INCREASING CHILDREN'S SAFETY BELT USE: 
INTRINSIC VERSUS EXTRINSIC MOTIVATORS 

by 

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DOCTOR OF PHILOSOPHY 
in 
Psychology 

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April, 1988 
Blacksburg, Virginia
A field study investigated the relevancy of certain theories in applied psychology for increasing vehicle safety belt use by children. Five different intervention activities applied either extrinsic rewards, or focused on the development of intrinsic motivation (e.g., personal commitment, awareness, active participation). The subjects were 138 children, aged five to eleven years, who attended five 30-min safety belt intervention activities as part of a summer recreation program conducted at three elementary schools. Safety belt use by children and their parents was directly observed and coded by vehicle license number both before and after the interventions. Coupons for free food at a fast food restaurant were distributed to participants by the school personnel, and safety belt
use was observed at the restaurant's drive-thru window to assess generalization.

The results revealed that participants from all three reward contingency conditions (i.e., rewards for safety belt use, participation, and noncontingent rewards) significantly increased their frequency of safety belt use from the baseline to intervention phase. The parents, although not direct participants in the program, showed similar increases in safety belt use. The increase in safety belt use also generalized to the fast food restaurant for both children and parents; however, this effect was transient. Data collected during a three-week withdrawal period indicated that safety belt use decreased slightly among participants rewarded for belt use during the intervention, whereas safety belt use increased slightly for those who received noncontingent rewards or rewards for participation. This finding is consistent with "minimal justification" and "intrinsic motivation" theories and suggests that long-term maintenance and generalization of changes in safety belt use are inversely related to the degree of external control exerted to motivate safety belt use.

From an application perspective, this research developed practical community-based interventions for
increasing the use of safety belts among children, and demonstrated that behavior change among children may influence the safety belt use of other members in their family.
ACKNOWLEDGEMENTS

There are many individuals who made significant contributions to this dissertation. Indeed, this work is the product of a team effort that included numerous research assistants who devoted many hours to observing children's safety belt use, entering data into the computers, and helping with the intervention activities. So, I offer my thanks to:

Several fellow graduate students played important roles throughout this research project including: initial brainstorming, producing a successful grant proposal, soliciting support from community merchants, discussing research design issues, serving as team leaders, designing creative intervention materials, and supervising data collection and data entry. For their willingness to provide competent leadership, my gratitude is extended to:

The unique contribution of two fellow students deserve special mention: whose dedication to
To my dissertation committee members,

I express a special thank you for the constructive suggestions given in the formulation of this study. Your dedication to excellence in applied research has provided a model to which I aspire.

To my dissertation chair, the most elaborate thank you would never suffice. Rather, I have dedicated myself to pass on to my students what you gave to me: enthusiasm for research, commitment to scholarship, love of learning, and a way of articulating ideas that captures attention. You are a great mentor. It has been said that the true measure of success of a teacher is the extent to which his/her students attain success. If I reach my goals, my students and I will have many reasons to thank you.

Lastly, when the work seemed endless and my dream so far away, my son helped me keep a proper perspective
by asking, "What is a dissertation?" Thank you, for providing hope. And, during the most difficult times there was always one person who unselfishly gave the emotional support I needed -- my wife, . Thank you, for helping make my dreams come true.
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Introduction to the Problem

A major public health problem among U.S. children is the nonuse of vehicle safety belts. In children, like adults, motor vehicle accidents are the leading cause of injury-related deaths ("Injury in America", 1985), amounting to more than 125,000 injuries and 1,500 deaths annually for children between the ages of 0 and 14 years (National Safety Council, 1983). Although 70% of these injuries and 90% of the deaths could be prevented if children were buckled into appropriate safety devices (Richelderfer, 1976), current use of safety belts and child safety seats remains tragically low. Even with concerted attempts to enforce child "restraint" laws, children are buckled appropriately in child safety seats only 10 to 30% of the time (American Academy of Pediatrics, 1984; Decker et al., 1984). Thus, cost effective techniques for increasing the use of safety belts and child safety seats to protect children are urgently needed. A basic theoretical question related to this issue is whether to use intrinsic or extrinsic rewards to motivate children to buckle up.

Previous Attempts Toward Problem Solution

To date, the most successful programs for increasing safety belt use have applied incentive/reward strategies
derived from operant learning principles (see review by Geller, 1984c). Although most applications of safety belt incentives in community or corporate settings have at least doubled safety belt use compared to baseline levels, the significant behavior change usually lasts only as long as the incentive program, and very few of these programs targeted children. Several theories (e.g., Aronson, 1966; Deci, 1975; Lepper, 1981) predict short-term effects of extrinsic rewards and recommend using less obvious means of external control. The proposed research will compare the outcome of interventions promoting safety belt use that are based on intrinsic control theories with outcomes from strategies that include incentives and rewards.

Standard educational and promotional approaches to increase safety belt use among children and adults have been quite ineffective (e.g., Cunliff et al., 1975; Phillips, 1980; Robertson et al., 1974); and therefore the National Highway Traffic Safety Administration has been backing a nationwide effort to pass safety belt use mandates in each state. At the same time, the U.S. insurance industry, the National Safety Council, and the Center for Auto Safety continue to advocate legislation to require the installation of airbags in all 1989 vehicles.
It is true that safety belt laws and airbags will prevent many injuries and deaths from vehicle crashes. However, these interventions may have minimal impact on children, since the safety belt bills passed in 32 states thus far (Burnley, 1988) require only front-seat belt use, and a significant number of children ride in the back seat. Moreover, airbags protect only front-seat occupants, deploy only in frontal impacts, and will probably be available in relatively few vehicles (cf., Geller, Casali, & Johnson, 1980). Thus, programs to increase voluntary belt use are particularly needed for back-seat occupants, many of whom are children. Also, an undesirable side effect of mandated safety belt laws has been significant negative reaction to seat belts in general, as predicted by psychological reactance theory (Brehm, 1966, 1972). Indeed, public reaction resulted in the repeal of a seat belt law in two states -- Massachusetts and Nebraska. The application of positive reinforcement programs to increase children's use of safety belts may generalize to voluntary occupant protection by adults and influence positive attitudes regarding vehicular safety belts.

It is noteworthy that the Virginia safety belt use law (BUL) which went into effect in January 1988 is a
"weak" law at best. Like all of the other BULs passed so far, it pertains to only front-seat occupants; and like most of the 32 states with BULs, it provides for only secondary enforcement. That is, a fine for nonuse of a safety belt can only be levied if the driver is stopped for another traffic violation.

Increases in safety belt use accompanying a BUL have rarely exceeded 60%, and the mean safety belt use across 27 states with BULs was only 48% (Campbell, Stewart, & Campbell, 1987). Thus, without continual media attention and large-scale programs to support a BUL, dramatic long-term increases in safety belt use should not be expected. For example, in New York, the state with the most publicized and "strongest" belt law (e.g., a $50 fine and primary enforcement in New York vs. a $25 fine and secondary enforcement in Virginia), safety belt use has generally fallen below 50% (Mingione, 1986; "Seat Belt Use Declines", 1985). This same pattern of decline in belt use after an initial post-law increase has also been observed in other states ("Despite State Laws", 1985), although belt use levels for front-seat occupants have remained substantially above the pre-law buckle-up percentages of 15%. 
Extrinsic Control

The National Highway Traffic Safety Administration has advocated the large-scale application of incentive strategies in its nationwide campaign to promote safety belt use (Bigelow, 1983), due to the remarkable increases in safety belt use that incentive-based interventions have produced (see reviews by Geller, 1982, 1984b; Geller & Bigelow, 1984). Unfortunately, the incentive approach to safety belt promotion has often resulted in only short-term increases in safety belt use. The few incentive programs that were relatively long term (i.e., more than six months) demonstrated some response maintenance (e.g., Geller, 1983, 1984a; Geller et al., 1987; Rudd & Geller, 1985); however, in each study, many subjects stopped buckling up when the incentives were withdrawn.

Another drawback with incentive programs is that they may also result in minimal treatment generality (i.e., limited transference of treatment impact to other locations and to other vehicle occupants). It is also possible that direct rewards for safety belt use may increase belt use among only the targeted individuals at the targeted locations. The one safety belt study that examined treatment generality (Geller, 1983) found that some adults who buckled up for rewards during one time
period did continue to buckle up at other non-reward times at the same industrial site, but this research did not examine the belt wearing of these same individuals at other settings. The present research included methodology to assess the generalization of the safety belt program across both time and environmental settings. Attempts were also made to study the durability of the intervention program.

A research report of an application of rewards to increase the use of safety belts among elementary school age children (Roberts & Fanurik, 1986) found limited treatment durability. At one school safety belt use by children aged 5 through 11 was 4.3% (n = 464) during baseline, 66.2% for the 4-week reward phase (when lottery coupons, coloring books, and bumper stickers were given to children who were buckled up when arriving in the school parking lot), 17.2% for Follow-Up I (3 weeks after rewards ended) and 8.5% for Follow-Up II (9 weeks after the reward phase). At a second elementary school of 378 children, ages 5 through 10, the mean belt use percentages were 5.3%, 69.8%, 40.1%, and 20% for Baseline, Rewards, Follow-Up I, and Follow-Up II, respectively. Roberts and his colleagues have completed a number of similar evaluations of various incentive procedures for motivating the
appropriate use of child safety devices (Roberts & Broadbent, in press; Roberts & Layfield, 1987; Roberts & Turner, 1986), and have found the same pattern of results. Incentive programs consistently produce increases in child safety seat and seat belt use, but prominent decreases in buckling up occurred when the incentives were withdrawn.

A field study conducted by Sowers-Hoag, Thyer, & Bailey (in press) used an awareness/training approach to teach young children in a school setting the value of safety belt use. The names of children who were observed using a safety belt when they left the parking lot with their parents were put in a lottery for small prizes the following day (50% of the names entered were given prizes each day). This study showed that the 16 target children (who had never buckled up during pre-intervention observations) increased their safety belt use during the intervention and maintained the increase up to three months later. However, Sowers-Hoag et al. failed to record the safety belt use of the children's parents to see if the interventions had any impact on the adults as well as the children. The present research evaluated the impact of the intervention activities (which targeted children) on both the children and the parents.
Intrinsic Control

A variety of theoretical formulations and empirical investigations suggest that extrinsic incentives/rewards may not be the optimal approach for motivating children to buckle up. For example, the "minimal justification principle" (Lepper, 1981), proposes the use of less powerful extrinsic techniques of social control, especially when response maintenance and generalization are desired. Thus, an extrinsic motivator (i.e., an incentive) may prevent an individual from gaining internal justification for performing the target behavior, and therefore the desired behavior will decrease in frequency when the external controls are withdrawn. This proposition has received considerable empirical support from experimental tests of overjustification (e.g., Lepper, Greene, & Nisbett, 1973), intrinsic motivation (Deci, 1975; Deci & Ryan, 1980), and cognitive dissonance and attribution theory (e.g., Aronson, 1966; Aronson & Carlsmith, 1963; Wilson & Lassiter, 1982).

The present research manipulated the administration of particular intervention activities in order to compare incentive/reward techniques with procedures that de-emphasized a safety belt use-reward contingency and attempted to increase intrinsic motivation through
increased personal involvement (or control). More specifically, at one intervention site, the children received rewards for safety belt use (i.e., a belt-use reward contingency), whereas at another intervention site children received same rewards for participation in the intervention activities (i.e., a participation contingency). At a third site, children received the same items used as rewards for the other groups, however the items were given before the intervention activity began (i.e., noncontingent rewards).

Background for the Intervention Activities

The "say-do" paradigm. A research paradigm in the child behavior modification literature called "correspondence training" is related to the current study. This approach is based on the premise that change in verbal behavior causes change in non-verbal behavior (e.g., Bem, 1967; Lovaas, 1961, 1964; O'Leary, 1968). Among the several variations of verbal-nonverbal correspondence training (cf. Karlan & Rusch, 1982), the "say-do" paradigm (Israel & O'Leary, 1973) is most relevant here. This paradigm employs positive reinforcement to increase the verbal statements regarding a target behavior and then determines whether the actual occurrence of the target behavior changes as a
consequence. Typically, children are rewarded (e.g., praised) when achieving correspondence between what they say they will do and what they actually do.

