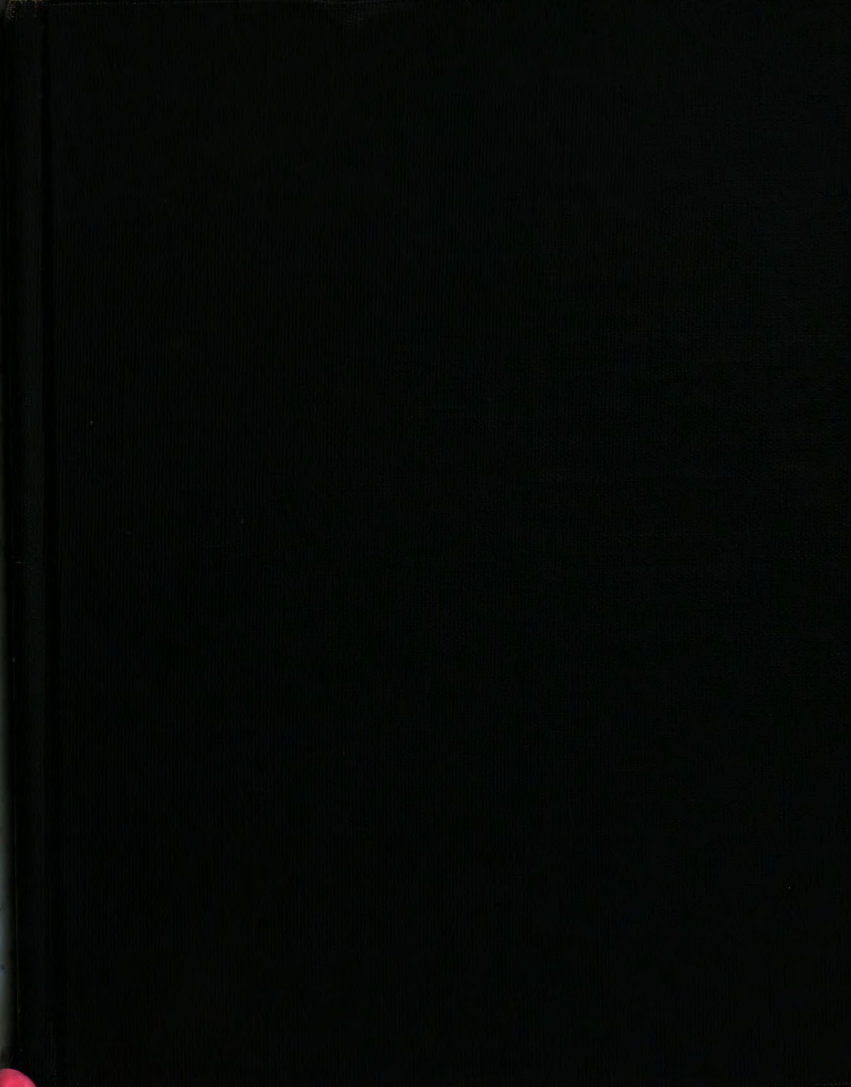
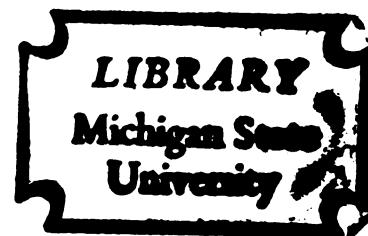




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PREDICTING TELEVISION VIEWING BEHAVIOR
IN ELEMENTARY SCHOOL CHILDREN:
A TEST OF SELF-EFFICACY THEORY
presented by

REBECCA COLLINS HENRY

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of the requirements for

Ph.D. degree in Counseling, Personnel
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1979

PREDICTING TELEVISION VIEWING BEHAVIOR IN
ELEMENTARY SCHOOL CHILDREN:
A TEST OF SELF-EFFICACY THEORY

By

Rebecca Collins Henry

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ABSTRACT

PREDICTING TELEVISION VIEWING BEHAVIOR IN ELEMENTARY SCHOOL CHILDREN: A TEST OF SELF-EFFICACY THEORY

By

Rebecca Collins Henry

The purpose of this investigation was to determine if student beliefs could be used to predict behavior after participating in a curriculum designed to alter television viewing habits. This test of Bandura's self-efficacy theory included two general research questions. The first question asked if measures of self-efficacy and outcome expectations could be used to predict preference for leisure activity and number of hours spent viewing television. The second question asked if the treatment altered levels of self-efficacy and outcome expectations. Both research questions received some support from the data; however, the results were not consistent across all classes participating in the study.

For Class₁ and Class₂, self-efficacy as a predictor variable accounted for 52% of the variance on the dependent variable, preference for leisure activity. When outcome expectations were admitted to the regression equation, only an additional .2% of the variance was explained. The opposite was observed for Class₃. For this group, self-efficacy contributed only .1% of the explained variance after outcome expectations which accounted for 27% of the variance on the "preference" dependent variable. When predicting the number of hours

spent viewing television, neither predictor variable emerged as the more efficient predictor. When each was entered alone, variance accounted for was 32% and 29% for self-efficacy and outcome expectations, respectively.

The second question received some support evidenced by the significant change in self-efficacy for Class₁ and Class₂. There was no significant change for Class₃. Outcome expectations did not change significantly for any group.

The conceptual formulation advanced by self-efficacy theory attempts to account for behavioral variations occurring after treatment and attempts to predict behavior of individuals on the basis of personal beliefs. These findings provided general support for the predictive utility of self-efficacy and outcome expectations. The implications of the results are discussed.

Dedicated to
Dr. and Mrs. Frederic Collins Henry.
Their commitment to an education and
the pursuit of a personal goal has served
as a foundation for the successes
I have enjoyed in my life.
Thank you.

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excellence against which I will judge my own abilities. As recompense for time and efforts beyond any call of duty, I hope someday to model academic integrity and dedication to learning for my future students, as Dr. Teitelbaum serves as a model of these qualities, for me.

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CHAPTER I

THE PROBLEM

Introduction

Behavioral change strategies, when applied in a group setting, will produce a diversity of behaviors. Within any treatment group there will be some individuals who will change substantially while others will show little or no effect. Those who plan and use intervention techniques must explain these differential treatment outcomes. Furthermore, if a change strategy purports to rest on a psychological theory, then the underlying theory must be able to predict the behavior of subjects after they complete the intervention experience.

A number of psychological theories explain the process of behavior change. These theories may be classified into two general categories. The first category assumes that the cause of behavior rests within the individual himself. The second category considers the cause of behavior to be external to the individual in his environment.

Some psychological approaches, for example cognitive, humanistic and existential theories, assume explanations for human behavior to be derived from an understanding of the individual's internal events and an acceptance of man's intrinsic capacity for directing his own existence. Conversely, behavioral psychologists assert that human behavior is a product of external events which mold and shape individual

actions and ultimately determine behavior. This implies that any explanation and subsequent prediction of behavior emerges from an analysis of environmental factors.

Albert Bandura's (1977a) view of social learning theory is different from both of the traditional views. There are two major concepts that characterize social learning theory. First, internal and external causes of behavior are not independent categories but rather lie on a single dimension - a continuum. This notion suggests the possibility that there is an area or intersection between internal and external causes of behavior. The second feature of Bandura's theory is the synthesis of two determining systems of external and internal influences into a single testable framework. Social learning theory incorporates the principles of learning put forth by behavioral psychology and also the mediating and self-regulating abilities of individuals, for understanding human behavior.

The advantage of conceptualizing human behavior in terms of internal events as well as external events is that by adding new explanatory variables the theory will provide a more comprehensive accounting of response variation occurring after treatment. Recently Bandura (1977b) has advanced a theory for predicting and understanding behavior change. This position labelled "self-efficacy theory" asserts that two specific internal events influence behavior. They are self-efficacy and outcome expectations. These two perceptions are defined by Bandura in the following statement (Bandura, 1977b):

Self-efficacy is the conviction that one can successfully perform the behavior required to produce the outcome.

Outcome expectation is a person's estimate that a given behavior will lead to a certain outcome.

Self-efficacy theory proposes that perceptions of self-efficacy and outcome expectations will in part determine the magnitude of treatment effects across participants within the same condition. Whether such perceptions do have predictive utility is the purpose of this investigation. The question to be asked is: Can measures of an individual's self-efficacy and outcome expectations be used to predict behavioral change and hence account for individual differences as they are likely to result from such a treatment? In this study the treatment was a program designed to assist children in modifying their television viewing habits.

Statement of the Problem

Many theories which attempt to predict behavior change have attempted to verify their principles by examining group effects as the result of manipulating a treatment variable. Typically in studies of this nature, a treatment is administered to a group of subjects and then their behavior is measured; this measurement is compared to certain pretreatment measures and conclusions are drawn regarding the effectiveness of treatment. When change is noted, researchers conclude that the treatment variable made a difference. However, within any treatment group there are differences in amount of change exhibited by individual subjects. For learning theorists, these individual differences constitute a phenomenon that must be explained by a theory. Further, these individual differences pose a practical problem for anyone who designs or implements behavior change programs. Essentially

this problem is one of identifying, before treatment, those individuals who are not likely to benefit from the program and also those individuals who are likely to benefit. By identifying, before treatment, individuals who are least likely to change, the researcher or practitioner has an opportunity to modify the treatment program as necessary.

Recently, a research project, sponsored by CASTLE (Children and Social Television Learning, 1977), resulted in a range of behavior change both during and after treatment. The instructional program was designed to assist children to become more critical consumers of television and to consider alternative activities before resorting to television viewing out of habit. Though many children appeared enthusiastic and participated freely in discussions and activities, there were others who seemed resistant to becoming involved and to sharing their ideas about television with peers. An evaluation administered at the end of the instructional program showed that there was a small, though noteworthy, number of students who indicated they had no intention of altering their viewing habits. Moreover, they did not believe television viewing could have a negative impact on their lives. Prompted by these observations, a more comprehensive explanation for treatment outcomes seemed warranted.

Treatment variables are often considered alone in explaining behavioral change; individual variation is seldom recognized. In situations where there is wide variation within a group, a researcher should account for these individual differences as well as for overall treatment effects. In order to establish such an accounting, new explanatory variables must be isolated beyond the usual treatment

variables. Accordingly, Bandura's self-efficacy theory is one such theory which incorporates these additional variables into a comprehensive and testable framework.

Bandura's position is valuable because it enumerates three major sets of variables which influence behavior change. These are variables related to the environment, the behavior of the individual, and cognitive or internal events of the person. Social learning theory analyzes behavior as a functional interaction of all three types of variables. In this view individual performance is a product of environmental influences that shape behavior; human actions that, in turn, create environmental conditions; and finally, cognitive processes that mediate all perceptions and ultimate actions.

Based upon Bandura's self-efficacy theory this investigation proposes to determine whether student perceptions or beliefs prior to treatment can be employed to predict behavior resulting after treatment. Specifically, this study is designed to address the following questions:

1. Can a student's perception of self-efficacy regarding television viewing be used to predict amount of time spent viewing television after treatment and preference for certain leisure activities?
2. Can a student's perception of outcome expectations be used to predict amount of time spent viewing television after treatment and preference for certain leisure activities?
3. Do perceptions of efficacy and outcome expectation increase as a result of participation in a treatment designed to alter behavior?

Scope of the Investigation

Based upon the controversial nature of television programming and the growing evidence that children are devoting ever increasing hours to television viewing (Nielsen, 1976), a number of intervention strategies have been designed recently to help children cope with the negative effects of television. Many of these interventions designed have been presented to children in the schools.

The intervention strategy used in this current study employed modeling and rehearsal techniques. The goal of the program was to decrease the number of hours children spend viewing television and to increase their preference for non-television related activities during their leisure time. The program has been evaluated in nine classrooms within three school districts in the past two years with third, fourth, and sixth graders. Formative evaluation of the program has been continuous over this period of time. The overall goals, objectives, and arrangement of activities are provided in Appendix A.

Limitations of the Study

1. The most apparent limitation of this study is that results can only be generalized to a restricted population. Because the treatment or curriculum is still an experimental one, the classrooms were selected from schools supporting the research effort.

2. Secondly, a trained teacher, familiar with the objectives and activities, was used in all classrooms in place of the students' usual teacher. While this factor did limit external validity, it did

improve internal validity by controlling for individual teacher differences.

3. The treatment cannot be administered by untrained elementary school teachers with the expectation of obtaining similar results.

This dissertation will include four remaining chapters. Chapter II will include a review of the literature relevant to social learning theory and address issues related to the constructs of self-efficacy and outcome expectation. Chapter III will describe the methods and procedures used in the study and discuss the topics of internal and external validity, content validity and reliability. A presentation of the research findings will be included in Chapter IV. Finally, Chapter V will address the limitations of the study and implications of the results for self-efficacy theory.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter is divided into four main sections entitled: overview of social learning theory, research on self-efficacy theory, related constructs, and summary.

The section on social learning theory provides a general overview of Bandura's position and contrasts it with other theories of learning. One subcomponent of social learning, self-efficacy theory, is then described. The next section presents research which tests self-efficacy theory and also provides a general design model for this investigation. A discussion of the relationship between previous self-efficacy studies and the current study is included. The section entitled, related constructs, identifies two additional theoretical constructs that are often associated with self-efficacy. Distinctions are drawn between all the constructs and then a more general framework encompassing them all is proposed. The final section summarizes and underscores the key points of the literature review and identifies how this investigation incorporates these points into its purpose and design.

Overview of Social Learning Theory

Introduction

This section on social learning theory will include several major points. Initially the overview focuses upon the variables which different learning perspectives embrace when accounting for behavior. It is proposed that the social learning view represents an integration of these perspectives. Next, the importance of cognitive (internal) factors for the psychology of learning is stressed and two studies that assessed the role of cognitive factors in learning are presented. Next, self-efficacy theory which is a specific case of social learning theory, is described. Essentially, self-efficacy is an approach which attempts to account for behavior change through the belief system an individual has regarding a particular behavior and an expected outcome. Bandura proposes that knowing an individual's level of self-efficacy is useful because this variable reflects how motivated the individual is to change. This is because beliefs about self-efficacy determine how much effort will be exerted and how persistent the individual will be in pursuing a change in behavior.

Social Learning Theory

One function of any learning theory is to determine why individuals behave the way they do. Views that favor personal determinism hold that the primary causes of behavior lie within the individual in the form of traits, perceptions, drives and impulses. Alternatively, proponents of environmental determinism believe that behavior is caused by variables present in the external environment. From this framework human behavior is analyzed through stimulus events that

precede the action and consequent events that strengthen or weaken the behavior.

A third position, social learning theory, advanced by Bandura (1971, 1977a) and others (Mischel, 1968; Dollard & Miller, 1950) employs the concept of reciprocal determinism to provide a synthesis of the previous two views. This perspective posits the cause of behavior in terms of dispositional, situational, and behavioral variables. Within the framework of social learning theory, reciprocal determinism reflects an emphasis on the interaction of behavior, intrapersonal factors (cognitions) and environmental influences as highly integrated determinants of each other (Bandura, 1977a).

