-TF Subscales and Behavioral Compliance

<table>
<thead>
<tr>
<th>SSRS-TF</th>
<th>UI (n=104)</th>
<th>PG (n=105)</th>
<th>PI (n=103)</th>
<th>NG (n=103)</th>
<th>NI (n=105)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Cooperation</td>
<td>.61*</td>
<td>.25</td>
<td>.40*</td>
<td>.61*</td>
<td>.49*</td>
</tr>
<tr>
<td>2-Assertiveness</td>
<td>.35</td>
<td>.16</td>
<td>.24</td>
<td>.39</td>
<td>.24</td>
</tr>
<tr>
<td>3-Self-Control</td>
<td>.63</td>
<td>.22</td>
<td>.30</td>
<td>.46</td>
<td>.42</td>
</tr>
<tr>
<td>4-Externalizing</td>
<td>-.42*</td>
<td>-.18</td>
<td>-.31</td>
<td>-.24</td>
<td>-.21</td>
</tr>
<tr>
<td>5-Internalizing</td>
<td>-.03</td>
<td>-.14</td>
<td>.02</td>
<td>-.09</td>
<td>-.02</td>
</tr>
<tr>
<td>6-Hyperactivity</td>
<td>-.42*</td>
<td>-.33</td>
<td>-.29</td>
<td>-.42*</td>
<td>-.37</td>
</tr>
<tr>
<td>7-Academic Competence</td>
<td>.36</td>
<td>.21</td>
<td>.30</td>
<td>.39</td>
<td>.27</td>
</tr>
</tbody>
</table>

Note: n varies due to absences. UI= Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual. *p<.05 (after Bonferroni adjustment).

COOPERATION AS A COVARIATE

Correlation coefficients established that compliance under the framed conditions covaried with cooperation ratings by the teachers. The Bonferroni probabilities indicate that the teachers' rating of the cooperation construct (1), the most relevant construct, covaried reliably with compliance, with levels of
statistical significance at $p \leq .01$ for all but the positive frame with group consequence (PG). This meant teachers' observation of compliance with their behavioral request was likely influenced by their expectation. As a result, cooperation was included in the analyses as a covariate to adjust for teacher expectation effect. The results are presented below in Table 15.

Table 15
Contrast Analyses Adjusted for Cooperation

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Contrast (H1): UI vs PG</th>
<th>MSE</th>
<th>F(2,104)</th>
<th>p</th>
<th>ES(r)</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (H1): UI vs PG</td>
<td>1.09</td>
<td>5.72</td>
<td>.00*</td>
<td>.23</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>C2 (H2): UI vs PI</td>
<td>1.00</td>
<td>3.06</td>
<td>.05*</td>
<td>.17</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>C3 (H3): UI vs NG</td>
<td>.83</td>
<td>6.82</td>
<td>.00*</td>
<td>.25</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>C4 (H4): UI vs NI</td>
<td>.43</td>
<td>7.93</td>
<td>.00*</td>
<td>.27</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>C5 (H5): P vs N</td>
<td>1.46</td>
<td>.76</td>
<td>.47</td>
<td>.09</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>C6 (H6): Gr vs I</td>
<td>1.00</td>
<td>.68</td>
<td>.51</td>
<td>.08</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>

Note. C=Contrast. H=Hypothesis. UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG= Negative Group; NI=Negative Individual. P=Positive; N=Negative; Gr=Group.

The adjusted means for each of the treatments with cooperation as the covariate are presented in Figure 4.
The graph of the means indicates that the least effective frame for both of the sexes was the unframed instruction (UI). The most effective frames for the boys were the negative frame with the group consequence (NG), the positive frame with the group consequence (PG), and the negative frame with the individual consequence (NI). The most effective frames for the girls were the positive frame with the individual consequence (PI), and the positive frame with the group consequence (PG). Without adjustment of the means for
cooperation as a covariate, the girls tended to have higher scores on the dependent variable, compliance, than when the means were adjusted for cooperation as a covariate. On the other hand, without adjustment of the means for cooperation as a covariate, the boys tended to have generally lower scores on the dependent variable, compliance, than when the means were adjusted with cooperation as a covariate. This finding seems to suggest that the boys in this experiment were perceived by the teachers as being somewhat less cooperative than the girls.

**CLASS/TEACHER LEVEL ANALYSES:**

As in Experiment One, the treatment in Experiment Two may have been statistically reliable as a result of large sample size and the resulting statistical power. Therefore, although individual class sizes would mean low power and therefore loss of *statistical significance*, effect sizes were examined for each classroom to determine the *practical significance* of the treatment. Figure 5 below represents the means for behavioral compliance under the unframed instruction and under each of the framed instructions for each Teacher. The graph illustrates that the framed instructions generally resulted in a greater degree of behavioral compliance under the treatment conditions than did the unframed instruction.
Figure 5: Treatment Means by Teacher

Note: UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual.

The effect sizes and improvement rates for each of the reliable contrasts specified in Hypotheses 1 through 4 (contrasts between unframed and framed instructions) are presented for each Teacher in Table 16 below.

When the effect is of practical value and the null hypothesis is not rejected because of low power (small sample size), it is a serious type II error. Type II
error has been avoided by looking at the effect size for each of the contrasts.

It is important to note that improvement rates in behavioral compliance under treatment conditions are for the most part, large enough to make a real difference in individual classrooms. Of particular interest is that the negative frames had improvement rates consistently over 20%, while the improvement rate of the positive frames was considerably more variable. The positive frame with the individual consequence seemed to be the least effective frame. Despite the small sample size per class, a number of the contrasts were statistically significant indicating a robust framing effect. As in Experiment One, the children in Teacher E’s classroom appear to have been most influenced by the framed instructions. However, more observations were recorded by Teacher E in Experiment Two than in Experiment One. In Experiment Two, there were 22 observations in Teacher A’s class, 21 in Teacher B’s class, 20 in Teacher C’s class, 22 in Teacher D’s class and 21 in Teacher E’s.

