

EFFECTS OF TELEVISED SAFETY MODELS ON
CHILDREN'S PHYSICAL RISK-TAKING
AND SAFETY KNOWLEDGE

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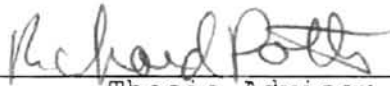
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Effects of Televised Safety Models on Children's Physical Risk-taking and Safety Knowledge

The primary cause of death in children is unintentional injury (National Safety Council, 1988). Research suggests that many injuries may primarily be due to learned behaviors (Matheny, 1988; Peterson & Roberts, 1992). It has been suggested that risk-taking behavior may be one of many behaviors that ultimately facilitates injuries (e.g., Baltimore & Meyer, 1969; Husband & Hinton, 1972). Thus, in order to understand ways in which injuries may be prevented, it is important to examine ways in which risk-taking may be influenced. One source of influence on children's risk-taking is the presence of risk-taking models. Televised characters engaging in risky acts have been shown to increase children's self-reported risk-taking (Potts, Doppler, & Hernandez, 1995). However, it is not known if safe behaviors of television characters can decrease children's risk-taking behavior. This study is an examination of the effects of safety behaviors of televised characters on children's self-reported risk-taking and knowledge of safety rules.

Childhood Injury

The mortality rate from childhood injury is higher than the next nine leading causes of death combined. Nonlethal unintentional injuries in 1986 caused 19 million children, age 17 and below, to seek medical services (National Safety Council, 1988). In addition to the physical harm caused by

unintentional injuries, the monetary costs are also high. The annual costs for medical services and loss of productivity due to injuries have been estimated to be between \$75 billion to \$100 billion (U.S. Department of Health and Human Services, 1986).

Despite the commonly used term "accident," unintentional injuries in childhood are rarely chance events and are avoidable in most cases (Haddon & Baker, 1981; Roberts & Brooks, 1987). Historically, research on childhood injuries focused on characteristics or traits of the child, such as accident proneness (e.g., Klonoff, 1971; Matheny, 1988). However, a conclusive relationship between such dispositional characteristics and injuries has not been found (e.g., Klonoff, 1971; Matheny, 1988). In fact, evidence suggests that learned behaviors may be a primary cause of injury, which implies that such behaviors can be identified and modified to prevent injury occurrence (Matheny, 1988).

Contemporary injury research has recently begun examination of behavioral approaches to injury prevention. For example, in a review of childhood injury prevention, Peterson and Roberts (1992) concluded that many behavioral interventions aimed at educating children in safe behaviors have proved successful. Research on injury prevention has also focused on situations in which the individual remains passive in preventing the injury, such as the introduction of child-proof aspirin containers which decreased the number

of aspirin poisonings (Matheny, 1988). These types of injury preventions have proven to be very effective (McFarland & Moore, 1962; McIntire, 1977; Consumer Product Safety Commission, 1979; Bergner, 1982). However there is no way to protect every child in this manner. Thus, it is important to study the relationship between children's voluntary behavior and unintentional injuries and to determine what methods are best for reducing the behaviors that are likely to result in injuries (Peterson & Roberts, 1992; Spielberger & Frank, 1992).

Risk-taking

A behavior that is assumed to be associated with unintentional injuries is risk-taking. Historically, risk-taking has been conceptualized in many different ways. It has been equated with "daringness" (Slovic, 1966), and has also been described as a general tendency towards "boldness" (Eysenck & Eysenck, 1977, 1978; Dahlback, 1990a,b). Knowles, Cutter, Walsh, and Casey (1973, p. 131) conceptualized risk-taking simply as "a tendency to approach rather than avoid risk situations." There is no one definition of risk-taking which is used by all researchers. This is most likely due to the fact that risk-taking has been examined differently in various types of populations. Risk-taking literature conducted on children has looked at risk-taking as physically daring behavior (e.g., Baltimore & Meyer, 1969; Ginsburg & Miller, 1982) and as gambling with low chances of success in order to win a prize (Kearney &

Drabman, 1992). Adolescent risk-taking literature has largely focused on participation in unsafe behaviors: unprotected sexual intercourse (e.g., Alexander et al., 1990; Johnson & Green, 1993), illicit substance use (e.g., Irwin & Millstein, 1991; Sokol-Katz & Ulbrich, 1992), and driving recklessly (e.g., Lavery, Siegel, Cousins, & Rubovits, 1993). The adult literature has often focused on decision-making risks and measured these risks through gambling games (e.g., Knowles et al., 1973) and other economic risks (e.g., Horvath & Zuckerman, 1993).

If one considers all of the ways risk-taking has been examined and conceptualized, it seems that one common definition of risk-taking emerges. This definition may be expressed as: Risk-taking is a behavior that increases the chances of a negative or harmful outcome (Keinan, Meir, & Gome-Nemirovsky, 1984). This behavior can be physical, social, financial, or hypothetical. This behavior must also include some reward or goal-seeking component and there must be a chance of obtaining some type of reward for engaging in these behaviors.

Studies have found risk-taking to be related to many undesirable outcomes. For example, one study related risk-taking to smoking cigarettes and driving dangerously (Knowles et al., 1973). A significant positive correlation was found between peer ratings of subjects' risk-taking and subjects' driving as measured by a driving questionnaire. In the same study, smoking behavior was also significantly

positively correlated with measures of risk-taking. Other studies have looked at the relationship between risk-taking and injuries. In a review of children's accidents Matheny and Fisher (1984) reported that risk-taking behavior was among the behaviors that seem to be consistently related to injuries (Fuller, 1948; Marcus et al., 1960; Manheimer & Mellinger, 1967; Baltimore & Meyer, 1969; Husband & Hinton, 1972).

Although relationships between risk-taking and injury have been reported in the above studies, there are certain problems with this body of literature. These include unvalidated measures of physical risk-taking and the lack of a common definition of risk-taking across studies. An example of a measure of questionable validity might be the one used in Baltimore and Meyer's (1969) study. In this study, physical risk-taking was measured only by mothers' reports of children's behavioral characteristics, such as "daringness" and "physical activity." In this instance, children were not directly asked to indicate their own physical risk-taking, which taken together with their mothers and others' reports, might yield a more accurate picture of the children's physical risk-taking. Using only the mothers' reports of risk-taking may not be a valid measure because their reports are not confirmed by others' reports and/or the children's reports. Also, the mothers may give socially-desirable responses that are inaccurate.