Although this paradigm has been effective in increasing a variety of behaviors among young children (e.g., Ballard & Jenner, 1981; Rogers-Warren & Baer, 1976), the issues of maintenance and generalization have been practically ignored (Karlan & Rusch, 1982). The present research extended the verbal correspondence training concept to a new target behavior with new populations, and included methodology to study both the maintenance and generalization effects of the intervention related to the "say-do" paradigm.

Rule transference. One field study (Geller, Bruff, & Nimmer, 1985) introduced an intervention that was quite effective at increasing children's verbalizations about safety belts and perhaps their commitment to buckling up. This simply involved a child passenger in a stopped vehicle displaying an 28 x 38 cm flash card with the message, "PLEASE BUCKLE UP -- I CARE". If an occupant in an adjacent, stopped vehicle observed the flash card and buckled up, the "flasher" flipped over the card and displayed the message, "THANK YOU FOR BUCKLING UP". This rule transference technique was termed "Flash for Life".
In a systematic evaluation of this intervention, the flash card was shown to 1,087 unbuckled drivers; 82% of these drivers looked at the flash card and 22% of these buckled up immediately. Compliance was not influenced by the age or gender of the "flasher" (college student or child aged 3 to 10), nor by the gender of the "flashee"; but significantly more drivers in a university town buckled up following the flash card presentation (i.e., 25%) than did drivers in a nearby rural community (i.e., 15% mean compliance).

The most intriguing outcome of this study was the apparent impact that the flash card intervention had on the "flashers". Cognitive dissonance theory (Festinger, 1957) would clearly predict an increase in the flasher's use of safety belts after displaying the "Flash for Life" card. Indeed, all of the flashers showed increasing concern for the use and promotion of safety belts as their flashing experience increased.

Active participation. Another field study (Lehman & Geller, 1988) was conducted to assess the impact of active participation in a safety belt promotion strategy. The intervention involved the presentation of a story about a child called "Buckie Buckle" who always uses his safety belt. Buckie Buckle rides in a car at different times
with his Father, Mother, Grandpa, Grandma, and Cousin. With each of these drivers, the scenario is repeated with each person giving different excuses for not buckling up. Buckie Buckle always affirms, "I love my buckle buckled." Children can very readily anticipate the lines as the pattern of the story is repeated and they are encouraged to help say the key phrases.

The subjects were the 14 children attending a Montessori School located in Blacksburg, Virginia. The kindergarten teacher was given a copy of the Buckie Buckle story with a brief explanation of how it could be used. The kindergarten teacher introduced the story to her pupils and had them practice the story as a play to be presented to their parents.

Since license numbers were recorded, it was possible to track the safety belt use of single subjects across the experimental settings. Figure 1 on the next page shows the group mean safety belt use across the research conditions for 17 parent and child pairs who were not already 100% safety belt users (i.e., those who were buckled up 100% during all conditions were omitted). The solid symbols represent 6 kindergarten children and their parents and the open symbols are for the 11 children in the primary class and their parents. The kindergarten
Figure 1. Mean safety belt use by active, passive, and nonparticipant children and parent pairs during baseline, intervention, and follow up.
children are shown as active participants since they played the roles of different characters in the "show." The parents of kindergartners and the primary school children are shown as passive participants since they simply observed the play. Parents of the 11 children in the primary class did not see the play and thus were non-participants.

The higher baseline safety belt use for kindergarten children than primary school children may be a residual or recency effect of mandatory child safety seat use. The intervention nearly doubled the baseline rate for the active participants, however they were not able to maintain that level of safety belt use three months later. Passive participation resulted in similar increases in belt use for both the older children and parents of kindergartners, and these increases were maintained during follow up. The parents of older children (non-participants) remained at the baseline safety belt use level. The present research studied further this promising non-reward technique for increasing children's use of safety belts.
Method

Subjects and Setting

The intervention activities were designed for children who voluntarily attended the summer recreation programs planned by the Blacksburg Parks and Recreation Department. The seven-week recreational program was conducted at three elementary schools in Blacksburg, Virginia, (i.e., Margaret Beeks, Gilbert Linkous, and Harding Avenue). At each school, two recreation department staff persons were in charge of the daily activities from 9:00 A.M. to 11:45 A.M. The usual schedule included time for craft projects, organized games, free-play, and a 30-min story or program. During the intervention week, a total of 54 children attended the Beeks school, 38 at Linkous, and 46 at Harding. The age distribution for the children who attended the intervention activities at each school is shown on Table 1 on the following page. The ages of participants ranged from 5 to 11 years old and the mean ages were 7.6, 7.7, and 7.4 years for the children at Beeks, Linkous, and Harding, respectively.

Trained observers recorded the vehicle safety belt use of the children as the vehicle they occupied entered and exited the school parking lots each day. The safety
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<th>HARDING</th>
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Mean Age: 7.6  7.7  7.4
belt use of other occupants in these vehicles (usually parents and family members) were also observed.

At the start of the summer recreation program, the research plan was presented to the program director who consented to have the theme for one week focus on safety belt use. The researchers were responsible for planning a 30-min program for each day and providing persons to conduct the intervention activity. The usual recreation staff were always present, but were not asked to be involved during the safety belt program. A detailed plan of each activity was reviewed and approved by the director.

Permission was obtained from the principal at each school to have research assistants make observations and record data while sitting in a car parked unobtrusively in the school parking lot. A description of each researcher's car, the license number, and the names of all research assistants who were authorized to work on the project were provided to the school principals.

Observational Procedure

Research assistants were individually field-trained to observe and record the shoulder belt use by drivers and passengers of vehicles entering and exiting the school parking lots. The observers were positioned unobtrusively
in a parked vehicle at a position where they could clearly see whether the front-seat occupants of vehicles were using their shoulder belt. Observations were recorded on the data sheet shown as Figure 2 on the next page. Detailed written instructions for observing each dependent variable were provided with each observer's training materials (see Appendix A). The data sheet included codes for: a) arrival or departure, b) pledge card color, c) license plate number, d) driver gender, e) driver belt use, f) passenger gender if adult, or child (if under the age of 16), g) passenger belt use, and h) the identity (A=adult; C=child) and seating positions of all other persons in the car. If the driver got out of the car to enter the school building or to help a child get into or out of the car, a second belt use observation was made when the driver got into the car again. From the unobtrusive viewpoints, it was not possible to observe safety belt use by persons seated in the rear seat of a vehicle. Observations were made each morning from 8:30 to 9:15 A.M. while children were arriving and at noon from 11:30 A.M. to 12:15 P.M. as children were leaving.

**Experimental Phases**

**Baseline.** Data were collected at each school according to the procedure described above, Monday through
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<th>Sex</th>
<th>Belt</th>
<th>Seat</th>
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Figure 2. Data sheet used for recording observations of safety belt use.
Friday for two consecutive weeks. Thus, a child could potentially be observed a maximum of 20 times during baseline; and if a driver got out of his/her vehicle on every occasion, a maximum of 40 opportunities to observe driver safety belt use were possible per vehicle. During the baseline period, the recreation leaders at each school were instructed not to discuss safety belt use in any of their daily activities. Each day the data were entered into a computer database by trained research assistants. The accuracy of data entry was verified by comparing the raw data with computer printouts.

**Interventions.** After baseline data collection was completed, a sequence of five intervention activities was conducted at each school during daily 30-min program periods (Monday through Friday). Three teams of three research assistants were trained to conduct the intervention activities. Most of these research assistants had already participated in conducting safety belt activities for children as part of other research projects. The training sessions for the current project included role-playing and corrective feedback in order to be certain each team performed their tasks exactly as desired.

The activities planned for each school were identical except for the following reward contingency conditions:
a) **safety belt use** reward (BR) - At the start of each 30-min activity, the children were shown a small prize and were told that they would each get a prize if they buckled their safety belt when they left that day in their car. During the program, the children were reminded about how they could get the prize at the end of the session; b) **participation** reward (PR) - At the start of each 30-min activity, the children were shown the same small prizes that were shown to the other groups, and were told that if they participated in the activity they would each get a prize at the end of the 30-min program. The children were given the prizes at the end of the session, and reminded that they got the prize for participating in the activity; and c) **noncontingent** reward (NR) - At the beginning of each session, these children were given the same small items used as contingent rewards for the other two groups. The research assistants made no comments about what the items were for nor was there any association made between the item and a particular behavior. These reward contingencies were randomly assigned to the three schools (Beeks - reward for safety belt use, Linkous - reward for participation, and Harding - noncontingent).

Table 2 on the following page shows the sequence of intervention activities conducted on five consecutive
<table>
<thead>
<tr>
<th>ELEMENTARY SCHOOLS</th>
<th>Margaret Beeks</th>
<th>Gilbert Linkous</th>
<th>Harding Avenue</th>
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<tr>
<td>REWARD CONTINGENCY AT EACH SCHOOL</td>
<td>Safety Belt Use</td>
<td>Participation</td>
<td>Noncontingent</td>
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<tr>
<td>SEQUENCE OF INTERVENTION ACTIVITIES</td>
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<td></td>
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<tr>
<td>M</td>
<td>AWARENESS</td>
<td>AWARENESS</td>
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<td>O</td>
<td>&quot;Clickers&quot; given</td>
<td>&quot;Clickers&quot; given</td>
<td>&quot;Clickers&quot; given</td>
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<td>N</td>
<td>when buckled up</td>
<td>during activity</td>
<td>before activity</td>
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<tr>
<td>T</td>
<td>ROLE PLAY</td>
<td>MODELING</td>
<td>COMMITMENT</td>
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<tr>
<td>U</td>
<td>Button Pin given</td>
<td>Balloons given</td>
<td>Lifesavers given</td>
</tr>
<tr>
<td>E</td>
<td>when buckled up</td>
<td>during activity</td>
<td>before activity</td>
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<td>W</td>
<td>MODELING</td>
<td>COMMITMENT</td>
<td>ROLE PLAY</td>
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<td>E</td>
<td>Balloons given</td>
<td>Lifesavers given</td>
<td>Button Pin given</td>
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<td>when buckled up</td>
<td>during activity</td>
<td>before activity</td>
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<td>T</td>
<td>COMMITMENT</td>
<td>ROLE PLAY</td>
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<td>H</td>
<td>Lifesavers given</td>
<td>Button Pin given</td>
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<tr>
<td>U</td>
<td>when buckled up</td>
<td>during activity</td>
<td>before activity</td>
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<td>RULE TRANSFER</td>
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<td>Stickers given</td>
<td>Stickers given</td>
</tr>
<tr>
<td>I</td>
<td>when buckled up</td>
<td>during activity</td>
<td>before activity</td>
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</table>
weekdays at each school. All three research teams practiced the awareness activity together to emphasize consistency in how this activity was conducted (since it was necessary to conduct this activity simultaneously at the three schools). For the second, third, and fourth days, each team was assigned one of the intervention activities. The teams rotated among the schools on Tuesday, Wednesday and Thursday to conduct their activity (once to each group of children). The last intervention activity was conducted simultaneously by the three teams, therefore the teams practiced together to maximize consistency.

A detailed agenda for each activity (see Appendix B) was written and used as the training guidelines for the teams. Each activity is briefly described here.

1. **Awareness** - The first day of the intervention, children were introduced to the value of using a safety belt and taught how to record their own safety belt use by providing each child with a booklet - "MY SAFETY BELT DATA BOOK" (see Appendix C). This book contains a simplified method for children to record their own and their parents' safety belt use. There is one page for each day of the week. Each page also presents information or a brief activity related to safety belt use.
Each child was given material to create a poster that showed why it is important to use a safety belt. While drawing their posters, a taped song called "Buckle-Up" was played three times (see words to the song in Appendix D).

