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#### **ABSTRACT**

This paper presents an evaluation of the effects of attending a pre-kindergarten, two-week course in safety education which emphasized safety. A total of 200 preschool subjects evenly divided into a treatment group and control group, were given a 50-item instrument developed from the safety curriculum. The test scores of the two groups were compared to determine significant differences in knowledge of safety practices. Additional comparisons within each group, and by sex, were made. The results of a t-test indicate significant differences between the two groups. No sex differences were found. An item analysis of the test instrument indicates that all but three of the items were adequate discriminators. (CS)

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AN EVALUATION OF THE CHAMPAIGN-URBANA SAFETY TOWN PROGRAM

BY

NICHOLAS A. ADESSO

B.S., University of Illinois, 1973

#### THESIS

Submitted in partial fulfillment of the requirements for the degree of Master of Science in Health Education in the Graduate College of the University of Illinois at Urbana-Champaign, 1974

Urbana, Illinois

#### ABSTRACT

#### AN EVALUATION OF THE CHAMPAIGN -URBANA SAFETY TOWN PROGRAM

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<u>Purpose</u>. The purpose of this study was to determine the effects of attending the Safety Town program, located in Champaign - Urbana, Illinois. In the two years that the program has been in existence, no formal evaluation has been made. This study provides such an evaluation.

Significance. Safety Town provides pre-kindergarten children with a two-week course in safety education, emphasizing traffic safety. According to the principle of primacy, the learning experiences of early childhood probably form the basis of unconscious motivations and habitual behavior patterns of later life. If this principle is valid, programs which inculcate strong positive behaviors and habits as early as possible should be considered mandatory.

Present ongoing programs which provide these early learning activities, such as Safety Town, should incorporate an evaluation plan in their design. Unfortunately, very few programs have accomplished this goal. This study was undertaken to provide an assessment of the Champaign - Urbana Safety Town program, in order to determine its effectiveness.

Procedure. Treatment and Control groups were selected using techniques established as essentially equal. Two hundred subjects were chosen: one-half for the Treatment group and one-half for the Control group. A fifty item test instrument was developed from the Safety Town curriculum. A double-blind test design was used to minimize experimenter bias. The test instrument was administered to each of the two hundred subjects. After the data were compiled and coded, the t-test for independant samples was used to show any significant differences between the two major groups. Inter-group and intra-group, as well as sex differences were analyzed by the t-test procedure.

In addition to the t-test, an item analysis was performed to evaluate the test instrument. Item difficulty was shown by the percentage of subjects responding correctly to it. The discriminating power of an item was measured by the point-biserial correlation (RBPI). The RBPI also reflects the validity of the test instrument. The Kuder-Richardson reliability estimate (KR-20) was used to show the reliability of the test instrument.

Summary. This study was conducted to evaluate the Safety Town program of Champaign - Urbana, Illinois. Two groups were compared to determine any significant differences between them with respect to safety knowledge and knowledge of safety practices as reflected by their test scores. Additional comparisons within each group, and by sex, were also made. The results of the t-test indicated very significant differences between the two major groups compared. No sex differences were found. The item analysis of the test instrument indicated that all but three of the items were adequate discriminators.



Conclusions. The following conclusions were based on the findings of this study:

- 1. Significant differences were observed between the Treatment group and the Control group. Since the only difference between the two groups was attendance at Safety Town, it can be concluded that the program was primarily responsible for the large differences in the scores obtained.
  - 2. No sex differences existed within either major group tested.
- 3. The test instrument developed was shown to be an accurate tool for discriminating among the groups tested. All but three items met the criteria established in this study for validity and reliability.



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† Required for doctor's degree but not for master's.	<del></del>
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To Cathi and Matthew



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#### CHAPTER I

#### THE PROBLEM

Until recently, educating preschoolers was virtually left to the discretion of the individual child's parents. Day care centers and other such preschool facilities were used as nothing more than formalised babysitters. They provided the children in attendance at their facility with "fun and games" periods; at best, this may be regarded as a crude attempt to socialize the children. Within the last decade, a movement has been emerging from an inter-disciplinary attempt to provide educational experiences to those children enrolled in preschool programs. As Dennison points out, "Educators who once considered child day care programs as having no potential or significance are now becoming more interested in preschool programs. Perhaps the most important russon for this regoonition is that the literature is replete with research indicating that intellectual growth and positive behaviors are easier to stimulate during preschool years" (4:358). Presentday American children have shown that they are capable of learning many academic skills as well as a variety of other behaviors at ages which a generation ago, children were considered to be too immature to comprehend. Why waste this potential? Perhaps, with the proper structuring, educators can harness this potential ability and channel it into worthwhile directions.

One such direction educators may go is the area of safety education, and to be more precise, traffic safety education. Referring to the statistics presented in the National Safety Council's <u>Accident Facts</u>, it can be seen that over one-third of the fatalities caused by accidents in the one to four year age group were the result of motor vehicle mishaps (1:8). What a waste



of innocent lives! Surprisingly enough though, there are very few programs available in the United States whose purpose is to reduce these accidents. If this situation continues, more lives will be lost to preventable accidents involving preschool children. Hopefully, more attention will be drawn to this area of education and possibly corrective action will be taken to reduce this unnecessary waste of lives.

# Statement of the Problem

The purpose of this study was to determine the effects of attending the Safety Town Program. In order to accomplish this, two groups of preschoolaged children were established: an experimental or treatment group and a control or non-treatment group. The children in the treatment group attended the two-week Safety Town program, while those in the control group did not attend this program. Inter-group and intra-group differences were evaluated on the basis of responses given to the testing instrument.

# Specific Problems

The following were sub-problems which contributed pertinent details to the general problem:

- 1. the development of the testing instrument to be used as an effective differentiating tool;
- 2. the necessity of obtaining parental permission to allow their children to participate in the study;
  - 3. finding evidence that the test group was randomly selected;
- 4. procuring the list of names required to establish the control group;
- 5. locating a facility to administer the testing instrument to the children:



6. using the t-test to test the null hypothesis.

#### Definition of Terms

In an effort to eliminate confusion and ambiguity, the following terms will be defined:

- 1. Experimental Group test group, treatment group, refers to those children in the study who attended the two-week Safety Town program, during the Summer of 1973;
- 2. Control Group non-treatment group, refers to those children, chosen at random, from the cities of Champeign and Urbana to participate in the study, and who did not attend the Safety Town program;
- 3. Test Instrument a fifty item tool used as a differentiating instrument to test any variability between the treatment group and the control group, or any intra-group variation;
- 4. Safety Knowledge ability of the student to understand the questions asked of him/her on the Test Instrument;
- 5. Knowledge of Safety Practices ability of the student to accurately describe the actions required to react to hypothetical situations presented in the Test Instrument.

# Basic Assumptions

Assumptions of the study were:

- that the testing instrument developed would be able to effectively discriminate inter-group and intra-group differences;
- 2. that the method of selecting the experimental and control groups established their equivalence for the purposes of this study.



#### <u>Delimitations</u>

The following boundaries were in effect during the execution of this study:

- 1. The participants of both groups were restricted in that:
  - a. all were to begin Kindergarten in the Fall of 1973;
  - b. their ages ranged between four (4) and five (5) years old;
  - c. all resided in the Champaign-Urbana cities of Illinois.
- 2. The testing instrument used in this study measured child responses to hypothetical situations and did not test the child's behaviors in real-life situations.

#### Significance of the Study

"According to the principle of primacy, the learning experiences of early childhood are more likely to form the basis of unconscious motivations and habitual behavior patterns that are the experiences of later life. It follows, therefore, that children should be instructed in safety at the earliest age possible" (7:31). Coupling the primacy principle with the findings of a safety study conducted by Read (22:838-847), which indicated that the ages between three and five years are the peaks for traffic accidents involving both boys and girls, one has to wonder why preschool programs in this area are so lacking. If it is true that early behavior patterns persist throughout one's lifetime, inculcating strong positive behaviors, attitudes, and beliefs in young children is not only required, but mandatory. If the goal of the safety educator is to develop safety-conscious and responsible traffic citizens, it follows that the area of preschool education should not be neglected.

In theory, the idea of effective early education seems feasible; but,



if in fact, it meets all of its claims is the question yet to be answered.

Only by evaluating existing programs which deal with early education, can

we determine their effectiveness and worth. It is not enough merely to say
that we have many programs directed at preschoolers. We must have programs
that are doing some good to be of any value.

One such preschool program exists in Champaign-Urbana, Illinois. It is called "Safety Town" and is sponsored by the Champaign-Urbana Junior Women's Club. This particular program offers pre-kindergarten youngsters the opportunity to participate in a number of learning experiences dealing with a variety of safety areas. The major area of concentration is placed upon traffic situations commonly encountered by children of this age group. The program is entering its second year, but up until this study, no assessment of its worth has been made. This study will offer to provide us with an assessment of the Safety Town Program. Providing feedback to the program's sponsors may initiate modifications necessary to improve its effectiveness. Thus, the probability of attaining the objectives of this program will be increased. In turn, these changes may eventually lead to an expansion of the program's operation, thereby reaching greater numbers of preschool aged children.