The differences in the definitions of risk-taking can

be seen in the way risk-taking was conceptualized by Baltimore and Meyer (1969) and how it was differently conceptualized by Marcus et al. (1960). Baltimore and Meyer (1969) defined risk-taking as daring behaviors which increases the chances of being subjected to dangers in the environment. On the other hand, Marcus et al. (1960, p. 44) described risk-taking in children, as children who, "are more likely to take chances," because their ability to think of possible consequences to their actions is impaired. A similar problem with definition and measurement of risk-taking may be seen in Dahlback's (1991) study. In this study, a weak, positive correlation between risk-taking and injuries in children was found. However, risk-taking was conceptualized as a personality trait and was measured using gambling games. A possible reason for the weak correlation found may be that this type of measurement may not adequately assess the risk-taking behaviors that led to injury. Also, risk-taking may be situationally determined rather than manifestations of a general trait (Matheny, 1988). A more specific measure of physical risk-taking was used in a study reported by Potts, Martinez, and Dedmon (1995). Physical risk-taking was measured with a questionnaire that examined the subjects' self-reported behaviors in common scenarios where the potential for injury actually exists. Self-reports of physical risk-taking in children were found to be positively, although only weakly, correlated with parents' reports of children's physical

injury. Self-reports of physical risk-taking were positively correlated with reports of informants concerning subjects' risk-taking.

In sum, it appears that because risk-taking has been studied differently with many types of populations, no single definition of risk-taking exists. However, it does seem that there are common elements of risk-taking used by most researchers. By combining these common elements, a definition of risk-taking can be formed. This definition may be stated as: Risk-taking is a goal seeking behavior that increases the probability of a negative outcome and which occurs when there is the possibility of obtaining some type of reward. Another difficulty that arises when examining the concept of risk-taking is that it is measured inconsistently across studies. This inconsistency in measurement has made it difficult to assess the outcomes that are truly correlated with risk-taking. It does appear that physical risk-taking is weakly correlated with injury. This weak correlation may be explained by the fact that physical risk-taking is not the only behavior which leads to injury, as well as the fact that much risk-taking may not result in injury.

Sensation Seeking

Several studies have been conducted which have failed to find support for the notion that risk-taking is a trait (e.g., Slovic, 1962; Knowles et al., 1973). However, a trait that may be predictive of risk-taking is sensation

seeking. The sensation seeking trait is characterized by a tendency to seek novel and complex situations and sensations. The sensation seeker will often take various physical, social, and financial risks in order to experience high levels of stimulation (Zuckerman, 1979a). The sensation seeking trait has been correlated with many behaviors that can be considered physically risky, including driving dangerously (Zuckerman & Neeb, 1980; Arnett, 1990), participating in risky sports or activities such as mountain climbing or skydiving (Zuckerman, 1983a; Horvath & Zuckerman, 1993), and using illicit drugs (Satinder & Black, 1984). Thus, it appears that although general risk-taking varies depending on the situation and behaviors measured (Knowles, et al., 1973), physical risk-taking may be related to a sensation seeking trait, which apparently is a stable disposition.

There have been many studies conducted which have found support for a biological basis of the sensation seeking trait. Examples of these studies include monoamine oxidase (MAO) and heritability studies. Studies on MAO levels in high and low sensation seekers have found that platelet MAO is negatively correlated with sensation seeking (Murphy et al., 1977; Schooler, Zahn, Murphy, & Buchsbaum, 1978). MAO is an enzyme that is located in the neurons of the brain. MAO works with other biochemicals to determine neural systems' sensitivity (Zuckerman, 1983b). Heritability studies have also provided support for the biological basis

of sensation seeking. For example, studies conducted on twins have found that platelet MAO is largely heritable (Murphy, 1973; Nies, Robinson, Lamborn, & Lampert, 1973). This indicates that because the sensation seeking trait is related to platelet MAO levels, which are largely heritable, that it is possible that the sensation seeking trait is heritable. If there is a biological basis for the sensation seeking trait then it is likely that individual differences on sensation seeking exist at birth. If sensation seeking does exist at birth, then evidence for the sensation seeking trait should be observable in children.

There have been a few studies conducted on sensation seeking in children. In a study conducted with children ages 7 to 12, it was found that the sensation seeking trait could be measured in children (Russo et al., 1991). Russo et al. were able to measure the sensation seeking trait in normal and clinic referred children using the Sensation Seeking Scale for children (SSSC), which is a modified version of Form V of the adult Sensation Seeking Scale (SSS). A test of validity of the SSSC revealed that the sex differences in the SSSC scores of the normal children were comparable to the sex differences found in the SSS scores of adult populations. In another test of validity, heritability of the SS trait was supported due to the significant and positive correlation found between the SSSC scores of clinic-referred boys and the SSS scores of their mothers. Construct validity was supported by the

relationship found between sensation seeking and conduct disorder (CD) and the relationship found between sensation seeking and attention deficit-hyperactivity disorder (ADHD). It was found that children with CD tended to have higher scores on the Boredom Susceptibility (BS) subscale of the SSS, while children with ADHD tended to have significantly lower BS scores.

In another study of sensation seeking in children (Kafry, 1982), children between the ages of 5 and 9 were given a modified form of the SSS. Scores on the SSS were significantly and positively correlated with self-reported preferences for risky physical activities (e.g., diving into a swimming pool and jumping a lot of stairs) and complex pictures and puzzles, as opposed to less risky activities and pictures of less complexity. Both of these studies suggest that the sensation seeking trait exists in children. A study conducted by Potts, et al. (1995) found a significant and positive correlation (.57) between children's scores on a modified version of the SSS and self- and other-reports of physical risk-taking. It is thus possible that the sensation seeking trait in children may, in part, account for individual differences in children's physical risk-taking, which may predict injury.

