This study investigated the effect of first aid instruction on college students' attitudes toward safety. It evolved from previous studies of the relationship between first aid and accidents in Canada and the United Kingdom. These earlier studies were concerned with the effect of first aid training on accident rates. The current research concentrated on the effect of first aid instruction on safety attitudes.

The sample consisted of 149 students (aged 18-24 years), without previous college level first aid or safety-related courses, enrolled in two lower division health courses at the University of Oregon, spring term, 1979. The 79 experimental subjects were students
enrolled in two sections of First Aid-HE 260; the control subjects were 70 students enrolled in Personal Health-HE 250 (large section).

A Pretest-Post test Control Group Design was employed in this study. The pretest was administered to subjects at the beginning of spring term to assess their attitudes toward safety prior to treatment. This pretest consisted of a biographical information section, the Home Safety Attitude Scale, and the Traffic Safety Attitude Scale. Following treatment, the Home and Traffic Safety Attitude Scales were administered again as the post test.

Eight null hypotheses were generated for this study. The first seven hypotheses were concerned with the effect of treatment group, gender, social position, and combinations of these factors on safety attitudes. Hypothesis eight tested the relationship between the experimental subjects' reason for taking the first aid course and their attitudes toward safety. Two three-way analyses of covariance were employed to test hypotheses one through seven. Hypothesis eight was tested by two one-way analyses of variance. The .05 level of significance was used to evaluate the F-ratios.

One significant finding emerged from hypothesis testing: gender had a main effect on subjects' adjusted post test traffic safety attitude scores. Female students had significantly more positive traffic safety attitudes than male students. There was no significant gender effect, however, on subjects' adjusted post test home safety attitude scores. All other hypotheses were retained, indicating that first aid instruction, social position, and reason for taking
the first aid course did not have a significant effect on college students' attitudes toward safety.

The results of this study may provide background data for subsequent investigations into the outcomes of first aid instruction. Before sound conclusions can be reached regarding the effect of first aid instruction on safety attitudes, additional research is needed. The following steps are suggested based on the nonsignificant findings and the significant finding of this study:

1. Replicating the study using a completely randomized design.
2. Sampling of a different population. A suggested population would be workers (excluding high-risk occupations) because they are in close proximity to accidents and their consequences.
3. Developing and validating a measure of general safety attitudes and safety-related attitudes.
4. Investigating separate traffic safety education approaches for males and females.
6. Investigating the effect of the type of first aid course on safety attitudes.
AN ASSESSMENT OF THE SAFETY ATTITUDES OF COLLEGE STUDENTS FOLLOWING COMPLETION OF A FIRST AID COURSE

by

Linda Kroeger

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Typed by Linda Gill for Linda Kroeger
DEDICATION

This dissertation is dedicated to my husband, Don, who made the study possible through his patience, support, and encouragement of my professional goals.
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AN ASSESSMENT OF THE SAFETY ATTITUDES OF COLLEGE STUDENTS FOLLOWING COMPLETION OF A FIRST AID COURSE

I. INTRODUCTION

One of our nation's most serious public health problems is accidents (Florio, Alles, & Stafford, 1979, p. 4). Accidents, a leading cause of death and disability in this country, cost an estimated $68.7 billion in 1978 (National Safety Council, 1979, p. 4). The National Safety Council lists accidents as the principal cause of death for persons aged one to 38 and the fourth leading cause of death for persons of all ages. The Council estimated a total of 104,500 deaths and 10.2 million disabling injuries due to accidents in the year 1978. Of the total accidents, motor vehicle accidents accounted for 51,500 deaths, home accidents for 23,000 deaths, public accidents for 21,500 deaths, and work accidents for 13,000 deaths. Moreover, included in the total of 15.6 million reported cases of permanent disability were 3,519,000 persons with accident-caused chronic conditions.

Accidents have many causes, but research findings from all parts of the world have shown that personality factors play a prominent role in determining potential for accidents (Shaw & Sichel, 1971, pp. 372-415). The personality element, as a causal factor in the occurrence of accidents, has received much attention because it is the best accident predictor and because it influences other accident-related factors.
Suchman (1961, p. 43) considered accidents to be one aspect of human behavior; consequently he considered the analysis of psychological and social factors important in determining why accidents happen. "Attitudes are by far the most important psychological factors related to human behavior," stated Robert Krejcie (1972, p. 60). Attitudinal factors are regarded by Seaton, Stack, and Loft (1969, p. 5) as part of the concept of personality and thus basic to the accident problem.

The purpose of every safety program is the prevention of accidents and the development of appropriate safety attitudes, stressed Seaton et al. (1969, p. 5). Attitudes indicate a person's predisposition to act or react in a certain manner and can influence behavior; therefore, an important component of accident prevention programs is the development of positive attitudes toward safety and the modification of negative attitudes toward safety (Strasser, Aaron, Bohn, & Eales, 1973, p. 81).

A successful safety program should consist of procedures aimed at examining both the hazardous environment and the accident host. Miller and Agnew (1973) suggested that a safety program designed to improve the host's ability to avoid accidents, in combination with measures to eliminate environmental hazards, would be the most effective approach to accident prevention.

Possibly a more general approach concentrating on an attitude toward safety may be more effective than instructions about what actions should or should not be taken in specific situations. It is likely that a combination of
the two approaches to "shaping the host" will produce the best results (p. 216).