# Research Hypothesis

The treatment group, which is composed of those children who attended the two-week Safety Town Program, will show evidence of greater advancement in the direction of formation of safety knowledge and knowledge of safety practices associated with the safety-conscious citizen. This difference will be shown by significantly higher scores attained on the testing instrument which has been administered to both groups.



Furthermore, there will be little significant difference within each of the groups with regard to the sex of its individual members. The only differences will be found between the two major groups at large.



#### CHAPTER II

#### REVIEW OF THE LITERATURE

"The magnitude of the problem of childhood accidents is emphasized by the familiar statistic that accident fatalities during the preschool years outnumber combined deaths from congenital malformations, pneumonia, cancer, and meningitis" (18:437). Of the 12,290 fatalities reported by the National Safety Council in 1973 which involved one to four year old children, 4,548 were the result of accidents. Furthermore, of this figure, more than one-third (1707) of these deaths were produced by motor vehicles (1:8).

One may query as to why there is such a large number of motor vehicle accidents involving such a young age group. Surely, parents of these young-sters would not allow them to remain unsupervised out-of-doors, where they might chance their way into the roadway and be struck by an oncoming automobile. The fact is that this is exactly what happens! Parents permit their young children to play outside of their house with neighboring children; during the play, an overthrown ball or some other play object happens into the street; the child, lacking self-control, blindly enters the roadway, not paying attention to the possible hazards which may ensue, and is struck by an approaching vehicle. This same scene frequents numerous neighborhoods, especially those in more urbanized areas, where play-ground room is at a premium.

# Behavioral Characteristics of Child Pedestrians

Matheny, et al., developed a checklist of behavioral characteristics describing various aspects of how and why children have increased exposure to hazards and factors reducing their overall ability to deal with these dangers



appropriately. The checklist is presented in Table 1 and represents a valuable tool in appraising those individual differences of behaviors found in preschool aged children. This may improve our insight into those areas which need attention in our preschool education programs. (Source: 18:438.)

#### Table 1

# A Checklist of Behavioral Characteristics Related To Accident Liability

- A. Characteristics which increase exposure to hazards
  - 1. Higher levels of general activity
  - 2. Daring
  - 3. Excessive curiosity
  - 4. Mimicry of older person's behaviors
  - 5. Gregariousness
  - 6. Happy-go-lucky
  - 7. Inability to delay gratification
  - 8. Exaggerated oral tendencies, including pica
  - 9. Easily overstimulated
- B. Characteristics which reduce ability to cope with hazards
  - 1. High-strung or "hot-headed"
  - 2. Stubborn or "hard-headed"
  - 3. Easily irritated or frustrated
  - h. Poor concentration or attention
  - 5. Heedless or careless in play
  - 6. Lack of self-control
  - 7. Aggressive

This checklist serves as the basis for a study conducted by Read (22: 838). He investigated the traffic accident problem of child pedestrians. Read attributes most of the child pedestrian accidents of the preschool years to our urbanized society. He identified three action patterns of child pedestrians which cause them to be involved in accidents: first, coming from between parked cars; second, in-street playing; and third, crossing



at an intersection or at a pedestrian crosswalk. After analyzing his data, Read discovered that the ages of three (3) and five (5) were the peak ages for accidents involving both boys and girls. The only sex difference found in this study was that even though both boys and girls peak at the same ages, the number of accidents involving boys far exceeds the number of accidents in which girls are involved. Moreover, in the ages between 3 and 5, the leading action pattern found as a cause of the accidents was running between parked cars out into the street.

Referring to Table 1, we can see that the children within the preschool age group possess daring, curiosity, overstimulation, as well as the inability to postpone or delay gratification; characteristics which may lead them to pursue a ball or some other object into the street. These same children tend to be easily frustrated--perhaps at the thought of losing the play object -- and lack self-control, are careless and inattentive to the environmental cues present, and aggressive enough to follow the object into the street without realizing the dangers that may be awaiting them. In all too tragic a manner does their education take place! However, these behavior patterns are not the result of a single factor; instead, there is a multitude of variables required to form them. According to Read, "A given pattern of child-pedestrian behavior is the result of a highly complex set of variables: the social class and ethnicity of the child, the ecological characteristics of the neighborhood and the broader community, the characteristics of the traffic pattern and the types and density of the vehicles that make it up, the current enforcement policy, climatic conditions, road and highway characteristics, and a host of other conditions that combine and interact in various ways" (22:838).



Ideally, a preschool safety program should aim to take all of these factors into account, but this may not be possible. It, therefore, should strive to include as many of these variables as it can into the program initially. Then, as the program progresses, accommodations can be made to incorporate more of those variables required to meet the needs of the community that the program is serving.

In order to assess behavior patterns, a methodology is necessary which will enable the investigator to study and analyze the various types of behaviors present in pedestrians. Heimstra, et al., employed the direct observation technique. They observed childrens' behavior in naturalistic settings and evaluated child-pedestrian behavior. In order to reduce the possible sources of error inherent in this type of data accumulation, they chose a strategic location, set up a movie camera at the site, and filmed the behaviors for later review. The results of their study can be broken down into two main categories: approach behavior and curb behavior at intersections.

Table 2

Number of Boys and Girls Walking or Running During Approach

And Recorded as Observing

Running/Walking	Boys	%	Girls	%
Running	26	31	37	144
Observing		7	4	10
Walking	57	69	46	56
Observing	11	19	7	15
Total	83		83	



In reference to approach behavior, two types were found: running and walking. Table 2 shows this breakdown, as well as any sex differences existing in both classes of behaviors. We find that while more girls are likely to be running when they enter an intersection than boys, they are more prone to be observing for oncoming traffic. However, when walking in approach to an intersection, more boys observe for traffic.

Table 3

Number of Boys and Girls Who Looked for Traffic in Relation to Approach Rate

And Stopping at Curb

Approach	Boys		Girls	
	Look	No Look	Look	No Look
Running Approach				•
Stop at Curb No Stop at Curb	7 4	2 13	13 5	1 18
Walking Approach				
Stop at Curb No Stop at Curb	9	9 30	13 15	2 16

When evaluating the curb behaviors observed among children as they appear in Table 3, sex differences can again be found. Whether running or walking, stopping at the curb or not, girls "looked significantly more than boys did. A discouraging fact found was that only 35% of all of the children came to a full stop prior to entering the street" (10:837). These findings tend to serve as confirmation of Matheny's checklist of behavioral characteristics of children in the preschool years. The study also implies



that perhaps a shift should be made from investigating accidents in the traditional sense, to investigating, analyzing and interpreting injury-producing behaviors. This would serve to evaluate those unsafe behaviors which did not culminate in an accident or an injury, and provide us with the information needed to develop programs that will foster safe attitudes and behaviors.

# Needs and Objectives of Child Safety Programs

In a paper released by the Home Department of the National Safety Council, the needs and objectives of child safety programs have been outlined.

They are as follows:

- 1. Research. The problem must be investigated and data collected so that the needs of the target population can be determined. Reliable statistics can be gathered by examining the community's accident record, conducting interviews or distributing questionnaires, observing the safety behaviors of specific age groups, surveying the various environmental factors, and utilizing any other pertinent sources. These can be combined into valid, meaningful, comprehensive and continual accident-injury information work-sheets to be used later as guides to program formulation;
- 2. Educational Programs. After the statistics have been analyzed thoroughly, objectives must be set to meet the needs of the specific age groups. A curriculum should be developed and units outlined covering a variety of areas. Any program formulated should be proportionate to the total program and include plans for the coordination of an adult portion to remove any gaps which may be formed, thus leading to the program's maximum effectiveness. Further integration can be accomplished by approaching any appropriate agency within the community and asking for their cooperation in



seeing that the program goals are met;

- 3. Publicity. Once the available data are properly combined, the needs determined, the objectives set, and the program implemented, the next phase of the project is to make the public aware of these facts by publishing them in the appropriate sources. Include such items as the severity of their particular problems, their scope, the cost in lives, money, property, and natural resources, and show how unnecessary those losses are. Point out, too, that accidents are preventable, but only through their undivided support and effort. Show the public how the program will attack these problems and how their cooperation will enhance the results and create a safe environment, and conserve the human and natural resources that they hold so dearly to themselves;
- 4. Evaluation. Each program should incorporate some method of evaluating its effectiveness. In this way, the program can be improved and modified in order to increase its probability of attaining its objectives. According to Florio and Stafford, "The analysis judges the past and provides for the future. It tries to accomplish the following tasks:
  - 1. Measure pupil progress
  - 2. Diagnose needs of the pupils
  - Provide incentives for pupils to do better
  - 4. Appraise the methods and materials of instruction
  - 5. Appraise teacher effectiveness
  - 6. Provide for a sound basis for public relations, community appreciation, and cooperation
  - 7. Serve as a basis for research
  - 8. Provide a basis for continuous curriculum revision" (7:89).