Television and Behavior

As stated previously, injury researchers have recently focused their attention on behavioral mechanisms of injury (e.g., Peterson & Roberts, 1992). A theoretical context

useful for the study of behavioral acquisition and change is social learning theory. According to social learning theory (Bandura, 1977), humans learn much of their behavior through a process of modeling or observational learning. Modeling is a process, often unintentional, by which one watches another perform a new behavior, stores this information to memory, and then later uses this knowledge as a guide for behavior in future situations.

Many sources serve as models for humans such as, parents, peers, teachers, and, most relevant to the present proposal, television characters. The behavior of characters on TV have been shown to influence a wide range of viewers' behaviors, such as aggression (e.g., Parke, Berkowitz, Leyens, West, & Sebastian, 1977) and sharing (Bryan & Walbek, 1970). TV models have also been found to affect children's self-reports of physical risk-taking. In a study conducted by Potts, Doppler, & Hernandez (1995), children who viewed TV models engaging in risky behavior increased their risk-taking, as indicated by self-reports, significantly more so than children who did not watch risky models. TV models have also been shown to influence behaviors indirectly related to safety and risk-taking. For example, in a study of children's self-control conducted by Wolf (1973), it was found that when children viewed a televised rule-abiding model they increased their rule following as well. In Wolf's study, a group of children viewed a model that abided by the rules of not playing with

a certain toy. When left alone by the experimenter, the children who had viewed this model played with the prohibited toy less than the children who did not see a rule abiding model. Modeling of self control behavior has obvious relevance to children's learning of safety behaviors from TV. However, no study of children's learning of safety from TV has been reported.

Important factors in observational learning are whether or not the model is punished or rewarded for their behavior (Bandura, 1977). Persons are more likely to imitate modeled behaviors that are rewarded and are less likely to imitate behaviors that are punished. A study of self control conducted by Walters and Parke (1964) demonstrates this principle. Boys who watched a filmed model play with prohibited toys and then get rewarded, played with the prohibited toys more than the boys who viewed a model that was punished for playing with prohibited toys. Thus, it appears that many behaviors can be influenced by observing models, especially if the functional value of those behaviors is demonstrated (i.e., rewarded or punished).

Safety Behaviors on Television

Part of the significance of observational learning from TV is that TV does not always show optimal behaviors. Because of this, it is important to look at what kind of messages about safety TV is sending to young viewers. A content analysis of programs popular with children was conducted by Potts, Runyan, Zerger, and Marchetti (1993) in

order to learn about the types of safety messages and behaviors that occur on TV. This study revealed that about 12 safety messages or behaviors occurred each hour. However, only 44% of these safety events pertained to children. Another interesting finding is that 83% of the safety events that occurred were not followed by consequences and only 11% were followed by positive consequences. These findings suggest that young viewers may be less likely to imitate the safety behaviors they see on TV because most of the safety behaviors that they see are not rewarded. According to social learning theory, these results may suggest that more safety events that are relevant to children and are followed by positive consequences should be aired on TV in order for children to learn more about and to imitate safety behaviors.

Hypotheses

Many childhood injuries appear to be the result of some type of voluntary behavior. Thus, it is important to examine what behaviors are related to injury and to study how these behaviors can be modified. One behavior that has been shown to be related to injuries is risk-taking (e.g., Baltimore & Meyer, 1969; Husband & Hinton, 1972). It also seems reasonable to assume that knowledge of safety rules would be associated with a lower number of injuries. One possible way to influence risk-taking and safety awareness is to expose children to TV characters who demonstrate safety behaviors. It has already been demonstrated that

self-reported willingness to take physical risks can be influenced by TV models who engage in risky behaviors (Potts, Doppler, & Hernandez, 1994). However, it is not known whether TV which portrays safety behaviors will also influence risk-taking. Through observational learning, it is likely that risk-taking will be influenced. Thus, the primary purpose of this study is to test the hypothesis that exposure to safety behaviors on TV will result in a decrease in self-reported willingness to take physical risks in children.

Observational learning theory also proposes that modeled behaviors can serve as cues for an observer's awareness of social behavior norms (Bandura, 1977). Exposure to safety behaviors on TV may serve as a reminder or cue for safety norms. It is thus hypothesized that children's viewing of safety behaviors on TV will result in an increased ability to report safety rules for various situations.

Social learning theorists acknowledge that behavior results from an interaction between internal dispositions and environmental characteristics (Bandura, 1977). Effects of TV on children's self-reported physical risk-taking may be influenced by their level of sensation seeking. It is hypothesized that children who are high sensation seekers may be less influenced than low sensation seekers by safety models on TV because such messages are counter to a risk-taking orientation, and would be less accepted or congruent

with a sensation seeking, risk-taking disposition. Thus, high sensation seekers should show less reduction, if any, in their willingness to take physical risks compared with low sensation seekers.

Method

Subjects

Sixty children, 32 boys and 28 girls, ages 5 to 8 years, served as subjects. Eighty-seven percent of the subjects were caucasian. The remaining thirteen percent were either African American, Hispanic, Native American, or Asian. Subjects were recruited from 7 local daycare centers. Approximately 29% of the consent forms sent to parents were returned. Participation of subjects was on a voluntary basis. Age was the only selection criteria. This age range for subjects was selected for two reasons. First, children in this age range have been found to be particularly susceptible to the modeling effects of TV characters' behaviors (e.g., Condry, 1989). Secondly, the measures in this study have been previously used to test children within the same age range (Potts et al, 1994; Potts et al., 1995).

Parents of the subjects signed informed consent statements in compliance with the ethical guidelines established by the American Psychological Association (1992). Children's verbal assent was obtained prior to their participation.

Measures

A self-report measure of risk-taking for children has been developed by Potts et al., (1995). The risk scores obtained from this measure have been found to be positively correlated with other self-report and informant measures of risk-taking (Potts et al., 1995). This measure consists of ten pictures of everyday situations, such as swimming in a pool, riding a bike down a hill, climbing a tree to get a kite, etc. (see Appendix A for examples of items). In each picture, the children used a 1 to 5 scale to verbally indicate how much risk they would take. For example, one item depicts a pool marked by five increasing levels of depth and the children are asked how deep they would swim. Answers for each items were scored from 1 to 5 and a total score was derived from summing the individual item scores.