The effect sizes for the contrasts between the unframed instruction and the positive group frame indicated the positive group frame was not effective in Teacher D’s classroom; the contrast between the unframed instruction and the positive individual frame indicated the positive individual frame was not effective in Teacher A’s classroom. Pre-treatment tape data indicated that
Teacher A did not generally use consequences and Teacher D sometimes used positive and negative consequences.

Table 16
**Effect Sizes and Improvement Rates for Contrasts 1-4**

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Teacher A (n=22)</th>
<th>Teacher B (n=21)</th>
<th>Teacher C (n=20)</th>
<th>Teacher D (n=22)</th>
<th>Teacher E (n=21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1(H1):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UI-PG</td>
<td>.43 40%</td>
<td>.48 50%</td>
<td>.37 40%</td>
<td>0 0%</td>
<td>.42 40%</td>
</tr>
<tr>
<td>C2(H2):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UI-PI</td>
<td>.06 6%</td>
<td>.19 20%</td>
<td>.13 12%</td>
<td>.19 20%</td>
<td>.52 50%</td>
</tr>
<tr>
<td>C3(H3):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UI-NG</td>
<td>.25 24%</td>
<td>.47 50%</td>
<td>.42 40%</td>
<td>.28 30%</td>
<td>.45 50%</td>
</tr>
<tr>
<td>C4(H4):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UI-NI</td>
<td>.45 50%</td>
<td>.47 50%</td>
<td>.22 24%</td>
<td>.28 30%</td>
<td>.25 24%</td>
</tr>
</tbody>
</table>

Note: C=Contrast. H=Hypothesis. UI=Unframed Instruction; PG=Positive Group; PI=Positive Individual; NG=Negative Group; NI=Negative Individual.

**POST-TREATMENT TEACHER DATA**

Results of the statistical analysis were supplemented by informal comments from the teachers while the study took place and after the study was completed. Teacher A noted a dramatic difference in her classroom by the end of the school year. The children were generally very quiet, and prompted each other to conform to her expectations. She commented, "I don't
want them to go on next year!", meaning their behavior was so easy to manage that she would like to teach them for another year. Teacher A's feeling that the children's behavior improved over the duration of the experiment was substantiated by the improvement rates calculated for her classroom. In Experiment One, the improvement rates in her classroom ranged from 12% to 40%, while in Experiment Two they ranged from 6% to 50%. Teacher A continued to use the instructional frames after the experiment was completed. She did think that the frames would be more effective at the beginning of the year when the school day did not have so many interruptions.

Teacher B felt that he had a very well behaved class. He did not really feel his students needed consequences to comply with his instructions. However, he felt that although his students were well-behaved and generally complied with his instructions, they found the positive frame very motivating. In Experiment One, the positive frame with the individual consequence resulted in a 24% improvement rate in compliance, while the positive frame with the group consequence resulted in an 8% improvement rate. In Experiment Two, the positive frames indicated an improvement rate of 50% and 20%. Teacher B indicated the students did not like the frames with the negative consequences, but they complied with them despite this feeling. In
fact, the students in Teacher B’s classroom did not respond to the negative frame with the group consequence in Experiment One (improvement rate 0%), but they did respond to the negative frame with the individual consequence with an improvement rate of 24%. In Experiment Two, Teacher B’s classroom showed improvement rates of 50% and 20% under the positive frames, and 50% under both of the negative frames. He felt that although his current class did not need consequences to be specifically articulated by him when he was giving an instruction, the framed instructions were effective and he would use the frame with positive consequences with a different class. Teacher B, like Teacher A, felt that the frames would be most effective at the beginning of the year.

Teacher C felt that she had a very compliant class. She commented, "I'm so lucky this year." She did not feel that she really needed any additional methods to control behavior. Teacher C agreed to participate in the experiment as she felt she might benefit from what she learned in subsequent teaching years and she felt it was important to contribute to educational research. She said that she did not like to give rewards for what she considered expected behavior. She also said that she never put the children into groups with consequences contingent upon group behavior or achievement, which she felt was unfair. However, during the experiment,
Teacher C felt the children liked the positive frame and responded well to it. Improvement rates in both Experiment One and Two indicated the negative frames were most effective at 24% in Experiment One and 40% and 24% in Experiment Two. The positive frames showed an improvement rate of 12% and 24% in Experiment One and 40% and 12% in Experiment Two. Although Teacher C reported the children complied very well with the negative frame, Teacher C did not like the way they responded. She thought they felt pressured, became agitated with each other and as a result "were not very nice." For example, one group member said to another, "Get this done...", in what Teacher C described as a "very forceful" manner. It is possible that the reaction to the negative frame may have had something to do with the consequence Teacher C chose. The consequence involved losing physical education time. Nevertheless, as Teacher C felt, the improvement rates for both the negative frames were practically significant at 24%.

Teacher C commented on the time factor in the instructional frame and felt that the time limit was difficult for the children to understand. That is, she did not think they understood in terms of actual time, what “ten minutes” meant. Teacher C did use time on the pre-experiment tape, but perhaps the lack of understanding of time was not relevant as she ultimately made the decision regarding time spent:
Teacher C,

"How many people need more time? How much time?"

Student replies.

Teacher C, "No, five minutes."

Teacher D commented that she and the children liked the positive frame best. She felt the children did not like the negative consequence. They felt disappointed if they received a negative consequence and "would groan."