For example, such a view would recognize that behavior, at any one time, is influenced by what is occurring in the environment, how an individual's own behavior determines that environment, and how internal processes mediate the effects of environment and behavior. Theories which do not recognize all three sources of influence are consequently not as comprehensive as the social learning approach. Further, it is critical to emphasize that behavior is not determined by a simple unidirectional process. Figure 1 demonstrates that these factors interact mutually. It should be noted that each element has

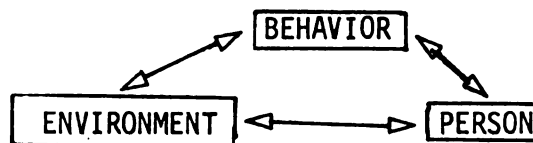


Figure 1. Schematic representation of the interaction among behavior, internal events of the person, and the environment.

a determining and reciprocating function with each of the other elements, but that one element may exert a greater force in the system than the others depending on particular circumstances.

If the variables are mutually determining and reciprocating, then no factor can be understood independently of the effects of the others. Each component at any one time could be either a result or a determinant of another component. For example, cognitive factors can influence what an individual will attend to, how the stimulus will be perceived, and how the resulting information will be organized and applied to affect ultimate action.

The abundance of evidence gathered by research in applied behavior analysis demonstrates the effect environmental factors have on behavior. However, when factors internal to the person are examined in concert with the effects of external variables, a theory becomes more useful in understanding the variety of factors which may participate in influencing behavior (Bowers, 1973; Endler & Magnusson, 1975).

The relative dominance that could be assumed by each factor will hinge on the person and the circumstance. For example, there are situations in which the environment will exert the prevailing influence, such as a crisis situation when all efforts are aimed toward solving a problem. Secondly, there are times when behavior will be the overriding factor in the system, as demonstrated by individuals who have developed excessive behaviors (e.g., smoking, nail biting) which persist despite drastic changes in the environment. Finally, cognitive factors may predominate as exemplified by individuals who refuse to alter driving activities because they fail to believe a gasoline shortage actually

exists. Frequently, these beliefs persevere in the face of rising costs and pleas to reduce amount of driving.

The relatively recent re-emergence of research on cognitive mechanisms in understanding behavior change is not likely to be a passing fad. The research in this tradition is well-founded in experimental psychology (Bower, 1974). Further, Mahoney (1974) asserts that cognitions are an important focus of investigation because beliefs can have causal influences on behavior.

A number of studies have been reported which demonstrate the effect beliefs have on behavior. For example, Kaufman, Baron and Kopp (1966) analyzed the influence of cognitions when pitted against actual experienced reinforcement designed to regulate behavior. In this study motor responses of subjects were rewarded on the average every minute (variable interval schedule). One condition received correct instruction about the reinforcement schedule. The other conditions were incorrectly informed that their behavior would be reinforced either after each minute (fixed interval schedule) or after an average of 150 responses (variable ratio schedule). The results indicated that beliefs regarding the schedule of reinforcement outweighed the effect of experiencing the real consequences. Despite all participants receiving identical schedules of reinforcement, those who believed they were being reinforced once each minute evidenced the lowest rates of responding (mean = 6). Individuals who thought they were reinforced on a variable ratio schedule revealed the highest rate of behavior (mean = 259). Finally, those who were told that their behavior was reinforced on a variable interval schedule resulted in a moderate level of responding (mean = 65).

In another study Dulany (1968) concluded that the effects of a given consequence were significantly influenced by the label placed on them. In this study subjects were given a task of selecting between two sentences, based upon instructions. A blast of air was presented following selection of the sentence in a pair that contained the word "a" prior to a key word. The instructions given to the subjects were that the air blast following a response signified a correct choice or an incorrect choice or that it indicated nothing regarding their choice. The air blasts also were of three types: cool, uncomfortably hot, or neutral. When subjects believed that a blast of hot air indicated an incorrect response, they reacted to it as an aversive stimulus and reduced that choice of response. However, when the same stimulus was perceived as indicating a correct response, they reacted as though it was reinforcing and increased selection of that sentence type. Consistently, the same was true for cold blasts. The preceding studies clearly suggest that cognitions can alter the effects of external stimuli on behavior.

Summary of the Social Learning Perspective

Wilson (1978) summarizes the social learning perspective by proposing four features as distinguishing characteristics. The following are the four features:

1. The influence of environmental events on the acquisition and regulation of behavior is largely determined by cognitive processes. Modeling is one example by which new behaviors are learned in the absence of performance.

2. Psychological functioning involves a reciprocal interaction among the person, behavior and his environment. A person is neither driven by internal forces nor a passive reactor to external pressure. Rather, a person is both the agent as well as the object of environmental influence.

3. Cognitions have causal influences. Consequently, the social learning approach recognizes the capacity of humans to self-direct behavior change.

4. Social learning theory is closely associated with an applied counterpart, cognitive behavioral therapy. This tight relationship between theory and application facilitates empirical assessment of various behavior change programs in light of a theoretical orientation.

This fourth feature is of particular interest in this study. The general question to be addressed is, "Can a person's cognitions regarding a behavior and treatment outcome be employed to predict behavior change?" Bandura claims that a person's beliefs can be used to account for changes in behavior. The groundwork for this proposition is based upon two concepts, self-efficacy and outcome expectations, which are fundamental to Bandura's self-efficacy theory.

Self-Efficacy Theory and Behavior Change

Self-efficacy theory as developed by Bandura (1977b) is an approach to understanding behavior change through the beliefs an individual holds concerning a particular behavior. While social learning theory is a broad encompassing view of how learning occurs, self-efficacy focuses upon predicting and explaining behavior change of motivation which is represented through perceptions of self-efficacy

and outcome expectations. This topic will be elaborated in this section.

Just as beliefs (cognitions) play an important role in the acquisition and regulation of behavior, they also aid in explaining motivation. According to behavioral theory, motivation, via reinforcement, operates as an automatic response strengthener for the behavior it immediately follows. In contrast, a cognitive explanation of motivation emphasizes the capacity of the individual to construct future consequences in thought. In other words, motivation can be generated internally. An example of a cognitive interpretation of motivation comes from Bolles (1972) who states that reinforcement operates by creating expectations that certain behaviors will lead to anticipated benefits or will avoid negative consequences. This first process of motivation functions by establishing anticipations that certain behaviors will lead to specific consequences.

A second process through which individuals are capable of constructing their own motivation is a cyclical process of goal setting and self-evaluative reactions (Bandura, 1977a). In this process an individual establishes performance standards and then makes all rewards contingent upon meeting those standards. Bandura explains that negative discrepancies between the behavior and a pre-established standard will induce dissatisfaction that will produce changes in behavior. Once an individual does attain a prescribed standard, a new standard may be established, thereby requiring new demands on behavior. Numerous studies of self-directed behavior change have demonstrated that individuals can modify and maintain long-term changes by arranging personal incentives (Goldfried & Merbaum, 1973; Mahoney & Thoresen, 1974).

Two variables which Bandura (1977b) believes affect an individual's motivation to change are efficacy expectations and outcome expectations. He has proposed a theoretical framework for investigating and predicting change in the behavior of persons participating in programs designed to alter their behavior. This perspective that considers the direct influence of expectations on behavior change is labeled self-efficacy theory. The following represent two major tenets of this approach:

1. Expectation of personal efficacy and treatment outcome determine whether a specific behavior will be initiated and also determines how much effort will be expended in working toward a desired goal.

2. All behavioral change procedures, whatever their form, alter the strength of self-efficacy.

In this theory the two key operational mechanisms that are critical for analyzing the change process are efficacy and outcome expectations (Figure 2).

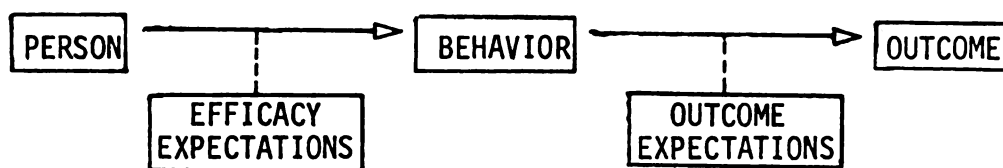


Figure 2. Diagrammatic representation of the difference between efficacy expectations and outcome expectations (Bandura, 1977b, p. 193).

Bandura (1977b) differentiates between these two kinds of expectations that influence whether one's behavior is amenable to change and defines them as the following:

1. Efficacy expectations - "the conviction that one can successfully perform the behavior required to produce the outcome."

2. Outcome expectations - "a person's estimate that a given behavior will lead to certain outcomes."

It is important to distinguish between the two types of expectations because either may be independently capable of influencing the degree to which an individual may benefit or change from a treatment. For example, an individual may perceive of himself as having sufficient control to execute a behavior but not believe that performing the behavior will produce a personally desirable outcome. Conversely, one may believe that behaving in a certain way will produce an anticipated outcome; however, the individual may not believe that he will be able to perform the behavior sufficiently well to obtain the outcome. The central assertion of this position is that the strength of an individual's perceptions regarding his own self-efficacy and expectations for treatment outcome will directly affect behavior change as a result of treatment. This view is supported by psychologists in the industrial sector as well. Lawler (1973, p. 45) states:

The strength of a tendency to act in a certain way depends on the strength of an expectancy that the behavior will be followed by a given consequence or outcome and on the value or attractiveness of that consequence (or outcome) to the actor.

This position should not be taken to imply that expectations alone can always account for behavior change. There are other essential components that influence the change process. Most importantly, these are existing skills to perform the behavior and appropriate incentives to initiate action. When these are present for the individual in sufficient strength, expectations will exert a major influence on behavior.

Research on Self-Efficacy Theory

There are few studies of self-efficacy. In fact, there are only three studies, to date, which have been designed specifically with the purpose of assessing the utility of self-efficacy theory in understanding behavior. The reason for the limited research is that Bandura's (1977b) theoretical conceptualization of self-efficacy as a theory was published only two years ago.

Thus far, the subjects in efficacy research have been adults in clinical settings and the behaviors to be changed have been phobias. The following three studies represent the research to date testing self-efficacy theory and provide a general model for this study.

The first investigation (Bandura, Adams & Beyer, 1977) was designed to test whether self-efficacy could predict approach behavior after snake phobic subjects had participated in one of three treatment conditions. The first treatment was a modeling procedure in which a subject viewed another snake phobic approaching and handling a variety of snakes. The second treatment, participant modeling, required a subject to perform approach behavior after observing a model. The third treatment was a control condition. The efficacy expectations of each participant were measured before and immediately following treatment by asking them to identify from a list of tasks which behaviors they believed they could execute. An efficacy score was derived, based upon the number of behaviors a subject believed he could perform as well as how confidently he felt about performing them.

The dependent variable, approach behavior, was measured through a set of performance tasks which were increasingly more threatening,

eventually requiring physical interaction with different types of snakes. The actual behaviors required for the dependent measure were the tasks listed in the self-efficacy measure. The researchers used a Pearson product moment coefficient correlating total scores from the self-efficacy measure on the post-treatment measures with total scores obtained on the dependent measures. This was called an aggregate measure. Individual correlations were also computed for each item in the self-efficacy measure with its behavioral counterpart on the dependent measure. It should be noted for all three studies conducted by Bandura and his associates, analyses were based on post-treatment measures only.

The results obtained from this first set of studies were consistent with self-efficacy theory. Control subjects did not alter their efficacy expectations. Modeling alone produced moderate increases in self-efficacy while participant modeling subjects increased the greatest in their perceptions of efficacy. Similarly, on the dependent measure, approach behavior, subjects who received participant modeling surpassed those in the modeling; both of these conditions were superior to the control group. Self-efficacy was a consistently accurate predictor of task performance regardless of whether the treatment was participant modeling ($r = .83$) or modeling alone ($r = .84$).

The findings support two major tenets of self-efficacy theory. First, individual beliefs may be used to predict post-treatment behavior. Specifically, measures of self-efficacy were highly correlated with the dependent variable, approach behavior. Secondly, it is hypothesized that any behavioral change procedure (modeling or active

participation) modifies behavior by increasing the level of self-efficacy. It is Bandura's (1977b) contention that increasing expectations of personal mastery will influence whether subjects will even attempt a behavior. Further, efficacy expectations determine, in part, persistence in the face of obstacles. In this view, self-efficacy mediates performance outcome; the stronger the perceived self-efficacy, the greater the likelihood of performing a behavior. This second tenet was further supported by examining intermediate increases in efficacy levels and approach behavior. After brief exposure to the treatment, subjects evidenced a small (9%) increase in efficacy and a correspondingly small increase in approach behavior, (10%). After repeated exposure to the treatment, self-efficacy increased 38%; similarly, approach behavior increased 44%. Thus, it appeared from this initial study that the behavior change procedures increased snake approach behavior through simultaneous improvement of expectations of self-efficacy.

In a further test of the generality of self-efficacy theory, Bandura and Adams (1977) investigated whether self-efficacy could predict behavior after subjects received either desensitization or participant modeling as a treatment for snake phobia. Self-efficacy perspective would predict that the greater the level of efficacy expectations created by the desensitization procedure, the greater the decrease in anxious behavior. In desensitization, aversive stimuli are presented to a subject at graduated levels of intensity. At the same time, a subject practices relaxation techniques that are incompatible with anxious responding. This procedure is practiced until all anxiety reactions to the perceived threats are eliminated.

The methods were identical to the previously described study except the treatment involved desensitization rather than the modeling. As demonstrated in the Bandura, Adams and Beyer (1977) study, self-efficacy and subsequent approach behavior were highly related for the aggregated scores ($r = .74$). The aggregated score represents total scores on both self-efficacy and the dependent measure which are then correlated. For the individually paired self-efficacy tasks and behaviors, the relationship was even stronger ($r = .87$). Also as hypothesized by Bandura, self-efficacy changed as behavior changed. This was demonstrated by significant differences between pretreatment and post-treatment measures of self-efficacy. Again, both tenets of self-efficacy theory received empirical support. Self-efficacy served as an accurate predictor of post-treatment behavior and increases in levels of self-efficacy met with corresponding increases in approach behavior.

In the most recent test of the predictive generality of self-efficacy conducted by Bandura, Adams, Hardy, and Howells (1979) a treatment condition and a new behavior to be changed were added. In this study a symbolic modeling treatment developed by Kazdin was administered to agoraphobics. The symbolic modeling treatment relied upon cognitive performance of threatening activities, as the means of inducing behavior change. Subjects were instructed to visualize others coping successfully in fear-producing situations. The methods and procedures were very similar to the previous two studies; but, rather than approach behavior, subjects were required to perform tasks such as walking alone in public, shopping in crowded places and eating in restaurants. The results demonstrated that even when the treatment is

varied and a new behavior is considered, self-efficacy predicts post-treatment coping behavior ($r = .70$).

The overall findings of these three studies provide support for several hypotheses advanced by Bandura's self-efficacy theory. First, perceptions of self-efficacy, regardless of how they were produced (e.g., modeling, desensitization) can accurately predict levels of behavior after treatment intervention. Secondly, changes in self-efficacy which correspond to changes in target behavior provide support for the contention that behavior change procedures operate by altering perceptions of self-efficacy which in turn influence the amount of change observed in behavior. Self-efficacy is a mediating variable in understanding behavior change. In summary, this set of studies, by including a variety of treatment conditions and behaviors, begins to develop a broader theoretical groundwork for predicting behavior across behaviors and treatments.