A safety rule awareness measure was developed for this study. This measure assessed children's ability to identify safety rules in a variety of situations. This measure consists of twelve pictures showing children in common situations. In half of the pictures, important safety content was missing (see Appendix B for examples of items). For example, one picture showed a bicycle rider in which the rider is not wearing a helmet or pads. In another picture, a child not wearing a life jacket is riding in a boat. Neutral pictures were also included so that children did not develop a response pattern in which they recognized that the only missing items were ones that concern safety. Neutral

items included pictures, such as a doll with only one arm and a child coloring without paper. For every picture, children were asked to identify "what was missing" from each scene. Scores were the sum of the correctly identified missing safety items. The possible range of scores per subject on the pretest and post-test measure was from 0 to 12. Coppens (1985) described a similar measure in which photographs were used to assess children's identification of safety hazards.

The sensation seeking measure which was used is a modified version of Zuckerman's (1979b) adult scale which was developed by Potts et al., (1995). Children were presented with ten pairs of pictures depicting various activities. Each child was asked to choose between a sensation seeking activity or a sensation avoiding activity (see Appendix C for example of item). For example, in one pair of pictures, children chose between riding their bike in the neighborhood "to look at things" or doing tricks on their bike, like "popping wheelies." The total score was the sum of the sensation seeking activities chosen.

Television Stimuli

Subjects were exposed to one of three conditions, an educational safety TV condition, an incidental safety TV condition, or a neutral TV condition. Ten boys and ten girls served as subjects in the educational safety TV condition. In this condition, children saw 7 minutes and 37 seconds of an edited video tape designed to instruct

children about safety in recreational activities. This clip contained various situations in which children engaged in unsafe behaviors as the program announcer discussed the possible consequences of being unsafe. The announcer then discussed the safe way to behave and the children were shown behaving safely. For example, one scene depicted a child throwing his baseball bat into the air; the announcer said the bat could hurt another player when it lands. Then, as another child is seen handing a bat to the next batter, the announcer stated that "you should be safe and hand your bat to the next batter." The amount of safety content, defined as any safety related verbal message or behavioral action, was 2 minutes and 56 seconds, or 39% of the total TV clip. This condition also contained neutral TV commercials in which safety and risk-taking messages and behaviors were not displayed. Due to the large frequency of the safety content in this edited video, neutral TV commercials were included to create a realistic depiction of TV programs that the child may encounter everyday.

Eleven boys and 9 girls served as subjects in the incidental safety TV condition. Subjects in this condition saw 7 minutes and 51 seconds of an edited Dennis the Menace cartoon. This program was about a family vacation in which several mishaps occurred. The amount of safety content was 1 minute and 52 seconds, or 24% of the total TV clip. The safety content in this program included cartoon characters engaging in safe behaviors, such as wearing flotation

devices in a lake. The safety content did not show consequences for unsafe behavior; all safety behavior was depicted in an incidental manner. TV commercials which also contained incidental safety content were included in this condition in order to maximize the amount of incidental safety behaviors seen by the subjects.

In a control condition, subjects, 11 boys and 9 girls viewed a TV cartoon which contained few risk-taking and safety behaviors. Subjects in this condition viewed 7 minutes and 38 seconds of the same episode of Dennis the Menace as the incidental safety TV condition. However, the episode was edited in a way that removed virtually all safety and risk-taking content, so that the total amount of safety content was only 2.7 seconds, or 0.5% of the entire TV clip. This edited program also contained the same neutral TV commercials as the educational safety TV condition, in order to minimize the amount of safety content seen by these subjects.

Procedures

Each child participated in an individual session at their daycare center which lasted about 30 minutes. The subjects first completed the sensation seeking measure. Subjects were then administered a buffer task in which they were verbally asked how much they liked to engage in a particular activity. This task contained twenty different activities, such as going to the library and eating spinach. This task was administered so that subjects' responses to

the sensation seeking measure would not affect their future risk-taking responses. Subjects then completed pretest measures; this consisted of answering 5 of the 10 items on the physical risk-taking measure, and 6 of the 12 items on the safety rule awareness measure. The individual items on both measures were systematically rotated across pretest and post-test positions for different subjects. Also, the order of the risk-taking and safety rule judgement measures were counterbalanced. After the pretest items were administered, the subjects were exposed to one of the three conditions described previously.

After the TV treatment segment, each child was administered the remaining items from the risk-taking and safety rule judgement measures, which served as the post-test. The experimenter then debriefed the child which entailed a discussion about safety rule adherence.

Results

Risk-taking

The effects of the TV treatment conditions on subjects' risk-taking were analyzed in a 2 (gender) X 3 (TV condition) X 2 (pretest/post-test) repeated measures analysis of variance. Dependent variables were the subjects' pretest and post-test risk-taking scores. Gender and TV condition served as between-group factors. A significant condition X pretest/post-test interaction was found, $F(2, 54) = 5.27, p < .01$, indicating that the pretest to post-test change differed according to TV condition.

Follow up post-hoc comparisons indicated that change in risk-taking scores from pretest to post-test was significant only for the educational safety TV treatment condition, $t(1,54) = 3.19, p < .05$. (Dunn's method was used in all post-hoc comparisons reported here to control for overall Type I error rate.) As shown in Table 1, subjects in the educational safety TV treatment condition significantly reduced their mean risk-taking scores from pretest to post-test. Changes in risk-taking scores from pretest to post-test were not significant for the incidental safety TV treatment condition or the neutral TV condition.

Post-hoc analyses further revealed that the pretest to post-test change in risk-taking scores for the educational safety TV treatment condition was significantly different from the pretest to post-test change in the neutral TV condition, $t(3,108) = 2.94, p < .05$. Pretest to post-test change comparisons for the remaining groups were not significant.

A significant main effect of gender was also observed, $F(1,54) = 9.02, p < .005$. Males reported higher levels of risk-taking across pretest and post-test, with an overall mean of 15.36 (SD= 4.92, range 10 to 50), than females, with an overall mean of 11.91 (SD= 4.84, range 10 to 50).