Teacher D's conclusions were substantiated by the improvement rates for Experiment One which were 30% and 24% for the positive frames and 20% for each of the negative frames. However, in Experiment Two, the improvement rates for the negative frames were 30% and 0% and 20% for the positive frames, indicating the greatest improvement on one of the negative frames. Unlike Teacher C, Teacher D liked the effect of the time limit component of the frame. She felt that the students were more able to focus when they had a specific time limit. If she asked them to work for 20 minutes, she felt they were able to sustain attention on the appropriate task for those 20 minutes better than if she had not included the time factor. Teacher D also felt the students responded better when they were addressed by name. Teacher D did note however, that her "good" students wondered why she was specifically addressing them when giving instructions, when they consistently
Teacher D felt that participating in the experiment gave her useful information regarding classroom management. She commented that the positive individual frame would be an effective method to establish behavioral expectations quickly at the beginning of the year. She felt it could be phased out and reintroduced as needed. Teacher D continued with the program of positive consequences for expected behavior after the experiment was completed.

Teacher E described her class as a challenge. She felt that as a group her class lacked empathy for each other and had difficulty listening and completing work. In addition, there were significant personality conflicts between some of the students in Teacher E's class. Overall, Teacher E liked the positive frames best and felt they were most effective. She did not like administering the negative frames and felt the students in the class did not like them, although she felt that they increased compliance. She did not ordinarily use group consequences and did not feel completely comfortable using group consequences. Teacher E felt that the negative frames were not as effective as the positive frames. This was not substantiated by the improvement rates in Experiment One. The improvement rates for the negative frames were 60% and 70% and 60% and 16% for the positive frames. However, in Experiment
Two the improvement rates were 50% and 24% for the negative frames and 50% and 40% for the positive frames. Teacher E felt the framing would have been more effective at the beginning of the year. She felt that by May the students already understood her expectations.

**SUMMARY**

Pre-treatment audio-tapes of teachers in their classrooms indicated the percentage of framed instructions delivered by teachers ranged from 9% to 21%, while the percentage of unframed instructions ranged from 79% to 96%. Four out of five of the teachers used negative consequences for inappropriate behavior. Three out of five of the teachers used positive comments. Post-treatment teacher comments indicated that all teachers felt the framed instructions were more effective than the unframed instructions.

The statistical results for Experiment One also generally supported the major research hypothesis, namely, that two-attribute framed instructions can increase children's task completion in the classroom. Contrast analysis indicated the instructional frames had a reliable, positive effect on task completion. Improvement rates indicated that task completion increased 20% to 30% from framed instructions when unframed instructions were used. The hypotheses that the effect of positive and negative framing and group and
individual consequences would be equal was supported. The question concerning a difference in compliance as a function of sex was not supported in Experiment One. Although the constructs from the SSRS-TF correlated positively and negatively with compliance as would be expected, none of the attributes from the SSRS-TF covaried significantly with compliance. Classroom level analysis indicated that generally, there was a practically significant improvement rate in task completion under framed instructions. Improvement rates in 15 out of 20 contrasts were over 20% and ranged as high as 70%. Teacher E, who had a particularly difficult class, experienced significantly larger effect sizes under framed instructions than did the other four teachers.

The statistical results for Experiment Two generally supported the major research hypothesis, namely, that two-attribute framed instructions can increase children's behavioral compliance in the classroom. Contrast analysis indicated that instructional frames had a reliable, positive effect on behavioral compliance. Overall, improvement rates indicated that behavioral compliance increased 20% to 30% from unframed instructions when framed instructions were used. Classroom level analysis indicated that generally, there was a significant improvement rate in behavioral compliance under framed instructions. Improvement rates in 17 out of 20 contrasts were over 20% and
ranged as high as 50%. Teacher E, as in Experiment One, experienced significantly larger effect sizes under framed instructions than did the other four teachers. The hypotheses that the effect of positive and negative framing and group and individual consequences would not be reliably different were supported. This is consistent with previous results. Although one of the constructs from the SSRS-TF, cooperation, correlated positively with compliance, adjusting for cooperation made no difference in the main findings. The treatment by sex interaction was found to be unreliable implying no overall differential impact of the frames for boys and girls.

Results of Experiment One and Two indicate that there was a reliable framing effect when instructional frames were used by teachers in the classroom. The size of the effect (20%-30%) in both experiments is such that there would be a noticeable improvement in classroom management. In addition, at the classroom level, 32 out of the 40 contrasts indicated improvement rates in task completion and behavioral compliance ranging from 20% to 70%, indicating a significant practical effect within individual classrooms.

Post-treatment data indicated that all the teachers felt the treatments were effective. Although they commented May of the school year was not an ideal time to introduce a new classroom management technique, and
expressed preferences for certain frames over others, they all agreed the
frames increased task completion and behavioral compliance.

This study took place in regular classrooms with teachers acting as
research assistants by observing behavior and collecting data. Statistical
results indicate that instructional framing resulted in a significant increase in
task completion and behavioral compliance. These results are consistent with
teacher perceptions that the instructional frames were effective.
CHAPTER FIVE

DISCUSSION

The purpose of this study was to determine if the information framing effect, documented in previous studies with adults, generalized to children in classrooms and as a result could be used as a management tool. Would teacher "instructional framing" increase children's task completion and behavioral compliance with teacher instructions? I set out to establish there would be a difference between children's responses to instructions from teachers given the way a teacher might ordinarily give instructions, referred to as unframed instructions, and children's responses to framed instructions.

The study was composed of two separate experiments. Experiment One focused on academic task completion and Experiment Two focused on compliance with a behavioral request. Experiment Two was a replication of Experiment One, with the exception of the dependent variable, and was done in order to establish reliability of the results.

Chapter Four presented the data analyses of the results of Experiment One and Experiment Two. Chapter Five will examine these findings and their relationship to previous literature. In addition, the post hoc follow-up, the strengths and weaknesses of the study, the implications of the study and
possible future research directions are discussed.