The tools used in the evaluation process can be made very similar to those used in gathering the research data and thus serve as a post-program follow-up showing specific accomplishments or weaknesses within the program.

These guidelines were proposed for use in total child safety programs.



Narrowing the scope down to the particular area of the child in traffic, as a pedestrian, and the problems associated with this area has been done by Read. He has proposed what he terms an "Action Program" to curtail the incidence of child-pedestrian traffic accidents. His plan is composed of measures focusing on accident prevention and consists of the following steps:

- 1. Assess the problem in the particular locale to be covered by the program. Refer to such files as police records, hospital records, and any other pertinent sources;
- 2. Plot the major accident areas on a map of the community, checking for any patterns or particularly dangerous crossings;
- 3. Develop a child pedestrian traffic safety index (CPTSI) which is a function of four main variables:
  - a. The number of child pedestrian accidents per year
  - b. The number of children at risk (i.e., 3-5 year olds)
  - c. The number of motor vehicles registered in the particular area
  - d. The size of the community in square miles.

CPTSI = Child pedestrian traffic accidents/sq. mi. x 10,000,000

Children (3-5)/ sq. mi. x motor vehicles/sq. mi.

This index provides a continuing evaluation of the pedestrian accident problem within a given area and thus serves as a guide to determining the effectiveness of counter-measures;

4. Develop practical counter-measures that will enhance the programs' overall effectiveness.

# Model Preschool Safety Programs

"Learning to cope with the traffic problems of our modern society can be accomplished through educational processes designed to develop individuals



who will make worthwhile contributions to a democratic society by using our highways safely and efficiently" (3:15). This statement makes reference to the total traffic safety education system. It makes no mention as to when this process of educating the population should be initiated. Earlier, the principle of primacy was discussed. It cited the rationale supporting education at the earliest age possible. If, in fact, this principle is held as truth, and early learning experiences promote behaviors and motivations which will persist throughout one's lifetime, it is mandatory to inculcate strong positive attitudes and behaviors in young children. This will assist us in achieving our intended goals of developing safety-conscious and responsible traffic citizens. To reiterate, "Safety and efficiency are two goals of our highway transportation system which depend on traffic safety instruction in the school curriculum, starting at a very early age. For it is during the formative years that a person develops attitudes and actions that will endure for a lifetime" (3:15).

Realizing the educability of our preschool aged children, several areas in the United States have begun safety programs. Many of these programs have met with great success. Some have been initiated in conjunction with the operation of already existing child development programs in day care centers, or other such facilities as the Head Start programs or the Montessori schools. The general notion being followed is that "as child care centers move from a custodial function to the educational domain, educators are predicting increased activity and improved programs for preschool children" (4:358). Further evidence of this trend in education is the increasing enrollment of children in preschool programs. Dennison points out that during the five year period from 1964 to 1969, the enrollment in preschool programs has doubled, and if this trend continues through



the 1970's, we may come to see our present school system expand to include formal education in a preschool as a prerequisite for entering kindergarten. Even President Nixon has indicated the need for increased effort in developing meaningful preschool educational curricula within the context of his plans for a comprehensive child development program. This would enable parents of the lower socioeconomic groups to obtain employment while their children are provided worthwhile experiences.

One such traffic safety program exists in Washington, D. C., and is operating in its twelfth year under the auspices of the Office of Traffic Safety. Originally, the program was instituted to combat the pedestrian accident problem involving very small and very young children. The research leading to the program's development disclosed that twenty percent (20%) of the pedestrian injuries incurred by traffic accidents were inflicted on children under five (5) years of age. This was reason enough to warrant a safety program geared to meet the needs of this young population.

In order to achieve the desired goals, a multi-faceted teaching system was put into effect. Instructors used such teaching tools as visual aids, in the form of movies as exemplified by Walt Disney's cartoon star Jimminy Cricket in "I'm No Fool"; flip-charts depicting a variety of traffic situations; model cars, traffic lights, and policemen to give the semblance of the roal-life world to the children's learning experiences. Some instructors even assumed special identities and adopted such alias' as "Professor Traffic." This seemed to provide an excellent example of a good adult model for the children and the program's effectiveness was boosted through the use of such tactics. The sessions lasted an average of thirty minutes, which was found to be the approximate attention span of children this age required for maximum learning.



The feelings about the value of the program can be summed up in the words of George A. England, the director of the Department of Motor Vehicles in Washington, D. C. He said, "We have to talk their language and get the message across. If we fail, they may not get a second chance" (6:11). The only problem area that has been encountered is the adult population of the city. Efforts must be made to get the adults on the same team as the instructors. All too often the adults set poor examples as pedestrians and sometimes can cause any positive results of the safety clinic to be broken It is difficult for a youngster to obey Professor Traffic's precepts about only crossing at corners, when the child's mother is standing by the open door of her car shouting for her child to get there immediately, not caring at all about what Professor Traffic says. As MacDowell relates in his article, stress should be placed on the fact that the teacher can demonstrate and teach fundamental skills in the classroom, but the time there is limited, so practice and perfection of these skills should be accomplished at home. By involving parents, they too may become educated and consequently value this new knowledge, then back the educators in their cause.

An analogous program is in effect in Nassau County, New York, sponsored by the local police department. The project is called "Safety Town" and brings traffic safety information to the children from many angles. It is designed to expose the youngsters to a variety of traffic safety perspectives, such as the points of view of the pedestrians, motorists, and bicyclists. In order to make the experience as real to life as possible, a scale-sized miniature town was constructed in a local park. The roads were paved, sidewalks cemented, operable traffic lights installed, and real traffic signs erected. In fact, a real policeman was provided, and electric model cars were donated to enhance the realism. "According to the police department, the town was



designed to develop a child's sense of responsibility for the safety of himself and others on the street, whether they are pedestrians, bicyclists, or motorists; to create an understanding of the causes of traffic accidents and how to prevent them; to teach the meaning of traffic signs, signals, and road markings; and to instill a respect for school patrols, school crossing guards, and traffic officers" (15:26). A number of variations of this program have been put into force in several cities across the nation, among them the program in South Euclid-Lynchurst, Ohio and that in Champaign-Urbana, Illinois. Although not as elaborate as the New York program, these programs give preschoolers the opportunity to participate in a number of learning experiences dealing with safety, and in particular, traffic safety.

The "Safety Town" program of Champaign-Urbana--which is modeled exactly after the project in South Euclid-Lyndhurst, Ohio--is sponsored by the area Junior Women's Club. It is a miniature traffic layout with streets, traffic signals, signs, houses, and pedal cars. Combined, they supply an atmosphere of simulated traffic life for the pint-sized participants. The program was started when it was realized that accidents are the result of human mistakes, and a few memorized "DO'S" and "DON'T'S" taught at home will not solve this problem. Instead, Safety Town was created as a first step in preparing children to cope with the ever-increasing traffic hazards which they are exposed to. Mrs. C. Shaw, the program's Chairman, feels that the accident rate among the area children can be prevented by reducing human error through education, and that the time to teach children is now, before they enter the school system and are on their own to face the hazards of traffic.

Consulting the statistical data available, it can be seen that almost one-half of the accidents involving children aged one to fourteen are the results of motor vehicle mishaps (1:9). Realizing that accidents don't just



happen, they are the direct consequence of any number of controllable variables, it follows that remedial measures should be implemented to reduce the number of these variables, if not completely eliminate most of them. It is through safety education programming that the public will be made aware of the innumerable hazards that may befall them as a result of our rapid advances in technology, our constantly changing world, and our fast-paced urbanized society. Reviewing the literature, it becomes evident that many references can be found concerning the educational abilities of young children. Journals are replete with instances of programs that offer youngsters opportunities which represent meaningful experiences in development, and the results yielded indicate that these preschoolers readily accept the activities presented, and learn by them. A possible explanation for this assimilation of knowledge is to be found in the principle of primacy, and that these formidable years should be the time for a variety of learning activities to occur, for it is during this precise phase that whatever is learned will be used later in life.

Those programs which dealt with child safety education, in particular, those which dealt with the problem of traffic accident reduction and prevention have been quite successful in these areas, as evidenced by their continuation and assistance by the Federal Government. Much of their success can be attributed to the local support given by the communities they serve, and the fact that the instructors try to set the goals of the program to meet the needs of the children. When you consider that "accidents in childhood are neither inevitable nor beyond effective clinical control, clinicians should supplement approaches to control by seeking out and appraising individual differences of behavior among young children, and then cauxion parents accordingly" (18:439).



Presently, no data are available to substantiate the long-term effects derived from preschool traffic education programs on later adult behaviors. However, if the attitudes and behaviors inculcated into the childrens' lifestyles are continuously reinforced throughout their school years and into their adult lives, such projects cannot help but have carry-over effects. doubtedly, this presents an enormous task for safety educators, especially in lieu of the paucity of information available at present dealing with the longterm virtues of preschool programs. However, as Bissell (22:844) states in his discussion about Public Health Programs in Accident Prevention, "The prevention of accidents may appear to be an overwhelming task to health departments with many incompleted tasks before them. No matter how modest the beginning may be, it is important that the health department review its community resources, its problems in accident prevention, and start to work on them". Once a program is initiated, evaluations should be made at intervals as required to maintain the program's effectiveness in delivering its intended goals to its target population. The merits of such an inclusion in any program are much too important to overlook.