Safety Rule Awareness

The effects of the TV treatment conditions on subjects' awareness of safety rules were analyzed in a 2(gender) X 3(TV condition) X 2(pretest/post-test) repeated analysis of

variance. The dependent variables were the subjects' pretest and post-test scores on the safety rule awareness measure. Gender and TV condition served as the between group factors. Significant main effects of condition, $F(2,54) = 4.11, p < .05$, and pretest/post-test, $F(1,54) = 51.53, p < .001$, were found. Both of these main effects entered into a significant interaction of condition X pretest/post-test, $F(2,54) = 7.32, p < .005$.

Post-hoc comparisons indicated change in safety rule awareness scores from pretest to post-test was significant for the incidental safety TV condition, $t(1,54) = 3.64, p < .05$, and for the educational safety TV condition, $t(1,54) = 7.08, p < .05$. As shown in Table 2, the subjects in the two TV experimental conditions significantly increased their scores on the safety rule awareness measure. Change from pretest to post-test in the neutral TV condition was not significant.

Post-hoc comparisons also indicated that pretest to post-test change on the safety rule awareness measure for the educational safety TV condition was significantly different from the pretest to post-test change in the neutral TV condition, $t(3,108) = 5.19, p < .05$, and the incidental safety TV condition, $t(3,108) = 3.27, p < .05$. The incidental safety TV condition was not significantly different from the neutral TV condition with respect to pretest to post-test change on the safety rule awareness measure.

Sensation Seeking

Sensation seeking was found to be significantly correlated with pretest risk-taking scores, $r = .353$, $p < .005$. Sensation seeking was not correlated with pretest safety rule awareness scores.

An ANOVA was performed to determine whether conditions were different with respect to level of sensation seeking. No significant main effect of condition was found. A significant main effect of gender was observed, $F(1,3) = 18.45$, $p < .001$. Males reported higher levels of sensation seeking, with a mean of 5.51 (SD= 1.98) than females, with a mean of 3.46 (SD= 1.64).

It was hypothesized that subjects who scored high on the sensation seeking measure would be less influenced by the safety messages in the two safety TV treatment conditions than low sensation seekers. This hypothesis was tested by examining the correlations between sensation seeking and the pretest-to-post-test change scores for the risk-taking and safety rule awareness measures. Correlations between sensation seeking and the two safety TV treatment conditions were not significant.

Discussion

The hypothesis that exposure to safety behaviors on television will result in a decrease in self-reported willingness to take physical risks was confirmed for the educational safety TV condition. Viewing the educational safety clip produced significant decreases from pretest to

post-test on the risk-taking measure. In addition, the change seen in the educational safety TV condition was larger than the changes observed in the incidental safety and neutral TV conditions. These results suggest that even brief exposure, less than 8 minutes, may reduce children's willingness to take physical risks. These findings are consistent with observational learning mechanisms of the social learning theory (Bandura, 1977). This theory proposes that modeled behaviors can serve as guides for behaviors in observers. Thus, the modeled safety behaviors may have served as a guide for the children to report less willingness to take physical risks, or to behave "safely."

A gender main effect was found, with males reporting higher levels of willingness to take risks across pretest and post-test than females. However, both boys and girls' changes in willingness to take physical risks were affected in the same way by the three conditions. The type of TV content viewed, rather than gender, is what appears to determine changes in risk-taking scores.

These results are promising in the sense that modeling of safety on TV appears to have an impact on risk-taking behavior. This study has the limitation that actual risk-taking behavior was not directly measured. However, the self-report measure of willingness to take physical risks has been found to be correlated with actual risk-taking behavior as reported by children's peers, parents, and teachers (Potts et al., 1995).

The second hypothesis tested in this study, that children's viewing of safety behaviors on TV will increase their ability to report safety rules, was also supported. Both the educational and incidental safety TV conditions significantly increased subjects' awareness of safety rules for a variety of situations. Again, the changes observed were larger for the educational safety TV condition than the two other conditions. These results suggest that brief exposure to incidental or explicit safety behaviors on TV may increase children's awareness of safety rules.

Viewing safety content on TV may have a priming effect for children. The observation of safety models may prime or cue thoughts of safety, which may lead children to notice safety omissions on the safety rule awareness measure. This priming effect may be similar to Berkowitz's (1984) proposal that observing violence on television serves to prime an associative network in the observer. The priming of this network may lead to aggressive cognitions and/or actions. Thus, observing safety models on TV may serve not only to affect children's behavioral tendencies, but may also prime thoughts of safety which may, in turn, affect children's judgements of safety.

One limitation of the safety judgement findings, is that the safety rule awareness measure has not been validated. However, TV treatment affected subjects' responses to the safety rule awareness measure and the risk-taking measure in a corresponding way. The similarity in

the patterns of the two measures may lend support for concurrent validity of the safety rule awareness measure. In future studies, it would be useful to further validate this measure using injury histories of the children and educational tests designed to measure children's knowledge of general safety. It may be useful to obtain reports from others about the child's actual safety behaviors because the safety measure is not a direct measure of behavior. By obtaining these reports, it may be determined whether this measure is also related to the child's actual safety behavior.

The hypothesis that level of sensation seeking would affect changes in willingness to take physical risks was not confirmed. Sensation seeking was found to be correlated with pretest risk-taking scores, but did not interact with TV treatment effects. In other words, one's level of sensation seeking did not limit the effectiveness of the TV safety content viewed.

This study examined short-term influences of viewing safety behaviors and messages on TV. However, this study has implications for affecting long-term physical risk-taking and safety behavior. This experiment demonstrated that safety content on television can affect children's safety in two ways, by reducing their willingness to take physical risks and by increasing their awareness of safety rules. These influences were most clearly seen when the safety TV content contained possible consequences to unsafe

behaviors and safe behavioral alternatives in various situations, as in the educational safety TV condition. However, the safety content typically available for viewing on TV rarely demonstrates such consequences (Potts et al., in press). Thus, it appears that in order for safety content on TV to have a long-term impact on children's safety behaviors, it must be entertaining in order to captivate children's attention for longer periods and should contain consequences for safe and unsafe behavior.

In sum, children's willingness to take physical risks and awareness of safety rules were influenced by viewing safety models on TV. These effects were largest when the safety content was explicit, as in the educational safety TV condition. Changes in risk-taking and safety rule awareness due to exposure to safe models were also seen regardless of gender and sensation seeking disposition.