Education is viewed as the most promising method of safety promotion and, ultimately, accident prevention (Strasser et al., 1973, p. 74). Since accident involvement is usually attributed to improper attitudes and habits, Florio et al. (1979, p. 19) recommended an increased emphasis on safety education to conserve human resources. The goal of safety education is to help people adjust to a changing environment by improving knowledge, skills, attitudes, and habits necessary to cope with hazards encountered (Florio et al., 1979, p. 23).

First aid is an educational program which has been categorized by Licht (1975) as an accident mitigation approach. Accident mitigation refers to methods which reduce the consequences of accidents. The main purpose of first aid training is the reduction of injury severity and the prevention of disability through adequate initial care at the scene of an injury or sudden illness (Atherley, Hale, & McKenna, 1973). The number of people killed and injured each year, as indicated by National Safety Council (1979) figures, is in itself justification for the promotion of a widespread first aid program; however, there is conjecture that other benefits may exist as a result of such training, including reduced accident involvement (Atherley et al., 1973).

The mechanism by which exposure to first aid might be capable of reducing accident susceptibility has yet to be determined. Atherley et al. (1973) suggested that a:
... plausible hypothesis is that a first aid course which deals with injuries is capable of influencing people's attitudes or behavior directly, and this would certainly be a hidden benefit -- and this is what we should be investigating (p. 194).

Further, Atherley et al. theorized that first aid training may produce safe behavior by modifying people's attitudes toward risk and danger.

An important consideration in investigating the theory that first aid instruction has an effect on safety attitudes is the population selected for study. It is necessary to select a controlled population so that the effect of the first aid course on safety attitudes can be accurately assessed. Research should be conducted with a population that affords control over extraneous variables such as risk exposure, experience, and self-selection (volunteering). College students constitute a suitable population because academic study is their primary objective. In addition, an assessment of college students' attitudes toward safety could readily be conducted.

A thorough attempt to investigate the accident problem involves the study of many variables, one of the most important being attitudes. Knowledge of attitudes is a key element in understanding personality organization and behavior (Newcomb, Turner, & Converse, 1965, p. 47). The study of safety attitudes is of concern to professionals involved in safety education programs because there is a close relationship between attitudes and behavior (Strasser, et al., 1973, p. 79).
Statement of the Problem

The purpose of this study was to determine if first aid instruction has an effect on the safety attitudes of college students. Although safety attitudes are not part of the course content, participation in a first aid course may influence students' safety attitudes. This study attempted to determine if positive safety attitudes are a secondary outcome of first aid instruction.

Safety attitudes were measured by Miller's (1969) Home Safety Attitude Scale and Traffic Safety Attitude Scale. Scores on the safety attitude scales represented the dependent variables in this study. The major independent variables under consideration in the study were exposure or nonexposure to first aid instruction, gender, and social position.

In order to address the purpose of this study, five research questions were formulated. The main research questions were:

1. Do college students who receive first aid instruction have different safety attitudes than those college students who do not receive first aid instruction?
2. Does gender have an effect on college students' safety attitudes?
3. Does social position have an effect on college students' safety attitudes?

The secondary research questions were:

4. Are there any interactions for the two or three factor
combinations of treatment, gender, and social position on college students' safety attitudes?

5. Does taking a first aid course as an academic requirement or as an elective have an effect on college students' safety attitudes?

Hypotheses

In order to answer the main research questions and the secondary research questions, the following hypotheses were tested:

Main Hypotheses

1. There are no significant differences between the adjusted post test safety attitude scores of subjects who receive first aid instruction and the adjusted post test safety attitude scores of subjects who do not receive first aid instruction.

2. There are no significant differences between the adjusted post test safety attitude scores of male subjects and female subjects.

3. There are no significant differences between the adjusted post test safety attitude scores of subjects when categorized according to their social position.

Subsidiary Hypotheses

4. There is no significant interaction between gender and receiving or not receiving first aid instruction on subjects' adjusted post test safety attitude scores.
5. There is no significant interaction between social position and receiving or not receiving first aid instruction on subjects' adjusted post test safety attitude scores.

6. There is no significant interaction between gender and social position on subjects' adjusted post test safety attitude scores.

7. There is no significant interaction between gender, social position, and receiving or not receiving first aid instruction on subjects' adjusted post test safety attitude scores.

In each of the previous seven hypotheses, the post test scores were adjusted on the basis of the pretest scores. This was accomplished through analysis of covariance procedures. One additional hypothesis was tested for experimental subjects:

8. There are no significant differences between post test safety attitude scores for subjects who take first aid instruction as a requirement or as an elective.

Definition of Terms

Terms which need definition and clarification as they are used within the context of this study are included herein.

**Accident.** An accident is "an unplanned act or event resulting in injury or death to persons or damage to property" (Strasser et al., 1973, p. 4).

**Accident Susceptibility.** Accident susceptibility was used in this study as a person's perception of his or her likelihood of
being involved in an accident.

**Adjusted Post test Means.** "The analysis of covariance (ANACOVA) is a form of ANOVA and is a statistical method for equating groups on one or more variables. In essence, ANACOVA adjusts scores on a dependent variable for initial differences on some other variable(s) such as pretest performance, IQ, reading readiness, or musical aptitude (assuming that performance on the 'other variable' is related to performance on the dependent variable)" (Gay, 1976, p. 256). Thus, use of the term "adjusted" signifies that a covariate was used in the statistical analysis (Huck, Cormier, & Bounds, 1974, p. 139).

**Attitude.** An attitude "is an organized predisposition to think, feel, perceive, and behave toward a referent or cognitive object" (Kerlinger, 1973, p. 495). Newcomb et al. (1965, p. 48) stated that attitudes are extremely complex, but that in general, an attitude toward an object is characterized by two critical properties -- the direction of the attitude and the degree of affect represented. These two properties are believed to form a single dimension.