In an earlier study related to efficacy research, Bem (1972) demonstrated that the types of devices used in treatment can influence an individual's perception of self-efficacy. When treatments involved situational aids to assist the subject in performing the behavior (thick gloves, barriers, artificial animals) individuals were more likely to attribute successful performance to those aids and not to themselves. Under these conditions, self-efficacy was reduced. Alternatively, when subjects believed a successful performance was dependent solely upon their own behavior, perceptions of self-efficacy were increased.

Despite Bandura's (1977b) assertion that outcome expectations, in addition to self-efficacy, are potential determinants of behavior, this

has not yet been tested within the framework of self-efficacy theory. Expectations have received an abundance of attention in social science research. A common criticism of this concept, however, has been that the term "expectancy" encompasses a range of referents too broad to be managed precisely by research. As Wilkins (1973) notes, the term has come to be ambiguous and has become associated with a variety of concepts such as set, placebo effects, suggestion, and implicit communication. All of these factors have been invoked as possible mediators of performance variance.

Outcome expectations, as defined by Bandura (1977b), is "a person's estimate that a given behavior will lead to certain outcomes." In much of the research investigating expectancies, the expectancy serves as the focus of manipulation by the experimenter who simply communicates to the subjects what to expect from the treatment (Lick & Bootzin, 1975). In studies employing placebo conditions, expectancies are altered by instructions indicating that performance will be altered through a special procedure or by a drug the subject receives. If the subject believes he received the drug or procedure, expectations and ultimately behavior will be modified on the basis of suggestion alone (Mahoney, 1974). In many cases, effects from direct manipulation of expectancies, through placebo conditions and misattribution of causes of behavior, are short-lived as subjects eventually learn that only their beliefs had been altered. As Bandura (1969) cites:

There is little reason to expect that auspicious cognitions inducted through deceptive labeling can substitute for corrective experiences in the stable modification of human behavior.

Outcome expectations as they are used in this investigation reflect the relationship one actually perceives between a particular behavior and a particular outcome (e.g., if I finish this doctoral program, I am likely to obtain a higher paying position.). This perception will be employed to predict students' behavior after participation in an experimental curriculum. In other words, outcome expectations will be used the way self-efficacy has been in establishing whether a belief about behavior and anticipated outcome can serve as a determinant of behavior. The various definitions of outcome expectation used in previous research reflect a host of expectations including faith in the treatment and therapist, beliefs that an individual can change, and also hopes and desires for positive outcomes (Bandura, 1977b).

Mischel (1973) offers a category of "personal expectation" that is quite similar to Bandura's notion of outcome expectation. This type of expectation is labeled "behavior-outcome expectation" and can be represented by an "if x , then y " relationship between behavioral alternatives and outcomes anticipated by the person. For example, "If I watch less television, then I will do better in school." Mischel asserts that when subjects are naive regarding the situations in which they find themselves, behavior outcome expectancies predominate. As individuals gain knowledge about situations however, this situational knowledge predicts behavior more accurately than the behavior outcome expectancy. As with other expectations described earlier, "behavior-outcome expectations" have been primarily studied as a variable to be manipulated and then change is observed on a dependent variable.

The current study will attempt to employ an interpretation of outcome expectation consistent with self-efficacy theory. Outcome

expectations will be used as an additional predictor variable to explain variance on outcome behavior. Further, the investigation will determine whether the predictive link between expectation and behavior can be extended. In Bandura's previous studies prediction has always been tested on post-treatment measures. However, in this study it will be determined if accurate predictions may be based upon pretreatment measures of self-efficacy and outcome expectation. The practical advantage of making predictions on the basis of pretreatment measures is that modifications, if they are warranted, could be made on the basis of this prior information.

Related Constructs

Self-efficacy and outcome expectations, embraced by the social learning position are not new ideas in theories of human behavior. Two popular approaches to understanding behavior which are frequently associated with efficacy and outcome expectations are Rotter's (1966) formulation of internal-external locus of control and attribution theory, often linked with Weiner (1972). Although locus of control and attribution are most frequently used in the context of personality theory and research, these ideas are also related to the concept of self-efficacy.

The underlying proposition in attribution theory is that perceived causality influences behavior. Weiner (1972) asserts that the beliefs an individual has regarding the causes of success and failure may be potential determinants of subsequent behavior. Generally the causes of success and failure can be ascribed to ability, effort, task

difficulty and luck (Falbo, 1975; Frieze, 1973). Within this broad framework there are two categories for classifying attributions: locus of control and stability. The first category corresponds to Rotter's internal-external locus of control dimension. For example, on the one hand, effort and ability would be considered internal because they can be controlled by the individual himself. On the other hand, luck and task difficulty are factors which are determined by sources external to the individual. The second category is based on stability over time. Task difficulty and ability are labeled stable. If the task were repeated, these variables would not likely change. However, luck and effort are factors that may fluctuate over time (Bar-Tul, 1978).

Much of the research within the tradition of locus of control and attribution centers upon manipulation of beliefs regarding events and their influence on subsequent behavior. Typical of this procedure is a study by Kukla (1972) who investigated the effect of different instructional treatments on the performance of two groups of individuals, one with high and the other with low need achievement. The first group was told successful performance was contingent upon ability only. The second group was told ability and effort would determine success on a learning task. The results revealed no difference between high and low need for achievement subjects when they were told success was based upon ability only. It appeared both types of individuals believed they possessed or lacked the skills to complete the task. Consequently both groups performed equally. However, when subjects were told success was dependent on both ability and effort, a significant

difference emerged between the individuals scoring high and low on a test of need for achievement. Subjects scoring high in need for achievement persevered on the tasks, recognizing the need for effort in addition to ability. Alternatively, those low in need for achievement did not believe effort was a determinant of successful outcomes and thus were not influenced by instructions. Performance scores were lower than performance scores for the high scoring need for achievement group.

In studies of misattribution, clients are led to believe through suggestion that their anxious states are no longer caused internally. Instead they are told their anxiety is caused by some explicable external event. For example, if a person is told that his nervous behavior is caused by lack of sleep and forthcoming comprehensive exams rather than an internal psychological disorder, his behavior is likely to change, due solely to the new attribution of behavioral cause. Mahoney (1974) concludes this line of research repeatedly has explained only "a relatively small percentage of outcome variance due to attributional influences."

Lefcourt (1976), in his review of the theory and research regarding locus of control as a predictor variable, cautions that:

The locus of control construct per se should not be expected to account for a lion's share of the variance in most situations. The perception of control is but a single expectancy construct.

He continues to explain that other situational variables are more likely to predominate at any given time. In addition, he argues that people cannot be simply categorized as internals or externals. Locus of control should be conceptualized as varying along a continuum, reflecting

individual tendencies to relate events to their own behavior or some external factors. Furthermore, these tendencies may change as situations vary. Finally, if locus of control is to serve as a predictor of behavior, it must not be interpreted as an enduring trait remaining stable over time and across situations. Lefcourt suggests the measure of locus on control must be designed to relate to a criterion of interest.

Mischel (1973) also cautions that the nature of the construct may determine its predictive utility. He distinguishes between generalized and specific constructs. He explains that when Rotter's construct of internal-external locus of control is employed as a generalized trait, it has minimal utility for explaining and predicting behavior as compared to alternative analysis grounded in direct data regarding the person in a specific situation. Mischel (1973) asserts:

If expectancies are converted into global trait-like dispositions and extracted from their close interaction with situational conditions, they are likely to become just as useless as their many theoretical predecessors. On the other hand, if they are constructed as relatively specific hypotheses, it becomes evident that they exert important effects on behavior.

At the root of Rotter's concept of locus of control is the issue of causal beliefs of action-outcome contingencies rather than beliefs of efficacy. The distinction between efficacy and locus of control centers upon the object of the belief. Efficacy is concerned with perceptions of control one may or may not exert over a specific behavior. Locus of control is essentially concerned with causal action-outcome relationships in general.

Rather than forcing a distinction among attribution, locus of control and self-efficacy as separate conceptual schemes, it may be

more useful to consider a broader perspective which embraces all three. Attribution may be considered a general perspective which proposes that individual beliefs about the cause of success and failure may be ascribed to certain sources, for example, luck and ability. Locus of control advances a more specific case of attribution: Does the individual ascribe the causes of certain outcome to be within the individual (e.g., effort) or in the environment (e.g., luck)? The most specific case of belief may be a person's perception of control over a particular behavior. The latter is Bandura's notion of self-efficacy. The distinctions drawn among the three beliefs may have evolved more from the research history than from their theoretical functions. Both attributional and locus of control research have emerged from a study of personality psychology concerned with identifying personality correlates that account for behavior. Self-efficacy theory, new as it may be, has grown out of a clinical and learning psychology perspective which focuses upon variables which mediate the behavior change process and predict future behavior. Further, self-efficacy is viewed as an internal source of motivation where the effort to change behavior is strongly associated with the belief that a change in behavior will obtain a desired goal (outcome expectation) and also the belief that one can successfully perform the behavior (self-efficacy).

Summary

This review has attempted to demonstrate that a social learning approach offers a more comprehensive structure for understanding human

behavior because it does not ground explanation in a single set of variables. Instead, social learning theory recognizes reciprocal determination among variables in the environment, behavior variables, and factors internal to the person. Social learning theorists believe these controversies regarding the importance of internal versus external influence in explaining behavior change are ultimately reduced to a "chick or egg" debate because they do not reflect the complex conditions existing in any situation.

Specifically, Bandura's formulations of self-efficacy and outcome expectation within self-efficacy theory provide a testable framework for examining how these two perceptions may influence behavior after treatment. The research cited in this review of the literature support two key tenets of Bandura's theory:

1. Perceptions of self-efficacy measured after treatment were accurate predictors of the dependent variable, regardless of the type of treatment administered, and
2. Corresponding changes in self-efficacy, with the behavioral dependent variable both during and after treatment, demonstrate that treatments operate by increasing levels of self-efficacy.

When reviewing the literature relevant to self-efficacy, two issues were noted. First, the available research suffers from ambiguous definitions of terms and measures. The only investigations which used self-efficacy as it was defined by the theory were those conducted by Bandura himself. Secondly, efficacy and outcome expectations have never been tested simultaneously. Bandura's theory implies that both perceptions

have equal potential for influencing behavior. Only when the two are examined jointly, can the differential influence of each be explored.

In the last section, self-efficacy was compared and contrasted with the concepts of locus of control and attribution. Rather than forcing artificial distinctions, it was proposed that all three could be considered in a more general framework recognizing the influence of beliefs on behavior.

In the present study, self-efficacy and outcome expectations are used to determine if such perceptions can predict student behavior after participating in a treatment to alter television viewing habits. This study will add two new dimensions for investigation beyond those addressed by previous studies:

1. Outcome expectations will be included, along with self-efficacy, as a predictor variable to determine its effectiveness for predicting and explaining behavior variation.
2. Prediction will be based upon pretreatment measures of self-efficacy and outcome expectation. It is to be recalled that previously all prediction of behavior was based upon post-treatment measures of self-efficacy and outcome expectation. If accurate prediction can be made on pretreatment perceptions, there are practical implications for altering treatment programs to accommodate specific needs.

CHAPTER III

METHODS AND PROCEDURES

Introduction

The chapter on methods and procedures consists of five sections: population and sample, design, treatment, instrumentation, research questions and analysis procedures. The first section identifies the population and sample and describes how they were selected for the study. The section on design presents the category of design employed and addresses issues of internal and external validity. The third section describes the treatment and its administration. The fourth section includes a presentation of the instruments used to measure the independent and dependent variables and a discussion of reliability and validity. The fifth section identifies the research questions and the analysis procedures used to test each question. Finally, a distinction is made between meaningful and statistical significance for this investigation.

Population and Sample

Population

The theoretical population for this study was third grade elementary school children. The students were nine and ten year olds, all

residing in Haslett, Michigan. Haslett is a small community near Michigan State University. The children in this school district come from families of variant economic and racial background.

Sample and Section Procedures

The sample consisted of 91 third grade pupils from four classrooms within three Haslett schools. Figure 3 represents the schools, classrooms and number of students used in the study.

Class ₁ + Class ₂	Class ₃	Class ₄
$n_1 = 25$ $n_2 = 25$	$n_3 = 21$	$n_4 = 20$
Wilkshire School	Murphy School	Ralya School

Figure 3. Classes, schools and number of children per class.

Principals from the East Lansing and Haslett School Districts were contacted by telephone to request the use of their teachers and students for participation in the study. After initial approval a follow-up letter was sent describing in more detail the purposes of the study. Four classrooms were requested from each school district. When it was learned that East Lansing had only three classes available, the researcher decided to use those classes for a pilot test and use four classes from Haslett for the experiment.

The principals were responsible for selecting the classrooms for the study. Once the classes were chosen a planning meeting among teachers, principal and researcher was held to arrange the schedule for the study.

At the time of data analysis eight children had been dropped from the sample because of absenteeism. The total sample size analyzed was 81 based on the following sample sizes: Class 1 = 21; Class 2 = 24; Class 3 = 19; and Class 4 = 17.

Design

General Approach

Because the investigation of effects of student expectations on behavioral change occurred in a natural setting using existing classrooms and did not employ random assignment of students to treatment, it is characterized as a quasi-experimental design (Campbell and Stanley, 1966).

The design selected for this study was the four group, non-equivalent control group design. Campbell and Stanley (1966) described this design with the following notation:

Class ₁	O ₁	X	O ₂
Class ₂	O ₁	X	O ₂
Class ₃	O ₁	X	O ₂
	—	—	—
Class ₄	O ₁		O ₂

where O₁ = pretest, X = treatment, and O₂ = post-test.

In this study, all independent and dependent measures were administered at pretest and post-test time. The measures are: self-efficacy, outcome expectations, preference for leisure activity and number of hours spent viewing television. The treatment was an instructional curriculum designed to alter television viewing habits.

It was considered quasi-experimental because the subjects were not randomly assigned to the experimental and control groups.

Internal validity, according to Campbell and Stanley, refers to the basic minimum of control, without which, any experiment is uninterpretable. External validity relates to the question of generalizability; that is to say, to which populations, settings, and/or variables can the results apply beyond those actually studied.

The non-equivalent control group design has several sources of invalidity which must be addressed when interpreting results.

Threats to Internal Validity

Campbell and Stanley identify that this design controls for six potential classes of variables that may pose a threat to internal validity: history, maturation, testing, instrumentation, selection, and mortality. The authors cite two threats that must be taken into account when employing this design. Attempts to explain away pretest - post-test gain associated with the experimental group through the extraneous variables (history, maturation, etc.) must consider an interaction between these variables and the selection procedure used for assigning classes to control and experimental conditions. Campbell and Stanley (1966) state, "While in general such interactions are unlikely, there are a number of situations in which they might be invoked." One example of this might be if an experimental group were picked for its extreme nature, i.e., a low achieving class. A statistical artifact known as regression toward the mean would predict a change in performance just because the group was extreme and is likely only to get better (or appear smarter). When this phenomenon occurs,

it is labeled a "selection-maturation interaction" and the results could be misinterpreted as the treatment causing the change, rather than the initial selection process. Likewise, selection can interact with history, testing and other extraneous variables. Therefore, the experimenter must recognize that whatever distinguishing features of the experimental group which exist, may interact with other variables. The experimenter must also note that the use of extreme groups opens the possibility of a regression effect causing a change in scores. For the current study, both the principal and the teachers were asked if they believed the classes to be different on any dimension. Based upon unanimous personal opinion, all agreed the classrooms had no apparent differences. The third grade achievement levels and I.Q. scores do not exist to confirm this assumption.