**Findings**

Results indicated that the "framing effect" did generalize to children in the classroom and supported the main hypotheses in both Experiment One and Two. In Experiment One, task completion under all four framed instructions was found to be reliably greater than task completion under the unframed instruction. In Experiment Two, behavioral compliance under all four framed instructions was found to be reliably greater than compliance under the unframed instruction. Effect sizes for the framed instructions ranged from .21 to .32 in Experiment One and .20 to .29 in Experiment Two. This reflects an improvement rate in both task completion and behavioral compliance ranging from approximately 20% to 30%. Effect sizes of this magnitude could be expected to make a real difference in the classroom. These findings are consistent with the pattern of results based on Tversky and Kahneman's findings (1981) that people will tend toward a gain and avoid a loss.

Analysis was also done at the class/teacher level to identify effect sizes and improvement rates in individual classrooms. Improvement rates in 32 out of 40 comparisons, over the two Experiments, were at least 20% and ranged
as high as 70%. Teacher E, who appeared to have the most difficult class to manage, experienced the most dramatic improvement. The children in Teacher E's classroom seemed to have great difficulty listening to directions and completing assignments. The framed instructions may have imposed a structure for expectations that helped them to focus on the salient issue, i.e., completing the task or complying with the behavioral expectation.

In Experiment One, Teacher B's class was the only one that had a smaller increase in appropriate behavior under both of the frames with group consequences than under those with individual consequence. Teacher B was generally the least verbally directive teacher and most often had the children working in groups. The children in this class may have been accustomed to group reinforcement and may have responded to the novelty of the use of individual consequences as a result.

Children in the classes of Teachers A, C, D and E did not appear to clearly respond more favorably to either the positive or negative orientation of the frames. However, Teachers C and D, who used more pre-treatment framing than did the other teachers, had the least variability among the responses to the frames. Their classrooms may have most closely resembled treatment conditions and consequently, had the most even reaction to the frames from their classes. That is, the children were more familiar with the
framing “format,” regardless of the type of consequence. Nevertheless, it is not possible to conclude from this study, that previous practice influenced the responses of the children. The reasons why specific frames worked better in some classes than others would be an interesting area to pursue. What is clear in this study is that all framed instructions were more effective than unframed instructions.

Improvement rates for Experiment Two in individual classrooms appeared more dramatic, that is, generally larger, than for Experiment One. This may be because generally, teachers may be more exact in their estimations of a student's ability to comply with behavioral expectations than their ability to complete an assigned task. However, Teacher D experienced no improvement under the positive group frame and Teacher A had a minimal effect under the positive individual frame. On the pre-treatment tape, Teachers A, C, D and E seemed inclined to articulate negative consequences subsequent to inappropriate behavior. Nevertheless, Teachers C and E had at least as large an effect with the positive consequence as with the negative consequence. Teacher B, who did not generally use consequences on the pre-treatment tape, observed greater compliance under the negative consequences. As in Experiment One, on the basis of these results, it is difficult to draw conclusions regarding the influence of previous practice on the
individual classes’ responses to framing.

There was no reliable difference in task completion due to the use of positive or negative wording in the frames. Effect size for positive versus negative orientation was .01 in Experiment One and .14 in Experiment Two. This was expected given the wording of the frames. That is, the positive consequence was articulated in connection to the preferred behavior and the probability of achieving that consequence. In previous experiments, when the positive consequence and the probability of achieving that consequence were articulated, individuals have tended to the behavior resulting in that consequence. Similarly, when the negative consequence and the probability of achieving that consequence were articulated, individuals have tended to avoid the behavior resulting in that consequence (Tversky & Kahneman, 1981; Levin, 1988). The negatively framed instructions, although not significantly greater in effect on compliance, did show a tendency to generate higher average compliance from the boys in Experiment Two. The mean compliance for the girls did not reflect this tendency.

There was no reliable difference between the use of individual or group contingencies for consequences in either Experiment One or Two. The effect size for the group versus individual consequence in Experiment One was .05 and .07 for Experiment Two. This result is consistent with previous studies
that have not indicated a consistent advantage using one type of contingency for consequence over the other. Reviews of the literature suggest that group contingencies are equivalent in performance to individual contingencies in both academic and behavioral contexts (Hayes, 1976; Litow & Pumroy, 1975; McLaughlin, 1974). Recommendations for using individual or group contingencies may have to be based on their acceptability and convenience (Witt & Elliott, 1985). It suggests teachers would be best to use the type of consequence they feel most comfortable with and which appears to be most appropriate for the situation.

No correlation between the constructs of the SSRS-TF and completion of an academic task were found in Experiment One, but a correlation between the cooperation construct and behavioral compliance was found in Experiment Two. The correlations for Experiment One suggest that teacher bias was not a factor in the recording of student behavior. Although overall, the constructs on the SSRS-TF were not found to correlate reliably with task completion, constructs on the SSRS-TF that might be associated with task completion (cooperation, self-control) correlated negatively with task completion. Constructs on the SSRS-TF that might not be associated with task completion (externalizing behaviors, hyperactivity) correlated negatively with task completion. The internalizing behavior ratings correlated negatively with all
but the positive individual frame, with which it showed a small positive correlation. These weak but insignificant correlations provided concurrent validity for teachers' observations. In Experiment Two, because cooperation covaried with compliance, it was included in the analysis as a covariate. However, when the means were adjusted for cooperation, there was still a significant framing effect. When the analysis was adjusted for cooperation, the girls' average rate of compliance was slightly lower than the boys' average rate of compliance under the positive group (PG), the negative group (NG) and the negative individual (NI) frames. When the analysis was not adjusted for cooperation, the girls' average rate of compliance was greater than that of the boys' under the unframed instruction and all of the framed instructions. This finding suggests girls may be viewed by teachers as more cooperative than boys, but are not necessarily more responsive to framing. The analyses indicated there was no interaction between sex and treatment in Experiment One or Experiment Two.

**Teacher's Perspectives**

The findings of the study were corroborated by the teachers' comments and feelings both during and after the experiments. Teacher comments converged with the statistical analyses by indicating they felt strongly that
instructional frames had an effect on children's classroom compliance.