## CHAPTER III

#### METHODS AND PROCEDURES OF RESEARCH

The following chapter will deal with the methods used and procedures followed in conducting this study.

# Location of The Study

The data for this study were collected in a kindergarten classroom located at the Doctor Howard elementary school in Champaign, Illinois. The room provided an excellent environment for administering the testing instrument since it was large and was furnished with miniature tables and chairs that readily accommodated the youngsters. Also, these features enabled the scheduling of many children to be tested simultaneously with minimal interference to the other children being tested.

# Selection of Subjects

All of the subjects in this study were about to enter kindergarten classes in either the Champaign or the Urbana schools beginning in the Fall of 1973. They were all between the ages of four (4) and five (5) years old, and a little more than one-half (1/2) of the members in each group were males.

The subjects in the treatment group had all attended the two-week Safety
Town program located at the Doctor Howard elementary school in Champaign, Illinois. They represented an essentially random group selected on the basis of
a "first come, first served" method. Applications were distributed to all
parents of kindergarten-aged children at the round-ups in both the Champaign
and the Urbana elementary school districts. The first one hundred and twenty
(120) applications received by the program coordinator by the deadline date



were permitted to attend the Safety Town course. All of the children had an equal opportunity to attend; only action on the part of their parents made the difference. If the parents wanted their child to attend the program, there was sufficient time to return the completed form. They were given choices of six (6) different classes which the children could attend. There were three morning classes and three afternoon classes at two-week intervals throughout the summer. The one hundred and twenty (120) children were selected on this basis.

The subjects in the control group did not, at any time, attend the Safety Town program. The manner in which this group was selected was essentially equal to that used to select the treatment group. The offices of the Superintendents of both Champaign and Urbana were notified of the study. Both offices provided lists of names of those children who would be starting kindergarten in the Fall of 1973. From each list two hundred (200) names were drawn at random. The parents of each child were notified by individual phone calls until one hundred (100) children were scheduled to take the test. Due to the summer vacation schedules of most families, the entire list was exhausted and repeat calls made before the total number of one hundred (100) was reached.

As the control group was being formed, the parents of each child who attended the Safety Town program were also being notified in order to receive their permission to test their children too. Of the one hundred and twenty (120) children who attended the program, a total of one hundred (100) were finally reached and gave their consent to test their children. This brought the total number of children to be tested to two hundred (200).



#### Evaluative Materials Employed

A fifty item testing instrument was developed by the Safety Town's Director, co-director, and this study's investigator. It consisted of questions that were asked to the subjects of both groups, requiring first an affirmative or negative response (Yes or No) and then an answer indicating the knowledge needed to answer the questions correctly. The rationale behind this approach was that by administering the evaluative material in this fashion, it could be readily observable if the child understood the questions in the way that they were intended. A copy of the testing instrument is included in APPENDIX A of this text for further reference.

# Experimental Procedure

All of the participants in the study were contacted by phone and arrangements were made to test each child at designated times. A double-blind situation was created in order to minimize any experimenter bias. Two master lists were compiled; one having all of the pertinent information concerning the treatment group, and the other having the same information about the control group. From these lists, individual lined index cards (see APPENDIX B) (4" x 6") were prepared and each contained the name, address, and telephone number of each child. These were the only sources of this information at the testing center. Subjects from both groups were scheduled at fifteen (15) minute intervals, with ten (10) subjects tested simultaneously. A monitor greeted each child, selected the appropriate index card, and excerted the child to the testing room. After all of the testing was completed, the index cards were sorted into four groups: (1) Treatment males, (2) Treatment females, (3) Control males, and (4) Control females.



#### Statistical Treatment

Since there was no pretest administered to either the experimental group or the control group, and both groups were essentially equal, the <u>t</u>-test for independent samples was used in this study.

The <u>t-test</u> is employed when researchers wish to compare any differences present between two samples randomly drawn from one particular parent population. This particular statistical approach was used because it was the simplest method that would show any significant differences between the two major groups in this study. Both inter-group and intra-group differences, as well as sex differences, were analyzed by using the <u>t-test</u> procedure.

In addition to the <u>t-test</u>, an item analysis was performed to evaluate the test instrument. This program calculates the percentages of subjects responding to the correct answer and gives a point-biserial correlation (REPI) for each item alternative. The difficulty of an item is shown by the percentage of subjects who answer it correctly. The discriminating power of an item is measured by the point-biserial correlation. This statistic indicates the relationship between the item score and the total test score within the group tested. Assuming that the total test score accurately discriminates among individuals in the group tested, the highest REPI's would represent the most discriminating items. For the purposes of this study, those items whose REPI is greater than 0.60 were chosen as the best discriminators on the test instrument. The Kuder-Richardson formula (KR-20) indicates the magnitude of the relationship between the test items for the group tested. It is a reliability estimate of the test.

#### Collection and Recording of Data

As cited earlier, lined index cards were used as identification for



each subject. These same cards were also used to collect the raw data for the study. Below each subject's identification information there were five (5) columns of ten (10), numbered one (1) through fifty (50). As each question was asked of the subjects, the recorder would enter either a "Yes" or a "No" beside the appropriate question number. "Yes" indicated that the subjects indeed knew the answer to the questions requiring a verbal description or response, or that a "Yes" was said by the subject when an affirmative or negative response was appropriate. "No" meant that the subject did not answer the question correctly, or that the answer was in response to a question where an affirmative or negative reply was called for. (By referring to the Testing Instrument in APPENDIX A, the reader will better understand what is meant by the response requirements of the fifty question items.)

# Validity and Reliability of the Test Instrument

Two important criteria for the evaluation of testing instruments are validity and reliability. "Validity refers to the extent to which an instrument measures what it is supposed to measure" (2:190). In this study, validity is shown by the point-biserial correlations (REPI) found in Table 6.

"Reliability, on the other hand, is the extent to which a measuring device is consistent in measuring whatever it measures" (2:190). This study used the Kuder-Richardson reliability estimate (KR-20) to test the reliability of the test instrument. Coefficients of 0.70 or above indicate a satisfactory level of reliability. These coefficients can be found in Table 5.



#### CHAPTER IV

#### PRESENTATION AND ANALYSIS OF DATA

The data presented in this chapter were based on the results obtained from two hundred (200) pre-kindergarten subjects. Two types of statistical analysis were used: (1) the <u>t-test for independent samples</u> to determine any inter-group, intra-group, or sex differences present, based on the scores from the test instrument; (2) an item analysis of the test instrument to determine the difficulty and the discriminating power of each item on the test instrument.

## Overall Results

The t-values for group comparisons are given in Table 4, and a summary of the test statistics for each group is given in Table 5. The item analysis, showing the percent of correct responses given by each group, is presented in Table 6, along with the overall point-biserial correlation (REPI) of each item.

Tables 7 through 10 show the frequency distributions for each subgroup and Table 11 presents the overall frequency distribution for the total test group.



Table 4
Comparison of t-scores for Inter-Group and
Intra-Group Differences

Group	n	x	ađ	đ£	t-value
T	100	45.3	4.18	198	51.6*
vs. C	100	9.01	5.66	190	21.0-
Tm	57	45.05	4.59	330	10.24
vs. Cm	57	8.33	4.80	112	42.1*
T£	43	45.60	3.61	•	
vs. Cf	43	9.91	. 6.57	84	30.9*
Tm	57	45.05	4.59	-0	o <b>50</b> 44
vs. Tf	43	45.60	3.61	98	0 <b>.72*</b>
Cm	57	8.33	4.80	-0	a a0v
vs. Cf	43	9.91	6.57	98	1.38**
gnificant be	eyond 0.01 le	evel	N = Numb	er of subject	ts
ot significa	ant		X = Mean	score	
			sd = Stan	dard deviation	on

df = Degrees of freedom



Table 5
Summary of Test Statistics
By Group, Sex, and Total Test

Measures Taken	Treatment Males	t Group Females	Control Males	Group Females	Total Test
Number of Items	50	50	50	50	50
Mean	45.05	45.60	8.33	9.91	27.15
Median	45.89	46.13	7.42	7.38	29.00
Skewedness	Positive	Positive	Negative	Negative	Bi-Modal
Standard Deviation	4.59	3.61	4.80	6.57	18.85
Reliability Kuder-Richard- son-20)	0 <b>.</b> 822	0.735	0.780	0.880	0.987
Number of Responses	· 57	43	57	43	200