Threats to External Validity

Threats to external validity represent limitations of the effects of treatment to a specified set of conditions and are considered constraints to generalizability. For the non-equivalent control group design Campbell and Stanley (1966) list as a weakness of the design the interaction of treatment with testing, interaction of treatment with selection and possible reactive arrangements.

Interaction of testing and treatment may occur when the experimental effects attained are unique to populations subject to repeated testing. In institutions where frequent testing is incorporated into routine activities this limitation becomes less severe, but, its possible effect should be noted.

Interaction of selection and treatment is the specificity of obtained results to the sample employed and the likelihood that the result would not be representative of some more general universe from which the group was a sample. Interaction of selection with treatment may have an effect in this study because of the characteristics of the sample. The teachers and administrators in Haslett have continuously and enthusiastically supported our research efforts. This group has volunteered an inordinate amount of time to this curriculum during the past two years. For this reason, the schools and classes may not be representative of most schools and classes throughout the state. However, in many other ways these schools are typical elementary schools. Nevertheless, the possible interaction of selection and treatment does reduce generalization of results to the population described.

Reactive arrangements may occur because of the student's knowledge of the experiment and the artificiality of the setting. Students were aware that something different was occurring in the class. Pretesting and post-testing, the presence of a new classroom teacher and a one hour break from usual class activities constituted the major changes in the normal operations of the day. Though the students were aware of their involvement in a program, they did not reveal any signs indicating they knew the specific nature of the study. For example, it was not communicated to the teachers or students what the anticipated effects between conditions would be.

Specific Design

The specific design of the study involved four variables: self-efficacy, outcome expectations, number of hours spent viewing television

and preference for leisure time activities. The first two variables, self-efficacy and outcome expectations, served as independent or predictor variables. They were employed in this study to test whether they could, in part, predict scores on the dependent variables, hours viewing television and leisure activity preference. The treatment condition was a curriculum designed to alter student television viewing habits. Measures on all four variables were obtained before and after treatment.

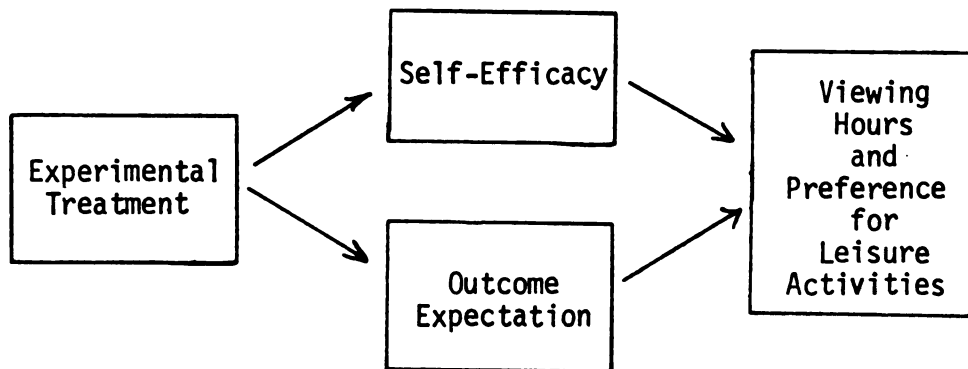


Figure 4. Variables included in the study.

Treatment

The curriculum included two basic components: a slide-tape presentation and guided discussion supported by student workbooks. The slide-tape presentation shown to students depicted a twelve year old girl engaged in decision-making regarding her own use of free time. In some instances she experienced positive consequences for selecting an activity other than watching television; in other situations she experienced negative consequences. For example, the model decided to play softball outdoors with friends and as a result met a new friend.

In another vignette she decided to play outdoors and accidentally broke a neighbor's window. After students viewed the model in the slide-tape, a discussion followed centering around the model's actions and what the students would do in similar situations. The goals, objectives and a sample of daily activities is provided in Appendix A.

Assignment of Classes to Conditions

There were three conditions in this study: two treatments (curriculum) and one control. The two curriculum conditions were identical to each other except for the activity in which the model engaged in the slide-tape shown to the class. In curriculum one, the students viewed a model who received positive consequences for her decision in two situations and negative consequences in two situations. In curriculum two, the model received positive consequences for all four decisions. This curriculum variation served as a research question for another investigation and was not of interest in this study. All analysis procedures, however, were performed on the separate curriculum of groups. The classes were assigned to the following conditions:

Classes₁ & 2 - 50% positive consequences
50% negative consequences

Class₃ - 100% positive consequences

Class₄ - Control

Classes₁ & 2 were given the same curriculum because both classes were in Wilkshire School. The close proximity of the classes (they are adjacent) resulting in high probability of interaction influenced the decision to administer an identical curriculum to both rather than

randomly assign curricula to these two classes. The remaining two classes were randomly assigned to the 100% and control conditions.

Administration of the Treatment

The instructor began the treatment introducing herself to the class and explaining that for the next five days the students would be participating in activities focusing on how they make decisions regarding their use of free time. Although the classroom teachers did not participate in any activities, they were present during the entire treatment. Each day there was a pre-established set of activities to complete and a summary at the end of each day describing the main points made during the lesson. Students were given workbooks which included activities such as setting long and short term goals, describing how they spend their leisure time and lists of worthwhile and valueless television programs. Every day students performed some type of workbook activity, viewed a slide-tape and discussed what they saw. The activities took place during the same hour of the day for the entire week. At the end of the last lesson students were asked if they learned anything that week, particularly about themselves and their use of free time.

An observer was present during all lessons to monitor activities and to establish that the objectives had been covered. The purpose of this monitoring was to determine if the instructional program was implemented as intended.

Prior to the formal investigation the treatment and instruments were pilot tested on two comparable third grade classes in the East Lansing schools. Small revisions were made on each as a result.

Essentially, these revisions involved the wording of items and directions in the instruments and the ordering of activities within the curriculum.

Instrumentation

The selection of dependent variables is an important concern for investigations that purport to study the effects of treatments designed to change behavior. When establishing the effects of any treatment, the dependent measure must be logically consistent with the underlying constructs of that treatment and must accurately assess the objectives of that treatment.

Dependent Variables

The two dependent variables employed in this study represent two objectives intended by the curriculum. The first type of change is measured by the number of hours spent viewing television. To obtain this measure, students were given a list, in the form of a questionnaire, of all television programs aired the previous day between the hours of 3:00 and 10:00 p.m. Each morning students were asked to check the programs they had watched the previous day; if no program was watched they were told to check an item pertaining to that and to describe briefly, what they were doing instead. If a student watched two programs during the same time slot, he was asked to check the show he watched longer or the one he could remember completely. Five days were sampled to construct this measure: Saturday, Monday, Tuesday, Wednesday and Thursday. Saturday viewing included the hours between 8:00 a.m.

and 10:00 p.m. Television viewing hours score represents the sum of the number of hours watched per day for the five sample days. The range of possible viewing hours was 0 - 42 hours. This questionnaire appears in Appendix B.

Before any questionnaires were given to students, they were explicitly reminded there were no right or wrong answers; it was important only that they answered truthfully how they felt. To eliminate student influences on each other, the students were asked not to talk or read each others' answers during the testing procedure. All items were read to the class as a whole.

The second dependent variable was preference for leisure activity. This measure was designed to indicate if students preferred television viewing or non-television viewing activities as ways to spend leisure time. The preference measure consists of fourteen dichotomous items of the following form:

Go on an errand with Mom or Dad	or	Watch a TV show
------------------------------------	----	--------------------

Students were asked to circle the item they believed would be the best way for them to spend their time. Only one item could be circled in each pair. A score of zero was assigned if the item was not television viewing. The possible range of scores for this variable ran from a low of zero to a high of fourteen. All items appear in Appendix C.

Independent Measures

The two independent or predictor variables, self-efficacy and outcome expectations, are the primary components of Bandura's theory of behavior change (1977a) and were, therefore, included in this study.

Self-efficacy, defined by Bandura (1977b) is:

The conviction that one can successfully execute the behavior required to produce an outcome.

To measure this belief, a questionnaire was constructed with items designed to reflect a student's sense of control over his own television viewing. Initially, twenty-five items were developed. Three judges were asked to rate the appropriateness of each item, given Bandura's definition and television viewing as the behavior of interest. Each item was assigned a score between one and five; five indicated a very close match between item and definition, while a one indicated a poor or inadequate match. Items averaging less than three, subsequently, were eliminated from the pool. The self-efficacy measure consisted of eight items of the following general form:

How hard would it be for you to give up watching TV one day a week?

Extremely hard Hard Not too hard Easy

Each item was read aloud to the students in each class. They were asked to circle the answer which best indicated how they felt. A score between one and four was assigned to each response; a one for "extremely hard" and up to four for "easy." Scores could range from seven to thirty-six for this measure. This was possible because four questions were dichotomous items that were scored either zero or two. The form of these questions is given below:

If you had to give up a free time activity for a day, which would be more difficult? Circle one

Watching an exciting sport or Playing an exciting
on TV sport

The items used in this measure are in Appendix D.

Outcome expectancy is defined by Bandura (1977) as:

A person's estimate that a given behavior will lead to certain outcomes.

Outcome expectancy indicates whether a behavior is related to a certain outcome. In this study, the relationship between a behavior and an outcome can be asked in the form of this question: Does watching less television make one a better person?

A procedure identical to that for self-efficacy was employed to assess the quality of the items for the questionnaire. Again, all items which averaged less than three for all judges were dropped. The outcome expectancy measure consisted of nine items of the following form:

If you watched less TV, do you think you would be a better student?

Definitely yes Maybe yes Maybe no Definitely no

Students were asked to circle the one which best indicated how they felt. Scores between one and four were assigned to each response; "definitely no" received a one while "definitely yes" received a four. Total scores could range from a low of nine to a high of thirty-six. The items included in this measure appear in Appendix E.

The definitions of self-efficacy and outcome expectations proposed by Bandura (1977a) are not operationally independent concepts. Specifically contained within the definition of self-efficacy is the conditional phrase "required to produce certain outcomes." The entire definition reads, "an efficacy expectation is the conviction that one

can successfully execute the behavior required to produce the outcomes." Assuming an individual has beliefs about an outcome, it might be expected that these beliefs would be confounded with perceptions regarding one's ability to perform a certain behavior. For this reason the researcher attempted to construct items that represented just one of these perceptions at a time. Questions focusing upon self-efficacy did not relate television behavior to any anticipated outcome. As will be reported later, in spite of this attempt there appeared to be a moderately strong relationship between outcome expectations and self-efficacy.

Validity of the Instrument

Many measurement experts believe that establishing the validity of a test is the most important problem facing test construction (Ebel, 1977). Though this issue is a critical one, it has no single satisfactory answer. Consequently, several methods for reporting validity have been used in research.

Some measurement experts prefer to express validity coefficients in terms of Pearson product moment correlations r_{xy} (Mehrens & Lehman, 1978). However, Ebel (1977) warns that single quantitative indices of validity are not sufficient grounds for establishing the validity of a test. Rather, he proposes that a test should be "clearly defined" and focus upon the "reasonableness of inferences drawn from scores obtained in a particular situation." Because the instruments employed in this investigation were new, priority was placed upon developing a set of items that met Ebel's criterion. The researcher constructed

a test that reflected the definitions for self-efficacy and outcome expectations provided by Bandura. The use of judges to evaluate the appropriateness of each item in light of the theoretical definition was an attempt to establish content validity for each set of items.

Reliability

A desirable characteristic of any test is its reliability. Essentially, reliability is the degree of consistency between two measurements taken on the same entity (Mehrens & Lehman, 1978). Because psychological measurements are typically indirect, that is, they do not assess a physical entity, they are generally less precise than measurements made in the hard sciences. Discrepancies between a true score and a measured or observed score are labeled error variance. As these errors are minimized, measurement becomes more consistent and subsequently, more reliable. *

There are several different classes of reliability; however, reliability estimates which measure internal consistency are most commonly reported. An estimate of internal consistency represents the homogeneity of items in a test or their correlation with a total score. *

Estimates of reliability are often reported by r_{xx} or Cronbach's α (Cronbach, 1951). Coefficient alphas were computed for all variables in the study excluding number of hours spent viewing television. For this variable the total score simply represented a summation of all programs viewed during a five day sample; reliability estimates would not have been a useful meaning for this variable. Table 1 presents alpha coefficients for variables employed in the study.

Table 1. Average Reliability Coefficients Between Pretreatment and Post-Treatment Measures for Independent and Dependent Measurements

Variable	Type	Alpha Coefficient
Preference for Leisure Activity	Dependent	.72
Self-Efficacy	Independent	.75
Outcome Expectations	Independent	.83

Typically in the social sciences reliability coefficients of .70 and above are acceptable for research.

Research Questions and Analysis Procedures

The purpose of this investigation was to determine if scores on measures of self-efficacy and outcome expectations could be used to predict number of hours children spent viewing television and their preference for leisure activities after a treatment designed to change behavior. The study employed a pretest - treatment - post-test design. The treatment was a curriculum designed to alter the television viewing habits of children. Specifically, the intent of the study was to answer the following questions:

1. Can measures of student perceptions (efficacy and outcome expectations) be used to predict behavior (hours viewing and preference) after treatment?
2. Do perceptions of efficacy and outcome expectations change as a result of participation in a treatment?

One question which is not included with the other research questions is the issue of overall change produced by the experimental curriculum. Though it is not the purpose of this study to establish the effectiveness of the curriculum for producing change in behavior, it is nonetheless a prerequisite for answering subsequent primary questions. To determine the overall effectiveness of the curriculum for decreasing television viewing and increasing preference for activities other than television, a one way analysis of covariance procedure will be used for each dependent variable.

For each of the broad research questions stated previously, there is a corresponding set of hypotheses and statistical procedures that are employed to test the questions. At this point there are two alternatives that must be considered when planning the analysis strategy based upon the relationship between the two dependent variables. If they are indeed independent measures and do not have a clear relationship, the analysis will be a univariate one, treating each independently. However, if a relationship is evident, the dependent variables^{*} must be treated jointly and a multivariate analysis will be applied. Because the dependent variables are expected to be independent, the hypotheses presented below will assume a univariate situation.

Research Hypotheses

1. There is a predictive relationship between the predictor-variables, self-efficacy and outcome expectation, and change in viewing behavior.

$$Q_1 : H_0 : \beta_j = 0$$

$$H_1 : \beta_j > 0$$

β_j = slope or regression coefficient; dependent variable = number of hours spent viewing television.

$$Q_2 : H_0 : \beta_j = 0$$

$$H_1 : \beta_j > 0$$

Dependent variable = preference for leisure activity.