Future research should examine whether incidental safety messages, such as those found in the Dennis the Menace TV condition, have a larger effect on risk-taking and safety awareness when the messages are more frequent than 24% of the total program viewed. It is also important to study whether the changes found after exposure to safe models on TV translate into behavioral changes in similar situations as the ones viewed on TV. Finally, it may also prove beneficial to examine the duration of the effects observed in this study.

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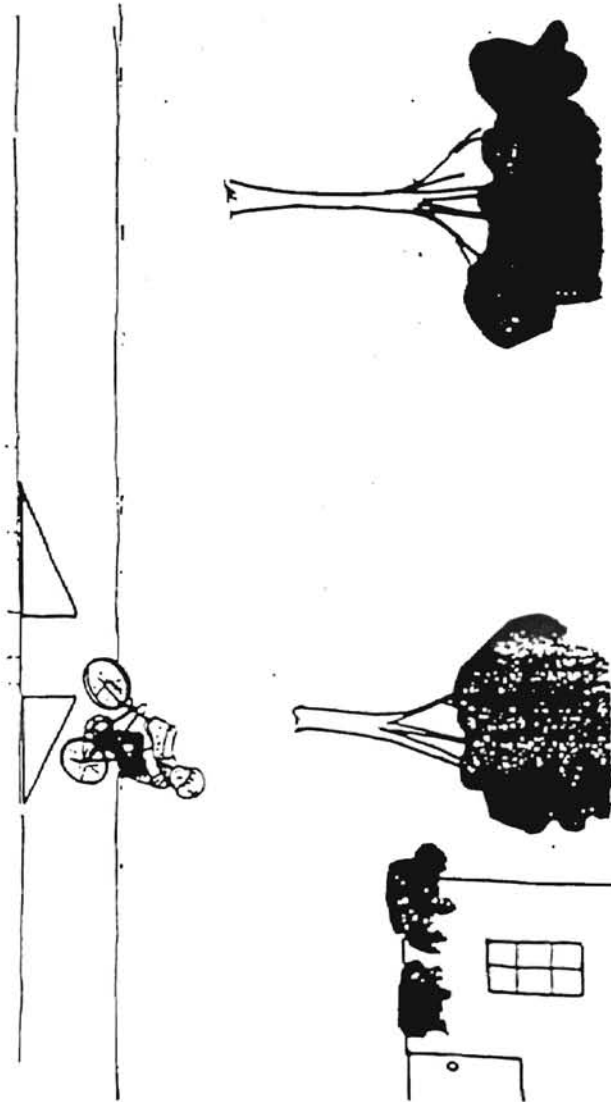
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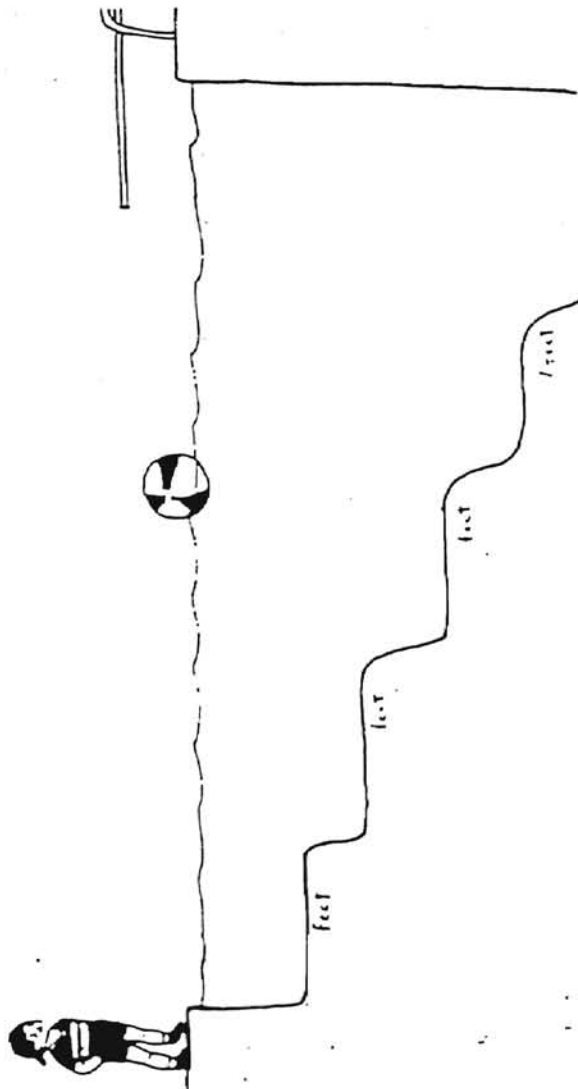
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Appendix A