**First Aid.** First Aid is defined as "the immediate care given to a person who has been injured or has been suddenly taken ill" (American National Red Cross, 1973, p. 11).

**First Aid Instruction.** First aid instruction is defined as the University of Oregon three credit undergraduate course entitled First Aid-HE 260. The course covers immediate and temporary
care for a wide variety of injuries and sudden illnesses, and follows the American National Red Cross Standard First Aid and Personal Safety Course guidelines.

**Personal Health Course.** Personal Health Course in this study is the University of Oregon three credit undergraduate course entitled Personal Health-HE 250. The course involves the study of personal health problems of university men and women with an emphasis on implications for family life.

**Safety.** Safety is the ability of a person to function at an optimum level in the presence of necessary hazards in the environment (Florio & Stafford, 1962, p. 14).

**Safety Attitude.** Safety attitude is defined as the degree of positive or negative affect felt toward safety (home and traffic safety). A person with a positive attitude toward safety will have a predisposition to act in a manner that will reduce his or her involvement in accidents (Strasser et al., 1973, p. 80).

**Safety Education.** Safety education involves instructional methods aimed at accident prevention through the development of habits, skills, attitudes, and knowledge conducive to safe behavior (Florio et al., 1979, p. 45; Worick, 1975, p. 3).

**Social Position.** Social position refers to a subject's socioeconomic status or social class based on information provided about parents' educational and occupational background. This position was determined by the administration of the Hollingshead's Two Factor Index of Social Position (1957) as part of the pretest (see Appendix E).
Delimitations

The delimiting factors in this study were:

1. That the experimental subjects consisted of University of Oregon students enrolled in two sections of First Aid-HE 260, spring term, 1979.
2. That the control subjects consisted of University of Oregon students enrolled in Personal Health-HE 250 (large section), spring term, 1979.
3. That only students in the age range 18-24 years were included in the study.

Limitations

The limitations of this study were:

1. That the experimental subjects' exposure was limited to one type of first aid course -- First Aid-HE 260 -- which follows the American National Red Cross Standard First Aid and Personal Safety guidelines.
2. That the focus was safety attitudes, one aspect of a person's capacity to avoid accidents.
3. That measurements of home and traffic safety attitudes were used to denote subjects' safety attitudes.

Assumptions

This study was based on the following assumptions:

1. That using a college population would control some of the
extraneous variables that might confound the results, such as exposure to risk, self-selection (volunteering), and experience.

2. That course content for Personal Health-HE 250 was controlled to eliminate exposure of subjects to specific safety education.

3. That the research instruments were accurate in assessing safety attitudes.

4. That the subjects provided honest answers for all data-gathering instruments.

Need for the Study

Additional safety attitude research is necessary to better understand the accident problem and to determine suitable countermeasures. Research into personality factors associated with accident involvement has been overwhelmingly in the area of motor vehicle safety (Heath, 1963a). Industrial studies have also been conducted, but have limited applicability to other situations (Atherley et al., 1973). Conclusions based on industrial and motor vehicle accident data may not be representative of the overall accident picture. Thus, the need for additional safety attitude research is warranted.

Atherley et al. (1973) recommended further research into the possible outcomes of first aid instruction, particularly the effect of this instruction on attitudes and behavior. The observation, by first aid instructors, that people are safer following a first aid
course led to Canadian studies of the relationship between accident rates and first aid training (Atherley et al., 1973; McKenna, 1977). This research was suggestive of a positive relationship between first aid and safety; however, findings were based predominantly on accident data provided by industry (Miller & Agnew, 1973; McKenna, 1977).

In addition to personal observations, survey results obtained in Canada and the United Kingdom suggested that hidden safety benefits result from first aid instruction (Atherley et al., 1973; McKenna, 1977). In the United Kingdom, information regarding attitude toward injury was acquired through interview methods. According to McKenna (1977),

The interviews were designed to measure knowledge of and attitudes towards, first aid, injury, risk and danger. They were also used to look at other specific areas such as history of injury, attitudes towards accident reporting and behaviour relevant to safety (p. 429).

However, conclusions about the relationship between first aid and safety were formed principally on the basis of reduced industrial accident rates. Furthermore, the design of both the Canadian and the British studies did not allow a complete investigation of attitudes related to accidents.

A controlled investigation will determine if positive safety attitudes are an outcome of first aid instruction. A course which deals primarily with knowledge of and care for injuries may also influence an individual's attitude toward safety. This research will show the relationship between first aid instruction and safety attitudes.
II. REVIEW OF THE LITERATURE

The literature reviewed in this chapter provides a background on related research in the following areas: the attitude concept, the Thurstone technique of attitude measurement, personality and attitudinal factors associated with motor vehicle accidents, safety attitude assessment, and the relationship between first aid instruction and accident involvement. A discussion of attitude and the Thurstone equal-appearing intervals technique of measurement is included to serve as an introduction to the study. Furthermore, this discussion will provide clarification of the attitude concept.

**Attitude**

The study of attitude and its relationship to behavior continues to occupy a central location in social-psychological research (Fishbein & Ajzen, 1975, p. 1; Shaw & Wright, 1967, p. 14). Knowledge of attitude functioning is advantageous in the attempt to explain and predict social behavior. Considering the theoretical and practical importance attitude research has, there is a great deal of confusion and ambiguity surrounding the attitude concept.