Statistical Procedure: Multiple regression analysis

2. Perceptions of self-efficacy and outcome expectations will be greater after treatment than before treatment.

$$Q_3 : H_0 : \bar{d} = 0$$

$$H_1 : \bar{d} > 0$$

Dependent variable = self-efficacy

$$Q_4 : H_0 : \bar{d} = 0$$

$$H_1 : \bar{d} > 0$$

Dependent variable = outcome expectation

Statistical Procedure: Correlated "t" statistic

Statistical Versus Meaningful Significance

Both statistical and meaningful significance are criteria often applied to determine the success of a treatment program. Statistical significance refers to the probability of obtained differences occurring by chance. Meaningful significance will be considered as a guideline for interpreting results, however.

CHAPTER IV
PRESENTATION AND ANALYSIS OF THE DATA

Introduction

This chapter consists of four sections: preparatory remarks, prediction of student post-treatment behavior, change in expectations, and summary. The first section presents the two criteria that must be met before the central purpose of the study can be addressed: the reliability of measurement and the evidence of effectiveness of the treatment to produce change in behavior. Section two includes the results of the multiple regression analyses which are used to predict behavior. Section three addresses the topic of change in student perceptions, after treatment. Section four summarizes the overall results of the analysis.

Preparatory Remarks

In order to determine if expectations can be employed to predict behavior, two criteria must be established. First, the reliability of the instrumentation must be verified. Second, the evidence that the treatment altered behavior must be shown.

As described in Chapter III, the reliability coefficients computed for the dependent and independent variables using Cronbach's α , a measure of internal consistency, were acceptable for social science

research. The average reliabilities for three of the four measures ranged from .72 to .83. The dependent variable, hours of viewing television, was simply the sum of television hours watched during a five day sample; therefore, an index of reliability was not computed for this measure.

The second criterion can be phrased as a question: "Does participation in an experimental curriculum alter the amount of one's television viewing and preference for leisure activities?" Two one-way analysis of covariance procedures were used to address this question. It should be noted that two separate univariate analyses instead of one multivariate analysis of covariance testing procedure were used because the two dependent variables could be considered, from an empirical point of view, unrelated to each other. This was concluded by inspecting the Pearson product moment correlation coefficients of "Hours watched" and "Preference." The obtained value, $r = .12$, suggests they are not statistically related.

Overall Change for Preference for Leisure Activities

The results of a one-way analysis of covariance using the three curriculum conditions on the dependent variable preference for leisure activity is shown in Table 2. The four classes, it is to be recalled, were assigned to the following conditions:

Class₁ + Class₂ = Curriculum + 50% Model Reinforcement

Class₃ = Curriculum + 100% Model Reinforcement

Class₄ = Control

Table 2. Analysis of Covariance on Preference of Leisure Activity for All Classes

Source	df	Sum of Squares	Mean Squares	F	p
Between	2	260.35	130.18	21.57	< .01
Within	77	464.68	6.04		

The 50% and 100% model reinforcement refers to the model on the slide-tape viewed by the students. In the 100% condition the model received positive consequences for selecting a non-television related activity, in all four situations. In the 50% condition the model received negative consequences in two situations and positive consequences in two situations. In every other way the conditions were designed to be equal. However, in all analyses the effects on class three will be isolated from classes one and two.

The analysis of covariance was used in this situation to account for initial pretreatment differences. This technique permits the adjustment of results after the fact in such a way that performance differences among the treatment groups, existing during the first measurement, can be effectively removed from consideration (Hays, 1973). One may then make meaningful comparisons among treatment means.

The means and standard deviations for each group are presented in Table 3.

Table 3. Post-Treatment Mean Scores Adjusted for Initial Treatment Performance on Preference for Leisure Activity - All Classes.

	$\bar{X}_{\text{initial}}$	$\bar{X}_{\text{post}}$	$\bar{X}_{\text{post adjusted}}$
Class _{1,2}	8.64	10.56	10.50
Class ₃	7.36	11.00	11.70
Class ₄	9.05	7.00	6.55

The value of the F test statistic in Table 2 is statistically significant. This suggests that classes do differ from each other. The F test is an omnibus test and consequently does not identify the particular classes which differ from each other; to determine this specifically, a Scheffé post-hoc procedure was used. The results of this analysis indicate that:

- (1) Class₁ and Class₂ are significantly different from Class₄ (control), $p < .01$;
- (2) Class₃ is significantly different from Class₄ (control), $p < .01$.

Thus, the experimental curriculum did make a difference on the dependent variable preference of leisure activities.

Overall Effect of Hours Viewing Television

An analysis of covariance was computed on the three treatment groups to determine if there were differences among classes on hours spent viewing television. The results of the analysis of covariance are presented in Table 4. The adjusted means are presented in Table 5.

Table 4. Analysis of Covariance for Hours Spent Viewing Television for Assessing Overall Change

Source	df	Sum of Squares	Mean Squares	F	p
Between	2	138.77	69.39	1.88	.16
Within	77	2845.17	36.95		

Table 5. Post-Treatment Mean Scores Adjusted for Initial Treatment Performance on Hours Spent Viewing Television - All Classes.

	$\bar{x}_{pre}$	$\bar{x}_{post}$	$\bar{x}_{post}$ adjusted
Class _{1,2}	19.44	15.73	17.04
Class ₃	22.94	15.79	14.18
Class ₄	23.00	19.35	18.70

The analysis of covariance summary table reflects no statistical difference between classes at the .05 significance level, although differences were expected. This lack of expected differences may be partially due to the fact that two students, one in Class₁ and one in Class₂ gained 18 and 19 hours, respectively. These extreme scores had a substantial influence on group means. Specifically, it moved the mean in the direction of the extreme scores. Consequently, the respective magnitude of the overall class difference is suppressed or artificially lower than it would otherwise be.

While both experimental classes had the desired change in behavior, the control, Class₄, also had a reduction in behavior. For this reason the overall class differences are not statistically significant. The

low performance observed in Class₂ further contributes to the non-significant finding. There were two procedural problems beyond the control of the investigator. Of the five days reserved for the experimental curriculum, there were two days during which a fire drill and then a tornado drill reduced the lesson to just fifteen minutes. This will be discussed further in Chapter V.

Class₃, however, did demonstrate a decrease in television viewing hours approximately twice as large as the difference noted for the control Class₄. A "t" statistic was computed for the difference between these two groups: $t = 1.87$; $p < .05$. The statistical significance obtained suggests that the treatment does make a difference in time spent viewing television. Unfortunately this effect could not be replicated with Classes₁ & 2 receiving a slightly modified treatment.

Because this second dependent variable was not significant for the first two classes receiving an identical treatment, hours spent viewing will not be used in any subsequent analysis except when it is associated with Class₃ alone, or as it is presented with the control Class₄.

Thus, in answering the question suggested by the second criterion, the data now support a conclusion. There appears to be a substantial change in preference for leisure activity as evidenced by a desirable shift away from television activities among classes involved in the treatment. Alternatively, control subjects reflected a greater preference for television at the post-test time.

Change due to treatment in television viewing is not apparent. All groups demonstrated a reduction in television viewing, even the

control group, resulting in a non-significant overall difference. However, when Class₃ was paired with control Class₄, a significant difference did emerge for the hours dependent variable as well as preference for leisure activity.

Prediction of Students' Post-Treatment Behavior

The central question in this study is, "Can pretreatment measures of student perceptions (self-efficacy and outcome expectations) be used to predict behavior after treatment?" Unlike previous studies in this area, the predictions were not founded on post-treatment measures only. Rather, this study attempted to test if the predictive relationship could be extended to pretreatment measures, answering the question: Can pretreatment measures of expectations predict post-treatment preference of leisure activity?

This study also introduced outcome expectations as an additional variable to be used to predict behavior. Until now, self-efficacy had been the sole predictor variable in studies of this kind.

In order to determine if and to what extent the two variables, self-efficacy and outcome expectations, can predict behavior, a multiple regression analysis was used.

The task of regression analysis is to help explain the variance observed on a dependent variable. It accomplishes this by estimating the contributions to the variance of one or more independent or predictor variables.

Kerlinger and Pedhazer (1973) cite the use of regression analysis when the purpose of research is prediction and explanation.

Regression analysis can play an important role in predictive and explanatory research framework. In prediction studies the main emphasis is on practical application. On the basis of knowledge of one or more independent variables, the researcher wishes to develop a regression equation to be used for the prediction of a dependent variable, usually some criterion of performance or accomplishment. The choice of independent variables in the predictive framework is determined primarily by the potential effectiveness in enhancing the prediction of the criterion.

In an explanatory framework, on the other hand, the emphasis is on the explanation of the variability of a dependent variable by using information from one or more independent variables. The choice of independent variables is determined by theoretical formulations and considerations.... It is within this context that questions about the relative importance of independent variables become particularly meaningful....

When establishing the relative importance of independent or predictor variables in multiple regression, an inherent problem is the ordering effect of variables entered into the regression equation. The first variable entered into the analysis accounts for all the variance that variable can explain as well as any common contribution it has with other variables entered thereafter. That initial variable is credited also with the variance explained by other input variables with which it is related (Madaus et al., 1979). This statistical relationship is referred to as multicollinearity and is evident in the current data. This is shown by examining the simple correlation between self-efficacy and outcome expectation; this correlation is $r = .62$ for pretreatment measurement and $r = .55$ for post-treatment measurement.

To overcome the problem of multicollinearity a procedure by which predictor variables are entered in multiple orders permits the influence of a single variable to be inspected (Beaton, 1974). Essentially, this

is accomplished by examining only the last variable admitted to the analysis and determining its unique contribution beyond that accounted for by the previous variables considered jointly. This index of change is labeled " R^2 change" and is important for interpreting the present data.

As mentioned in the previous section, only Class₃, which participated in a modified treatment condition, demonstrated change on the dependent variable "hours spent viewing television." For this reason multiple regression analyses will be performed only on the "preference" variable for Classes₁ & 2 and on both "preference" and "hours" for Class₃. In order to permit comparisons with the two treatment groups, a regression analysis for the control Class₄ will also be included.

Predicting Preference Using Classes₁ & 2

The results of multiple regression analysis using self-efficacy and outcome expectations to predict preference for leisure activities are shown below. In Table 6 Pearson product moment correlation coefficients which describe the relationship among all predictor and dependent variables are presented.

The multiple regression summary tables are presented in Table 7 and Table 8. Two regression analyses were performed: the first entered self-efficacy into the regression equation first, and then examined the additional contribution of outcome expectation. The second analysis reversed the order to permit outcome expectation to be assessed first and then considered the relative contribution of self-efficacy for predicting preference. In all subsequent regression analysis, both orders will be presented on the same table.

Table 6. Pearson Product Moment Correlation Coefficients for Predictor and Dependent Variables - All Classes

	Preference _{post}	Hours _{post}
Self-efficacy _{pretest}	.72	-.06
Outcome Expectations _{pretest}	.50	.01
Self-efficacy _{posttest}	.62	-.17
Outcome Expectations _{posttest}	.50	-.06

Table 7. Multiple Regression Summary Table, Predicting "Preference" from Pretreatment Measures - Classes₁ & 2

Variable Entered	Multiple R	R ²	R ² _{change}	F	p
1 Self-efficacy _{pre}	.72	.52	--	46.82	< .01
2 Outcome Expectation _{pre}	.72	.52	.002	.22	> .05

Table 8. Multiple Regression Summary Table Predicting "Preference" from Pretreatment Measures - Classes₁ & 2

Variable Entered	Multiple R	R ²	R ² _{change}	F	p
1 Outcome Expectations _{pre}	.49	.25	--	14.09	< .01
2 Self-efficacy _{pre}	.72	.52	.27	24.41	< .01

In this first set of tables, the R^2 values are noteworthy. When self-efficacy is entered into the equation first, .52 of the variance is accounted for by that predictor variable. After outcome expectation is added to the prediction pool, only an additional .002 of the variance is further explained. Table 7 confirms this initial suspicion that outcome expectation is far less powerful in its ability to predict post-treatment behavior when used in conjunction with self-efficacy than originally hypothesized in this investigation. However, this is not to suggest that it is not an important variable in prediction. If outcome expectation is used alone, it can predict .25 of the variance on preference for leisure activity statistically significant ($p < .01$). But the addition of self-efficacy increases the percentage by .27 for a total of .52. The comparison of R^2 change reveals .002 and .27 as the difference between outcome expectation and self-efficacy when each is introduced second. Clearly, self-efficacy provides greater predictive power.

In summary, these findings support the initial research hypothesis that pretreatment measures may be useful for predicting behavior after treatment. However, it should be recognized when both predictor variables are to be considered, self-efficacy is a far more efficient predictor than outcome expectation. The most parsimonious prediction equation used to estimate post-treatment behavior can be done using self-efficacy alone:

$$\text{Preference}_{\text{post}} = 2.65 + .32 (\text{SE}_{\text{pre}})$$

Predicting Post-Treatment Preference from Post-Measures

Although it was not the purpose of this investigation to test the utility of post-treatment scores in predicting post-treatment behavior, a regression analysis is presented describing this relationship for preference behavior. These results are included because they also confirm previous research which demonstrated the predictive ability of post-measures in accounting for behavior after treatment. The results are presented in Table 9 and Table 10.

Table 9. Multiple Regression Summary Table Predicting Post-Treatment Preference Behavior from Self-Efficacy and Outcome Expectation - Classes₁ & 2

Variable Entered	Multiple R	R ²	R ² _{change}	F	p
1 Self-efficacy _{post}	.62	.38	--	26.79	< .01
2 Outcome Expectation _{post}	.66	.43	.05	4.08	> .05

1 Outcome Expectation _{post}	.50	.25	--	14.46	< .01
2 Self-efficacy _{post}	.66	.44	.19	13.97	< .01

Table 10. Multiple Regression Summary Table Predicting Post-Treatment Preference Behavior - Class₃

Variable Entered	Multiple R	R ²	R ² _{change}	F	p
1 Self-efficacy _{post}	.50	.25	--	5.70	< .05
2 Outcome Expectation _{post}	.50	.25	.00	.01	> .05

1 Outcome Expectation _{post}	.35	.12	--	2.33	> .05
2 Self-efficacy _{post}	.50	.25	.13	2.80	> .05

Predicting "Preference" and Hours Viewing Television Class₃

As noted before, Class₃ received a variation on the original treatment and was, therefore, analyzed separately from Classes₁ & 2. Further, because this class demonstrated significant change on both dependent measures, a regression analysis was performed on each. Table 11 presents the summary information from the multiple regression on the dependent variable, preference for leisure activity, based upon pretreatment measures. The summary includes both orders for entry of the predictor variables into the equation.

For this Class₃, a result opposite to Classes₁ & 2 was observed. Outcome expectations clearly contribute more for predicting preferences than do measures of self-efficacy. The magnitude of the difference between the R² change for the two predictor variables was roughly equivalent to the differences noted for Classes₁ & 2. However, in this latter situation, outcome expectation was the most efficient predictor.