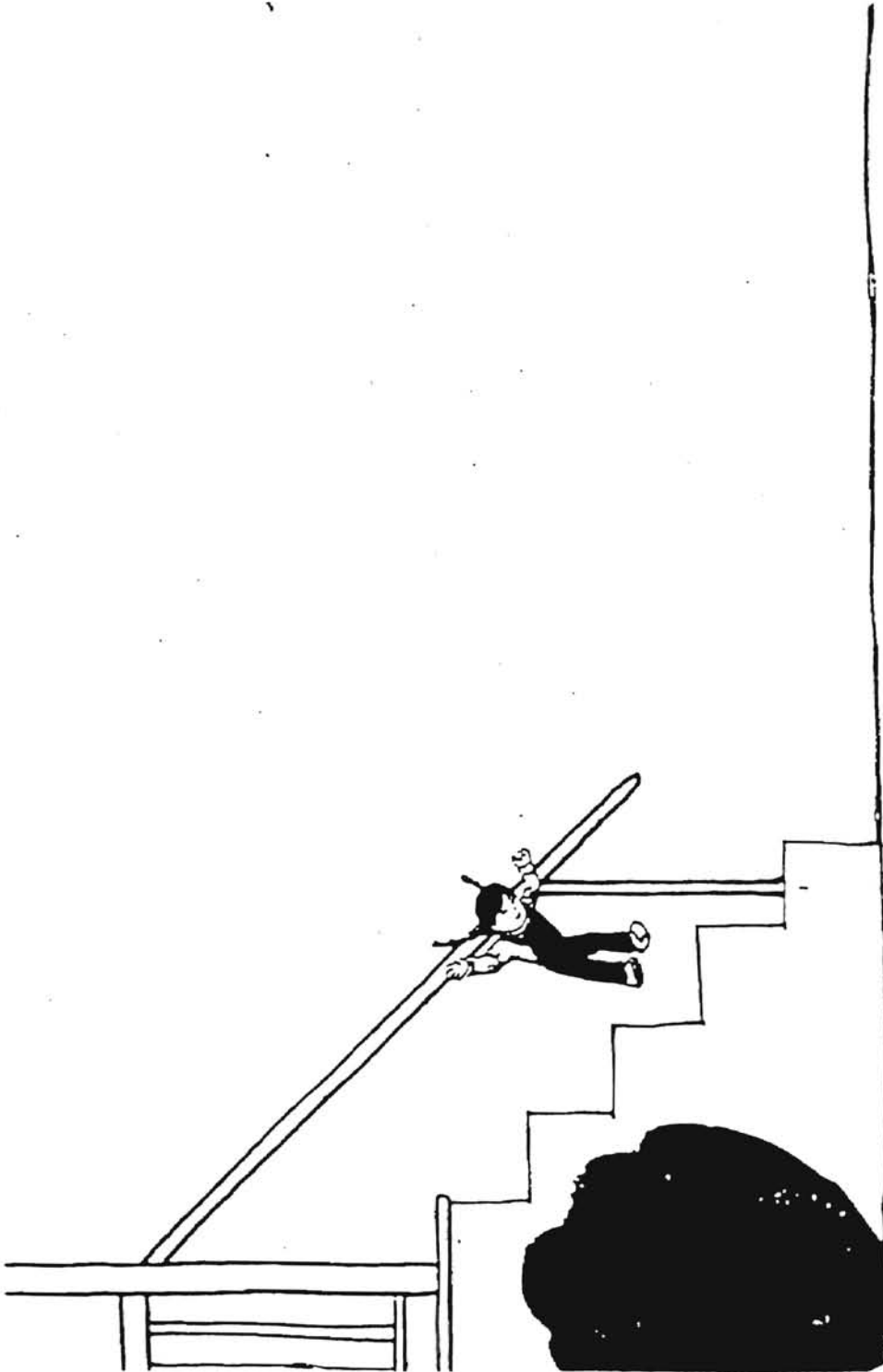
Sample Risk-taking Items



Appendix A
Sample Risk-taking Items



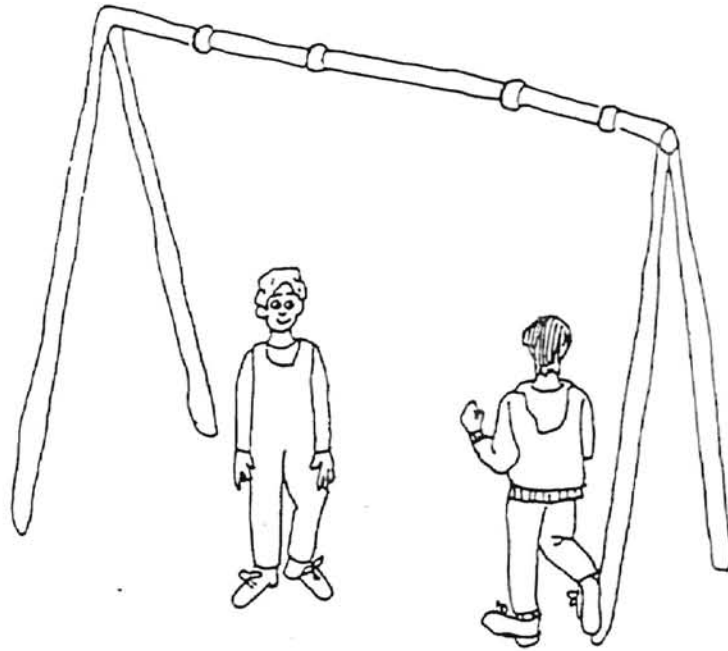
Appendix A
Sample Risk-taking Items



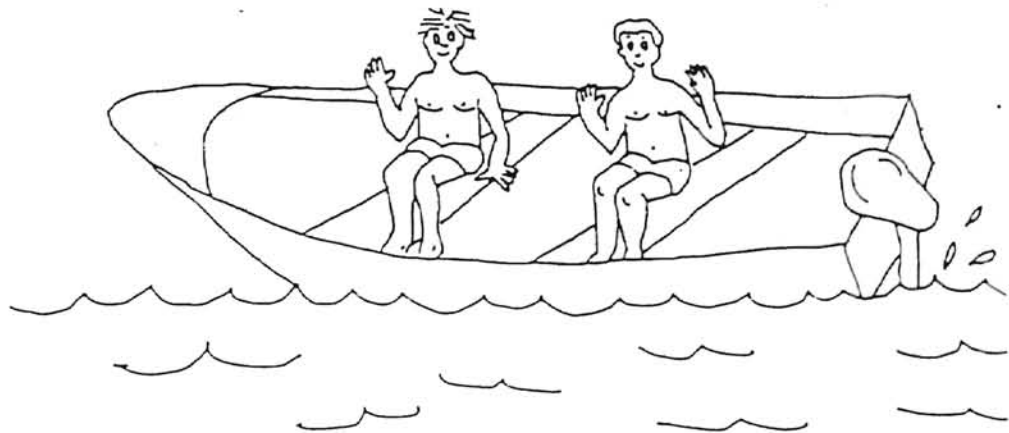
Appendix B

Sample Safety Rule Items

1.