Although teachers had been skeptical the frames would be effective in May of the school year, they commented that all of the frames seemed to result in greater task completion or behavioral compliance. In addition, in post-hoc observation, four out of five of the teachers used framing in the Fall term of the following school year. Evidently, “instructional framing” was practically meaningful.

All of the teachers felt the time of the year the frames were administered was not ideal, and Teachers D and E commented specifically the children were already responsive to their instructions and classroom rules. Teachers B and C felt they had particularly “good” classes and did not anticipate improved task completion or behavioral compliance as a result of framing. Teacher comments regarding the less than ideal conditions for introducing a new management technique in May of the school year were based on legitimate factors. Many of the classrooms had planned field trips or were out of their classrooms for lessons. Track and field practice interfered with the daily schedule. In addition, most of the teachers felt class routines and teacher expectations were well established. The teachers who considered their classes to be exceptionally “good” felt that compliance was not likely to increase. In total, teachers’ concerns that the frames would not have a
noticeable effect certainly seemed realistic. Nevertheless, despite these complications, framing did have a reliable effect. The result serves to illustrate its robustness and suggests that framing may well be more effective at the beginning of the school year.

All of the teachers commented that either they, the children, or both, did not like the negative frames as much as they liked the positive frames. The teachers' comments that they did not like using negative consequences may have been, in part, reflective of a belief in the superiority of positive versus negative feedback in classrooms. Using negative consequences may be seen as a sometimes necessary, but undesirable route for eliciting desirable responses. In addition, teachers felt the students did not like negative consequences and may have anticipated the resulting overall negative impact on the atmosphere in the classroom. However, all teachers agreed that although the students did not like the negative consequences, they were effective in increasing task completion and behavioral compliance.

Interestingly, the pre-treatment tapes indicate that although four out of five teachers used praise, four out of five used negative consequences but none of them used positive consequences. This may be a result of the negative consequences being viewed as "logical consequences," or a lack of awareness of the use of negative consequences (perhaps they were viewed
differently by the teachers), but does illustrate a gap in belief and practice.

Teachers C and D commented on the use of time as a component of the frames. Teacher D felt it was helpful, while Teacher C felt it was confusing. Teacher D felt giving the children a specific time frame helped them to maintain concentration knowing it was for only a short length of time. Teacher C felt the children could not anticipate the length of time she mentioned and, therefore, found it confusing. These differences are interesting in that in both classes children were in a GradeThree/Four split and, therefore, of about the same age. It is unclear why one group found the use of time confusing, while another found it motivating.

An unexpected finding of the study was the information provided by teachers regarding the use of individual student names when giving an instruction. In addition to the impact of the framed instructions, Teachers A and D noted the students responded positively to being addressed individually, even when they used the unframed instruction. They felt the students responded more readily and were more likely to follow instructions when addressed by name. Education students are routinely told of the importance of addressing individual students by name during the course of their training in Education. On the pre-treatment audio-tapes, teachers did not routinely use individual student names when giving specific instructions.
However, when reminded of the practice, the teachers noted its value as a management tool. This is consistent with research indicating teachers benefit from training in management techniques even when the techniques are known to them (Evertson, 1989).

Teacher A initially found it very difficult to deliver the unframed and framed instructions. She felt her class was a challenge and when she started using the frames she said the students were "noisier than ever." However, by the second week, she felt the frames were beginning to have an effect. She also felt that the unframed instruction was beginning to have the same effect as the framed instructions. Nevertheless, statistical analyses did not reveal a reliable order effect.

By the third week, Teacher A noticed that the children within the groups were reminding each other to stay on task. She reported that even though the children did not like the frames with the negative consequences, they responded to them. She felt the positive frame with the individual consequence had a very noticeable effect (which the statistical analysis substantiated). After directing the positive, individual frame in Experiment One to one of her students, this student commented,

"Mrs. A, that was the best reading period I have ever had. Can you do that for me again?"
Teacher A reported this comment to me as confirmation of the effectiveness of instructional framing.

**FOLLOW-UP INTERVIEW**

Although not planned, I checked with the teachers who participated in the study to see if they used framing in the Fall of the following school year (1994). Four out of five of the teachers continued to use framing. Teacher B commented that he had forgotten about the frames and felt he might use them now that he had been reminded of them. One of the teachers was using an instructional frame with positive consequences; three of the teachers were using instructional frames with both positive and negative consequences. Teacher A commented that she did not have to use her rather time-consuming system of points and charting that she usually finds is necessary at the beginning of the school year. Although she did not know if this was a direct result of the framing, she felt it was a possibility. The continued use of instructional framing by the teachers in the study seems to confirm instructional framing qualifies as a classroom management technique that is not only effective, but is likely to be implemented. It is easy to use in that it does not require a lot of time or resources to be successful, it does not have to be punitive and it is perceived as effective (see Rosen et al., 1990).
RELATIONSHIP OF FINDINGS TO PREVIOUS LITERATURE

The impetus for this study was the need for preventative classroom management strategies in the classroom. Teachers consider classroom management one of the most difficult aspects of teaching (Merrett & Wheldall, 1989), and would much rather prevent problems than be forced to deal with the problems once they occur. In addition, Kounin’s (1970) observations of effective classrooms indicated they differed from ineffective classrooms, not in disciplinary methods as he expected, but in the degree to which misbehavior was prevented. The findings of the present study indicate that teachers may be able to use framed instructions in their classrooms as a preventative, proactive behavior management strategy. The results indicate that framing increases task completion and behavioral compliance (thereby decreasing non-compliance) with teacher instructions, consequently reducing behavior problems and increasing time on task. The findings are consistent with studies indicating that teacher training in teaching techniques results in improved classroom management (Evertson, 1985).