Table 11. Multiple Regression Summary Table Predicting Preference Behavior from Self-Efficacy and Outcome Expectations, Class₃ - "Preference"

Variable Entered	Multiple R	R ²	R ² _{change}	F	p
1 Self-efficacy _{pre}	.45	.20	--	4.33	.053
2 Outcome Expectation _{pre}	.69	.47	.27	8.23	< .05

1 Outcome Expectation _{pre}	.69	.47	--	15.31	< .01
2 Self-efficacy _{pre}	.69	.47	.001	.002	> .05

The results from the analysis on the dependent variables, hours spent viewing television, is presented in Table 12.

Table 12. Multiple Regression Summary Table Predicting Hours Viewing Television from Self-Efficacy and Outcome Expectations - Class₃

Variable Entered	Multiple R	R ²	R ² _{change}	F	p
1 Self-efficacy _{pre}	.57	.32	--	8.05	< .01
2 Outcome Expectation _{pre}	.60	.36	.05	1.17	> .05

1 Outcome Expectation _{pre}	.54	.29	--	6.90	< .05
2 Self-efficacy _{pre}	.61	.37	.08	1.99	> .05

The results indicate no clear superiority of one predictor variable over the other when predicting hours spent viewing television. When either is employed alone, variance accounted for is .32 and .29 for

self-efficacy and outcome expectations, respectively. The additional variance accounted for by introducing the second variable is negligible, regardless of which variable it is ($R^2_{\text{change}} = .05$ and $.08$).

Predicting "Preference" and Hours Viewing Television on Control Class₄

In order to evaluate the predictive utility of self-efficacy and outcome expectations, a comparison was performed between the control Class₄ and the experimental groups. The results of the multiple regression analysis appear in Table 13.

Table 13. Multiple Regression Summary Table Predicting "Preference" and Hours Viewing Television from Self-Efficacy and Outcome Expectations - Class₄

Variable Entered	Multiple R	R^2	R^2_{change}	F	p
"HOURS"					
1 Self-efficacy _{pre}	.33	.11	--	1.86	> .05
2 Outcome Expectation _{pre}	.37	.13	.02	.37	> .05
1 Outcome Expectation _{pre}	.30	.09	--	1.56	> .05
2 Self-efficacy _{pre}	.36	.13	.04	.66	> .05

"PREFERENCE"					
1 Self-efficacy _{pre}	.44	.19	--	3.61	> .05
2 Outcome Expectation _{pre}	.57	.32	.13	2.63	> .05
1 Outcome Expectation _{pre}	.54	.29	--	6.12	< .05
2 Self-efficacy _{pre}	.57	.32	.03	.70	> .05

In all cases but one, the predictive utility of self-efficacy and outcome expectations were non-significant for the control group. However, in all cases the total variance explained in Class₄ was less than the experimental Classes₁ & 2 and Class₃ when predicting from pretreatment measurements. These findings support the notion that self-efficacy theory predicts better for treatment situations than for simple prediction without consideration of treatment.

Summary

The second research question asked if measures of self-efficacy and outcome expectations could predict post-treatment behavior. Although the results are not entirely consistent across the two groups of classes coming from different treatment variations, it may be concluded generally that student beliefs about their efficacy and what they expect to gain from the treatment do account for a substantial proportion of variance in behavior.

For Classes₁ & 2, self-efficacy was established as a predictor variable accounting for 52% of the variance on the "preference" variable. However, when Class₃ was analyzed, outcome expectations emerged as the stronger predictor of the two variables for the dependent variable "preference." Alone, outcome expectations accounted for 47% of the variance. When compared with self-efficacy on R^2_{change} , outcome expectations added an additional 27% while self-efficacy improved prediction by only .1%.

Class₃ was the only class demonstrating significant differences for the "hours" dependent variable, thus a regression analysis for "hours" was performed only with this group. The results from this

variable can only be interpreted as being equivocal. Neither variable appeared to be a more efficient predictor of hours spent viewing television.

Class₄, the control group, revealed that prediction was much weaker when treatment was not included.

Change in Expectations

Bandura (1977a) hypothesized that all behavior change strategies operate through modifying self-efficacy expectations which influence behavior change. This investigation further hypothesized that outcome expectations would also change as a result of treatment. Thus, this last research question asked if self-efficacy and outcome expectations were altered after treatment. The means and standard deviations for all classes are presented in Table 14.

Table 14. Means and Standard Deviations for Self-Efficacy and Outcome Expectations

	Pre $\bar{X}/S$	Post $\bar{X}/S$	t value	p
Classes ₁ & 2				
Self-efficacy	22.60/5.67	25.02/6.02	$t_{44} = -3.67$	< .01
Outcome Expectation	24.56/6.13	24.16/6.36	$t_{44} = .49$	.63
Class ₃				
Self-efficacy	20.10/7.69	22.42/7.59	$t_{18} = -1.93$	.07
Outcome Expectation	21.32/6.77	23.42/7.81	$t_{18} = -1.35$	.19
Class ₄ (Control)				
Self-efficacy	24.53/6.56	22.59/6.00	$t_{16} = 1.05$	.31
Outcome Expectation	23.06/6.35	22.71/5.76	$t_{16} = .35$	.73

A correlated "t" statistic was used to test differences between pretreatment and post-treatment scores. As can be seen among classes participating in the experimental curriculum, only Classes₁ & 2 demonstrated a change in self-efficacy ($t_{44} = -3.67, p < .01$), though all treatment groups did shift in the desired direction. The control group decreased in self-efficacy. No significant differences were observed for outcome expectations.

The results regarding this research question lend only moderate support to Bandura's self-efficacy theory (1977a) that treatments change behavior by increasing self-efficacy. There was no support for the contention that outcome expectations change as a result of treatment.

Summary of Results

This chapter presented the results from the two general research questions addressed by the study. In the first section, preparatory remarks, two criteria of measurement reliability and treatment effectiveness were established. First, the reliabilities of the independent and dependent measures were reported to be within an acceptable range for social-psychological research. Second, it was demonstrated that the experimental treatment (curriculum) did alter behavior. Class₃ evidenced a statistical difference on both dependent variables, preference for leisure activity and hours spent viewing television. Classes₁ & 2 demonstrated change on the "preference" variable but not for the second dependent variable, hours spent viewing television.

The second section addressed the question of predicting student behavior based upon measures of self-efficacy and outcome expectations.

The results obtained from a series of multiple regression analyses are not entirely consistent and, thus, must be presented by individual treatment group.

For Classes₁ & 2, self-efficacy was the most efficient predictor of preference behavior. Alternatively for Class₃, outcome expectations emerged as the superior predictor of student preference.

When the dependent variable, hours spent viewing television, was considered, using Class₃, neither variable demonstrated superiority in prediction. In general these results lend support to the hypothesis that pretreatment measures of self-efficacy and outcome expectations can be used to predict behavior. The question of which variable is the stronger predictor has not been consistently established.

The last section asked if self-efficacy and outcome expectations were altered as a result of treatment. The data from Classes₁ & 2 support Bandura's hypothesis that treatment increases self-efficacy; there was no support for the hypothesis that treatment changes outcome expectation.

CHAPTER V
SUMMARY, IMPLICATIONS AND CONCLUSIONS

Summary

Study Design

The purpose of this investigation was to determine if student beliefs could be employed to predict behavior after participation in an experimental curriculum designed to alter television viewing habits. There were two general research questions:

1. Can pretreatment measures of self-efficacy and outcome expectations be used to predict preference for leisure activity and hours spent viewing television after treatment?
2. What are the effects of treatment on student perceptions of self-efficacy and outcome expectations?

The investigation included 81 third grade children. Sixty-four participated in a five day, one hour per day, experimental program designed to assist children in making decisions regarding their leisure time and television viewing. Seventeen control students received only the measures before and after treatment. All subjects were pretested one week prior to treatment and post-tested one week following treatment. Two predictor variables, self-efficacy and outcome expectations, were employed to predict behavior and account

for variation on the dependent variables, preference for leisure activity and number of hours spent viewing television.

Study Results

Both research hypotheses advanced by the study received some empirical support from the data. However, there was not support for all hypotheses across all classes and the data must be interpreted on the basis of class and treatment conditions.

As a preliminary test, it was necessary to establish that the experimental curriculum could effect change in student behavior. Significant differences were observed in all classes receiving treatment for the dependent variable, preference for leisure activity. Only Class₃ evidenced a statistical change for the second dependent variable, number of hours spent viewing television.

The first research question asked if student perceptions could predict post-treatment behavior. For Classes₁ & ₂, self-efficacy, as a predictor variable, accounted for 52% of the variance on the dependent variable "preference." When outcome expectations were admitted to the equation, only .2% additional variance was explained. However, when the order was reversed, outcome expectations initially accounted for 25% of the variance but self-efficacy was able to contribute an additional 27% explained variance.

An interesting reversal of the previous finding was observed for Class₃. For this group outcome expectations emerged as the superior predictor while self-efficacy additionally contributed only .1%. When outcome expectation was entered last, it accounted for an additional 27% of the variance.

Finally, the last hypothesis received some support evidenced by the significant change in self-efficacy for Classes₁ & 2, though not for Class₃. Outcome expectations did not change significantly for any group.

Interpretation of Results

The preliminary research criterion which hypothesized a difference for both dependent variables, preference for leisure activity and hours spent viewing television was partially confirmed. Students did prefer non-television activities more often after instruction than they did prior to instruction; this change was expected. However, the overall non-significant finding obtained for number of hours spent viewing television was not anticipated. Specifically, for this variable all classes, including control, demonstrated a decrease in viewing time. One particular group, Class₂, evidenced only a very small decrease (2.45 hours) compared to the other treatment Classes₁ & 3 which had decreases of 5.14 and 7.15 hours, respectively. The aberrant finding may be partially explained by procedural complications, two extreme scores for students, and a possible reactive effect of the measures.

There were two procedural complications which interfered with planned activities. The instruction and activities for Class₂ were interrupted twice. On the third day of the program a fire drill consumed over twenty minutes of the time allotted for the activities. By the time students were settled in their seats, only fifteen minutes remained for the lesson. On the fourth day of the lesson, a tornado warning was issued and students were ordered to seek safety in the halls. Instruction on this day was limited to approximately twelve

minutes as compared to the desired forty-five minutes. An attempt was made to consolidate the lesson in order to teach the critical issues for the day; however, such a time loss did interfere with the quality of the presentation as well as subsequent discussion which was integral to the program.

Another factor which contributed to the negative findings for the "Hours" dependent variable were two very extreme scores. One student from Class₁ and one from Class₂ gained eighteen and nineteen hours, respectively, after the program. When compared with a modal loss of four hours, these figures are quite deviant. A discussion with the teacher in Class₂ revealed the strong possibility of a response set in which the student "checked" television programs which he most likely did not view. Apparently on a recent national achievement test the student was observed answering questions randomly without reading the items. The teacher in Class₁ could offer no explanation for the other unusual reported gain in television viewing.

The third factor that may have contributed to the non-significant finding for the overall preliminary criterion of change in hours spent viewing television was the reactivity of the measures used. The questionnaires used to measure self-efficacy and outcome expectations could easily be misinterpreted by the students. The students might have judged the questions as intimating that television viewing was undesirable and responded with this bias in mind. Although it was stressed that only their individual opinions and viewing habits were of interest to the researchers, students may have persisted in believing that the teachers and researchers wanted them to respond in

a specific way. The only method for verifying this contention would be to include a second control group, which received only dependent variable measures ("hours" and "preference") and not the predictor variable measures of self-efficacy and outcome expectations.

The first research question asked if measures of self-efficacy and outcome expectations could be employed to predict student behavior on the dependent variables after treatment. Consistent with Bandura's previous research in self-efficacy theory, perceptions of efficacy did have predictive utility for Classes₁ & 2 on the dependent variable, preference for leisure activity. The R values obtained in this research are roughly equal to the simple r values obtained by Bandura and his associates (1977, 1979) when they predicted outcome on the basis of self-efficacy alone. The proposed extension of self-efficacy theory in this investigation to include outcome expectations as a predictor variable met with considerably less predictive efficiency for Classes₁ & 2. Although the results obtained for Class₃ provided support for the extended hypothesis advanced by this study, the dramatic decrease in the predictive power of self-efficacy was not expected. A retrospective examination of events in the program for Class₃ revealed that there were not obvious factors to explain this unexpected finding. Again, the principals and teachers confirmed there were no systematic differences among classes participating in the study. The only designed difference which distinguished Class₃ from Classes₁ & 2 was the slight variation of model consequence used in the brief slide-tape presentation. The subjects in Class₃ viewed a model who was reinforced every time she selected a non-television leisure activity. Classes₁ & 2 viewed a

model who received negative consequences in two of four situations. The "expectancy-frustration" hypothesis, used by another researcher¹ as the basis for this variation of treatment, was designed to explain overall changes on the dependent variables (amount of television viewed and preference for activities) and was not intended to interact with prediction. One possible explanation might be attributed to differences in variation between the two groups after instruction. Class₃ had the larger amount of change on the "preference" variable as well as greater variance. It might be interpreted that statistically there is more variance to account for by the predictor variable on the "preference" variable for Class₃. Beyond this possibility, another plausible explanation would be that indeed there were real differences that existed between the groups either due to treatment, or independent of treatment, which were not apparent to the researcher. In any event, outcome expectations were established as the superior predictor of preference behavior for Class₃. This inconsistency with Classes₁ & 2 should be tested through replication to determine if these findings are stable or possible reflect a statistical artifact.

The last question asked if perceptions of efficacy and outcome expectations were altered by treatment. As described earlier, Classes₁ & 2 significantly increased perceptions of efficacy. Class₃ demonstrated an increase in self-efficacy ($t_{16} = -1.93$, $p = .07$) though not as large as Classes₁ & 2 ($t_{44} = -3.67$, $p < .01$). The control group, Class₄, decreased in self-efficacy over the same time period ($t_{16} = 1.05$, $p > .05$). Although these findings lend moderate support to Bandura's assertion that behavioral change strategies operate by altering

perceptions of self-efficacy, the magnitude of the change does not approach the amount of change observed by Bandura and his associates in earlier studies. There are two possible explanations for this noted small increase in self-efficacy.

The first explanation focuses upon how self-efficacy was measured. In Bandura's (1977, 1979) original studies, self-efficacy items reflected a one-to-one correspondence with the actual behavior subjects would later be asked to perform in an identical setting. A sample of the item would be, "Look at the snake through a wire cover." In this study, self-efficacy items were more ambiguous. For example, "Could you watch one less show per day." While this item reflects one's perception that he could decrease his television viewing, it does not possess the specificity apparent in items employed by Bandura. A student might easily think to himself: what show, what time of day, what length of program. It would not be at all difficult for some children to sacrifice the evening news, for example. Consequently, when there is not a strong relationship between the efficacy item and the behavior to be modified, measurement imprecision may account for lack of significant changes.

The second explanation concerns the type of behavior changed by the treatment. A snake fear is a particular response an individual has to certain stimuli (snakes). This response can be easily recognized and defined. Conversely, television viewing behavior is much more difficult to define. Frequently people watch television concurrently with other activities (eating, reading, napping). Also for some individuals television viewing may be regarded as serving

another purpose (e.g., a time for the family to be together). For these reasons, the task of measuring and changing this behavior suffers from ambiguity. Unlike designing a sequence of logical steps for coping with snake fears, the task of changing television viewing behavior is not as orderly. To the degree that the target behavior cannot be explicitly defined, individual perceptions of control over that behavior are also likely to be vague and difficult to modify.