2. **Commitment** - The TV crash dummies "Vince and Larry" appeared at each school. The audio taped segments of their show were played while research assistants in the Vince and Larry costumes pantomimed the actions to accompany the tape. Vince and Larry then distributed "Buckle Up Promise" cards (see Appendix E) to each child. The card was designed for a child and parent to sign, thereby making a commitment to use their safety belt for one month. The signed promise card were designed for hanging on the interior rearview mirror to serve as a reminder for the vehicle occupants to buckle up.

3. **Role play** - The "Buckie Buckle" story (see Appendix F) was read to the children while some children acted out the roles of the characters. The children were prompted to take part in the skit by holding up name cards of the various characters, and verbalizing the key phrases that are frequently repeated in the story. After the skit, each child received a simple application form (see Appendix G) which they could fill out to join the "Buckie Buckle Club". Those who joined the club received a plastic laminated club membership card (see Appendix H).
4. **Modeling** - For about 15 min, a police officer discussed why children should use safety belts when riding in a car and then told them about the Virginia safety belt law that would go into effect in January, 1988. The police officer solicited comments from the children and answered their questions. Then the police officer invited the children to sit in his police car and buckle the safety belts.

5. **Rule transfer** - Each child was given a 28 x 38 cm flash card (see Appendix I) with the printed message, "PLEASE BUCKLE UP -- I CARE" which they were taught to show to unbuckled passengers of other stopped vehicles. If the passenger complied with the request the card was flipped over to reveal the message "THANK YOU FOR BUCKLING UP." The children were taught to record the results of their flashing on a card that explained the rules of "the Buckle Up Game" (see Appendix J). The children practiced using the flash card as a group when their parents drove into the school parking lots at noon.

**The Prize Items**

The prize items given to the children were the same at each school. Since the contingencies were different at the three schools, the time at which the item was given varied from school to school. The items associated with each activity were as follows:
1. **Awareness** - Each child was given a "clicker" (a 4.5 x 2.5 x 1 cm plastic and metal toy) that made a click sound when the metal part was pressed and released. The words, "Its a Snap!" were printed on the plastic part along with a drawing of two hands fastening a safety belt buckle. The clickers were donated by the Virginia Department of Motor Vehicles, Richmond, VA.

At Linkous, the children who handed in a completed page from the "My Safety Belt Data Book" on Tuesday through Friday were given a Smiley Face Sticker (a 2 cm brightly colored circle of paper on which was printed the shape of a smile and eyes). The paper back of these stickers could be peeled off and the sticker could easily be affixed to any surface. The same Smiley Face Stickers were also distributed at the other two schools, along with the other prize items.

2. **Commitment** - Vince and Larry gave a pack of Lifesaver candies to each child. The theme on the Buckle Up Promise cards distributed during this program was "safety belts can be a lifesaver".

3. **Role play** - The children were given a button pin (6 cm) on which was printed "I LOVE MY BUCKLE BUCKLED". This was the theme of the Buckie Buckle story.

4. **Modeling** - Each child was given a helium-filled balloon.
5. Rule transfer - Each child was given their own copy of the "Please Buckle Up" flash card.

Measures of Participation

The amount of program participation was assessed at each intervention site by using the following outcome measures for the various activities:

1. Awareness - The number of persons who completed a poster and the number of completed pages from the data book that were returned on the appropriate days.

2. Commitment - The number of Promise Cards observed hanging from the interior rearview mirror on subsequent days.

3. Role play - The number of children who mailed in a completed application form to join the Buckie Buckle Club.

4. Rule transfer - The number of data cards returned with data collected and recorded by the children.

Children's Understanding of Contingencies

A manipulation check was made to assess children's understanding of why they got the prize items. A data sheet was designed (see Appendix K) to record children's responses to a question regarding why they got a prize item. Intermittently during the intervention activities, when research assistants saw a child with one of the items, they asked the child, "Why did you get that
(pointing to the item)?" A record was made of the child's name, age, gender, and the prize item. The child's response to the question was coded by category of contingency: BR, PR, or NR. If the research assistant was unsure how to code the response, the actual response or comment was written on the data sheet.

**Withdrawal of the Intervention**

Data collection continued for three consecutive weeks following the end of the intervention week, according to the same procedure outlined above.

**Long-Term Follow Up**

Four months after the end of the intervention, when the children were attending their regular school sessions at the same schools, long-term follow-up data were collected for two consecutive weeks at each school location. The license numbers of vehicles observed were matched to the license numbers of vehicles observed during the summer program to identify those families who were participants in the project during the intervention activities.

**Safety Belt Use by Rear-Seat Occupants**

Since safety belt use by rear-seat occupants could not be assessed from the unobtrusive locations, research assistants observed safety belt use by rear-seat occupants
on three days (one day per experimental phase: baseline, intervention, and withdrawal) by directly approaching the vehicle as it was leaving the school parking lot at noon. During these days, data was also collected by the usual unobtrusive method. The following procedures were used to disguise the purpose for approaching the vehicle to collect safety belt use data:

1. The last Friday during the baseline phase, the driver of each vehicle leaving the school parking lot was approached and offered a free litter bag (the type used in vehicles). The litter bags were donated by "Keep America Beautiful, Inc." While the vehicle was briefly stopped, the two research assistants (one with a clipboard) could readily observe safety belt use by the rear-seat occupants. No comments were made about safety belt use or the data collection.

2. On Friday of the intervention week, research assistants disguised as clowns approached each driver as the vehicle was exiting the parking lot, and offered free food coupons for the fast food restaurant. The same clown costumes were used the next day at the restaurant when the children and parents could redeem their coupons. Safety belt use by rear-seat occupants was recorded by an
observer who accompanied the clowns. The clown costumes were donated by Aztec Rental, Inc.

3. The last Friday during the withdrawal phase, the drivers were approached and asked if their child had received his/her "Buckie Buckle Club Membership Card" in the mail. A few late applicants' cards had not been sent in the mail, and this was another excuse to get the driver to stop the vehicle. Rear-seat safety belt use was observed again.

Generalization of Safety Belt Use

Free food coupons (see Appendix L) from a local fast food restaurant (Burger King) were obtained and distributed to each child in the recreation program by the recreation staff or by clowns in the parking lot (as described above). The coupons specified a free sandwich, fries, and drink for the parent and for each child, however the coupons were redeemable only on the Saturday of the week they were distributed, from 11:00 A.M. to 2:00 P.M. at the drive-up window of the restaurant. The coupons were distributed in such a manner that no association was made between the coupon and the safety belt interventions. The first coupon was given during the last week of baseline data collection. On that Saturday, trained observers were located at the fast food restaurant
drive-up window to record the safety belt use of occupants in all cars. Two clowns approached each vehicle while the occupants were waiting for their food order. The clowns gave a helium-filled balloon to each child in the vehicle and asked their name and age. While they were talking to the child the clowns noted whether the child was using a safety belt. As soon as the vehicle left, the clowns gave the information to two research assistants who recorded the data. License plate numbers of observed vehicles were matched to the license numbers observed in the school parking lots.

The second coupon was distributed by the recreation staff during the week of intervention and generalization was again assessed at the fast food location that Saturday. The third set of food coupons were given out three weeks after the intervention ended and generalization data were collected. The fourth week of December (four months later), a coupon was mailed to each home of every participant. The addresses were obtained from the recreation department. Thus, the last generalization data were collected at the fast food restaurant, the day after Christmas (one week before the Virginia safety belt law went into effect).
On the last day of the summer program, a brief questionnaire (see Appendix M) was hand-delivered in a stamped, pre-addressed envelope to each parent by the recreation staff. Parents' responses to the questionnaire were mailed to the Psychology Department at Virginia Tech.
Results

Attendance

The children participating in the summer recreation program at the three schools attended on a voluntary basis. At the beginning of each week, parents were informed about the theme of the week and they registered their children for the entire week. Some children attended the program all seven weeks, others missed one or several entire weeks (i.e., perhaps when their family took a vacation). Even when children were registered for a week, attendance was sporadic. Two measures of attendance were obtained, as shown in Tables 3 and 4 on the following page.

Table 3 shows the total number of days attended by children at each school during the week of the intervention activities. The number of children with perfect attendance (five days) during the intervention week was 16 at Beeks, 10 at Linkous, and 10 at Harding. Although more children attained perfect attendance at the Beeks school where rewards for safety belt use were given, the mean days attended per child was nearly the same at all schools (3.9, 3.7, and 3.2 days at Beeks, Linkous, and Harding, respectively).

Table 4 shows the number of children who were present for each intervention activity at the three schools. The
TABLE 3
Total days of intervention activities attended by children from three schools (Margaret Beeks, Gilbert Linkous, and Harding Avenue).

<table>
<thead>
<tr>
<th>DAYS</th>
<th>BEEKS (BR)</th>
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<th>HARDING (NR)</th>
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<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
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<td>2</td>
<td>5</td>
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<td>5</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

MEAN ATTENDANCE DAYS 3.9 3.7 3.2

TABLE 4
Number of children who attended each intervention activity at three schools (Margaret Beeks, Gilbert Linkous, and Harding Avenue).

<table>
<thead>
<tr>
<th>INTERVENTION ACTIVITY</th>
<th>BEEKS (BR)</th>
<th>LINKOUS (PR)</th>
<th>HARDING (NR)</th>
</tr>
</thead>
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<td>Awareness</td>
<td>39</td>
<td>22</td>
<td>26</td>
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<tr>
<td>Commitment</td>
<td>31</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>Role Play</td>
<td>34</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>Modeling</td>
<td>36</td>
<td>26</td>
<td>20</td>
</tr>
<tr>
<td>Rule Transfer</td>
<td>20</td>
<td>14</td>
<td>14</td>
</tr>
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</table>
pattern of attendance tended to be the same at all three schools (high at the beginning of the week with a decrease at the end of the week). This pattern was not particular to the intervention week, but was observed across the seven weeks at all the schools. Attendance was usually lowest on Friday of each week. Throughout the summer program, the primary activity each Friday was a trip by school bus to the same public swimming pool.

Manipulation Check on Reward Contingencies

At each intervention location, children who were observed with one of the reward items were asked the question, "Why did you get that (pointing to the item)?" Data collected to assess the children's understanding of the reward contingencies is presented in Table 5 on the next page. At Beeks (BR contingency), of the 14 children asked the contingency question, all 14 answered correctly. At Linkous (PR contingency), 28 out of 30 children answered the contingency question correctly. Of the two who didn't respond correctly, one child said, "I forgot", and one child said, "they just gave it to me." At Harding (NR contingency), 21 out of 22 children answered the contingency question correctly. The one child who mentioned a response contingency for the reward said, "for wearing a seat belt...I guess?"
Table 5

Correct responses to the reward contingency question: "Why did you get that (pointing to item)?"

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Beeks (Belt Use)</th>
<th>Linkous (Participation)</th>
<th>Harding (Noncontingent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clicker</td>
<td>8/8</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Button Pin</td>
<td>2/2</td>
<td>2/3*</td>
<td>1/1</td>
</tr>
<tr>
<td>Balloon</td>
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<td>11/11</td>
<td>3/3</td>
</tr>
<tr>
<td>Lifesavers</td>
<td>2/2</td>
<td>11/11</td>
<td>---</td>
</tr>
<tr>
<td>Stickers</td>
<td>---</td>
<td>4/5**</td>
<td>17/18***</td>
</tr>
</tbody>
</table>

TOTAL          | 14/14            | 28/30                   | 21/22                   |

Incorrect Responses:

* "I forgot"
** "They just gave it to me"
*** "For wearing a seat belt...I guess?"
Participation

The children's participation in the intervention activities at each school was measured in the following way: 1) **Awareness** - the percent of children who completed a poster drawing; 2) **Commitment** - the percent of vehicles at each school displaying the Buckle Up Promise Card on the interior rearview mirror; 3) **Role Play** - the percent of children who joined the Buckie Buckle Club; and 4) **Rule Transfer** - the percent of children who returned data on the number of times they used the flash card. As depicted in Figure 3 on the following page, the children who received rewards for participation in the intervention activities showed higher levels of participation in three of the four measures. Although their participation level for the poster completion was 5 percent less than the children who got noncontingent rewards, this was the first activity and the children had not actually received a reward for participation until after the posters were completed. The children who received rewards for safety belt use were lowest on three out of the four participation measures.