Social cognitive theory purports that behavior can be changed by changing the cues that prompt the behavior (Dodge & Crick, 1990). Bandura’s theory of social cognitive learning suggests individuals “mentally represent
their environment and themselves in terms of certain crucial classes of
cognitions that include response-outcome expectancies, perceptions of self-
efficacy, and standards for self evaluation” (cf. Grusec, 1992, p. 781; Bandura,
1986). The results of the present study lend support to this theory. When
teachers gave specific cues in the form of instructional frames, they articulated
response-outcome expectancies. Instructional framing helped ensure the
children more often chose the appropriate behavior than if instructions were
given in a neutral way, increasing perceptions of self-efficacy. By choosing
the appropriate behavior and receiving a valued consequence, children were
given a concrete means by which to self-evaluate their behavior.

Descriptive decision theory has demonstrated that individuals use
simplifying heuristics to solve complex problems (Kahneman, 1972). Because
children may not have the ability to simplify problems through the use of
heuristics, rather than attempt to make decisions for complex problems, they
sometimes avoid making decisions (Chao et al., 1986). Part of the goal in the
construction of the frames used in the present study was to simplify the
decision problem so that the children involved would not have to avoid the
decision. That is, the desirable or undesirable choice and its consequence
was stated clearly by the teacher. As a result, there was very little chance that
the children were distracted by a range of possible options, eliminating the
need for simplification of the information presented and encouraging
appropriate action by the children. Simplification was possible by assuming
that the steps children go through when making a decision are similar to the
steps adults go through (Furby & Beyth-Maron, 1992). The instructional
frames included an option, the consequences attached to that option, and
established desirability and likelihood of the consequences through framing.
This construction may have been of particular help to those children in
Teacher E's classroom who had difficulty listening and choosing the
appropriate course of action.

The research reviewed on children's decision-making indicated that it is
important to match children's processing abilities and the demands of the task
(Chao et al., 1986). As children develop, they are thought to be increasingly
able to use the representativeness heuristic and baserate information (Jacobs
& Potenza, 1991). However, whether the children in this study had developed
the ability to use these strategies is unknown. Chao et al. (1986) found that if
young children have sufficient difficulty with the information processing
requirements of a task, they may avoid complex social decisions. By
providing explicitly stated consequences attached to specific behavior,
framing may have simplified the complexity of the decision. In addition,
children are inclined to make more thoughtful decisions when the situation is
real versus hypothetical, and when the decision is seen as irreversible (Davidson, 1991). For these reasons, the fact that the study took place in the classroom increases the validity of the results, making them more meaningful.

Results indicating that task completion and behavioral compliance in children increased reliably in both the behavioral and academic experiments, adds to the robustness of the instructional framing effect and its usability. Framing research indicates that individuals respond to risk in predictable ways (Tversky & Kahneman, 1981). Individuals have been found to tend toward the gain if a problem is stated positively and tend to avoid the loss if a problem is stated negatively. People's tendency to avoid loss is greater than their tendency to achieve gain. In addition, when probabilities of gain or loss are included within information presented, individuals will tend toward the risk when the probability of gain is included, and avoid the risk when the probability of loss is included. When the probability of loss is omitted, individuals tend toward risk (Levin, 1986). In the present study, the probability of the loss was included, so that children would be unlikely to risk the loss by avoiding the non-compliant behavior. This proved to be correct. Conversely, if the probability of the gain was included, children would tend toward the gain, and choose the appropriate behavior. Again, this was found to be the case. The frames were contrived in such a way as to cause the children to tend toward
the appropriate behavior whether the frame was positive or negative.

Conclusions of the research on individual and group consequences has been mixed. As a result, it was felt there may not be a difference between the framed instructions with individual or group contingencies. A test of this hypothesis resulted in confirmation of previous findings. That is, no reliable difference between the rate of compliance with group or individual contingencies for consequences was found (Hayes, 1976; Litow & Pumroy, 1975; McLaughlin, 1974).

Compliance has been thought of as a sex-typed behavior (Brophy & Good, 1974). In addition, Fagley and Miller (1990) found women were more affected by framing than men. In this study there was no difference in compliance between boys and girls in either Experiment One or Two. However, there is some evidence suggesting that greater compliance to adults by girls than boys depends to some extent on the specific situation (Carpenter, 1983).

An important factor when discussing classroom management techniques is teacher use of the technique. Teachers in this study continued to use framing in the Fall of the next school year, demonstrating that teachers can and will use framing to enhance their personal effectiveness as managers. This is consistent with Rosen et al. (1990) who found effectiveness, time
efficiency and the non-punitive nature of classroom management strategies made them attractive to teachers.

**STRENGTHS AND WEAKNESSES OF THE STUDY**

One of the strengths of this study was that it took place in the classroom with teachers as research assistants. Teachers were able to communicate their opinions regarding the use of instructional frames based upon their experience. Because some teachers are uncomfortable with outside researchers (Cooper, 1994) and because teachers control what happens in the classroom and, therefore, the research that is applied in the classroom (Stenhouse, 1975), results of this study have ecological validity. The major conclusion reached in the study, that is, that instructional frames are effective in the classroom, has been verified by both the statistical analyses and the teachers' comments. Not only does this indicate that instructional framing is likely to be effective, but it makes it more likely that teachers will use it.

Results of this study give specific direction, based on framing theory, for the wording of teacher instructions in the classroom. The instructional frames were used across subject areas, at different times of the day. They were effective in increasing academic task completion and increasing behavioral compliance. As a result, it may be said that the frames seem to be effective
across a broad range of classroom activity. The analyses also examined the improvement rate at the class/teacher level. It was possible to see the percentage increase in task completion and behavioral compliance for each of the frames in each of the classrooms.