It was further hypothesized that the experimental curriculum would cause an increase in outcome expectations. Though Class₃ demonstrated the anticipated increase in outcome expectations ($t_{18} = -1.35$, $p = .19$), Classes₁ & 2 demonstrated a small decrease. The curriculum was designed to suggest to students that "doers get more out of life than viewers" and also that television frequently consumes valuable time that could be spent more effectively on other activities. Apparently after the curriculum, students did not change their beliefs concerning the relationship between amount of television viewing and obtaining personal goals. In other words, most students did not increase their beliefs that television viewing interfered with any personal goals.

Implications

The review of the literature supported the predictive utility of the conceptual scheme embraced by self-efficacy. The three studies which provided the groundwork for self-efficacy theory also confirmed that different behavioral change strategies all increased levels of self-efficacy. In essence, this study was an additional test of the generality of self-efficacy theory focusing for the first time on

non-fear related behavior in a non-clinical setting. A new predictor variable, outcome expectations, was introduced to determine if beliefs about the relationship between behavior and treatment outcome could also predict behavior. Finally, this investigation employed pretreatment measures of self-efficacy and outcome expectations to predict post-treatment behavior. Until now, prediction was based on post-treatment measures of self-efficacy. Based on the findings of this study and questions raised during the investigation, implications for self-efficacy theory interventions and future research will be discussed.

1. The initial implication of this study is that a curricular intervention plan can be designed for changing student behavior relating to their preference for leisure activities. There is some evidence, though admittedly small, that amount of time spent viewing television can also be decreased by such an intervention.

2. The second implication relates to the practical utility of using pretreatment measures of student beliefs to account for behavior variation after treatment. The results obtained from a series of multiple regression analyses revealed that approximately 52% of the outcome variance on preference for leisure activity could be accounted for by knowing pretreatment perceptions of self-efficacy and outcome expectations. Quite possibly, this information could be useful for a teacher or a therapist who is interested in changing the behavior of an individual. It would be helpful to identify before treatment the individual who is likely to be resistant to change such that special arrangements could be designed in the program to meet specific needs. For example, if a subject did not believe changing a behavior would result in any desired outcome, the change agent may want to demonstrate

to him what he might gain from the proposed change. On the other hand, if the subject believed the behavior change could lead to a desirable outcome, but did not believe he was capable of performing the behavior, the change agent may want to focus upon designing very small increments of change into the treatment in order for the subject to have immediate and frequent success. It should be noted, however, that nearly half of the variance was still unaccounted for in the regression analysis after self-efficacy and outcome expectations were admitted. Future research might focus on additional factors which may determine outcome behavior. This is not to suggest that self-efficacy and outcome expectations are unimportant variables in predicting behavior. Rather, one should only be cautioned against designing elaborate measures of personal beliefs to predict behavior when possibly other, simpler factors could be considered with equal success.

3. A third implication of this study concerns the method for measuring efficacy and outcome expectations. Mahoney (1974) and Bandura (1977b) reported that the greatest threats to empirical tests of the relationship between expectancy and performance were insufficient methods for measuring personal beliefs. Frequently appearing in the research literature have been studies which measure people's hopes or feelings of what would be gained by a treatment. When expectations are assessed globally as if they reflected some enduring factor, they will undoubtedly bear little relationship to subsequent performance. While this study attempted to develop measures which were specific to television viewing behavior and leisure activities, it became evident that they were not as closely related to curriculum activities as

measures used in previous research. Expectancy analysis requires detailed measurement of the belief commensurate with the precision of behavioral outcome measurement (Bandura, 1977b). In spite of any loss due to the imprecision of measurement, self-efficacy and outcome expectations still emerged as useful predictors of behavior. Because this program and setting were considerably different from the measures and controlled clinical settings used with snake phobics, this lends substantial support to the generality of self-efficacy theory for predicting behavior across diverse situations. The utility of self-efficacy is currently being tested in sports psychology as well (Weinberg, Gould & Jackson, 1979); the results of this may contribute further support for the generality of efficacy theory.

4. The final implication concerns the relationship between efficacy and behavior in understanding behavior change. A major tenet of self-efficacy theory is that "psychological procedures achieve changes in behavior by altering the level of self-efficacy" (Bandura, Adams & Beyer, 1977). The strength of perceived efficacy determines if a behavior will be attempted and also how much effort will be exerted. Bandura (1977b) has shown that enactive treatment strategies which involve performance are the most powerful for changing both efficacy and behavior. Although vicarious strategies involving no participation at all also produced changes in efficacy and behavior. Due to this strong relationship between self-efficacy and behavior, regardless of mode of treatment, Bandura posits that self-efficacy is a cognitive mechanism mediating behavioral change. The inconsistency with Bandura's assertion observed in this investigation was that change was noted on outcome

behaviors without congruent change in self-efficacy. Especially in the case of Class₃, where the greatest improvement was shown for both amount of television watched and preference for leisure activity, no significant increase occurred in perceptions of efficacy. As described previously, this discrepancy between perception and behavior change is likely to be due to imprecision of measurement and should not necessarily cast doubt on the validity of the theory. However, there are other issues which must be addressed before self-efficacy can be considered to function legitimately as a mediating variable in behavior change. Unfortunately this investigation did not provide a sufficiently stringent test of self-efficacy's mediating function.

One important issue is to determine if the relationship between self-efficacy and behavior is simply one of high correlation or if there is a more directional dependency between the two variables. If indeed self-efficacy influences behavior by enhancing persistence of behavior, a future investigation might attempt to demonstrate that perseverance of effort in trying new behaviors is a function of the level of self-efficacy.

Another issue is if self-efficacy improves as a consequence of performance accomplishments rather than mediating performance accomplishments. This interpretation is not supported because vicarious treatments that involved no performance at all still produced significant increases in self-efficacy and approach behavior (Bandura, Adams & Beyer, 1977).

Finally, it might be interpreted that both self-efficacy and behavior are influenced by some overriding variable that shares a

relationship with both factors. This last issue is a theoretical one which requires an intensive examination of entire sets of variables that may determine behavior change.

Conclusions

Within the limitations of these data, the following conclusions were drawn:

1. The experimental curriculum was an effective intervention for increasing student preference for non-television activities. There was support that it also decreased the amount of television children viewed for a limited class of students.
2. Self-efficacy and outcome expectations were accurate pre-treatment predictors of "preference" behavior after treatment, accounting for 52% of the variance. The inconsistency noted of self-efficacy over outcome expectations did not permit a conclusive statement to be made comparing the relative efficiency of efficacy and outcome expectations.
3. A small though significant increase in self-efficacy was observed after treatment for Classes₁ & 2. This finding provided support for the contention that the treatment altered levels of self-efficacy. There was no support for the hypothesis that treatments also alter outcome expectations.

The conceptual formulations advanced by self-efficacy theory attempt to account for behavioral variations occurring after treatment and attempt to predict behavior of individuals participating in various treatment programs. The present study has contributed to

the support for Bandura's theory by establishing pretreatment expectations as accurate predictors of behavior. The benefit of extending prediction to pretreatment measures is that the change agent may be afforded greater opportunity for designing an intervention strategy that responds to the specific needs of the individual. Prediction which is grounded only in post-treatment measures does not allow for early modification of treatment when it is justified.

The second contribution of this investigation was the introduction of an additional prediction variable. While Bandura's self-efficacy theory recognizes the differential influence of outcome expectation in contrast to efficacy expectations, this variable had never been tested. By including a variable which assesses beliefs about behavior leading to certain outcomes, the change agent is provided with more extensive information for designing an intervention plan understanding resistance to change, when it occurs. For example, when a change agent needs to determine if failure to change should be attributed to low perceptions of efficacy or disbelief regarding the relationship between behavior and outcome.

The research findings compiled thus far have tested the predictive utility of perceptions of efficacy and outcome expectations. The investigation of cognitive processes and their subsequent influence on behavior is a relevant topic for research as evidenced by the consistently positive relationship which has been established between self-efficacy and behavior. The future of this tradition of research will rest in the ability of self-efficacy theory to elucidate further the intervening process which has been hypothesized. The issue of whether

all behavior change programs operate through efficacy perceptions or if change in efficacy is simply a correlate of behavior change must be investigated further. This study lends further support to confirm the predictive utility of the efficacy construct. The next logical step for self-efficacy theory would be to further explicate the proposed mediating process which occurs in behavior change.

¹Ms. Sandra Korzenny is exploring this hypothesis. Data for her investigation was collected simultaneously with the data collected for this study. However, there was no danger of any negative or positive interaction between the two studies. Readers are invited to review Ms. Korzenny's results which are expected to be published in 1980.

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APPENDICES

APPENDIX A

INSTRUCTIONAL UNIT

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INSTRUCTIONAL UNIT

Goals and Objectives

The instructional unit will consist of five days of 45-50 minute lessons. The following is a brief outline of the lesson content. (A teacher has been hired to teach the lessons in the classrooms.)

Goals

Students will learn to make conscious decisions about whether to view television or participate in other activities and reduce their actual viewing time. These decisions will be based upon questions which the students will ask themselves before deciding upon an activity.

Objectives

1. Students will decide upon three short-term goals and one long-term goal for their lives.
2. Students will write questions which they should ask themselves before deciding upon whether to view television or participate in an alternative activity. The questions should be comparable to those of the model they have viewed.
3. Students will prefer alternative leisure activities over television viewing.
4. Students will reduce the number of hours spent viewing.

Slide Tapes

This section is designed to acquaint the reader with the types of decisions the model will be making as well as the consequences for making those decisions.

Day 1. Introduction and discussion of television in general.

Day 2. Model will decide to play with her sister instead of watching her favorite program.

Treatment 1: She and her sister will both have fun while playing.

Treatment 2: She will argue with her sister.

Day 3. Model will decide to go outside and play with her friends.

Treatment 1: She will learn something new from one of her friends.

Treatment 2: Same as Treatment 1.

Day 4. Model will decide to go to the grocery store with her mother.

Treatment 1: She is allowed to buy a magazine.

Treatment 2: Same as Treatment 1.

Day 5. Model will decide to play a game.

Treatment 1: She has fun playing her game.

Treatment 2: The next day in class all her friends are talking about the program that she missed.

Activities

Day 1: Students will discuss television and how it might interfere as well as help them in attainment of their goals.

Students will be assisted in formulating their goals and in writing them down. A series of discussion questions will be provided to the teacher for use in the discussion.

Day 2: Brief review of lesson one.

A. The model and her family are introduced on slide-tape.

"This week we will be watching Jill in her home. She will be making some decisions about what to do with her free time. Jill is just a little older than you are and she likes to do the same kinds of things that you like to do: go sledding, read, watch TV, play with her puppies, etc. (Information has already been collected on the types of activities these students engage in when not watching TV.)

Today, let's take a look at Jill as she comes home from school. I want you to watch for what she says to herself about the decisions she is making. See if you can remember what she says, and afterwards we'll talk about it."

B. Stimulus material is presented. Treatment 1 subjects will view the model being consistently reinforced in each trial over the five days. Treatment 2 will view the model reinforced only 50% of the time. Self-verbalizations will include: Ok, what are my options? I can either watch TV or if I watch TV, I won't be able to go sledding, which I really enjoy, etc.

C. Discussion.

What did she decide?

How did she decide?

What questions did she ask herself?

What happened when she participated in the other activity?

How would you feel if that were you?

What would you have done, or do next time?

D. Role play. Students will form groups of two or three and be requested to role play the situation as they have just viewed it. They will be asked to role play (or overtly practice the self-verbalizations of the model). Students will be asked to switch roles and offer feedback and self-correction when appropriate.

E. Covert rehearsal. Students will be requested to return to their seats. They will be instructed to "close their eyes," and imagine that they are Jill, and self-verbalize covertly the questions.

Days 3-5: These will follow a similar format. The model will be viewed participating in a variety of activities. Day 5 will include a summary of the week's events.

APPENDIX B

TELEVISION VIEWING QUESTIONNAIRE

APPENDIX B
TELEVISION VIEWING QUESTIONNAIRE

Name _____

Please X the show you watched on Saturday for each time period. If you did not watch TV, then put an X where it says you did not watch TV and tell us in one word what you did. Only check one TV show in each time period.

a.m.

8:00 ☐ Popeye
☐ Alvin & the Chipmunks
☐ Scooby's Allstars
☐ Sesame Street
☐ Did not watch TV, I _____

10:30 ☐ Tarzan Super 7
☐ Daffy Duck
☐ Superfriends
☐ Once Upon a Classic
☐ Did not watch TV, I _____

8:30 ☐ Fantastic Four
☐ Sesame Street
☐ Popeye
☐ Scooby's Allstars
☐ Did not watch TV, I _____

11:00 ☐ Fred & Barney
☐ Fangface
☐ Food for Life (Dieting)
☐ Tarzan Super 7
☐ Did not watch TV, I _____

9:00 ☐ Bugs Bunny/Road Runner
☐ Godzilla
☐ Mister Rogers
☐ Scooby's Allstars
☐ Did not watch TV, I _____

11:30 ☐ Jetsons
☐ Pink Panther
☐ Hocking Valley Bluegrass
☐ Tarzan Super 7
☐ Did not watch TV, I _____

9:30 ☐ Superfriends
☐ Feeling Free
☐ Bugs Bunny/Road Runner
☐ Godzilla
☐ Did not watch TV, I _____

12:00 ☐ Buford
☐ Archies
☐ Weekend Special
☐ Ascent of Man
☐ Did not watch TV, I _____

10:00 ☐ Infinity Factory
☐ Superfriends
☐ Godzilla
☐ Bugs Bunny/Road Runner
☐ Did not watch TV, I _____

12:30 ☐ Fat Albert/Cosby Kids
☐ Fabulous Funnies
☐ Impressions
☐ Ascent of Man
☐ Did not watch TV, I _____

1:00	☐ Ark II	9:00	☐ Hobbit
	☐ Kids World		☐ BJ and the Bear
	☐ Open Door		☐ Love Boat
	☐ Ascent of Man		☐ Prime of Miss Jean Brodie
	☐ Did not watch TV, I ☐		☐ Did not watch TV, I ☐
1:30	☐ Starbuck Valley	10:00	☐ Steeltown
	☐ This Week in Baseball		☐ Fantasy Island
	☐ Bill Dance Outdoors		☐ Nightingales
	☐ Management		☐ Command Decision
	☐ Did not watch TV, I ☐		☐ Did not watch TV, I ☐
6:00	☐ News		
	☐ Chapter Six		
	☐ Farm Digest		
	☐ Wide World of Sports		
	☐ Did not watch TV, I ☐		
6:30	☐ News		
	☐ Footsteps		
	☐ Kansas City Bomber		
	☐ Did not watch TV, I ☐		
7:00	☐ Hee Haw		
	☐ Public Interest		
	☐ High School Quiz		
	☐ Kansas City Bomber		
	☐ Did not watch TV, I ☐		
7:30	☐ Muppets		
	☐ Pinocchio		
	☐ Hee Haw		
	☐ Kansas City Bomber		
	☐ Did not watch TV, I ☐		
8:00	☐ Bad News Bears		
	☐ Chips		
	☐ Love Boat		
	☐ Lillie		
	☐ Did not watch TV, I ☐		
8:30	☐ Hobbit		
	☐ Love Boat		
	☐ Lillie		
	☐ Chips		
	☐ Did not watch TV, I ☐		