Another measure of participation consisted of how many children returned completed pages from their booklet "My Safety Belt Data Book" each day. The booklets were
Figure 3. Measures of participation by children who attended safety belt intervention activities.
distributed on the first intervention day, and completed pages were collected each day thereafter. Thus, this measure of participation was obtained on four days. As shown in Figure 4 on the following page, about the same percent of children from all the schools returned completed pages on the second intervention day. On subsequent days, however, a higher percent of the children who were rewarded for participation returned completed pages than did children in the other conditions. A 4 (Days) x 3 (Reward Contingencies) Chi Square analysis showed a main effect for Reward Contingency. \( \chi^2(2, 284) = 13.90, p < .001 \). The mean number of data book pages turned in for the week was 30.3 for Buckle-Up Rewards, 20.3 for Participation Rewards, and 20.5 for noncontingent Rewards.

**Reliability for Observations**

Two observers recorded data independently for 41.9% of the total vehicle observations. Inter-observer reliability was computed by comparing the secondary observer's data with that recorded by the primary observer. The number of observations on which both agreed was divided by the total observations (agreements plus disagreements). As shown in Table 6 (see page 41), the inter-observer reliability in all categories was well
Figure 4. Percent of pages from the booklet "My Safety Belt Data Book" returned each day by children attending the intervention activities at three schools.
TABLE 6

Percent of inter-observer reliability for observations made at three schools (Margaret Beeks, Gilbert Linkous, and Harding Avenue) during all experimental conditions.

<table>
<thead>
<tr>
<th>SCHOOL CATEGORY</th>
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<th>BEEKS</th>
<th>LINKOUS</th>
<th>HARDING</th>
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<td>99.4</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>99.3</td>
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<td>96.8</td>
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<td>98.1</td>
<td>94.1</td>
<td>95.6</td>
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</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
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<td>35.3</td>
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</table>

* Percent of data on which reliability observations were made.
within the acceptable range. In the gender categories, there was very little difference in reliability for the different response possibilities. For safety belt use, slightly more disagreements occurred when the response was "NO" (i.e., belt not used) than when the response was "YES" (i.e., belt used).

Safety Belt Use

During baseline (i.e., 10 observation days) at each school, some children were never observed unbuckled. Specifically, a total of 12 children at Beeks, 1 child at Linkous, and 3 children at Harding were using their safety belt 100 percent of the time during baseline. The data for these children and their parents are shown on Tables 12, 13, and 14 in Appendix N. Another group of children were not observed during one or more of the experimental conditions. The incomplete data for these children (a total of 6, 12, and 9 at Beeks, Linkous, and Harding respectively) and their parents are shown in tables 15, 16, and 17 (see Appendix N).

The observed safety belt use by children for whom the intervention activities could potentially change safety belt use is shown in Tables 7, 8, and 9 (on the following pages). The criteria for selecting this group of children
TABLE 7
Safety belt use by children who attended the intervention activities at Margaret Beeks school and received rewards contingent on safety belt use when exiting the school parking lot with their parent. The criteria used to select this group was at least one observation of belt non-use during baseline data collection.

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>CHILD</th>
<th></th>
<th>MOTHER</th>
<th></th>
<th>FATHER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
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<td>Base*</td>
<td>Int</td>
<td>With</td>
<td>Base</td>
<td>Int</td>
<td>With</td>
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</tr>
<tr>
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<td>7/7</td>
<td>10/10</td>
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</tr>
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<td>5/8</td>
<td>3/4</td>
<td>9/10</td>
<td>0/11</td>
<td>1/7</td>
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<td>1/2</td>
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<td>---</td>
</tr>
</tbody>
</table>

* Base = Baseline  Int = Intervention  With = Withdrawal
TABLE 8

Safety belt use by children who attended the intervention sessions at Gilbert Linkous school and received rewards contingent on participating in the safety belt activities. The criteria used to select this group was at least one observation of belt non-use during baseline data collection. Safety belt use by the parents of these children is also shown.

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>CHILD</th>
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<th></th>
<th></th>
<th>MOTHER</th>
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</table>

* Base = Baseline    Int = Intervention    With = Withdrawal
TABLE 9

Safety belt use by children who attended the intervention activities at Harding Avenue school and received noncontingent rewards. The criteria used to select this group was at least one observation of belt non-use during baseline data collection. Safety belt use by the parents of these children is also shown.

<table>
<thead>
<tr>
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<th></th>
<th></th>
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<td>7/7</td>
<td>4/5</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

* Base = Baseline    Int = Intervention    With = Withdrawal
from each school was that they were observed unbuckled at least once during the baseline phase. At Beeks there were 16 children in this select group, 6 children at Linkous, and 14 children at Harding.

Safety belt nonusers. At Beeks school, where rewards were given for safety belt use, there were five children who were never observed using a safety belt during baseline. All of these safety belt nonusers were later observed using a safety belt (three during intervention and the other two during withdrawal). Among the parents of the Beeks children, there were nine who were consistent safety belt nonusers during baseline. Only one of these parents remained a nonuser during the intervention and withdrawal phases.

At the Linkous school, where rewards were given for participation in safety belt intervention activities, one child and parent pair were consistent safety belt nonusers during baseline. Both child and parent began to use a safety belt during the intervention phase. One other parent was a safety belt nonuser during baseline, but was not observed during the intervention or withdrawal phases.

During baseline, one child and six parents were safety belt nonusers at Harding (NR condition), and all of these were observed to use a safety belt during the
intervention phase. One additional parent at Harding was a nonuser during baseline but was not observed later.

Figures 5, 6, and 7 on the following pages show the mean daily safety belt use by the selected group of children from each school who were observed unbuckled at least once during baseline. One pattern of safety belt use that is evident across all experimental phases was the reduced level of safety belt use on each Friday. This pattern was consistent for both children and parents at Beeks every Friday (see Figure 5). The same pattern can be seen in Figure 7 for the children and parents from Harding (with the one exception occurring for parents on the Friday of intervention). The pattern of lower safety belt use on Friday was not consistent at the Linkous School.

The amount of variability observed in these daily means is primarily due to the fact that the subjects were selected because of their inconsistent safety belt use. If the children who always used their safety belt were included, the percentages would be much higher and the variability lower. None of the prior studies on safety belt use which showed more stable safety belt use rates eliminated those subjects who had already reached the "ceiling".
Figure 5. Mean daily safety belt use by children who received rewards contingent on safety belt use when exiting the school parking lot with their parent. These means only include children who were observed unbuckled at least once during baseline data collection. Safety belt use by parents is also shown.
Figure 6. Mean daily safety belt use by children who received rewards contingent on participating in safety belt intervention activities. These means only include children who were observed unbuckled at least once during baseline data collection. Safety belt use by parents is also shown.
Figure 7. Mean daily safety belt use by children who received noncontingent rewards while attending safety belt intervention activities. These means only include children who were observed unbuckled at least once during baseline data collection. Safety belt use by parents is also shown.
Another way of looking at the data from a single-subject perspective is illustrated in Figures 8, 9, and 10 on the following pages. These figures include only those children who were observed at least three times in every experimental phase; and were observed unbuckled at least once during baseline. The parents' data includes only parents of children who met the above qualifications, and met the same qualification for themselves. This approach maximizes the unique contribution of each individual to the mean safety belt use shown during each experimental phase. Every individual's use of a safety belt is given equal weight in the figure. In other words, the data points represent the mean of each child's average belt use during the designated experimental phase.

These figures indicate that children who were the primary subjects at each school clearly increased their safety belt use from baseline to intervention. Furthermore, the increased safety belt use was maintained during the three-week withdrawal phase.

At Beeks, where rewards were given to children for safety belt use in the school parking lot, there was some contact between the parents and research assistants who delivered the rewards on the five intervention days. At Linkous and Harding, (PR and NR contingencies) there was
Figure 8. Mean of 11 Children's and 9 Parent's average safety belt use per experimental condition at the school where rewards were given to children who buckled up during a safety belt intervention.
Figure 9. Mean of 4 children's and 1 Parent's average safety belt use per experimental condition at the school where rewards were given to children who participated in safety belt intervention activities.
Figure 10. Mean of 12 Children's and 12 Parent's average safety belt use per experimental condition at the school where noncontingent rewards were given to children before a safety belt intervention.
no direct contact between parents and research personnel. Although the paired-parents of these children were not the primary targets of the intervention activities (i.e., they did not participate in the safety belt activities), they showed similar increases in safety belt use from baseline to intervention. The parents' increase in safety belt use was also maintained during withdrawal at Linkous and Harding. Safety belt use by the parents from Beeks (BR contingency) dropped six percent from intervention to withdrawal, but still remained above baseline.

One note of caution regarding interpretation should be considered. In the case of Linkous parents, the stringent criteria set for selecting single subjects eliminated all but one subject. Although single-subject researchers defend the value of showing results from one subject, those accustomed to group designs would ask whether that single subject is actually representative of the other parents at Linkous.

**Safety Belt Use: Statistical Approach**

A 3 (Contingency: Safety belt use, Participation, Noncontingent) x 3 (Phase: Baseline, Intervention, Withdrawal) x 2 (Group: Children, Parents) analysis was performed using the CATMOD procedure from the Statistical Analysis System (SAS Institute, Inc., 1988). The CATMOD
procedure performs a weighted least squares analysis of multiple independent categorical variables, and produces output similar to an ANOVA but with effects tested using the Chi-Square statistic.

This CATMOD analysis revealed significant main effects for Contingency, $\chi^2(2, 2,127) = 9.66, p < .01$, Phase, $\chi^2(2, 2,127) = 96.17, p < .0001$, and Group, $\chi^2(1, 2,127) = 9.74, p < .01$. Two interactions were revealed: Contingency X Phase, $\chi^2(4, 2,127) = 13.52, p < .01$, and Phase X Group, $\chi^2(2, 2,127) = 8.43, p < .01$.

Figures 11, 12, and 13 (on the following pages) show mean safety belt use by children and paired parents per experimental phase at each school. These means reflect averages across all observations of a particular experimental phase. Thus, subjects who were observed more frequently contributed more data for this measure of central tendency. The main effect for contingency is shown by the higher safety belt use at Linkous (PR) than the other two schools (BR and NR). The main effect for phase is indicated by the lower safety belt use during baseline than the other phases. The main effect for group is shown by the higher safety belt use by children than adults.

At all three program sites (BR, PR, and NR), both children and parents increased their use of safety belts
Figure 11. Observation means of safety belt use by children and parents per experimental condition at the school where rewards were given to children who buckled up during a safety belt intervention.
Figure 12. Observation means of safety belt use by children and parents per experimental condition at the school where rewards were given to children who participated in the safety belt intervention activities.
Figure 13. Observation means of safety belt use by children and parents per experimental condition at the school where children given noncontingent rewards before a safety belt intervention.
significantly from baseline to the intervention phase. The interaction between Contingency and Phase is seen by comparing Figure 11 with Figures 12 and 13. For the BR group (Figure 11), safety belt use for children and parents dropped from intervention to withdrawal; whereas for groups PR and NR, safety belt use by children and parents increased from intervention to the withdrawal phase. The interaction between Phase and Group can be explained by the greater increase in safety belt use by children than parents from baseline to the intervention phase.