Fishbein and Ajzen (1972) noted that disagreement concerning the nature of the attitude concept has resulted in a proliferation of definitions of attitude. Consequently, the multitude of existing attitude definitions has complicated the process of selecting valid methods of attitude measurement. To alleviate methodological problems,
Fishbein and Ajzen (1972) proposed the adoption of a conceptual definition of attitude, containing only the essential characteristics of the attitude construct.

Social psychologists have reached agreement that conceptually an attitude represents a learned predisposition to act in either a consistently favorable or unfavorable evaluative manner toward a given object (Allport, 1935; Fishbein & Ajzen, 1972; Ostrom, 1969; Sherif, Sherif, & Nebergall, 1965, p. 20). Individuals' reactions to attitude-related objects are products of an underlying judgement process in which attitudes exert a determining influence. An attitude, then, represents a set of evaluative responses which are formed toward an object. Evaluative responses can be classified as positive or negative, pro or con, good or bad, desirable or undesirable. A distinctive feature of the attitude concept is the consistency of the evaluative response.

Traditionally, attitude theorists have divided evaluative responses into three categories: an affective component, a cognitive component, and a behavioral component (Fishbein & Ajzen, 1972; Ostrom, 1969; Triandis, 1971, p. 3). Affect refers to a person's feelings toward an object; cognition represents the knowledge, opinions, and beliefs held by a person; and behavior indicates a person's intention to act, but not necessarily actual behavior. This tripartite distinction of evaluative responses provides a classification system which facilitates the comparison of research findings. Controversy exists, however, as to whether measures of the three components
represent measures of the same entity or if the three components should be conceptualized and measured separately.

Fishbein and Ajzen (1972) conducted a comprehensive analysis of the attitude literature and concluded that measures of any of the three attitude components are best regarded as alternative means of assessing attitude. Results of an investigation by Ostrom (1969) into the relationship between the three components of attitude and overt behavior supported Fishbein and Ajzen's conclusion. The study was designed to determine whether operational differences existed between the cognitive, affective, and behavioral components of attitude. Attitude scales were constructed on the basis of a classification process in which judges categorized a large number of statements about the church into belief, affect, or behavior sets. Four scales were devised for each attitude component using the techniques of equal-appearing intervals (Thurstone), summated ratings (Likert), self-rating (Guilford), and scalogram analysis (Guttman).

The results of Ostrom's (1969) study supported the assumption that evaluative responses within each attitude component have unique characteristics which differ from the characteristics of the other components. The major finding, however, was that measures of the three attitudinal components were significantly intercorrelated, demonstrating that scales based on cognitive, affective, and behavioral response categories should be considered equivalent measures of the same underlying attitude. Furthermore, Ostrom found no significant differences in the predictive powers of the attitudinal
components, and behavioral prediction was not improved by combining separate measures of all three components.

Shaw and Wright (1967, p. 13) rejected the tripartite composition theory, proposing instead that the affective reactions represented in the traditional classification system constitute the attitude, with the belief component providing the basis for the evaluation, and the attitude held by the individual predisposing action toward the attitude-related object. In other words, an attitude is the amount of affect toward an object based upon cognitive processes and preceding overt behavior. This view of attitude is consistent with Thurstone's (1931) earlier contention that an attitude is the amount of affect for or against an attitude-related object.

The predominant view is that the distinction between attitude components is not justified since these variables have not been clearly shown to operate differently (Fishbein & Ajzen, 1972). The findings of a critical review of attitude research were summarized by Fishbein and Ajzen (1972):

Since there is widespread agreement that affect is an essential part of the attitude concept and that Thurstone, Likert, and Guttman scales and the evaluative dimension of the Semantic Differential are measures of attitude, we suggest that the term "attitude" only be used with reference to a person's location on the affective dimension vis-à-vis a given object. When studies have obtained more than one such measure of attitude toward the same object, the results were almost always identical. Evidence for the convergent validity of standard attitude scales and other affective measures continues to accumulate (p. 494).

In any event, affect clearly emerged as the key element of an attitude.
One important aspect of the conceptual definition of attitude is the belief that an attitude is a predisposition to respond or act. Edwards (1957, p. 101) noted that from a theoretical standpoint an attitude is generally viewed as a latent variable. A latent or underlying variable is assumed to direct or influence behavior and, conversely, behavior that is observed is considered a function of the latent variable. Nevertheless, Edwards maintained that attitudes are only one of a number of factors which determine behavior, and not necessarily the predominant factor. Consequently, a perfect correlation between attitudes and behavior is not possible, because attitudes interact with situational and other dispositional variables in producing actual behavior.

Techniques of direct questioning and observation of overt behavior have been employed as indicants of attitude in studies of the attitude-behavior relationship (Edwards, 1957, p. 8). These methods, however, allow only a rough classification of individuals as favorable or unfavorable; they do not assess the degree of affect an individual associates with the psychological object. Kiesler, Collins, and Miller (1969, p. 17) described behavioral measures as being relatively crude and lacking reliability.

Fishbein and Ajzen (1974) conducted a thorough investigation of the attitude-behavior relationship. To test the theory that a person's attitude toward an object is related to his overall pattern of behavior (multiple-act criteria) but is not consistently related to any single behavior (single-act criteria), a set of 70 religious behaviors
was developed. Subjects indicated the behaviors they had performed and also completed five traditional religious attitude scales. The major finding of this study was that "... all attitude scales correlated highly with the multiple-act criterion, while the prediction of single-act criteria tended to be low and nonsignificant" (p. 62). The five verbal attitude scales (self-rating, scalogram analysis, summated ratings, equal-appearing intervals, and semantic differential) exhibited a high degree of convergent validity.