Table 6

Percent Correct Responses by Group and Sex, and

Overall Point-Biserial Correlation

Item Number         Treatment Males         Group Females         Control Males         Group Females         Overall FEMPI*           1         100         100         89         95         .19           2         100         100         72         88         .35           3         98         98         46         53         .56           4         95         98         21         37         .73           5         95         100         25         30         .72           6         93         95         9         23         .79           7         91         88         18         14         .78           8         82         86         4         2         .84           9         100         100         32         28         .80           10         100         100         35         35         .76           11         100         100         30         37         .78           12         100         100         30         35         .78           13         100         100         26         23         .82						
2       100       100       72       88       .35         3       98       98       46       53       .56         4       95       98       21       37       .73         5       95       100       25       30       .72         6       93       95       9       23       .79         7       91       88       18       14       .78         8       82       86       4       2       .84         9       100       100       32       28       .80         10       100       100       35       35       .76         11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2 <td< th=""><th></th><th></th><th>nt Group Females</th><th></th><th>ol Group Females</th><th></th></td<>			nt Group Females		ol Group Females	
3       98       98       46       53       .56         4       95       98       21       37       .73         5       95       100       25       30       .72         6       93       95       9       23       .79         7       91       88       18       14       .78         8       82       86       4       2       .84         9       100       100       32       28       .80         10       100       100       35       35       .76         11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87 <td>1</td> <td>100</td> <td>100</td> <td>89</td> <td>95</td> <td>.19</td>	1	100	100	89	95	.19
14       95       98       21       37       .73         5       95       100       25       30       .72         6       93       95       9       23       .79         7       91       88       18       14       .78         8       82       86       4       2       .84         9       100       100       32       28       .80         10       100       100       35       35       .76         11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86 <td>2</td> <td>100</td> <td>100</td> <td>72</td> <td>88</td> <td>•35</td>	2	100	100	72	88	•35
5       95       100       25       30       .72         6       93       95       9       23       .79         7       91       88       18       14       .78         8       82       86       4       2       .84         9       100       100       32       28       .80         10       100       100       35       35       .76         11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86<	3	98	98	46	53	.56
6       93       95       9       23       .79         7       91       88       18       14       .78         8       82       86       4       2       .84         9       100       100       32       28       .80         10       100       100       35       35       .76         11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	4	95	98	21	37	•73
7       91       88       18       14       .78         8       82       86       4       2       .84         9       100       100       32       28       .80         10       100       100       35       35       .76         11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	5	95	100	25	30	•72
8       82       86       4       2       .84         9       100       100       32       28       .80         10       100       100       35       35       .76         11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	6	93	95	9	23	•79
9       100       100       32       28       .80         10       100       100       35       35       .76         11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	7	91	88 .	18	14	.78
10       100       100       35       35       .76         11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	8	82	86	4	2	.84
11       100       100       30       37       .78         12       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	9	100	100	32	<b>28</b> .	.80
12       100       100       30       35       .78         13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	10	100	100	35	. 35	.76
13       100       100       26       23       .82         14       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	11	100	100	30	37	.78
114       100       100       19       23       .85         15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	12	100	100	30	35	.78
15       100       100       14       19       .88         16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	13	100	100	26	23	.82
16       93       93       0       2       .91         17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	14	100 .	100	19	23	.85
17       93       93       0       0       .91         18       89       86       0       2       .87         19       88       86       0       0       .86	15	100	100	14	19	.88
18     89     86     0     2     .87       19     88     86     0     0     .86	16	93	93	0	2	.91
19 88 86 0 0 .86	17	93	93	0	0	.91
	18	89	86	0	2	.87
20 93 95 23 33 •73	19	88	86	0	0	.86
	20	93	95	23	33	•73



21	88	95	. 28	37	.64
22	. 74	88	9	5	.76
23	65	86	11	2	.70
24	. 89	100	21	19	•77
25	95	98	25	23	.75
26	91	95	33	23	.71
27	95	93	16	30	.80
28	95	91	16	<b>30</b>	•79
29	79	67	0	2	•77
<b>3</b> 0	74	63	0	0	.74
31	79	79	0	0	.82
32	74	77	0	0	.79
33	72	77	0	0	•79
34	74	72	0	2	.76
35	<b>86</b>	91	4	7	.86
36	88	88	4	12	.84
37	98	91	4	14	.88
38	91	93	2	9	.88
39	86	86	19	16	.72
<b>4</b> 0	91	88	16	30	.72
41	91	84	18	40	.66
42	95	95	5	28	.84
43	91	95	5	14	.87
ነሳተ	91	98	16	19	.84
45	96	95	18	12	.83
46	86	93	12	5	•79
47	86	91	14	2	•79



•	•	Table 6, Cor	ntinued		31
48	89	91	18	14	•79
49	93	91	16	14	.81
50	93	91	16	9	.83

<sup>\*</sup> Overall REPI indicates the point-biserial correlation of the total tested group, which is the measurement of the discriminating power of a particular item. Those items with an REPI greater than 0.60 are the best discriminating items on this test.



Table 7

Test Frequency Distribution - Male Treatment Group

	·
-	
	· · · · · · · · · · · · · · · · · · ·
Each * Represents 1 Person	*  *  *  *  *  *  *  *  *  *  *  *  *
Cum. Freq.	万谷山路はいいいちららららられることに
Freq.	Handwwwwwaoouuuoou
Percent	u, u
Per- Centile	· 88569488451000057444005
Raw	るるはないないないないないないないない。



Table 8

Test Frequency Distribution - Female Treatment Group

	·
Person	
Each * Represents 1 Person	*  *  *  *  *  *  *  *  *  *  *  *  *
Cum. Freq.	TXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Freq.	H00000000H
Percent	34 4 4 4 4 5 4 4 5 4 6 6 6 6 6 6 6 6 6 6
Per- centile	_8990244226-777000000
Raw Score	いなみずれずはいないないない。

Table 9

Test Frequency Distribution - Male Control Group

Each * Represents l Person	* * * * * * * * * * * * * * * * * * *
Cum. Freq.	ፘጜ፞፠፠፠፠፠፠፠ዄዄዄዄዄዄ፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠፠
Freq.	HOOOOOOHHOMOHMHQYQVQFX
Percent	40000000440704744700000000000000000000
Per- centile	\$
Rav	288328383823242315000 - 0 2 4 ma



Table 10

Test Frequency Distribution - Female Control Group

Score centile 29 28 28 28 28 29 29 29 20 29 29 20 29 20 29 20 20 20 20 20 20 20 20 20 20 20 20 20	Percent 2.3 0.0 0.0 0.0	Freq.	Cum. Freq.	Each * Represents 1 Person
	w0000			
	m00000			
		Н	43	*
	0000	0	21	
		00	알으	
	۳ د د	<b>.</b>	15	
		> -	¥ 54	*
	) e		13	*
	0.0	ó	o <del>t</del>	
	2.3	7	<b>9</b>	*
	2.3	-г	8	*
	0.0	0	ቋ	
	1.1	N	፠	**
	2.3	႕	፠	*
	4.7	0	ኢ	**
	2.3	- (	೮೪	*
	0.0	0	25	
	o.	0	35	. :
	7-4	<b>Q</b> (	22	rik ₃
	ر د د	<b>⊢</b> 1 1	ጸጸ	·
	, , ,	-1 <i>-</i> -	χ, α	**
	٧- ١٠	<b>4</b> 0	ริลั	***
	- °	٦.	20	***
	11.6	ተኒሶ	18	***
	14.0	.0	13	. ****
	9.3	7	7	***
	4.7	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	m,	* * *
•	•	<b>-1</b>	-1	*



Table 11
Overall Test Frequency Distribution

Raw Score	Per- centile	Percent	Freq.	Cum. Freq.	Each * Represents 1 Person
50	99	9.0	18	200	******
49	91	1.5	3	182	* * *
48	89	7.0	14	179 165	* * * * * * * * * * * * * * * * * * *
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46	78	6.5	13	157	* * * * * * * * * * * * * * * *
45	72	3.0	6	144	****
111	69	6.0	12	138	****
43	63	3.0	6 8	126	***
42	60 56	4.0	0 1.	120	* * * * * * * * * * * * * * * * * * *
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29	50	1.0	2	161	* *
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27	49	0.5	1	99	*
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3	6	4.5	9	12	*	*	*	*	*	*	*	*	*			
2	1	1.5	3	3	*	*	*									



## Discussion of Results

The research hypothesis of this study was that the children who attended the Safety Town program would show evidence of greater advancement in the formation of safety knowledge and knowledge of safety practices. These would be reflected by higher scores on the test instrument. In addition, there would be no significant sex differences within each group.

each level the comparisons made between the Treatment group and the Control group yielded very significant results. However, when intra-group comparisons were made, no significant differences were observed. Referring to the mean scores in Table 5, those of the Treatment group, as a whole, were significantly higher than those of the Control group. Furthermore, no significant sex differences were observed in this study.

In Table 6, the overall point-biserial correlations (REPI) indicated that of the fifty (50) items presented on the test instrument, a total of only three (numbers 1, 2, and 3) failed to significantly discriminate among the groups tested. Therefore, in general, the test instrument was shown to be a valid discriminator in this study.