A separate 3 (Phase: Baseline, Intervention, Withdrawal) x 2 (Group: Children, Parents) CATMOD analysis was conducted on the safety belt data from each program site (i.e., BR, PR, and NR contingency sites). Main effects for Phase was obtained at all three contingency sites (p < .0001). There were main effects for Group at the BR site p < .01 (Figure 11) and at the NR site p < .0001 (Figure 13), because children buckled up more often than parents at these sites. A Phase X Group interaction was found only at the BR site (p < .01), because of a greater increase in belt use by children than parents as a result of the intervention, but a greater decrease in belt use for parents than children during the withdrawal phase.
Safety Belt Use Per Intervention Activity

One way to assess the immediate effect of the intervention is to look at the safety belt use by the children immediately before and after participation in a particular intervention activity. Figure 14 on the following page shows the mean safety belt use by children (three schools combined) observed when they arrived each morning (immediately before the intervention activity) and when they left at noon (immediately after each intervention intervention). The data during the baseline were collapsed and presented as one set of histogram bars. There was little difference between morning and noon safety belt use during baseline. Childrens' safety belt use before and after each intervention activity is shown on separate sets of bars. The largest change in safety belt use (i.e., before vs. after an activity) occurred on the first day of the intervention phase. Note that the intervention activities for commitment, role play, and modeling occurred on different days at the three sites. Thus, the combined data for these three intervention activities were counter-balanced for order. Since each set of bars combines data from three days, the difference in safety belt use from before vs. after the activities should not be expected to increase successively
Figure 14. Mean safety belt use by children immediately before and after participation in a safety belt intervention activity (three schools combined).
across these three activities. There were large differences between the childrens' safety belt use immediately before and after each of these activities.

The percent of safety belt use on Friday morning (before the Rule Transfer activity) was greater than any previous morning. This probably reflects the cumulative influence of the four previous intervention activities. The lower percent of safety belt use immediately after the intervention activity on Friday is consistent with the pattern observed on other Fridays throughout the recreation program. The data collected during the withdrawal phase were collapsed and presented in one set of bars. Safety belt use by children at noon continued to be higher than in the morning, however, the difference between morning and noon is not nearly as great as the differences observed during the intervention phase.

Parents' Belt Use With and Without Children In Vehicle

Figure 15 on the following page shows parents' safety belt use (three schools combined) immediately before and after their children got in the car following an intervention activity. These data were collected each day when parents came to get their children at noon. When parents arrived at the parking lot, children were not in their car. Many parents got out of their car and went
Figure 15. Mean safety belt use by parents while children were not in vs. in their car immediately after the child attended a safety belt intervention activity.
into the school building to meet their child. A second observation of safety belt use by parents was made only if the parent got out of the car. During baseline, safety belt use by parents was only slightly higher when the children got into their vehicle at noon. During the intervention week, parents' safety belt use was much greater when leaving the school parking lot at noon (their children just got into the car after attending an intervention activity) than when they arrived (alone) at noon. The largest change in safety belt use by parents was on the first day of intervention. On subsequent intervention days, parents increased their safety belt use both when children were in, and not in, their vehicles. However, on all days, parents' safety belt use was greater when children were present, even during the withdrawal phase.

**Lap Belt Use by Children in the Rear Seat**

The intervention activities also influenced lap belt use by children in the rear seat as shown on Figure 16 on the following page. The data presented here are based on a limited number of observation days (i.e., one per experimental phase) because collecting data on rear-seat lap belt use required more obtrusive methods. These data include any participant in the summer program who was
Figure 16. Mean safety belt use by children seated in the front seat vs. rear seat on one day of each experimental phase (three schools combined).
observed on the days when rear-seat lap belt data was collected. The means for safety belt use by children in the front seat were 60% (n=30), 75% (n=28), and 52% (n=23) during baseline, intervention, and the withdrawal phases, respectively. The means for safety belt use in the rear seat were 39% (n=33), 76% (n=25), and 31% (n=22) during the same three experimental phases. This limited sample of data suggests that children seated in the rear seat were less likely to use the lap belt than children seated in the front seat. Children in the rear seat did buckle up more often during the intervention phase. However, this increased use of the lap belts was not maintained during withdrawal.

Generalization of Safety Belt Use

One Saturday during each experimental phase, observations of the subjects' safety belt use were made at a local fast food restaurant. The mean safety belt use by children and their parents (all schools combined) is shown in Figure 17 on the next page. The means of safety belt use by children were 50.8% (n=63), 78.0% (n=41), 60.0% (n=35), and 45.5% (n=33) for the experimental phases: baseline, intervention, withdrawal, and follow up, respectively. The means of safety belt use for parents were 57.6% (n=59), 76.5% (n=34), 71.4% (n=28, and 43.3% (n=30) for the same experimental phases.
Figure 17. Mean safety belt use by children who attended safety belt interventions and their parents (three schools combined). These observations were made at a fast food restaurant to assess generalization of safety belt use.
A 4 (Phase: Baseline, Intervention, Withdrawal, Follow-up) x 2 (Group: Children, Parents) CATMOD analysis was conducted. This analysis revealed a significant main effect for Phase, $\chi^2 (3, 323) = 17.38, p < .001$. The pattern of safety belt use from baseline to intervention for both children and parents follows the pattern observed at the school parking lots. That is, significant increases occur for both groups. During withdrawal, the percent of safety belt use by both groups appears to drop more at the generalization site than at the school parking lots. Insufficient data were obtained from the school sites during the follow-up period (four months later) to make a generalization comparison between schools and fast food restaurant sites. However, the percent of safety belt use during follow-up at the fast food restaurant site did drop below the level that was observed during baseline.

Safety Belt Use During Follow-Up

The method used to collect follow-up safety belt use produced very little data that matched observations made during the summer programs. Safety belt use by all children and parents observed at the three schools during the two week follow-up period is shown on Table 10 on the next page. Most of these were not participants in the
Table 10
Safety belt use by all front-seat occupants observed during the two week follow-up period.

<table>
<thead>
<tr>
<th>Days</th>
<th>Beeks (9)</th>
<th>Linkous (10)</th>
<th>Harding (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARENTS</td>
<td>136/314 43.3%</td>
<td>142/316 44.9%</td>
<td>122/251 48.6%</td>
</tr>
<tr>
<td>CHILDREN</td>
<td>72/170 42.4%</td>
<td>79/188 42.0%</td>
<td>70/151 46.4%</td>
</tr>
</tbody>
</table>
summer recreation program. Specifically, from a total of 881 observations (three schools combined) during two consecutive weeks, only four children were identified (by vehicle license number matches) as subjects who had participated in the summer recreation program. One child was observed one time (not buckled up), one child was observed two times (buckled 1 time). Two children were observed four times (their safety belt use was 3 out of 4 and 1 out of 4).

**Questionnaire Responses**

The responses to the questionnaire items are shown in Table 11 on the next page. A total of 52 questionnaires were distributed, and 28 were returned (53.8%). There may be a self-selection bias in the questionnaires returned, since 17 of the 28 respondents reported using a safety belt every time in their last 10 trips. The parents from Beeks were more favorable toward giving rewards to children for safety belt use. The children from Harding were more likely to talk about safety belt use and attempt to influence others.
Table 11

Responses to questionnaire items by parents of children who attended the safety belt interventions at three schools.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Beeks (Belt Use)</th>
<th>Linkous (Participation)</th>
<th>Harding (Noncontingent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Non-Participant:</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Talked About Belt Use:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>5</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Child Changed Belt Use:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MORE</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>LESS</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NO</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Child Influenced Others:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>NO</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Parent Changed Belt Use:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALWAYS</td>
<td>6</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SAME</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>NEVER</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MORE</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 11 Continued

Responses to questionnaire items by parents of children who attended the safety belt interventions at three schools.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Beeks (Belt Use)</th>
<th>Linkous (Participation)</th>
<th>Harding (Noncontingent)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Best Activity:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VINCE &amp; LARRY</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>BUCKIE BUCKLE</td>
<td>2</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>POLICE</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>FLASH CARD</td>
<td>-</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>CLICKER</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>DATA BOOK</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td><strong>Give Rewards:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>UNCERTAIN</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td><strong>Belt Use Last Ten Trips:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TRIPS=PERSONS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10=7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10=6</td>
<td>9=1</td>
<td>6=2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8=1</td>
<td>3=1</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

The children's exposure to the intervention activities as measured by attendance (Tables 3 & 4) was nearly the same across the three program sites. The manipulation check on three different reward contingencies used at the intervention sites provided evidence that the children could verbalize the particular reward contingency used at their school.

The data collected on the children's participation in the safety belt intervention activities suggest that the particular reward items used were effective reinforcers for participation responses. Specifically, on four of the five participation measures (i.e., commitment, role play, and rule transfer, and data pages returned), the children who were directly rewarded for participation achieved a slightly higher level of program involvement than the other two groups who were not rewarded for participation. Only before the children actually received a reward for participation (the first day of intervention activities) was participation slightly lower for the participation-reward (PR) group. Thus, for this condition, participation behaviors were influenced by a set of rewards that apparently met the criteria for reinforcer effectiveness -- contingency, immediacy, size, and deprivation (Miller, 1980).
Although the same items used to reward children for participation were also used as contingent rewards for safety belt use (BR group) and as noncontingent rewards for other children (NR group), there was no evidence to support a differential effect of these rewards on the frequency of safety belt use by the three groups of children. Data from all three groups (Figures 11, 12, and 13) show large increases in children's use of safety belts from baseline to the intervention phase. Reinforcement theory would predict that the increase in safety belt use by the BR group should be greater than the other groups, if the items used as rewards were effective reinforcers for safety belt use. The possibility remains that the tangible reward items were functioning as reinforcers for the BR group. However, the effect of the rewards may have been obscured by other more powerful, sources of motivation present at all three contingency sites. These motivational factors could include the extra attention by program personnel, peer and parental support for behavior change, knowledge of the pending safety belt law, and repeated opportunities to participate in pleasurable activities.

The parents from all three groups also increased their safety belt use from baseline to intervention. For
two of the groups (i.e., PR and NR) there was no direct contact between research personnel and the parents. The change in parents' safety belt use could have resulted from observing the change in their children's safety belt use or from verbal prompts or reminders from the children. The presence of children in the car, particularly immediately after each intervention activity, significantly influenced safety belt use by parents.

There was evidence of generalization of the increase in safety belt use by both children and parents. This means that the increase in belt use was not situationally specific, rather the intervention activities increased the probability that the participants would use their safety belt on occasions other than when riding to and from the school.

The issue of long-term maintenance of increased safety belt use still needs to be studied. The follow-up data collected at the generalization site indicated that safety belt use by program participants was lower four months after the program ended. The attempt to collect follow-up data at the school sites was unsuccessful. In order to address the maintenance question, future safety belt research designs will need to include access to the subjects over a longer period of time.
The results of this study show quite convincingly that extrinsic rewards were not necessary to motivate substantial increases in safety belt use among children and their parents. In fact, the safety belt intervention activities with noncontingent rewards influenced as much (if not more) behavior change than the two interventions based on response contingent rewards. The impact of the program was similar to that found in the safety belt pilot study conducted at the Montessori school where there were no extrinsic rewards available, not even noncontingent rewards.

Most provocative was the finding that during the withdrawal phase, the intervention with the belt use contingency resulted in the least maintenance, especially for the parents. Whereas belt use among children and parents increased slightly after the noncontingent and participation reward interventions were withdrawn (i.e., over a three-week period), the belt use of children and parents decreased slightly during withdrawal after the children had been rewarded directly for being buckled up in their vehicles. Note that the reward delivery process (researchers handing out prize items in the parents' presence) at the Beeks school may have put some implicit social pressure on the parents to buckle up (e.g., to show
that they set appropriate examples for their children). Some adults may have been offended by the external control exerted on vehicle occupants and intentionally did not buckle up when the controls were gone (i.e., during withdrawal). Such behavior would be consistent with "psychological reactance" theory (Brehm, 1966).

The slight decrease in safety belt use during withdrawal for the children who had received rewards for safety belt use is consistent with a variety of theoretical formulations that predict a decrement in performance that was previously motivated through external control contingencies (such as performance-contingent rewards). More specifically, the "minimal justification principle" (Lepper, 1981), "over justification" (Lepper, Greene, & Nisbett, 1973), and "intrinsic motivation" (Deci, 1975; Deci & Ryan, 1980) predict greater long-term behavior change with interventions that minimize extrinsic controls. Powerful extrinsic motivators are assumed to inhibit individuals from gaining an internal justification for performing the target behavior after the external controls are withdrawn. A longer withdrawal period in the present study may have shown increasing differentiation between the different reward conditions if internal
justification for using a safety belt had been lessened by
the BR contingency.