The results of this study provided empirical evidence that attitudes can be used to predict behavior. Fishbein and Ajzen (1972) wrote:

In conclusion, it appears that inconsistent and nonsignificant findings concerning the attitude-behavior relationship can be understood when proper attention is given to the "attitudinal" predictors and to the behavioral criteria. It should be clear that there is no reason to expect traditional measures of general attitudes to be consistently related to any given behavior. The discussion above suggests that if the investigator's major aim is to understand and predict the performance of some specific behavior, one way to approach this problem is to consider behavioral intentions and their determinants. It may be desirable for many purposes, however, to be able to employ a general attitude measure in order to predict one or more specific behaviors. While this is an important problem in its own right, it is unlikely to be resolved by an approach that assumes that the "true" inherent relationship between attitude and behavior is moderated by other variables. Indeed, as we saw in our discussion of behavioral impact, the search for mediating variables in response to a failure to demonstrate an assumed "true" relationship can easily lead to an accumulation of reactive nomological studies that provide little substantive information (p. 531).

In brief, research findings supported the assumption that there is a significant relationship between attitude and behavior.
To sum up, the attitude concept was clarified through a discussion of the literature. Affect was shown to be the critical element of an attitude. Finally, research into the attitude-behavior relationship demonstrated that knowledge of attitudes is valuable in understanding and predicting behavior.
Attitude Measurement-Thurstone Technique

Attitude scales are measuring instruments designed to quantify the direction and intensity of a person's attitude (Newcomb et al., 1965, pp. 48-50). Direction of an attitude refers to positive or negative affect (feeling) associated with an attitude-related object. On the other hand, intensity indicates the degree of the positive or negative feeling associated with the object. These two properties -- direction and intensity -- are believed to form a single dimension. An attitude, then, is conceptualized as a person's location on a unidimensional continuum of affect or feeling.

Fishbein and Ajzen (1975, pp. 53-61) identified four major attitude scaling methods from among the variety of existing procedures: equal-appearing intervals (Thurstone), summated ratings (Likert), scalogram analysis (Guttman), and the semantic differential (Osgood). These standard scaling techniques yield a single attitude score which represents a person's location on the dimension of affect for a given object. An individual's attitude score is determined from responses to a set of opinion items assumed to reflect the underlying attitude.

Thurstone and Chave (1929) devised a method of describing attitude by measuring acceptance or rejection of opinions. This method is referred to as the Thurstone or equal-appearing intervals technique. The procedures for constructing an equal-appearing intervals scale are as follows:

1. The investigator compiles a large pool of statements related
to the attitude being investigated.

2. A panel of judges, working independently, sort each item into one of 11 categories ranging from unfavorable to neutral to favorable. The 11 categories are to be considered equal intervals along the evaluative (affective) dimension.

3. A scale value for each statement is computed using the median of the ranking assigned to each item by the judges.

4. The interquartile range (Q value) of assigned positions is calculated as an estimate of interjudge variability. Items with large Q values, which is indicative of disagreement among judges, are rejected.

5. The final scale is constructed by selecting a small number of items (20-22 statements) with scale values that are relatively equally-spaced along the attitude continuum. Statements are arranged in a random order.

A Thurstone scale is administered to subjects who select statements with which they agree. Each subject's attitude score is then determined by computing the arithmetic mean or median of the scale value of items endorsed (Maranell, 1974, p. 120). This score, then, symbolizes the location of the person on the affective dimension.

Thurstone's method of equal-appearing intervals is one of the most widely used techniques of attitude scale construction (Fishbein & Ajzen, 1975, p. 69; Shaw & Wright, 1967, p. 21; Webb, 1955). Although the process is difficult and time consuming, valid and
reliable scales can be constructed by using the Thurstone procedure. The Thurstone technique can be used to construct scales for measuring a wide variety of attitudes (Anastasi, 1976, p. 549).

Ostrom (1969) reported that the equal-appearing intervals and the summated ratings techniques were the most sensitive in measuring attitudes toward the church. This finding was based on comparison and analysis of the equal-appearing intervals, summated ratings, scalogram analysis, and self-rating methods.

In the preceding section, the equal-appearing intervals technique of attitude measurement was identified as one of the major standard attitude scaling methods. The procedure involved in constructing a Thurstone-type scale was described. Finally, evidence was presented for the acceptability and sensitivity of this method of attitude assessment.
Traffic Safety Studies

Traffic safety studies have centered on the role of personality and attitudinal factors in accident involvement. There is evidence that attitude scales and biographical information can be used as predictors of accident experience. Studies relevant to the present investigation are examined in this section.

In 1949, Tillman and Hobbs made a pioneer contribution to the field of research on personality factors associated with accidents. Interviews were conducted with a group of taxi drivers to determine specific personality characteristics associated with accident susceptibility. Interview findings were then compared with past driving records. Evaluation of the results revealed that the high and low accident groups differed noticeably in personality characteristics and social background. Members of the high accident group were found to be aggressive, impulsive, hostile toward authority, and generally socially maladjusted. In contrast, the members of the low accident group were described as stable, serious, future-oriented, and well adjusted.

The results of this classical study indicated a high correlation between accident liability and personality characteristics. Tillman and Hobbs (1949) concluded that driving habits and accident history are a reflection of the way a person lives.

Following an analysis of accident research, Nathaniel Schneider (1960) wrote:
... the weight of evidence seems to point to some difference in personality factors between the accident-liable person and the accident free-person, with the former tending to be more extroverted, overconfident, and emotionally less mature" (p. 10).