Although the present study gained ecological validity by using teachers and classes *in vivo*, this presented some methodological issues. Teachers were viewed as research assistants and it was assumed their observations regarding task completion and behavioral compliance were accurate. Therefore, no verification of teacher observations was done. In other words, verification of teacher observations was sacrificed for the enhancement of ecological validity. However, it is entirely possible teachers would have felt uncomfortable with an outside observer in their classroom checking their ratings (Cooper, 1994). Studies of observer effects on observees indicate that adult behavior changes as a result of observer presence, and older subjects are more affected by observation than younger ones (cf. Foster & Cone, 1980). Because teacher observations of task completion and behavioral compliance were viewed as the only really meaningful observation, inter-observer verification would have been of limited value in this study. In addition, inter-observer verification may have distracted the teachers from honestly reporting their observations (Foster & Cone, 1980). That is, they may
have been so concerned that their observations matched those of the outside
observer that their ratings would have been affected. The accuracy of teacher
observations may have been an issue if results had not turned out as
anticipated.

The limited number of frames administered to each student may be a
weakness of the study. Given the lateness of the school year (May, 1994), it
was not possible for each teacher to administer additional frames within
existing time constraints. It would have been possible to administer additional
frames given more time.

The time of year in which the instructional frames were administered
was seen by the teachers as a weakness. They felt the effect of the frames
was not as powerful as it would have been at the beginning of the year. The
students in their classrooms were already familiar with their routines and their
methods of classroom management. However, the fact that the instructional
frames had a reliable effect on classroom compliance despite the time of year
they were administered, serves to emphasize the effectiveness of
“instructional framing” as a classroom management strategy.

**Implications for Theory**

The findings of this study suggest that two-attribute instructional framing
effects as demonstrated with adults in various contexts, can also be demonstrated with children. Information framing theory (Kahneman & Tversky, 1981) has, therefore, been extended into an educational context. It has been found to be effective in situations other than those involving gambling. It may be further explored for use as a classroom management technique. In addition, the findings suggest that changing different components of a frame may have other not yet studied effects. For example, as noted earlier, Teachers C and D thought using time in the frame had an effect. However, each teacher thought it had a different effect. Teacher C thought its use was confusing to the children. On the other hand, Teacher D thought knowing there was a limited amount of time when a particular behavior was expected helped the children to focus. It would be interesting to investigate the effect of the use of time limits in a frame, where appropriate, and the factors involved that contribute to its effectiveness.

The constructs rated by teachers on the SSRS-TF did not covary significantly with the instructional frames in this study. Nevertheless, there was some indication that individual personal constructs may be related to response to specific components of instructional frames. For example, internalizing behavior as rated on the SSRS-TF correlated negatively with all of the frames, with the exception of the positive frame with the individual
consequence.

There was also some evidence in this study to suggest that framing changed the dynamics in the classroom. In one of the classrooms (Teacher A), the instructional framing seemed to shift the responsibility for the children's behavior from the teacher to the children. This observation leads to the question: Does the use of instructional framing by a teacher serve as an impetus for fundamental change in how a classroom is managed?

There was no significant interaction between sex and compliance in either of the Experiments. This is in contrast to previous findings (Fagley & Miller, 1980), but consistent with findings that compliance is influenced by situation (Carpenter, 1983). The findings may be related to the difference in the effect of framing as a function of the specific task involved. In addition, the developmental level of the children in the study may have influenced their response to framing. Selman (1976, 1980) found that children acquire role-taking gradually, progressing in sequence through developmental levels. They begin to think of themselves not only in terms of age and physical characteristics, but also begin to compare themselves with their peers and others. The children in this study may not have yet passed into this stage and, therefore, may not have been as likely to have responded in a predictable way. Further research might examine possible sex differences in responses
to framing at different developmental stages.

**Practical Implications**

The major practical implication of this study is that it provides teachers with an effective behavior management technique that is easy to administer, is positively viewed, and is effective, the three components seen as requirements before teachers will use a new technique (Rosen et al., 1990). In addition, it demonstrates that proactive behavior management techniques can easily be implemented in a typical classroom. In this study, instructional framing increased the academic task completion and behavioral compliance of children in Grades Three and Four. That these teachers used framing in the Fall of the next school year with Grades Four and Five students is some evidence that instructional framing can also possibly be used successfully with this age group.

**Further Research**

There were some differences in the effectiveness of the frames across the individual classrooms, with Teacher E having significantly different results from the other four teachers. The improvement rates in Teacher E’s classroom ranged from 16% to 70% in Experiment One and 24% to 50% in
Experiment Two. Teacher E also appeared to have the most difficult class to manage. This may suggest that instructional framing is most effective with those students who have the most difficulty following the teacher instructions. It is not possible on the basis of the results of this study to speculate regarding the role of individual differences in the children's reactions to the instructional frames. Nevertheless, although the constructs rated by teachers on the SSRS-TF did not covary reliably with the instructional frames, further research may be able to establish which constructs predispose a child to respond to specific framing components. For example, internalizing behavior as rated on the SSRS-TF correlated negatively with all of the frames, with the exception of the positive frame with the individual consequence. Although not large enough to be statistically reliable, this relationship seems consistent with the logic that a student displaying internalizing behaviors would be most likely to respond to positive feedback with individual consequences. In addition, the relationship between children identified as gifted, and children identified as attention deficit, and their responsiveness to framed instructions could be investigated.

It would be interesting to investigate the effect of the use of time limits in a frame and the factors involved that would make it more effective. Further research could be done regarding the effect of different components of the
frame such as time and particular consequences. For example, do students who understand the meaning of "ten minutes" respond to a frame including that element of time, more than students who do not know the meaning of "ten minutes?"

Sex differences in response to framing might also be investigated further. The findings in this study are in contrast to previous findings with adults indicating women were more susceptible to framing than were men (Fagley & Miller, 1980). The possibility of a developmental shift in susceptibility to the framing effect as children become older could be investigated.

Lastly, it would be interesting to investigate the effect of instructional framing on the dynamics of the classroom. Specifically, in one of the classrooms, instructional framing appeared to shift the monitoring of student behavior from the Teacher to the student.