Tables 7 through 10 show the test frequency distributions of the various groups tested. Table 11 presents the overall test distribution of the total group of two hundred (200) subjects. Both Treatment groups yielded positively skewed diagrams, while both Control groups yielded negatively skewed diagrams. The overall picture in Table 11 shows a bimodal representation, with the Treatment group occupying the upper portion of the diagram and the Control group occupying the lower portion of the diagram. Very few subjects from either group aggregated in the central portion of the diagram.



#### CHAPTER V

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The following chapter will provide a summary of the study, the conclusions reached from the data, and recommendations for further studies in the preschool area.

### . Summary

This study was conducted to evaluate the effectiveness of the Safety Town program in developing safety knowledge and knowledge of safety practices in pre-kindergarten children. Although the program covered several areas of safety, the emphasis was on traffic safety education. Two (2) principal groups were compared to determine any significant differences between them: the "Treatment Group" and the "Control Group". In addition, the two major groups were sub-divided by sex, and comparisons were made at these levels to extract any sex differences present.

A limiting factor that should be mentioned was that since the participants in the Safety Town program were selected prior to the initiation of this study, control over their selection was absent. Despite this fact, the method used for their selection was essentially random. When the control group was selected, an analogous technique was used.

Once it was established that the two principal groups were essentially identical in their selection, the <u>t-test for independent samples</u> was chosen as the statistical technique to be used in making the comparisons. A double-blind situation was designed for administering the test instrument to the subject population. On the basis of the scores obtained on the fifty (50) item test instrument, each group and sub-group was compared to another, and the



t-scores were obtained.

In conjunction with the <u>t-test</u> an item analysis of the test instrument was performed. This statistical approach was designed to determine the difficulty, as well as the discriminating power of each of the fifty items on the test instrument.

The results of the <u>t-test</u> evaluation indicated that there were significant differences between the Treatment group and the Control group. However, there were no significant sex differences observed in this study. The item analysis revealed that all but three of the items on the test were good discriminators, therefore, the test instrument was, on the whole, appropriately constructed for the purposes of this study.

The test frequency distributions presented give the reader a clear visual picture of the individuals within a given group and their scores. The subjects in the Treatment group tended to aggregate at the high end of the scores, while the Control group dominated the lower scoring range. Few individuals from either group obtained scores in the central area.

#### Conclusions

The following conclusions were based on the findings of this study:

1. There were significant differences observed between the Treatment group and the Control group in this study. Since the only difference between the two groups was exposure to the Safety Town program, it can be concluded that the program was primarily responsible for the large differences in the scores obtained.

- 2. There were no significant sex differences obtained within either of the principal groups in this study.
- 3. There were no intra-group differences observed in this study.



4. The test instrument developed for use in this study was shown to be an accurate tool to discriminate among the groups tested.

## Recommendations

The following recommendations were based on the findings of this study:

- 1. The Safety Town program of Champaign-Urbana, Illinois, should continue its present program and provide this valuable service to as many area children as possible.
- 2. Follow-up studies should be conducted in later grades, at prescribed intervals, to observe long-term effects of the Safety Town program. These follow-up surveys should be continued even after these students become licensed drivers. This would tend to indicate the development of deep-rooted attitudes, behaviors, skills, and knowledge, if any, in students' driving habits.
- 3. A concerted effort should be made to publicize the Safety Town program to the Champaign-Urbana, Illinois, community. By observing the program's effects, curriculum, methodology, and goals, perhaps more public support for the program would follow.
- 4. A coordinated project involving the parents of those children in attendance at the Safety Town program should be initiated. This would serve to reinforce the skills, behaviors, and knowledge produced by the program by familiarizing the parents with the curriculum.
- 5. Where possible, a statewide system of Safety Town programs, or other such pre-school projects, should be initiated and sponsored by the State of Illinois.
- 6. Finally, State and/or Federal funds, in the form of grants, should be made available to interested communities, or to private local sponsors of



Safety Town programs. This would enable these interested groups to initiate such a program or to expand a present program to meet the needs of their target group.



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#### APPENDIX A

#### TEST INSTRUMENT

### Test Questions

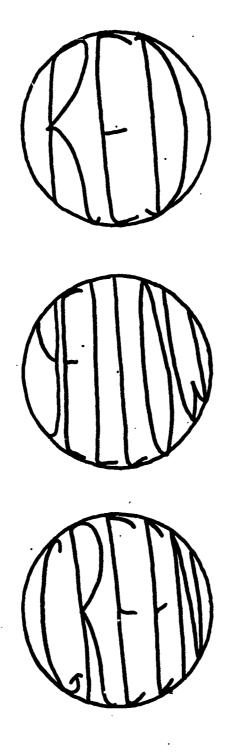
- 1. Do you know your whole name?
- 2. Can you tell me what it is?
- 3. Do you know your address?
- 4. What is it?
- 5. Do you know your telephone number?
- 6. What is it?
- 7. Is it important to know your whole name, address, and telephone number?
- 8. Why is that?
- 9. Can you name the colors of the lights on this picture of a traffic signal? (Hold up the picture of the traffic signal.)
- 10.- Name them for me. (Point to each color and ask what it is. Use the fol-
- 12. lowing order: RED, YELLOW, GREEN.)
- 13.- Can you tell me what each of the colors mean? (Again use the same order
- 15. as in the previous question.)
- 16 .- Do you know what each of these signs mean? (Hold up "WALK" and "DON'T
- 17. WALK" signs in that order.)
- 18.-
- 19. Tell me what you think they mean.
- 20. When you come to an intersection that has a traffic signal and you want to cross the street, do you know what to do?
- 21. What is it that you do? Describe what you do.
- 22. If you see a Blue Star in a house window, do you know what it means?
- 23. Can you tell me what it means?
- 24. If you were playing outside and your ball went into the street, would you run into the street after it?
- 25. What should you do if this happens?
- 26. Is it safe to play with matches?
- 27. Do you know any ways a policeman can help you?
- 28. Tell me one way that you know of.
- 29 .- Do you know the arm signals that mean "left turn," "right turn," and
- 31. "Stop or slow down"?
- 32 .- Show each of them to me in this order:
- 34. left, right, and stop.
- 35. Do you know what the word "emergency" means?
- 36. What does it mean?
- 37. If there was an emergency at home, would you know what to do to get help?
- 38. What is that?
- 39. Should you ever take medicines that are lying around the house and you don't know what they are for?
- 40. If there is not a signal at the corner, would you know how to cross the street?
- L1. How?
- 42. Do you know what to do if a stranger approaches you?
- 43. What do you do?



- Щ. Do you know what to do when you get on a school bus?
- 45. What do you do, or how do you act?
- 46. When you go out at night, do you know what color clothes to wear?
- 47. What color clothes do you wear at night?
- 48. Should children ever play near railroad tracks?
- 49. Do you know what an ambulance is used for? 50. What is an ambulance used for?



## Used For Questions 10, 11, and 12





# Used For Questions 16 and 17







APPENDIX B
SAMPLE DATA COLLECTION CARDS

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#### APPENDIX C

#### SAFETY TOWN CURRICULUM

- I. Proposed procedure and schedule -- 2 hour session for 20 children
  - A. arrival and free play, cleanup--(30 min.)
    encourage imitative play, safety situations, using:
    blocks
    cars
    crayons, paper, chalk
    chalk board, etc.
  - B. theme for the day--(20 to 30 min.)

present to all children, using:
discussion resource person
fingerplays diagrams
songs and records posters
pictures puppets
story film

C. inside/outside groups--(30 min. total)

(divide into two groups with one group outside; the other, inside. Switch after specified time)

- l. inside
  - a. read a story
  - b. work on page for Safety Book
  - c. make art project related to theme (fireman's hat)
  - d. special group project determined by the children (using blocks, clay, etc.)
  - e. work on name, telephone number, address
- 2. outside--practical application of rules, ideas learned (first week on foot, second week in cars)
  - a. make up pretend situations to "walk out" the safety rules, name the houses, etc. on the town streets
  - b. make up names and contests to play following safety rules on the town
  - c. let children manipulate cardboard stop signs, stop and go "lights" made by the children, let them be the policeman wearing the hat, badge, using whistle
  - d. go for walk on city streets in "life" traffic situations
  - e. make best possible use of policeman's time when he comes.
- D. Bathroom, wash hands, refreshments, relaxation (story, songs) -- (20 min.)