Furthermore, Schneider maintained that attitude cannot be separated from personal adjustment or the concept of personality, but can be changed through sound safety education programs designed to promote positive attitudes.

Shaw (1965) presented evidence for the valid use of projective personality tests to predict accident liability, following a ten year study of South African bus drivers. Findings were based on personality profiles developed from the projective tests (Murray Thematic Apperception Test and the PUTCO European Social Relations Test), case histories of on-the-job behavior, and statistical analysis of accident records. The results demonstrated that personality and attitudinal variables are clearly associated with accident involvement.

Basic biographical and driving-related variables such as age, marital status, mileage, and conviction record have been found to be stable predictors of traffic accident involvement (Harano, Peck, & McBride, 1975; Peck, McBride, & Coppin, 1971; Schuster, 1968). Attitudinal, personality, cognitive, perceptual, and psychomotor factors, however, have not shown the same predictive consistency. Harano, Peck, and McBride (1975) have suggested that conflicting research findings are attributable to sample size, methodological limitations, and type of instruments used.
Some attitude and personality measures have been used to identify accident-involved drivers. Examples of discriminating instruments include the Driver Attitude Survey and the Gordon Personal Profile and Inventory (Harano et al., 1975). There is also evidence that the California Inventory of Driver Attitudes and Opinions (CIDAO) developed by Harano, Peck, and McBride (1975) is a reliable and valid predictor of accidents.

Schuster (1968) was concerned with the prediction of driver accident involvement and violation experience. Data were obtained from the General Attitude Survey and the Driver Attitude Survey on a sample of California drivers. The Driver Attitude Survey measures several aspects of attitudes toward traffic safety and is composed of three validity scales, two driving attitude scales (the violations-attitude scale and the accident-attitude scale), and two miscellaneous scales. Predictor equations for violations and accidents were determined through item analysis and multiple regression analyses performed on personality, attitudes, and biographical variables.

The results reported by Schuster (1968) indicated that attitude scales in the Driver Attitude Survey were predictive of accidents and moving violations. Schuster summarized the findings:

In conclusion, the best predictor for either violations or accidents was the appropriate attitude scale combined with previous driver record of moving violations and accidents. The appropriate attitude scale by itself provided a lesser amount of prediction, but a very significant prediction, nonetheless. Previous driver record could also be used to predict follow-up driving record (p. 21).
More recently, a rigorous investigation of the contribution of person-centered variables in traffic accidents was conducted by Harano, Peck, and McBride (1975). Two highly contrasted samples of drivers (3+ accident group and accident-free group) were studied in order to ascertain factors associated with accident involvement. An extensive test battery designed to measure demographic, psychological, and psychomotor variables was constructed for use in the study. Responses obtained on the test battery were correlated with personal accident rates.

A salient aspect of the study was the emphasis upon collecting detailed exposure information on subjects, so that the effects of exposure differences could be controlled. The control of exposure was considered critical in the examination of accident liability as a person-centered construct.

The findings supported Harano et al.'s (1975) hypothesis "... that drivers possess traits that differentially predispose them to accidents" (p. 41). Through data analysis, several hundred variables were reduced to a subset of significant predictor variables. Cluster analysis and a series of multiple regression analyses were the statistical procedures employed to accomplish the reduction process. From an initial set of 337 independent variables which were correlated with the accident criterion, six variables were found to be significant upon cross-validation: traffic conviction record, socioeconomic factors, marital status, mileage, rating of personal driving ability compared to elderly drivers, and personality and attitudinal factors.
derived from the California Inventory of Driver Attitudes and Opinions (CIDAO: Part A).

In a discussion of the findings, Harano et al. (1975) noted that socioeconomic information was the most significant of the biographical predictors and one of the most significant of all accident predictors. This finding was consistent with that of Peck et al. (1971) and Schuster and Guilford (1962) who discovered that low socioeconomic status is related to accident involvement. Another noteworthy finding was the significance of the CIDAO: Part A in predicting accident liability. The evidence supporting a relationship between personality factors, attitudinal factors, and accident involvement is consistent with past research (Schuster & Guilford, 1962; Shaw, 1965).

Studies which investigated personality and attitudinal variables associated with traffic accident involvement were reviewed to provide a background for the current research. Evidence was supportive of a significant relationship between accident involvement and socioeconomic and attitudinal factors. A discussion of attitude and personality tests used to predict accident liability was also included in this section.
Safety Attitude Studies

Although studies in the field have been concerned with safety and accident prevention, only a few studies investigated attitudes toward safety. Several studies evaluated the safety attitudes of industrial education students for the purpose of preventing shop accidents. Most of these investigations, however, centered on specific industrial education subject matter areas. This section reviews safety attitude research germane to the present investigation.

In a recent study, Nichols (1972) attempted to analyze the relationship between unsafe behavior in the industrial laboratory and selected psychological factors, including safety attitude. The purpose of the study was to determine methods for preventing shop accidents and maximizing student behavior. Results showed no significant correlation between the number of minor injuries or unsafe acts and the psychological factors measured. Nichols pointed out, however, that before conclusions could be confirmed, more research was needed to determine the most effective methods of measuring and developing the ability to recognize hazards.

Bettis (1972) evaluated a shop safety attitude scale designed to identify students likely to have accidents. The purpose of the study was to determine a feasible method of selecting students in need of safety education. The attitude scale was developed according to the semantic differential technique. Subjects were 125 students enrolled in Agricultural Engineering Courses at Iowa State University. On the basis of data analysis, Bettis concluded that it is possible to
construct a safety attitude scale that can be administered alone or in combination with other instruments to predict accident experience in the shop.