Geller, Rudd, Kalsher, Streff, and Lehman (1987) reviewed five corporate safety belt programs that did not apply rewards, but instead used an interactive small-group discussion format (analogous to the interactive sessions of the intervention activities of the present research). After a 25-min group discussion, buckle-up pledge cards were distributed, and the group leader encouraged participants to make a commitment to use their safety belts. Peer support for this intervention was evidenced by employees urging their co-workers to sign the pledge-card. When the participants left the room, they deposited a portion of each signed card in a "pledge box". As detailed in Cope, Grossnickle, and Geller (1986), Geller and Bigelow (1984) and Kello, Geller, Rice, and Bryant (in press), these programs with no extrinsic response-contingent controls (except for verbal prompting and social attention from peers) produced dramatic increases in safety belt use, comparable with the effects of reward-based programs. Actually, after comparing these corporate programs with 13 reward programs, Geller et al. (1987) concluded that the programs with minimal extrinsic, response-contingent controls resulted in the most post-program maintenance of safety belt use.
Before concluding that extrinsic incentives/rewards should not be included in a program to motivate safety belt use, it is important to consider when incentive-based programs have apparently been a necessary component of a successful safety belt campaign. First, there is ample evidence that educational strategies without group interaction are not successful in motivating long-term increases in safety belt use, whether applied in employee safety programs (Geller, 1982; Phillips, 1980), through home television (Robertson, Kelly, O'Neill, Wixom, Eiswirth, & Haddon, 1974), or throughout an entire community in varied formats (Cunliffe, DeAngelis, Foley, Lonero, Pierce, Siegel, Smutylo, & Stephen, 1975). In contrast, incentive/reward programs which made extrinsic rewards (e.g., meal ticket, trinkets, discount coupons, and cash) available to vehicle occupants who were buckled up, motivated prominent increases in safety belt use, and although belt use decreased following the removal of the reinforcement contingencies, the post-program levels of belt use were usually higher than pre-program baseline, thereby indicating residual effects of an incentive/reward program (see reviews by Geller, 1984b; Geller & Bigelow, 1984; Geller et al. (1987).
Several of the successful, reward-based programs targeted adults in vehicles at entrances/exits to industrial complexes (e.g., Geller, 1983; Stutts, Hunter, & Campbell, 1984; Spoonhour, 1981), at the exchange windows of banks (Geller, Johnson, & Pelton, 1982; Johnson & Geller, 1984) and fast food restaurants (Ludwick, 1983), at the entrances to the parking lot of high schools (Campbell, Hunter, & Stutts, 1984), a university (Geller, Paterson, & Talbott, 1982), a shopping mall (Elman & Killebrew, 1978), and at street corners throughout a community (Campbell, Hunter, & Gemming, 1983). Michael Roberts and his colleagues have increased safety belt use among children and produced post-intervention residual effects by rewarding parents with lottery tickets redeemable for prizes if their children (from birth to 6 years of age) were appropriately buckled up when arriving at day care centers (Roberts & Turner, 1986), by rewarding preschool-aged children directly with colorful stickers when they arrived at day care centers in safety belts or child safety seats (Roberts & Layfield, 1987), and by teaching PTA volunteers to reward elementary school children with lapel stickers, lottery tickets for prizes, bumper stickers, and coloring books if all vehicle occupants were using safety belts when arriving at school
Participative education was not a component in these reward/incentive campaigns (often because such an approach was not feasible at the program site), and thus it is likely that a reward strategy was a necessary ingredient in these behavior change efforts.

A critical empirical question addressed in the present research (and requiring further study) is whether extrinsic incentives/rewards detract from the impact of a participative educational program that is effective at producing behavior change. As discussed above, this question has theoretical support for an affirmative answer, and such an answer was supported to some degree by the present results. However, there were limitations to this research, requiring caution in extrapolating theoretical and practical ramifications. The sample size was limited, the interventions were situation specific, and the differential findings during withdrawal were not robust. Most importantly, the number of post-intervention observations were limited because of the termination of the recreation program. If post-program safety belt use could have been observed over a longer period of time, a differential decay (or extinction) of safety belt use may have been found as a function of the reinforcement
contingencies employed in the program. Clearly, more research is needed to define the parameters for obtaining enough extrinsic control to initiate a buckle-up response but not too much so as to obviate perceived internal control and intrinsic justification.

Since the present study was conducted prior to the implementation of a safety belt law in Virginia, the same procedures could be repeated to study how a BUL influences the results. It is possible, for example, that maintenance of an increase in safety belt use may be improved because of the law. It would also be worthwhile to conduct a component analysis of the five intervention activities in order to determine the contribution that each of the daily activities made to the overall impact observed in the current study.

Future safety belt research can benefit from several innovations employed in the present study including: a) identifying participants who always use their safety belt before a safety belt intervention, b) observe the effect of an intervention on intermittent safety belt users, c) observe the effect of the intervention on subjects who never used a safety belt, d) study how childrens' behavior change can influence their parents' behavior, e) use strategies that effectively increase safety belt use
by rear-seat occupants as well as front-seat passengers, f) employ a technique to study generalization effects of the intervention, and g) consider using some of the creative materials developed for this study and shown in the Appendices. At least, the present research has developed and evaluated a participative educational curriculum that was remarkably effective at increasing safety belt use by young children, the age group whose survival is most benefited by safety belt use.
References


APPENDICES
Appendix A

Instructions for Observations using the School Safety Belt Data Sheet
Instructions for Data Sheet

1. If you are the only observer, write your name in the blank for Observer #1.

2. If there is a second observer who is making the same observations as you for reliability purposes, make sure your observations are recorded independently. The person with the most experience should be listed as observer #1 and the second person listed as observer #2. On observer #2's Data Sheet simply write the word "RELIABILITY" for observer #1 and observer #2's name in the second position.

3. Write the name of the location.

4. Write the date in this form YY MM DD

5. Write the time to the nearest hour using military time. For example 9:00 AM = 09. 3:00 PM = 15 etc.

6. Write page #1 at the top corner.

7. For each observation, use the following codes and descriptions:

   Drop-off, Pick-up: This refers to whether children are being dropped-off or picked-up by the driver. You may want to wait to record this code until the vehicle stops and you see what the passengers are doing.

   Pled Card: This refers to whether there is a colored safety belt pledge card hanging on the interior rear-view mirror of the vehicle. If such a card is hanging, mark the color code of the card. For example G = green, Y = yellow etc.

   License: Write the first six alpha-numeric characters on the licence plate. If there are more than six characters, ignore the rest.

   Driver Gender: Mark the driver's gender as M = male or F = female

   Driver Belt: Mark the shoulder belt use by the driver as Y = yes or N = no.

   M S: means Front Middle Seat. If there is a passenger in this position, write A if it is an adult or write C if it is a child under the age of 16.

   Passenger Gender: Mark the passenger's (right front seat) gender as M, F, or C. The C means a child under the age of 16.
Passenger Belt: Mark the shoulder belt use by the passenger as Y = yes or N = no.

Back Seat: For each position in the rear seat, write a letter code if there is a person sitting there. The sequence is Left, Middle, Right. Use the code letters A = adult or C = a child under age 16. For example, if one child is sitting in the middle of the rear seat the record should show __ C __ .

Driver Belt: If the driver of the vehicle gets out of the car, to go take the children into the building or pick them up, or just unbuckles to help the children get in or out of the car, when the car leaves the parking lot make a second observation of the driver's belt use. If the driver does not unbuckle or get out of the car, omit the second observation.

8. If a car stays in the parking lot for a long period of time (i.e. the driver stays at the school), when the car leaves, if you cannot readily find where you had written the licence number before (it may be on a previous page), simply write the licence number again. If there are kids in the car mark it as a pick-up. If there are no kids in the car, mark it as a drop-off. In this case, the driver belt use should only be recorded at the end of the line. In other words, treat the first driver belt observation as for drivers arriving, and the observation of driver belt at the end of the line is only for drivers who are leaving.

9. When you begin the second page of data, record the information at the top including the new time to the nearest hour.
Appendix B

Agenda for Each Intervention Activity
Instructions for Safety Belt Contingent Rewards

General:
The first task in all the activities is to explain to the children that they will get a reward for using their safety belt when they go home in their car.

Remember to collect one page of the data book at the beginning of each day (from the day before).

Beginning on Tuesday also give a smiley face sticker to each child each day along with the reward given in the parking lot.

Awareness:

TEAM LEADER FOR THIS PROJECT: Bob
Team members: Michelle and Kim
9:30 Explain the clicker incentive for belt use
9:33 Introduce the theme of Safety Belt Use
9:35 Tell the children that you will play a song about "Buckle Up". They can draw posters about why they think it is good to use a Safety Belt while they listen to the song.
9:38 Hand out poster materials
9:42 Play Buckle Up song
9:50 Collect posters, hand out Data Books
9:53 Explain how to use Data Book
(tomorrow will collect the first page)
11:53 Hand out clickers after child gets in the car and puts on safety belt.

Modeling:

TEAM LEADER FOR THIS PROJECT: Mike
Team members: Jeff and Marta
9:30 Explain balloon incentive for belt use
9:35 Collect page from Data Book
(make sure they are signed)
9:38 Police Officer tells children why it is important to use safety belt on every trip. He also tells them about VA safety belt law.
9:42 Police models safety belt use in police car.
9:45 Children allowed to get in a car and put on safety belt. (this is important) Count how many children do this and record this data.
11:45 Hand out balloons and stickers in the parking lot to children who use safety belt.
Commitment:

TEAM LEADER FOR THIS PROJECT: Steve
Team members: Rick, Laura and Kirsten
9:30 Explain incentive for lifesavers for belt use
9:33 Vince and Larry do pantomine
9:35 Vince and Larry hand out signed promise cards
9:48 Children solve riddle
9:55 Explain how children can make a Buckle Up promise and sign their name. They should show it to their parents and ask the parent to sign the other side of the card and hang it on their mirror.
11:45 Hand out lifesavers and stickers in parking lot for belt use.

Role Play:

TEAM LEADER FOR THIS PROJECT: Kim
Team members: Mike, Bob and Steve
9:30 Explain incentive of button pins for belt use.
9:33 Collect data page
9:35 Do skit, get as many children involved as possible
9:55 Hand out Membership application cards. Explain how to fill out the card.
11:45 Hand out button pins and stickers in parking lot for belt use.

Rule Transfer:

TEAM LEADER FOR THIS PROJECT: Bob
Team members: Michelle and Kim
9:00 Explain incentive of Flash Card for belt use.
9:05 Collect last 2 pages of Data Book
9:10 Demonstrate flashing
9:15 Practice flashing on the way to the pool while riding in the bus
11:30 When returning from pool give data postcard and explain how to use it
11:45 Do flashing in parking lot to parents coming to pick up the children. Give smiley face and tell child they can keep the Flash Card.
Instructions for Participation Contingent Rewards

General:

The first task in all the activities is to establish the incentive. The idea is to have the child believe that he/she is going to be rewarded only if they participate in the activity.

Remember to collect one page of the data book at the beginning of each day (from the day before).

Awareness:

9:30 Introduce theme of safety belt use
9:33 Tell about incentive for participation
9:35 Tell the children that you will play a song about "Buckle Up". They can draw posters about why they think it is good to use a Safety Belt while they listen to the song.
9:38 Hand out poster materials
9:42 Play Buckle Up song
9:50 Collect posters, give a clicker to each child who completed a poster. Hand out Data Books
9:53 Explain how to use Data Book (tomorrow will collect the first page)

Modeling:

9:30 Tell about balloon incentive for participation
9:35 Collect page from Data Book, (make sure they are signed) give stickers
9:38 Police Officer tells children why it is important to use safety belt on every trip. He also tells them about VA safety belt law.
9:42 Police models safety belt use in police car.
9:45 Children allowed to get in a car and put on safety belt. (this is important) Count how many children do this and record this data. Give child a balloon as they get out of the police car.
Commitment:

9:30 Explain the incentive for lifesavers. Collect data pages and give out stickers
9:33 Vince and Larry do pantomime
9:35 Vince and Larry hand out unsigned promise cards
9:48 Children solve riddle, give lifesavers.
9:55 Explain how children can make a Buckle Up promise and sign their name. Vince and Larry sign their name. They should show it to their parents and ask the parent to sign the other side of the card and hang it on their mirror.