**CONCLUSION**

The purpose of this study was to find a proactive management technique derived from descriptive behavioral decision theory, specifically, information framing (Kahneman & Tversky, 1981). Teachers were integrally involved and the study took place in actual classrooms. The findings were as
predicted *a priori* and corroborated with teacher's feelings. The result is that a technique that may be useful as a classroom management technique has been demonstrated. The improvement rates in completion of academic tasks and compliance with behavioral requests were large enough at the individual classroom level to recommend "instructional framing" as a technique that might be further explored in classroom management.
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APPENDIX A: UNFRAMED AND FRAMED INSTRUCTIONS
OBSERVATION RECORD FORM

Experiment #1: Completion of an Academic Task

Instructions:

Pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under 'Request Made'. Indicate the response by checking 'compliance' or 'non-compliance' under the 'Response Made' column.

Treatment Condition #1: Instructional Frame:

"(_______), please complete these questions."

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Compliance</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
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<td>2.</td>
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<td>7.</td>
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</tbody>
</table>
Experiment #1: Completion of an Academic Task

**Instructions:**

Pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under 'Request Made'. Indicate the response by checking 'compliance' or 'non-compliance' under the 'Response Made' column.

**Treatment Condition #2: Instructional Frame:**

"(______), if you complete these (5) questions within the next (10 minutes) there is a 100% chance that your group will earn a (____).

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Partial Compliance (number completed out of number assigned)</td>
</tr>
</tbody>
</table>

1.  
2.  
3.  
4.  
5.  
6.  
7.  
Experiment #1: Completion of an Academic Task

Instructions:
Pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under 'Request Made'. Indicate the response by checking 'compliance' or 'non-compliance' under the 'Response Made' column.

Treatment Condition #3: Instructional Frame:
"(_______), if you complete these (5) questions within the next (10 minutes) there is a 100% chance that you will earn a (_______).

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Compliance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Partial</td>
<td>Non-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Compliance</td>
<td>compliance</td>
</tr>
<tr>
<td>(number completed out of number assigned)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
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<td>3.</td>
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<td>4.</td>
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<td>5.</td>
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<td>6.</td>
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</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Experiment #1: Completion of an Academic Task

**Instructions:**

Over the next week pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under 'Request Made'. Indicate the response by checking 'compliance' or 'non-compliance' under the 'Response Made' column.

**Treatment Condition #4: Instructional Frame:**

"(_____), if you do not complete these (5) questions within the next (10 minutes) there is a 100% chance that your group will lose a (____).

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(number completed out of number assigned)</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
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<td>3.</td>
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<td></td>
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<tr>
<td>4.</td>
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<td>5.</td>
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<td>6.</td>
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</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OBSERVATION RECORD FORM

Experiment #1: Completion of an Academic Task

Instructions:

Pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under 'Request Made'. Indicate the response by checking 'compliance' or 'non-compliance' under the 'Response Made' column.

Treatment Condition #5: Instructional Frame:

"(______), if you do not complete these (5) questions within the next (10 minutes) there is a 100% chance that you will lose a (____).

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Compliance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Partial</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Compliance</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(number completed out of number assigned)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-compliance</td>
<td></td>
</tr>
</tbody>
</table>

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3. 

4. 

5. 

6. 

7.
OBSERVATION RECORD FORM

Experiment #2: Behavioral Compliance

Instructions

Pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under 'Request Made'. Indicate the response by checking 'compliance' or 'non-compliance' under the 'Response Made' column.

Treatment Condition #1: Instructional Frame:

"(______), please sit quietly."

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
<th>Compliance: Duration:</th>
<th>Non-compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>1). 5 minutes or under</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>2). 10 minutes or under</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3). 10 minutes to length of activity</td>
<td></td>
</tr>
</tbody>
</table>
Experiment #2: Behavioral Compliance

**Instructions**

Pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under 'Request Made'. Indicate the response by checking 'compliance' or 'non-compliance' under the 'Response Made' column.

**Treatment Condition #2: Instructional Frame:**

"(______), if you sit quietly for the next (10 minutes) there is a 100% chance that your group will earn a (____).

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>1)</td>
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<td>2)</td>
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<td>3)</td>
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<td>2.</td>
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<td>4.</td>
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<td>5.</td>
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<td>6.</td>
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<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OBSERVATION RECORD FORM

Experiment #2: Behavioral Compliance

Instructions

Pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under 'Request Made'. Indicate the response by checking 'compliance' or 'non-compliance' under the 'Response Made' column.

Treatment Condition #3: Instructional Frame:

"(______), if you sit quietly for the next (10 minutes) there is a 100% chance that you will earn a (______).

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
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<td>2.</td>
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<td></td>
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</tbody>
</table>
OBSERVATION RECORD FORM

Experiment #2: Behavioral Compliance

Instructions

Pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under 'Request Made'. Indicate the response by checking 'compliance' or 'non-compliance' under the 'Response Made' column.

Treatment Condition #4: Instructional Frame:

"(_______), if you do not sit quietly for the next (10 minutes) there is a 100% chance that your group will lose a (____)."

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>1). 5 minutes or under</td>
<td>2). 10 minutes or under</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
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<td>7.</td>
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</tbody>
</table>
Experiment #2: Behavioral Compliance

Instructions

Pose the following instructional frame to the students in your class listed below. Indicate whether the request was made by checking the 'yes' or 'no' column under "Request Made". Indicate the response by checking 'compliance' and specifying duration by writing 1, 2 or 3, or 'non-compliance' under the 'Response Made' column.

Treatment Condition #5: Instructional Frame:

"(______), if you do not sit quietly for the next (10 minutes) there is a 100% chance that you will lose a (______)."

<table>
<thead>
<tr>
<th>Student</th>
<th>Request Made</th>
<th>Response Made</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
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</tbody>
</table>