Jerry L. Miller (1969) investigated the effect of simulated experiences in home and traffic safety on the attitudes of college students enrolled in a basic safety education course. In order to measure attitude change, two attitude scales were constructed using the Thurstone equal-appearing intervals technique. The scales were designed to measure attitudes toward home and traffic safety. From the results obtained, Miller concluded that the attitudes of college students can be changed significantly toward safety education through the use of simulation techniques.

Krejcie (1972) commented on the importance of developing safety attitudes through safety education programs:

Attitudes are by far the most important psychological aspect of safety in any endeavor, and a study of them leads directly to the psychological factors related to human behavior. Since an attitude is an integral part of personality, you must look at an attitude in terms of its relationship to human behavior (p. 60).

Moreover, Krejcie recommended widespread utilization of instructional methods which promote positive safety attitudes.

As has been noted, this section reviewed studies which attempted to measure safety attitudes and evaluate educational methods of influencing safety attitudes. Also, the importance of identifying and utilizing safety education programs which develop and promote positive safety attitudes was discussed.
First Aid Training and Accident Involvement

This section reviews the research essential to the present investigation. Several Canadian and British studies have examined the relationship between first aid training and accident rates. Although methodological problems were encountered, results support a reduced accident liability following exposure to first aid training.

Two safety research projects were sponsored jointly by the St. John Ambulance Brigade and the Workmen's Compensation Board of Ontario, Canada (St. John Ambulance, 1974). They tested the hypothesis that industrial accidents could be reduced by providing workers with first aid instruction. This pioneer research was entitled Project FACTS (First Aid Community Training for Safety) for ease of identification. Project FACTS I was a three-year study conducted in Orillia, Ontario, a self-contained community representing a cross section of Canadians who partake of work and leisure. The FACTS II project was designed to confirm the findings of the initial study. The Cambridge-Guelph area was selected for this two-year industrial study because it has a variety of accessible industrial plants.

Project FACTS I, directed by Miller and Agnew (1973), analyzed data from three sources: (1) interview data obtained from community members (Orillia) regarding the effects of first aid training on safety information and attitudes; (2) industrial data collected from five large industrial firms which provided accident frequency information on employees; and (3) accident claim records provided by the Workmen's Compensation Board. The results indicated a strong
relationship between first aid instruction and reduced industrial accident rates. The recommendation was made that all employees receive first aid instruction as an accident prevention measure.

In an attempt to further clarify the effects of first aid instruction, surveys were conducted with both first aid trained and untrained residents of Orillia. Miller and Agnew (1973) reported that an analysis of survey results showed that: (1) first aid trained subjects felt more knowledgeable about first aid and felt confident in their ability to perform first aid; (2) course takers reported being more careful both on and off the job; and (3) this increased awareness of safety was not associated with a change in safety-oriented practices. No significant decrease in the nonindustrial accident rate was found.

Miller and Agnew (1973) theorized a mechanism by which exposure to first aid functions to prevent accidents. Survey results indicated that first aid training increased a person's awareness of injury-producing agents in the environment. Consequently, the outcome of this increased awareness of danger was the individual's increased ability to avoid accidents. Further, Miller and Agnew reasoned that although most industrial accident programs focus on eliminating hazards in the environment, first aid focuses on reducing a person's susceptibility to accidents.

The validity of the data generated by the FACTS I study have been questioned (Powell, 1973). Results were based on accident records supplied by the subject's place of employment. Powell pointed out
that the equation of "accidents" with "recorded accidents" may have led to unwarranted conclusions (p. 219). Another area of concern was the failure to control variables that could influence the accident rate, such as type of work, length of service, and amount of experience at a particular job. Based on the design problems, Powell recommended that further research be undertaken to establish the existence of a relationship between first aid training and accident prevention.

An analysis of the Canadian findings by Atherley et al. (1973) revealed several methodological problems. Conclusions were based primarily on data supplied only by industry. As a result, the conclusions were not considered representative of accidents in general. The variables of age, experience, and risk exposure were not considered when data gathered from firms and questionnaire results were analyzed. In addition, no pretraining data was obtained to serve as a baseline in the assessment of changes in attitude, awareness, and knowledge. Another problem noted by Atherley et al. was the use of volunteers as subjects, since this group may have been more safety oriented than the average worker. Finally, Atherley et al. argued that, although the results of the Orillia project provided some evidence to support the theory that hidden safety benefits result from first aid training, the evidence did not constitute scientific proof.

McKenna (1977) also examined the evidence from the FACTS I project and described several additional problems with the Canadian research. Since specific safety training was included with the first
aid training conducted at Orillia, McKenna determined that an incorrect conclusion was reached regarding the effects of first aid instruction. McKenna also identified a potential source of bias that was introduced into the study. The project was well publicized, including statements suggesting that people "would be safer as a result of their training" (McKenna, 1977, p. 427). Appeals were also made to the citizens of Orillia to make Orillia "the safest town in Canada" (McKenna, 1977, p. 427). In view of the problems identified, McKenna suggested further research be conducted, employing stricter experimental techniques, to either confirm or refute the Canadian findings.

Atherley et al. (1973) proposed a scientifically credible explanation for the relationship between exposure to first aid and reduced accident involvement. Based on an analysis of existing research, Atherley et al. reasoned that knowledge of potential injury may induce a change in attitude toward risk and danger. This change in attitude might then alter behavior so that a person is less likely to be involved in an accident. The recommendation was made that this theory be investigated through controlled research.