Role Play:

9:30 Explain button pin incentive for participation.
9:33 Collect data page, give out stickers
9:35 Do skit, get as many children involved as possible
9:55 Hand out Membership application cards. Explain how to fill out the card. Explain that if they fill it out, they will get an official membership card.

Rule Transfer:

9:00 Explain incentive to keep Flash Card.
9:05 Collect last 2 pages of Data Book, give stickers.
9:10 Demonstrate flashing
9:15 Practice flashing on the way to the pool while riding in the bus
11:30 When returning from pool give data postcard and explain how to use it
11:45 Do flashing in parking lot to parents coming to pick up the children
Instructions for Noncontingent Rewards

General:

The first task in all the activities is to hand out the gift for that day. Never give the impression that the gift is a reward for doing something (that is why it is handed out first).

Remember to collect one page of the data book at the beginning of each day (from the day before).

Beginning on Tuesday also give a smiley face sticker to each child each day along with the other gift.

Awareness:

9:30 Hand out clickers
9:33 Introduce the theme of Safety Belt Use
9:35 Tell the children that you will play a song about "Buckle Up". They can draw posters about why they think it is good to use a Safety Belt while they listen to the song.
9:38 Hand out poster materials
9:42 Play Buckle Up song
9:50 Collect posters, hand out Data Books
9:53 Explain how to use Data Book
(tomorrow will collect the first page)

Modeling:

9:30 Hand out balloons filled with helium
9:35 Collect page from Data Book
(make sure they are signed)
9:38 Police Officer tells children why it is important to use safety belt on every trip. He also tells them about VA safety belt law.
9:42 Police models safety belt use in police car.
9:45 Children allowed to get in a car and put on safety belt. (this is important) Count how many children do this and record this data.
Commitment:

9:30  Vince and Larry hand out Lifesavers
9:33  Vince and Larry do pantomine
9:35  Vince and Larry hand out signed promise cards
9:48  Children solve riddle
9:55  Explain how children can make a Buckle Up promise and sign their name. They should show it to their parents and ask the parent to sign the other side of the card and hang it on their mirror.

Role Play:

9:30  Hand out Button Pins and Club Membership card
9:33  Collect data page
9:35  Do skit, get as many children involved as possible
9:55  Hand out Membership application cards. Explain how to fill out the card.

Rule Transfer:

9:00  Hand out flash cards
9:05  Collect last 2 pages of Data Book
9:10  Demonstrate flashing
9:15  Practice flashing on the way to the pool while riding in the bus
11:30 When returning from pool give data postcard and explain how to use it
11:45 Do flashing in parking lot to parents coming to pick up the children
Appendix C

My Safety Belt Data Book
MY SAFETY BELT DATA BOOK

THANK YOU FOR BUCKLING UP

<table>
<thead>
<tr>
<th>Name</th>
<th>License #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Who Drove?</td>
</tr>
<tr>
<td>Morning</td>
<td>Mom or Dad</td>
</tr>
<tr>
<td>Noon</td>
<td>Mom or Dad</td>
</tr>
</tbody>
</table>

DID YOU KNOW

That in:

1885
Seat belts were used on some horsedrawn carriages

1910
First safety belt was used on a U.S. Plane

1922
Racer Barney Oldfield used the first safety belt in a car

1926
Safety belts were required in open-cockpit commercial planes.

1949
A carmaker (Nash) installs first factory-installed seat belts
Name ___________ License # ___________

Tuesday
Who used A Safety Belt?

Who Drove?

Driver

Me

Morning  Mom or Dad

Yes  No

Noon  Mom or Dad

Yes  No

MAZE

Everyone knows that they should buckle their safety belt. One of the drivers below forgot and one remembered. They both had a wreck. Find the driver that wore his safety belt.

Air Bags

Air bags fit into steering wheels or dashboards. Sensors built into the bumper can tell when a car travelling at more than 12 miles per hour hits something. The impact sets off a can of special gas that inflates the air bag. In less than a second the bag inflates and deflates.

Name ___________ License # ___________

Wednesday
Who used A Safety Belt?

Who Drove?

Driver

Me

Morning  Mom or Dad

Yes  No

Noon  Mom or Dad

Yes  No

Percentage of people who buckle in:

England  95%
West Germany  94%
Australia  92%
USA  34%

We are behind some countries, but the percentage of Americans is growing.

That's why Uncle Sam Wants YOU to Buckle Up.

21 22 23 24
25 26 27 28
18 19 20 21
16 17 18 19
15 16 17 18
14 15 16 17
13 14 15 16
12 13 14 15
11 12 13 14
10 11 12 13
9 10 11 12
8 9 10 11
7 8 9 10
6 7 8 9
5 6 7 8
4 5 6 7
3 4 5 6
2 3 4 5
1 2 3 4
21 22 23 24
25 26 27 28
18 19 20 21
16 17 18 19
15 16 17 18
14 15 16 17
13 14 15 16
12 13 14 15
11 12 13 14
10 11 12 13
9 10 11 12
8 9 10 11
7 8 9 10
6 7 8 9
5 6 7 8
4 5 6 7
3 4 5 6
2 3 4 5
1 2 3 4
21 22 23 24
25 26 27 28
18 19 20 21
16 17 18 19
15 16 17 18
14 15 16 17
13 14 15 16
12 13 14 15
11 12 13 14
10 11 12 13
9 10 11 12
8 9 10 11
7 8 9 10
6 7 8 9
5 6 7 8
4 5 6 7
3 4 5 6
2 3 4 5
1 2 3 4
Name ___________ License # ___________

Thursday

Who used A Safety Belt?

Time Who Drove? Driver Me

<table>
<thead>
<tr>
<th>Morning</th>
<th>Mom or Dad</th>
<th>Yes No</th>
<th>Yes No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Noon</th>
<th>Mom or Dad</th>
<th>Yes No</th>
<th>Yes No</th>
</tr>
</thead>
</table>

Automatic seat belts

When you get in the front seat of a car with an automatic seat belt, you don't have to buckle up. A shoulder belt is automatically pulled across the passengers.

Look for these words about seat belts hidden in the word block:

- accident
- shoulder
- trip
- lap
- driving
- belt
- bus
- body
- car
- adjust
- road
- restraint
- highway
- health
- click
- protect
- lock
- comfortable
- fasten
- traffic
- seat
- law
- parents
- caution
- lifeguard
- prevention
- seatbelt
- lifesaver
- buckle
- safety
- comfortable
- bus
- life guard
- ample
- belts
- lock
- seat
- tie
- automatic
- trig
- fs
- buckle
- l
- r
- h
- safety
- seat
- p
- w
- no
- seat
- belt
- wa
- at
- str
- r
- un
- seat
- fasten
- shoulder
- driving

Name ___________ License # ___________

Friday

Who used A Safety Belt?

Time Who Drove? Driver Me

<table>
<thead>
<tr>
<th>Morning</th>
<th>Mom or Dad</th>
<th>Yes No</th>
<th>Yes No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Noon</th>
<th>Mom or Dad</th>
<th>Yes No</th>
<th>Yes No</th>
</tr>
</thead>
</table>

What about school buses?

Kids often wonder why school buses don't have safety belts. Some people think they are needed. Because school buses have so few accidents, other people don't agree. Only about 75 school systems have added belts to some of their buses.

25 States currently have safety belt laws. Virginia will too starting January 1, 1988.
Appendix D

Words to "Buckle Up" Song
BUCKLE UP

Words & Music by Joe Scruggs

So I said Mom please put your seat belt on
I want you to be safe no one else can take your place
And I know that you are a good driver too
But what about that car coming straight at you?

And dear Dad you know that I'd be glad
If you'd get that seat belt out from under the door
Buckle it up show me that you're smart
It's better than it dragging on the ground making sparks
Buckle Up

Buckle Up your seat belt
That's what you should do
'Cause you may not be looking for trouble
But trouble may come looking for you

When you're riding in your car
Buckle up!
Even if it's not very far
Buckle up!
Put the kids in the car seat too
Buckle up!
That's the safe thing to do
Buckle up!
Pull your seat belt snug so it fits
Buckle up!
Wear it low, over your hips
Buckle up!
We know you're hard to replace
Buckle up! and we want you to be safe
Buckle up!

Buckle Up your seat belt
That's what you should do
'Cause you may not be looking for trouble
But trouble may come looking for you
Appendix E

Buckle Up Promise Card
DEAR PARENT:
Traffic accidents are the NUMBER ONE killer of young people (ages 2 to 44). Every year in this country more than 34,000 people are killed and 300,000 are injured in traffic accidents, amounting to annual financial liabilities exceeding $60 billion. More than half these deaths and injuries could be prevented if safety belts were used consistently.

MAKE A
BUCKLE UP PROMISE
One out of every 60 children born today will die in a highway crash. Three out of four highway fatalities occur within 25 miles of home. Thus it is critical to develop the habit of buckling up on EVERY trip. So for your own sake and your family please consider joining your child in making a buckle up promise...

... IT COULD BE A LIFESAVER
Tear off the card and hang it on your rearview mirror as a reminder of your promise to buckle up.

I promise to use my safety belt every time I drive or ride in a car for the next month. I will encourage others to do the same.
Signed

IS A SAFETY BELT AND A ROUND PIECE OF CANDY THE SAME?
YES ...
BUCKLE
CLICK
SAFETY
BELT
STRAP
LAW
DRIVE
SEAT
TRIP
CARS

If you can solve this riddle you are no dummy. You may save your life too by MAKING A ...

BUCKLE UP PROMISE
To make a promise, write your name
Appendix F

Buckie Buckle Story
BUCKIE BUCKLE

By Galen R. Lehman
(copyrighted, use only by permission)

Instructions: This is an audience participation story. The audience helps to say the words underlined.

When Buckie Buckle was a little baby, he was born with a seat belt where his belly button was supposed to be. When his dad, whose name was Ben Belt Buckle, and his mom, whose name was Sally Safety Seat, brought Buckie home from the hospital, they buckled his buckle in a child safety seat and Buckie Buckle said, "I like my buckle buckled."

One day, Buckie Buckle went with his dad, whose name was ...Ben Belt Buckle, in the car to the gas station. Buckie Buckle pulled on his safety belt and made it go CLICK. And he said, "I like my buckle buckled!"

Buckie looked over and his dad didn't have his safety belt on. Buckie Buckle said, "Daddy, may I ask you a question?" Buckie's dad, whose name was ...Ben Belt Buckle, said "sure." Buckie Buckle asked, "Why don't you have your safety belt on?" Ben Belt Buckle said, "But Buckie, we are just going to get some gas on the next street." Just then a car came around the corner and... CRASH! Buckie's dad, whose name was Ben Belt Buckle, hit
his nose on the steering wheel. Polly Policewoman said, "Ben Belt Buckle, don't you know that three out of every four accidents happen very close to home?" How many accidents? 1 2 3 4 Ben Belt Buckle went to the hospital and got five stitches in his nose. How many stitches? 1 2 3 4 5 stitches!

The next day, Buckie Buckle went with his mom, whose name was Sally Safety Seat, in the car to the grocery store. Buckie Buckle pulled on his safety belt and made it go ... CLICK. And he said, "I like my buckle buckled!" Buckie looked over and his mom didn't have her safety belt on. Buckie Buckle said, "Mommy, may I ask you a question?" Buckie's mom, whose name was ... Sally Safety Seat, said "sure." Buckie Buckle asked, "Why don't you have your safety belt on?" Sally Safety Seat said, "But Buckie, I have been driving for ten years and never had an accident." Just then a car came around the corner and... CRASH! Buckie's mom, whose name was Sally Safety Seat, hit her head on the windshield. Polly Policewoman said, "Sally Safety Seat, don't you know that every one of us can expect to be in an accident once every ten years?" How many years? 1 2 3 4 5 6 7 8 9 10! Sally
Safety Seat went to the hospital and got six stitches in her head. How many stitches? 1 2 3 4 5 6 stitches!