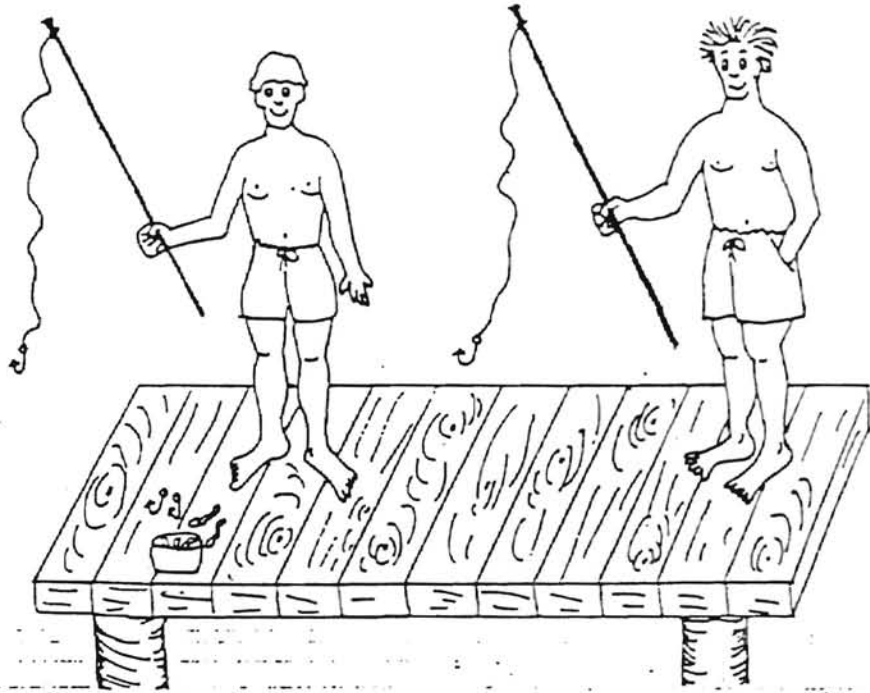
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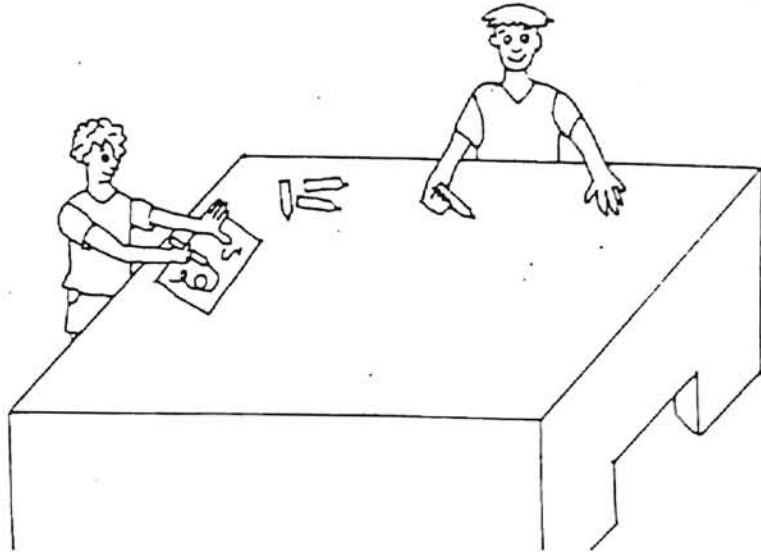
Appendix B

Sample Safety Rule Items

3



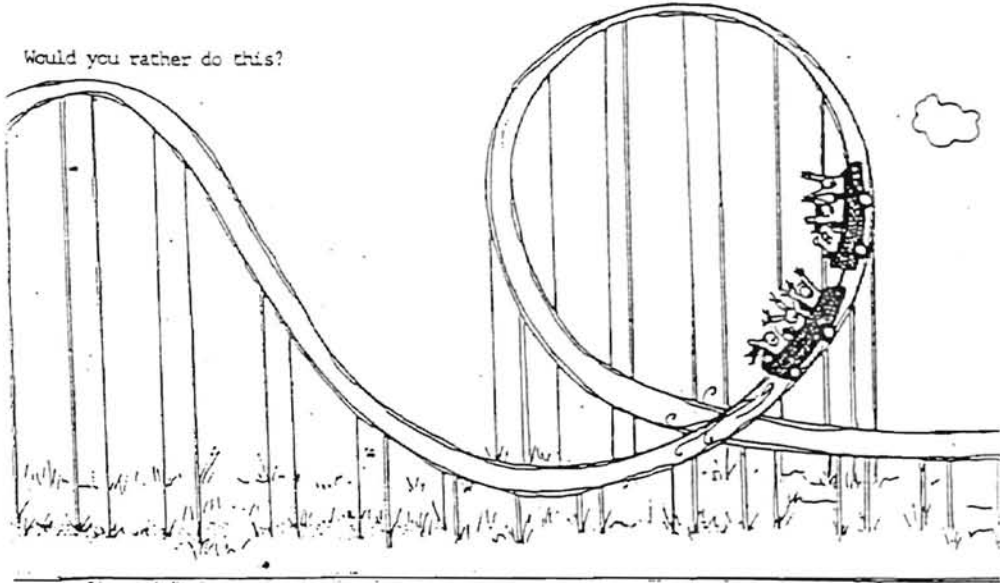
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Appendix C

Sample Sensation Seeking Item

Would you rather do this?



Or this?



Table 1

Mean Pretest and Post-test Risk-taking Scores as a Function of TV Condition

TV Condition	Pretest		Post-test	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Neutral	13.75	5.15	15.15	5.04
Incidental	14.45	5.92	13.50	5.30
Educational	14.40	5.19	11.25	3.89

Table 2

Mean Pretest and Post-test Safety Rule Awareness Scores as a
Function of TV Condition

TV Condition	Pretest		Post-test	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Neutral	.70	.80	1.10	.85
Incidental	.95	.83	1.85	.75
Educational	.40	.68	2.15	.88

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OKLAHOMA STATE UNIVERSITY
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Proposal Title: EFFECTS OF TV SAFETY PORTRAYALS ON CHILDREN'S RISK-TAKING AND SAFETY JUDGEMENTS

Principal Investigator(s): Richard Potts, Lisa Swisher

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

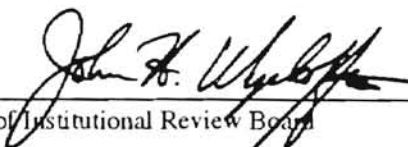
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APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.

ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval are as follows:

Signature:


Chair of Institutional Review Board

Date: January 29, 1996