- E. review of morning, announcements, things to go home--(10 to 20 min.)
- II. Lesson Plans--themes can be switched from one day to another depending when resource people are available.
  - A. First Week

## Monday -- Orientation

- 1. orientation
  - a. get acquainted -- name game

--make nametags

--find out "left-handers"

- b. purpose of program
- c. tour facilities
- d. discuss proceiures
  - 1. stress proper drass including rainwear, shoes
  - 2. stress perfect attendance
  - 3. encourage bringing from home RELATED things--hats, cars, books (WITH NAME ON)
- 2. name and address -- why learn?
- 3. traffic signal -- colors, meaning
- 4. art project
  - a. explanation of "Safety Book" to be made, make a cover for book (send book home last day from school)
  - b. draw picture of OWN house-teacher write in name, address (page for Safety Book)
- 5. do "auto" and "stop, look, and listen" fingerplays

## Tuesday -- Traffic light and walking rules

- 1. review name and address
- 2. right-left distinction (put chalk mark on dominant hand, hold under table)
- 3. crossing at corners, crosswalks, crossing with traffic signal
- 4. traffic sign recognition -- practice with signs teacher has made
- 5. art projects
  - a. make traffic light for Safety Book from construction paper
  - b. make a small traffic light, attach popsicle stick, take home
  - c. make one large four-sided signal (for the room) using empty cardboard milk container for use during free play
  - d. review "stop, look, and listen" fingerplay
- 6. learn "Children's Safety Song"
- 7. Make up verses to "Happily we walk to school" song

## Wednesday -- Safety Patrol

- 1. review of walking rules, traffic signals, address
- 2. introduce "walk and don't walk" signs
- 3. have a school safety patrol child explain his job, how children can cooperate, etc.--let children "pretend to be a patrolboy"



4. talk about school crossing sign "x ing", remind parents to SLOW DOWN

5. review fingerplays and songs

- 6. art projects
  - a. make patrol badge, cardboard covered with alum. foil (use masking tape instead of safetypin to put on child)

b. color "walk and don't walk" signs

c. make one big school crossing sign for the classroom

7. practice moving in the cars (not on town)--it is very difficult for some children to make the cars operate

## Thursday -- Strangers and safe play habits

- 1. review "walk and don't walk" signs, address
- 2. learn telephone number -- why we need to know it
- 3. discuss strangers
  - a. what word means
  - b. why's, what's, how to handle (use some type of dramatics to illustrate)
  - c. explain Blue Star Program, an adult helper--ask children to look for the blue stars going home
- 4. safe play habits
  - a. outside--parents' rules
  - b. balls
  - c. good house rules
  - d. matches
  - e. medicines and poisons
  - f. unique situations such as railroad tracks, rainy weather, safety hazards, old refrigerators
- 5. art projects
  - a. make a "blue star" page for the safety book (teach children how to draw a star)
  - b. phone page for safety book--child cut out phone, teacher write in number as child tells him, don't write in until child knows
  - make a railroad crossing sign (pounding x together with wood and hammer)
- 6. do the train fingerplays emphasizing safety rules around tracks

## Friday -- The Policeman is my friend

- 1. review address, telephone number, what we do in stranger situation
- 2. visit by policeman--discussion of: (get him to SHOW children)

.a. his badge, handcuffs, gun, uniform, etc.

- b. his job--helping when there is trouble, directing traffic, helping a lost child (importance of knowing address), being a friend to children
- c. his vehicle--siren, light
- 3. have policeman direct children on town layout
- 4. do "The Policeman" fingerplay
- 5. sing "Oh do you know policeman small"
- 6. read I WANT TO BE A POLICEMAN by Greene and POLICEMAN SMALL by Lenski
- 7. encourage dramatic play:
  - a. traffic policeman -- use whistle



- b. driving squad car
- c. make police station from a large box
- 8. art projects
  - a. make police hat (need 1 color for hat, another color for brim, strings for ties, hole punch, reinforcement rings)
  - b. make police badge--cover cardboard shape with foil, adhere to child with roll of masking tape
- 8. send home graduation invitation to parents
- B. Second Week

## Monday -- Bicycle Riding (telephones, addresses, filmstrips)

- 1. review of fingerplays, songs, address, telephone number
- 2. bicycle riding-have bicycle there to demonstrate with
  - a. care of bicycle--safety, longer life, etc.
  - b. good riding habits--use of brakes, arm signals, why riding alone is pest, proper dress
    - c. bicycle road rules--discuss and then pass out bicycle rule books (get from driver's license station close to N. Prospect)
- 3. sing "Bicycle built for two"
- 4. art project--make bicycles by glueing shapes (circles, rectangles, squares, etc.) onto a piece of construction paper
- 15. practice arm-hand signals by drawing lines onto chalkboards
  - left right stop or slow down
- 6. first day in cars on Safety Town

#### Tuesday -- Emergencies

- 1. discuss what the word "emergency" means
- 2. determine the different kinds of emergency vehicles (show with matchbox vehicles)
  - a. police car
  - b. ambulance
  - c. fire department vehicles
  - d. rescue squad
- 3. discuss how get emergency vehicle quickly--"0" on telephone, importance of knowing address
- 4. listen and look at ambulance sent by Arrow (they aren't too reliable time-wise, partially due to nature of their job)
- 5. talk about first aid these people can provide--give the children a bandage to put on after talking about care of minor cut, scrape
- 6. art project -- make clay emergency vehicles, leto emergency vehicles

## Wednesday -- Fireman is a community helper

- 1. talk about importance of having a fire station, how to prevent fires, how to report a fire, how does a fireman help us, how can we help the firemen?
- 2. fire drill--discuss purpose, have a fire drill practice



3. have a fireman and fire truck visit with equipment of fireman and fire truck demonstrated

4. sing "Fire, fire, fire"

5. art project--make a firehat out of red paper: cut off two corners, cut partial circular line--children can do if you start it

6. encourage pretend play with big red fire truck and plastic fire hat

7. do "The fire truck" fingerplay

8. group project -- make a fireman from shapes for the bulletin board

9. group project -- make a big fire truck

## Thursday -- Bus safety rules

1. review bicycle arm signals, "0" for emergencies, address, telephone number

2. bus safety--discuss, domonstrate with blocks, dramatics, etc.

3. schedule a Unit 4 bus driver to bring his bus and talk to the children-have them practice crossing the street to get on bus, practice safety rules while pretending to ride on the bus

sing "the bus song" -- make up new verses emphasizing bus safety

5. art projects

a. glue shapes to make a bus

- b. make a bus from an empty box, cardboard wheels (brads to fasten)
- c. finish up Safety Books, assembling pages together

## Friday -- Graduation, parents invited

- 1. review of total program for parents
  - a. introduce staff

b. inside program -- the songs, fingerplays get children to respond to situations they've learned about, safety rules

c. outside demonstration-show that children know rules of road, etc. by what you ask them to do as pedestrians and drivers

d. refreshments--let children help serve their parents

e. pass out graduation certificates, safety books, evaluation

f. teacher summarize and thank all those involved



#### APPENDIX D

# INVITATION TO APPLY TO SAFETY TOWN PROGRAM AND APPLICATION FORM

#### SAFETY TOWN

## Dear Fellow Parents:

This fall our children will be starting their kindergarten classes. They will be facing traffic situations without their parents. How wonderful it would be if we could be along to guide their every step.

Our police department and crossing guards are doing a fine job. We can be proud of their records. They cannot be everywhere, however, and there have been accidents. All of them were due to human mistakes according to statistics. What statistic can accurately report the tragedy, pain and sufferings of those occurrences?

We cannot trust our children's lives to a few memorized "DO'S" AND "DON'TS" taught at home perhaps.

Our children need traffic safety education. SAFETY TOWN is the important first step in their safety education. Here is an organized solution to the problem of preparing our children to cope with every increasing traffic hazards.

#### SAFETY TOWN

SAFETY TOWN is a miniature traffic layout built to the scale of the kindergarten child. It has streets, traffic signals, signs, houses, and, yes, even automobile traffic (pedal cars).

This is a safe, controlled traffic situation that simulates the actual conditions our children will face on their way to and from school and as they expand their worlds away from home.

The children will be carefully guided through a program of learning by doing. This program is tailored to their learning abilities.

#### THE PROGRAM

The curriculum has been planned by the SAFETY TOWN COMMITTEE of the Champaign-Urbana Junior Women's Club with the cooperation of the Champaign Police and Unit 4 Schools.

Trained instructors will guide the children through the two week (10 week days) courses scheduled from June through August. A minimum number of children will be assigned to each instructor assuring individual attention. Each session will be approximately two hours long.



Each child will be graded. Parents will be advised of any areas in which the youngster may need additional practice.

Among the areas covered will be:

- 1. Crossing streets with traffic signals.
- 2. Crossing streets with pedestrian's signals.
- 3. Crossing streets without signals.
- 4. Crossing streets at cross walks or at corners only.
- 5. Crossing with school guards or policeman.
- 6. Recognizing and obeying various traffic signs.
- 7. Not going with strangers.
- 8. Recognizing that a policeman is a friend.
- 9. General common sense safety rules.

Police officers will be in attendance and taking part as instructors to certain sessions.

#### THE LOCATION

SAFETY TOWN is located on the grounds of Doctor Howard Grade School (1117 West Park, Champaign). Arrangements have also been made for indoor facilities. Sessions will be held rain or shine.

### THE ORGANIZATION

SAFFIY TOWN is sponsored by the Champaign-Urbana Junior Women's Club. It is a community project dedicated to the teaching of traffic safety to our children. It is affiliated with no other local organization. It does, however, have the support and endorsement of many groups and city officials. Any profits made from Safety Town will be given to our charitable projects.