MONDAY PROGRAMS

NAME _____

3:00 ☐ General Hospital
☐ Bookbeat
☐ Guiding Light
☐ Another World
☐ Did not watch TV, I ☐

3:30 ☐ MASH
☐ Villa Alegre
☐ General Hospital
☐ Another World
☐ Did not watch TV, I ☐

4:00 ☐ Archies
☐ Emergency One
☐ Bonanza
☐ Sesame Street
☐ Did not watch TV, I ☐

4:30 ☐ Emergency One
☐ Bonanza
☐ My 3 Sons
☐ Sesame Street
☐ Did not watch TV, I ☐

5:00 ☐ Mary Tyler Moore
☐ Mister Rogers
☐ Gunsmoke
☐ Did not watch TV, I ☐

5:30 ☐ News
☐ Bob Newhart
☐ Electric Company
☐ Gunsmoke
☐ Did not watch TV, I ☐

7:00 ☐ Newly Wed Game
☐ Bowling for Dollars
☐ Six Million Dollar Man
☐ Spartan Sport Light
☐ Did not watch TV, I ☐

7:30 ☐ Joker's Wild
☐ Nashville on the Road
☐ MacNeil/Lehrer Report
☐ Six Million Dollar Man
☐ Did not watch TV, I ☐

8:00 ☐ The Body Human
☐ Little House on the Prairie
☐ Salvage 1
☐ Dialog: Police
☐ Did not watch TV, I ☐

9:00 ☐ Blind Ambition
☐ A Man Called Intrepid
☐ Advocate
☐ A vacation in Hell
☐ Did not watch TV, I ☐

9:30 ☐ Blind Ambition
☐ A man Called Intrepid
☐ Advocate
☐ A vacation in Hell
☐ Did not watch TV, I ☐

10:00 ☐ Royal Heritage
☐ Blind Ambition
☐ Advocate
☐ A Vacation in Hell
☐ Did not watch TV, I ☐

TUESDAY PROGRAMS

NAME _____

3:00 ☐ General Hospital
☐ Another World
☐ Guiding Light
☐ Over Easy
☐ Did not watch TV, I ☐

3:30 ☐ MASH
☐ Villa Allegre
☐ General Hospital
☐ Another World
☐ Did not watch TV, I ☐

4:00 ☐ Archies
☐ Emergency One
☐ Bonanza
☐ Sesame Street
☐ Did not watch TV, I ☐

4:30 ☐ My 3 Sons
☐ Emergency One
☐ Sesame Street
☐ Bonanza
☐ Did not watch TV, I ☐

5:00 ☐ Gunsmoke
☐ Mary Tyler Moore
☐ Mister Rogers
☐ Did not watch TV, I ☐

7:00 ☐ Newly Wed Game
☐ Bowling for Dollars
☐ Six Million Dollar Man
☐ High School Quiz Bowl
☐ Did not watch TV, I ☐

7:30 ☐ Joker's Wild
☐ Six Million Dollar Man
☐ Porter Wagoner
☐ MacNeil/Lehrer Report
☐ Did not watch TV, I ☐

8:00 ☐ Paper Chase
☐ Greatest Heroes of the Bible
☐ Happy Days
☐ Learning Disabilities
☐ Did not watch TV, I ☐

8:30 ☐ Laverne and Shirley
☐ Paper Chase
☐ Greatest Heroes of the Bible
☐ Learning Disabilities
☐ Did not watch TV, I ☐

9:00 ☐ Blind Ambition
☐ A Man Called Intrepid
☐ Three's Company
☐ Learning Disabilities
☐ Did not watch TV, I ☐

9:30 ☐ Taxi
☐ Blind Ambition
☐ A Man Called Intrepid
☐ "Conversation"
☐ Did not watch TV, I ☐

10:00 ☐ Blind Ambition
☐ A Man Called Intrepid
☐ Helen Ready
☐ Making It in L.A.
☐ Did not watch TV, I ☐

WEDNESDAY PROGRAMS

NAME _____

3:00 _____ General Hospital
 _____ Footsteps
 _____ Another World
 _____ Guiding Light
 _____ Did not watch TV, I _____

3:30 _____ MASH
 _____ Villa Alegre
 _____ General Hospital
 _____ Another World
 _____ Did not watch TV, I _____

4:00 _____ Archies
 _____ Emergency One
 _____ Bonanza
 _____ Sesame Street
 _____ Did not watch TV, I _____

4:30 _____ My 3 Sons
 _____ Emergency One
 _____ Bonanza
 _____ Sesame Street
 _____ Did not watch TV, I _____

5:00 _____ Gunsmoke
 _____ Mary Tyler Moore
 _____ Mister Rogers
 _____ Did not watch TV, I _____

5:30 _____ News
 _____ Bob Newhart
 _____ Gunsmoke
 _____ Electric Company
 _____ Did not watch TV, I _____

7:00 _____ Newly Wed Game
 _____ Bowling for Dollars
 _____ Six Million Dollar Man
 _____ TeleRevista
 _____ Did not watch TV, I _____

7:30 _____ Joker's Wild
 _____ Dolly
 _____ MacNeil/Lehrer Report
 _____ Six Million Dollar Man
 _____ Did not watch TV, I _____

8:00 _____ Carol Burnett and Friends
 _____ Eight is Enough
 _____ Real People
 _____ Science and Humanities
 _____ Did not watch TV, I _____

8:30 _____ Real People
 _____ Wild Kingdom
 _____ Eight is Enough
 _____ Science and Humanities
 _____ Did not watch TV, I _____

9:00 _____ Blind Ambition
 _____ Police Story
 _____ Barry Manilow
 _____ New York Ballet
 _____ Did not watch TV, I _____

10:00 _____ Vegas
 _____ Police Story
 _____ Reifetz Concert
 _____ Blind Ambition
 _____ Did not watch TV, I _____

THURSDAY PROGRAMS

NAME _____

3:00 ☐ General Hospital
☐ Guiding Light
☐ Another World
☐ Over Easy
☐ Did not watch TV, I _____

3:30 ☐ MASH
☐ Villa Alegre
☐ General Hospital
☐ Another World
☐ Did not watch TV, I _____

4:00 ☐ Archies
☐ Emergency One
☐ Bonanza
☐ Sesame Street
☐ Did not watch TV, I _____

4:30 ☐ Emergency One
☐ Bonanza
☐ My 3 Sons
☐ Sesame Street
☐ Did not watch TV, I _____

5:00 ☐ Gunsmoke
☐ Mary Tyler Moore
☐ Mister Rogers
☐ Did not watch TV, I _____

5:30 ☐ News
☐ Bob Newhart
☐ Electric Company
☐ Gunsmoke
☐ Did not watch TV, I _____

7:00 ☐ Newly Wed Game
☐ Six Million Dollar Man
☐ Bowling for Dollars
☐ Community 23
☐ Did not watch TV, I _____

7:30 ☐ Six Million Dollar Man
☐ Joker's Wild
☐ Nashville Music
☐ MacNeil/Lehrer Report
☐ Did not watch TV, I _____

8:00 ☐ Waltons
☐ Hizzoner
☐ Mork and Mindy
☐ Nova
☐ Did not watch TV, I _____

8:30 ☐ Nova
☐ Carwash
☐ Young Guy Christian
☐ Waltons
☐ Did not watch TV, I _____

9:00 ☐ Hawaii-Five 0
☐ Quincy
☐ Barney Miller
☐ View of Asia
☐ Did not watch TV, I _____

10:00 ☐ Barnaby Jones
☐ Alan King
☐ Quincy
☐ Sneak Preview
☐ Did not watch TV, I _____

APPENDIX C

PREFERENCE FOR LEISURE ACTIVITY

APPENDIX C

PREFERENCE FOR LEISURE ACTIVITY

The frequencies for pretreatment measure appear in the first parentheses and the frequencies for the post-treatment measure appear in the second parentheses at the end of one of the pair of choices.

IF YOU HAD AN HOUR OR TWO OF FREE TIME, WHAT DO YOU THINK WOULD BE THE BEST WAY FOR YOU TO SPEND IT? Circle only one in each pair.

- | | | | | |
|-------------------------------------|----------|----|---|----------|
| 1. Read a good comic | (26)(37) | or | Watch a good TV show | (55)(14) |
| 2. Watch an adventure TV show | (47)(36) | or | Read an adventure story | (34)(45) |
| 3. Play a sport with a friend | (57)(53) | or | Watch a sport on TV | (24)(28) |
| 4. Watch a good TV show | (47)(34) | or | Listen to some good music | (37)(47) |
| 5. Play a game with friends | (46)(66) | or | Watch a game show | (35)(15) |
| 6. Watch a TV show | (30)(26) | or | Make a dessert | (51)(55) |
| 7. Do some homework problems | (37)(55) | or | Watch a TV show | (44)(26) |
| 8. Watch a good TV show | (19)(20) | or | Complete a job around the house for money | (62)(61) |
| 9. Write to a friend who lives away | (55)(63) | or | Watch a TV show | (26)(18) |
| 10. Watch a TV show | (31)(17) | or | Go for a walk or run | (50)(64) |
| 11. Go for a bike ride | (68)(68) | or | Watch a TV show | (13)(13) |
| 12. Play a good game | (48)(56) | or | Watch a TV show | (33)(25) |
| 13. Watch a TV show | (16)(12) | or | Have a friend over | (65)(69) |
| 14. Go on an errand with Mom or Dad | (50)(64) | or | Watch a TV show | (31)(17) |

APPENDIX D

SELF-EFFICACY QUESTIONNAIRE

APPENDIX D
SELF-EFFICACY QUESTIONNAIRE

Frequencies for pretreatment and post-treatment measures: pre-treatment appears to the left of the slash; post-treatment appears to the right of the slash. Means for each item appear in the right margin.

NAME _____

1. Could you decrease the number of hours you spend viewing TV?

Definitely yes	Maybe yes	Maybe no	Definitely no	$\bar{x}_{pre}$	$\bar{x}_{post}$
27/25	34/34	6/7	14/15	2.9	2.9

2. If someone asked you to cut way down on the amount of TV watching you do, how hard would this be for you?

Extremely hard	Hard	Not too Hard	Easy		
19/14	16/13	23/25	23/29	2.6	2.9

3. Pretend someone offered you money to cut way down on the amount of TV watching you do. How much money would it take?

Do it for free	\$50	\$100	No amount could make me quit		
32/39	8/8	19/10	22/18	2.6	2.8

4. If you had to give up a free time activity for a day, which would be more difficult? Circle one.
 - a. Viewing a good TV show 29/24 or Playing a game with a good friend 52/57
 - b. Listening to music 30/36 or Watching TV 51/45
 - c. Reading a favorite book 34/41 or Watching a favorite TV show 47/40
 - d. Watching an exciting sport on TV 20/14 or Playing an exciting sport 61/67

5. How much do you like viewing TV?				$\bar{x}_{pre}$	$\bar{x}_{post}$
Like it all the time 33/23	I usually like it 22/26	I like it once in a while 20/26	I almost never like to watch TV 6/6	1.9	2.2
6. If your family was watching a show you did not care for, would you stay and watch it anyway?					
Definitely yes 9/7	Maybe yes 25/35	Maybe no 15/15	Definitely no 32/24	2.9	2.7
7. How hard would it be for you to give up any two TV shows a day?					
Extremely hard 18/15	Hard 13/8	Not too Hard 23/22	Easy 27/36	2.7	3.0
8. Could you give up watching TV one day a week?					
Definitely yes 27/34	Maybe yes 16/16	Maybe no 13/14	Definitely no 25/17	2.6	2.8

APPENDIX E

OUTCOME EXPECTATION QUESTIONNAIRE

APPENDIX E

OUTCOME EXPECTATION QUESTIONNAIRE

Frequencies for pretreatment and post-treatment measures: pre-treatment appears to the left of the slash; post-treatment appears to the right of the slash. Means for each item appear in the right margin.

NAME _____

				$\bar{x}_{pre}$	$\bar{x}_{post}$
1.	If you watched less TV do you think you would be a better person?				
	Definitely yes	Maybe yes	Maybe no	Definitely no	
	26/17	28/38	10/10	15/16	2.8 2.7
2.	If you watched less TV do you think you would spend the extra time doing something important to you?				
	Definitely yes	Maybe yes	Maybe no	Definitely no	
	44/43	28/20	12/9	15/9	3.3 3.2
3.	Do you think watching TV is bad for other kids your age?				
	Definitely yes	Maybe yes	Maybe no	Definitely no	
	6/10	10/27	25/14	30/30	1.8 2.2
4.	Would it be good for you to spend more time away from the TV (playing, reading, etc.)?				
	Definitely yes	Maybe yes	Maybe no	Definitely no	
	41/26	19/28	7/14	14/13	3.1 2.8
5.	Would kids be better if they spent more time doing things and not watching others do things on TV?				
	Definitely yes	Maybe yes	Maybe no	Definitely no	
	29/28	30/28	14/13	8/12	3.0 2.9
6.	If your friends watched less TV do you think you would watch less too?				
	Definitely yes	Maybe yes	Maybe no	Definitely no	
	22/15	21/31	16/14	22/21	2.5 2.5

				$\bar{x}_{pre}$	$\bar{x}_{post}$
7.	Does watching TV get in the way of you meeting personal goals for yourself?				
	Definitely yes	Maybe yes	Maybe no	Definitely no	
	20/15	19/20	12/19	30/27	2.4 2.3
8.	Would you be a better student if you watched less TV?				
	Definitely yes	Maybe yes	Maybe no	Definitely no	
	22/16	30/37	10/13	19/15	2.7 2.7
9.	Is watching TV every night bad for you?				
	Definitely yes	Maybe yes	Maybe no	Definitely no	
	12/16	19/21	15/17	35/27	2.1 2.3

APPENDIX F

CONGRUENCY AMONG PREDICTOR AND DEPENDENT VARIABLES

APPENDIX F
CONGRUENCY AMONG PREDICTOR AND DEPENDENT VARIABLES

<u>Variable</u>	<u>% Change</u>
Class ₁ & 2	
Preference	+ 21%
Hours	- 19%
Self-efficacy	+ 11%
Outcome Expectations	- 1.6%
Class ₃	
Preference	+ 49%
Hours	- 31%
Self-efficacy	+ 11%
Outcome Expectations	+ 10%
Class ₄	
Preference	- 22%
Hours	- 15%
Self-efficacy	- 8%
Outcome Expectations	- 1.5%
Bandura	
Approach Behavior	+ 9%
Self-efficacy	+ 10%
Approach Behavior	+ 44%
Self-efficacy	+ 38%
Approach Behavior	+ 83%
Self-efficacy	+ 86%

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