The next day, Buckie Buckle went with his grandpa, whose name was Big Buck, in the car to the bank. Buckie Buckle pulled on his safety belt and made it go ... CLICK. And he said, "I like my buckle buckled!" Buckie looked over and his grandpa didn't have his safety belt on. Buckie Buckle said, "Grandpa, may I ask you a question?" Buckie's grandpa, whose name was ... Big Buck, said "sure." Buckie Buckle asked, "Why don't you have your safety belt on?" Big Buck said, "But Buckie, I feel safe because my bucks are in the bank safe." Just then a car came around the corner and... CRASH! Buckie's grandpa, whose name was Big Buck, hit his chin on the dashboard. Polly Policewoman said, "Big Buck, don't you know that every year accidents in the United States cost more than 60 billion bucks?" How many bucks? 10 billion 20 billion 30 billion 40 billion 50 billion 60 billion bucks! Big Buck went to the hospital and got seven stitches in his chin. How many stitches? 1 2 3 4 5 6 7 stitches!
The next day, Buckie Buckle went with his grandma, whose name was Designer Dress, in the car to the mall. Buckie Buckle pulled on his safety belt and made it go ... CLICK. And he said, "I like my buckle buckled!" Buckie looked over and his grandma didn't have her safety belt on. Buckie Buckle said, "Grandma, may I ask you a question?" Buckie's grandma, whose name was ... Designer Dress, said "sure." Buckie Buckle asked, "Why don't you have your safety belt on?" Designer Dress said, "But Buckie, the safety belt might make my dress wrinkled." Just then a car came around the corner and... CRASH! Buckie's grandma, whose name was Designer Dress, tore her dress on the turn signal. Polly Policewoman said, "Designer Dress, don't you know that lots of dresses get torn every year when more than 50 thousand people die in car accidents?" How many people die? 10 thousand 20 thousand 30 thousand 40 thousand 50 thousand people! Designer Dress went to the hospital and got eight stitches in her dress. How many stitches? 1 2 3 4 5 6 7 8 stitches!

The next day, Buckie Buckle went with his cousin, whose name was Massive Muscles, in the car to a football
game. Buckie Buckle pulled on his safety belt and made it go ... CLICK. And he said, "I like my buckle buckled!"

Buckie looked over and his cousin didn't have his safety belt on. Buckie Buckle said, "May I ask you a question?"

Buckie's cousin, whose name was ... Massive Muscles, said "sure." Buckie Buckle asked, "Why don't you have your safety belt on?" Massive Muscles said, "But Buckie, I can brace myself with my massive muscles so that I won't get hurt if we have an accident." Just then a car came around the corner and... CRASH! Buckie's cousin, whose name was Massive Muscles, cut his massive muscles on the gear shift. Polly Policewoman said, "Massive Muscles, don't you know that when you are in a crash at 30 MPH your body weighs more than ten tons?" How many tons? 1 2 3 4 5 6 7 8 9 10 tons! Massive Muscles went to the hospital and got nine stitches in his massive muscles. How many stitches? 1 2 3 4 5 6 7 8 9 stitches!

Finally, when Buckie Buckle grew up to be 16 years old, he got his own drivers license. He drove to the hospital to bring all his relatives home. Ben Belt Buckle got in the car and pulled on his safety belt and made it go ... CLICK! Sally Safety Seat got in the car and pulled
on her safety belt and made it go ... CLICK! Big Buck got in the car and pulled on his safety belt and made it go ... CLICK! Designer Dress got in the car and pulled on her safety belt and made it go ... CLICK! Massive Muscles got in the car and pulled on his safety belt and made it go ... CLICK! Buckie Buckle asked, "Why are you all buckling your buckles?" And they all said, "WE LIKE OUR BUCKLES BUCKLED!"
Appendix G

Application Form for Buckie Buckle Club Membership
Buckie Buckle Club Application

Name ____________________

Address ____________________

License Numbers on the cars in my family:

Buckie Buckle Club members:
- Always use a safety belt.
- Say "I love my buckle buckled."
- Ask unbuckled people "Why don't you have your safety belt on?"

Buckie Buckle

Return Address

From Parent:

I give my child permission to join the "Buckie Buckle Club". I understand that there is no cost or obligation involved.

signed: ____________________

To:

5100 Derring Hall
Virginia Tech
Blacksburg, VA 24061
Appendix H

Buckie Buckle Membership Card
OFFICIAL MEMBERSHIP CARD OF THE
BUCKIE BUCKLE CLUB

This card is awarded to

__________________________

Buckie Buckle

with all the rights, privileges,
honors, and responsibilities
pertaining thereto.

Front

Buckie Buckle Club Members:
• Always use a safety belt.
• Say "I love my buckle buckled."
• Ask unbuckled people "Why don't
  you have your safety belt on?"

Back
Appendix I

Flash Card
PLEASE BUCKLE UP
I CARE

THANK YOU!
FOR BUCKLING UP
Appendix J

Rules for Flash Card Game and Score Card
THE BUCKLE UP GAME

The BUCKLE UP GAME is a game for vehicle passengers — young and old. The object of the game is to get people in other cars to buckle their safety belts.

Instructions for Playing the Game

When you see an unbuckled person in a car at a stop light or stop sign, hold the flash card in the window of your car so that the driver or passenger of the other stopped car can see the message "Please Buckle Up...I Care". If the other person sees the card and buckles up, flip the card over to say "Thank You".

Instructions For Keeping Score

Each time you show the card, mark a tally in the "Show" column. Each time someone responds by buckling up, mark a tally in the "Buckled" column. (see other side)

<table>
<thead>
<tr>
<th>Show</th>
<th>Buckled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
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<td></td>
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</tbody>
</table>

To:
Psychology Department
5100 Derring Hall
Virginia Tech
Blacksburg, VA 24061
Appendix K

Data Sheet for Contingency Manipulation Check
Data Sheet for Checking the Kids ability to Determine the Contigencies Governing Why they got Goodies

<table>
<thead>
<tr>
<th>School</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td></td>
</tr>
</tbody>
</table>

1. Name _______ Item _______ Age ____ Sex ___
   Participation Seat Belt Use Non-contingent ?
   Comments: ______________________________________

2. Name _______ Item _______ Age ____ Sex ___
   Participation Seat Belt Use Non-contingent ?
   Comments: ______________________________________

3. Name _______ Item _______ Age ____ Sex ___
   Participation Seat Belt Use Non-contingent ?
   Comments: ______________________________________

4. Name _______ Item _______ Age ____ Sex ___
   Participation Seat Belt Use Non-contingent ?
   Comments: ______________________________________

5. Name _______ Item _______ Age ____ Sex ___
   Participation Seat Belt Use Non-contingent ?
   Comments: ______________________________________

6. Name _______ Item _______ Age ____ Sex ___
   Participation Seat Belt Use Non-contingent ?
   Comments: ______________________________________
Appendix L

Fast Food Restaurant Coupon
SPECIAL DAY AT BURGER KING

SATURDAY AUGUST 8 • 11 am till 2:00pm
at Drive Thru Only

"Summer Playground Program" children and their parents ONLY

CHILDREN MUST BE PRESENT TO REDEEM COUPON

... CLOWN ... BALLOONS ... FREE MEALS ...

INCLUDING:

- Whopper
- Hamburger
- Regular Fries
- Regular Drinks

• • • Coupons to be given out on Friday • • •
1 Adult Meal and ____ Child Meals
Saturday, Aug. 6 from 11 a.m. til 2 p.m
At Blacksburg's Burger King
Limit: 1 Coupon, per car, per visit

*Drive Thru Only*
Adult meal: 1 Whopper, Fries & Drink;
Child meal: 1 Hamburger, Fries & Drink.
Children in the "Summer Recreation" program must be present at the pick-up window to redeem this coupon.
Appendix M
Evaluation Questionnaire
EVALUATION OF SAFETY BELT PROMOTION ACTIVITIES

During the week of July 13 to 17, we presented a variety of activities about safety belt use to the children. We have collected some data in the parking lots to help assess what impact the safety belt promotion may have had on the children. You can help us improve the information gathered for our research if you answer these few questions. Circle your answers where appropriate.

____ Sorry, my child was not involved in the program that week (don't answer the questions, just return this paper in the envelope).

1. Since the week of safety belt activities ended, has your child talked about using a safety belt? YES NO

2. Have you noticed any change in your child's safety belt use? YES, uses more often; YES, uses less often; NO Change

3. As a result of the safety belt promotion activities, did your child ever attempt to influence another family member or friend to use a safety belt? YES NO

4. Has your child's participation in the safety belt promotion influenced your own safety belt use?  
   ____ NO, I always used my safety belt before the promotion  
   ____ NO, My safety belt use is the same (irregular)  
   ____ NO, I never use a safety belt  
   ____ YES, I use a safety belt more often now

5. Do you know which of the safety belt activities your child may have enjoyed the most? YES NO  
   If YES, Which activity? ____________________________

6. Do you think it is OK to give a reward to a child who uses a safety belt? YES NO UNCERTAIN

7. During your last 10 trips, how many times did you use your safety belt? 0 1 2 3 4 5 6 7 8 9 10

8. If there was any aspect of the safety belt promotion that you as a parent particularly liked or disliked, please comment on the back of this paper:

Thank you for your helpful participation,

Gagan J. Lehman, Ph.D. Candidate
Virginia Tech
Phone 961-6223

OPTIONAL: Your name: ________________________________
           Child's name: ________________________________
Appendix N

Tables of Safety Belt Use By Participants
TABLE 12

Safety belt use by children who attended the intervention activities at Margaret Beeks school and received rewards contingent on safety belt use when exiting the school parking lot with their parent. During baseline data collection, every time these children were observed they were using their safety belt. Thus, the data from these children was excluded from further analyses. Safety belt use by their parents is also shown.

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>CHILD</th>
<th>MOTHER</th>
<th>FATHER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base*</td>
<td>Int</td>
<td>With</td>
</tr>
<tr>
<td>17</td>
<td>6/6</td>
<td>8/8</td>
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<tr>
<td>18</td>
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</tr>
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</tbody>
</table>

* Base = Baseline    Int = Intervention    With = Withdrawal
TABLE 13

Safety belt use by a child who attended the intervention sessions at Gilbert Linkous school and received rewards contingent on participating in the activities. During baseline data collection, this child was observed only once, but was using a safety belt. Thus, the data from this child was excluded from further analyses. Safety belt use by the parents is also shown.

<table>
<thead>
<tr>
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<th>FATHER</th>
</tr>
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<td>12/13</td>
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</tbody>
</table>

* Base = Baseline    Int = Intervention    With = Withdrawal
TABLE 14

Safety belt use by children who attended the intervention activities at Harding Avenue school and received noncontingent rewards. During baseline data collection, every time these children were observed they were using their safety belt. Thus, the data from these children was excluded from further analyses. Safety belt use by their parents is also shown.

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</table>

* Base = Baseline    Int = Intervention    With = Withdrawal
TABLE 15

Safety belt use by children who attended the summer recreation program at Margaret Beeks school but were not observed during the intervention activities or during the withdrawal phase. Thus, the data from these children was excluded from further analyses. Safety belt use by their parents is also shown.

<table>
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<td>4/4</td>
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</table>

* Base = Baseline    Int = Intervention    With = Withdrawal
TABLE 16

Safety belt use by children who attended the summer recreation program at Gilbert Linkous school but were not observed during one of the experimental phases. Thus, the data from these children was excluded from further analyses. Safety belt use by their parents is also shown.

<table>
<thead>
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<th>With</th>
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* Base = Baseline    Int = Intervention    With = Withdrawal
TABLE 17

Safety belt use by children who attended the summer recreation program at Harding Avenue school but were not observed during one of the experimental conditions. Thus, the data from these children was excluded from further analyses. Safety belt use by their parents is also shown.

<table>
<thead>
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<th>FATHER</th>
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<tbody>
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<td>---</td>
<td>14/20</td>
</tr>
</tbody>
</table>

* Base = Baseline  Int = Intervention  With = Withdrawal
Appendix O
Vita
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