#### ENROLLMENT

- 1. WHO Any child registered to enter kindergarten for the first time this fall and who resides in Champaign-Urbana.
- 2. HOW Please read the registration application forms and complete them as requested. Your child's registration for a specific course will be acknowledged in writing. Any delay in application may result in your choice of course not being available. The complete schedule of courses and sessions is enclosed.
- Applications must be received by May 31st. Registration will be closed at that time. It will be opened again only if vacancies exist. These will then be filled strictly on a first-come, first-serve basis.
- 4. THE FEE There will be a fee of \$8 per child. Checks must accompany applications. This fee will help defray a portion



- of the costs involved in conducting the classes, providing insurance coverage, obtaining various supplied needed.

## AND FINALLY

Accidents can be prevented by eliminating human error through education. (Aur children deserve safe lives. The time to teach them is now before they must face the hazards of traffic on their own.

We believe that SAFETY TOWN is the sound solution to the problem of teaching our children good basics. Our Police Officers and other prominent citizens share in that belief.

The Champaign-Urbana Junior Women's Club is dedicated to the creation of a sound, permanent SAFETY TOWN program. This undertaking is no small task and we gratefully acknowledge the fine cooperation and assistance we have received.

The efforts of many people will be well rewarded if even one child is spared but a single moment of pain.

/s/ Mrs. Stephen Shaw Mrs. Stephen Shaw Safet: Town Chairman

Mrs. Paul Bermingham President Champaign-Urbana Junior Women's Club



## APPLICATION FOR SAFETY TOWN

508 South Victor, Champaign, Il	
Name of Child	Asb
Parent or Guardian	
Address	Phone
School	
Please indicate any physical or attention or instruction	learning disability that may require special
Indicate in the box below your session by marking them (1), (2 filled as applications are rece	st, 2nd, and 3rd choice of course and time of , and (3). Courses will be limited and wed.  9 to 11 AM 1 to 3 PM
session by marking them (1), (2	, and (3). Courses will be limited and wed.
session by marking them (1), (2 filled as applications are rece	, and (3). Courses will be limited and wed.
session by marking them (1), (2 filled as applications are rece  June 18 to June 29	, and (3). Courses will be limited and wed.
June 18 to June 29  July 9 to July 20  July 23 to August 3  REGISTRATION FEE: \$8.00  application payable to Ch	, and (3). Courses will be limited and wed.

NOTE: Parent or Guardian must provide transportation of the child to and from SAFETY TOWN location. If forming a car pool, please submit all applications and fees in one envelope with your GROUP'S desired choices of courses and sessions.



#### APPENDIX E

LETTER OF COMPLETION TO PARENTS, SUMMARY OF PROGRAM ACTIVITIES,

PROGRESS REPORT, AND SAFETY RULES

## SAFETY TOWN

Dear Mom and Dad,

Your child has now completed his course at SAFETY TOWN. Through the use of films, books, discussion, art work and demonstration he has been taught new safety skills and acquired new safety knowledge. Through actual practice on the miniature village of Safety Town he has begun to master them.

Safety Town has done its job. Now, Mom and Dad, you must continue your child's progress.

Please familiarize yourself with the attached material. It will tell you what your child has been taught and how he was taught the various items discussed.

After you have read the progress report, you can begin to carry on the important job of your child's safety education. Please feel free to visit us at SAFETY TOWN should you have any questions or just wish to "look around".

We hope you have a very pleasant and safe summer.

Jane Vail Director Safety Town

Marsha Darling Assistant Director Safety Town Candy Shaw Chairman Safety Town

Doris Bermingham President Champaign-Urbana Junior Women

P.S. Say, Mom and Dad, you might just want to brush up on your own safety habits - after all, it is you who must set the example.



The progress report serves as an evaluation of your child's learning during the two week safety town session. Notice that for this report the curriculum has been divided into safety skills and safety knowledge. Your child has received a check only if he has gained an understanding of the safety rules and can perform correctly the safety skills.

The following corresponds with the numbers on the progress report.

- 1. Your child's address and phone number were taught to him through repetition and memorization.
- 2. All the children practiced crossing the street at the traffic signal.

  They were always told to cross with the new green light.

  If they approached a traffic signal that was already green, they were to stop and wait for a new green to assure enough time to get across.

  Before they were permitted to cross, they had to look both ways to see that all the cars had stopped.
- 3. The children were not taught to rely solely on the pedestrian signal.

  They were always to watch the traffic signal for the new green light,
  then to check the pedestrian signal for the walk sign (which is white
  or green and at the bottom of most pedestrian signals), and finally to
  look both ways before crossing.
- 4. Your child was introduced to the crosswalk and told to cross here whenever it is possible.
- 5. Whenever a crosswalk is not available or convenient, we taught your child to cross at the corner rather than at the middle of the block.

  Depending upon living locations this is not always applicable, but it is the safer way to cross, and should be followed whenever possible.
- 6. Regardless of where your child crosses the street, he <u>must</u> look both ways before crossing and continue to check both ways as he crosses.



- 7. We attempted to teach the children their right from the left.
- 8. All the children were taught the turning and stop handsignals. They were always to use their left arm when signalling, and learned to signal for a right turn, a left turn, and stop. These they used when driving the pedal cars on Safety Town, and they are expected to use them when bicycle riding.
- 9. Your child learned that a stranger is simply someone they do not know, and that most strangers are good people. However, they should never accept any rides, gifts, or money from anyone they do not know. If a stranger stops to talk to them, they are to ignore him or her and walk away. If the stranger approaches them or gets out of his car, they are to run away either towards home or school. Then they should tell their parents or teacher what has happened, so they in turn can notify the policeman. If your child will be walking to school, we have advised them to try to walk with at least one friend. A stranger is much more likely to approach a youngster who is alone than one who is with a group.
- 10. We taught the meanings of the various traffic signs by teaching the meanings of the basic colors. Red signs mean stop, green signs mean go, yellow means caution, and white signs are all instruction signs that give directions to drivers.
- 11. Some safe play habits were discussed with each child. He should have an awareness of how, where and why to play safely. (refer to list)
- 12. Your child should put into practice all the bike riding rules he was taught. (refer to list)
- 13. The policeman is always a friend. Whenever your child is lost or needs help he knows he can always go to the policeman.



- 14. An emergency is when someone needs help very quickly. The four emergency vehicles are the police car, ambulance, fire engine and rescue squad.
- 15. Many children will be riding in a bus or a car on their way to school.

  We included a lesson on conduct in a bus or car. (refer to list)



# SAFETY TOWN PROGRESS REPORT

CHI	ld's name		
	TRUCTOR		
	SAFETY SKILLS		
	ITEM	REMARKS	
<u>1.</u>	NAME, ADDRESS, PHONE NO.		
2.	CROSSING WITH TRAFFIC SIGNAL		
<u>3.</u>	CROSSING WITH PEDESTRIAN SIGNAL	·	
4.	USE OF CROSSWALKS		
<u>5.</u>	CROSSING AT CORNERS		
<u>6.</u>	LOOKING BEFORE CROSSING		
7.	RIGHT HAND, LEFT HAND		
8.	TURNING HANDSIGNALS		
	SAFETY KNOWLEDGE	• • •	
	ITEM	REMARKS	
9.	REFUSING RIDES FROM STRANGERS		
10.	TRAFFIC SIGN RECOGNITION		
11.	SAFE PLAY HABITS		
12.	BIKE RIDING RULES		
13.	POLICEMAN IS A FRIEND		
14.	EMERGENCY WEHICLES		
<u> 15.</u>	CONDUCT IN CARS AND BUSES		
	GENERAL		
			-



## BIKE RIDING RULES

An expert rider is a safe rider.

He knows and obeys laws.

He keeps his bike in top condition.

He follows safety rules.

- 1. Every bike should have a license.
- 2. Always ride on the sidewalk.
- 3. Yield to pedestrians.
- h. Every bike should have a bell or a horn, no siren or whistle.
- 5. Ride on the right half of the sidewalk.
- 6. Watch for cars backing out of driveways.
- 7. Walk the bike across an intersection.
- 8. No stunt riding or showing off.
- 9. Ride single file.
- 10. There should be a white light on the front and a red reflector on the back of the bike.
- 11. Never carry passengers.

## BUS SAFETY RULES

- 1. Be waiting when the bus arrives.
- 2. Always use the handrails.
- 3. Take your seat promptly.
- 4. Keep the aisle clear at all times.
- 5. Be safe! Be seated until the bus stops.
- 6. Be quies to prevent accidents.
- 7. Keep head and arms inside the bus.



- 8. Obey the bus driver.
- 9. Be alert! Cross only when it's safe.

### SAFE PLAY HABITS

- 1. If your ball goes into the street, have an adult (parent) go after it.
- 2. Never play with matches.
- 3. Don't play around broken glass, or with any sharp or dangerous objects.
- 4. Don't eat or drink anything unless you're sure of what it is. IT COULD

  BE POISON ex.: an unmarked bottle.
- 5. Never take your own medicine. Have mom or dad give it to you.
- 6. Don't play near railroad tracks.
- 7. Never play around parked cars.
- 8. Wear white when playing outside at night.