In the FACTS II study (Miller & Agnew, 1975), a matched control design was employed in an attempt to replicate the findings of project FACTS I. First aid trained subjects were carefully matched to non-trained subjects on the characteristics of: place of employment, sex, age, job title, and approximate time on the job. The findings of the second project were similar to the findings of the FACTS I study.
Data analysis supported the hypothesis that first aid training is clearly related to a reduction in accident rates.

Miller and Agnew (1975) cited several unavoidable methodological problems encountered with Project FACTS II. One problem was the selection of subjects. Employers determined which subjects were assigned to the first aid training group, and the selection process was unknown to the researchers. Another problem was small sample size due to the failure of some industries to provide subjects not trained in first aid. In addition, the necessity of using computer-generated compensable accidents, instead of all recorded accidents, resulted in a smaller data base than originally planned in the design of the study. In concluding, Miller and Agnew recommended further research to determine if other factors contributed significantly to the relationship between first aid instruction and accident rates.

McKenna (1977) directed research similar to the Canadian FACTS project in the United Kingdom. The British investigation was entitled FACT (First Aid Community Training) to avoid any reference to safety during the training or the research. The major hypothesis tested was "that first aid training reduces people's involvement in injury accidents" (McKenna, 1977, p. 428). The research concentrated on accidents leading to injury in order to obtain the most reliable data. The results of these studies provided further support for the contention that first aid training can help prevent accidents.

In an attempt to further clarify the relationship between first aid and accidents, three factory studies (Factory A, B, and C) were
conducted (McKenna, 1977). To control for exposure to risk, workers who volunteered for first aid training were matched with non-volunteers on the basis of: type of job performed, length of service, age, and nationality. Data were obtained through interviews and from surgery attendance records. Workers' injury accident records for the year prior to first aid training were compared with their injury accident records for the year following training. This comparison was used to evaluate injury accident performance.

Generally, the results obtained from the factory studies supported the hypothesis that first aid instruction reduces involvement in injury accidents. Although the results from Factory A did not support the major hypothesis, there were significant changes in attitude toward injury and its consequences. Factories B and C showed improvement in the injury accident rate of the first aid trained group as well as changes in attitude toward injury.

Interview findings did not support Atherley et al.'s (1973) supposition that first aid training changes a person's attitude toward risk and danger. McKenna commented on the findings of the British factory studies (1977):

The fact that attitudes to risk and danger did not change as much as those to injury suggests that first aid training motivates people to avoid injury rather than to become more aware of danger. The pre-training differences between volunteers and non-volunteers indicated that the former group were already more aware of danger and risk and yet had a worse injury accident record. First aid training introduces the concept of injury and its consequences in an acceptable form and this acts as a motivator to avoid injury (p. 431).
The results of Project FACT provided more evidence regarding the effects of first aid training on safety.

In sum, studies in Canada and the United Kingdom linked first aid training to reduced accident rates. A review of these studies pointed out the need for further research into the outcomes of first aid instruction, especially in the area of safety attitudes, to determine whether safety education is a component of first aid instruction.

Summary

The need for a controlled study of the effect of first aid instruction on attitudes toward safety was demonstrated through a review of the literature. A discussion of attitude-related literature provided a background into the nature and importance of attitudes and the relationship between attitudes and behavior. An association between accidents and personality factors, including attitudes, was established through the examination of previous traffic safety research. Investigations into methods of promoting positive safety attitudes and ultimately the reduction of accidents were presented. The literature indicated the need for education programs which develop positive safety attitudes. Finally, the foreign studies of the relationship between first aid and accident rates were evaluated.
III. METHODOLOGY

This study investigated the effect of first aid instruction on college students' attitudes toward safety. Safety attitudes were measured with the Home Safety Attitude Scale and the Traffic Safety Attitude Scale developed by Jerry L. Miller ED.D. (1969). In addition, biographical information was obtained through the administration of a brief questionnaire.

Design

The Home Safety Attitude Scale and the Traffic Safety Attitude Scale were administered to subjects in a Pretest-Post test Control Group Design. This procedure, also called a before-after design, was selected for this study because it is a true experimental design which controls for all the factors jeopardizing internal validity (Campbell & Stanley, 1966, p. 8). The design matrix is presented in Table 1.

Table 1. Pretest-Post test Control Group Design

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Treatment</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (III)</td>
<td>H.S.A.S. T.S.A.S.</td>
<td>Personal Health</td>
<td>H.S.A.S. T.S.A.S.</td>
</tr>
</tbody>
</table>

¹Home Safety Attitude Scale  
²Traffic Safety Attitude Scale  
³Standard First Aid and Personal Safety Course
The benefit of using a before-after design is that the initial pretest measurement provides information about subjects prior to the treatment program. The baseline data along with data obtained from the post test allow a reliable determination of the treatment effects (Anderson, Ball, Murphy, & Associates, 1975, p. 290). Administration of the pretest to both control and experimental subjects adequately controls for a main pretest effect (Insko, 1967, p. 5). Since the pretest experience becomes part of the history of all subjects, differences between groups are primarily due to the treatment program (Anderson et al., 1975, p. 288). In addition, the likelihood of pretest sensitization was considered minimal in this study, because testing is an accepted and normal part of the college setting (Kerlinger, 1973, p. 337).

Since intact groups (existing college classes) served as subjects for this study, an analysis of covariance (ANACOVA) was used to evaluate the results. Statistical control through analysis of covariance is an alternative to the use of experimental control in reducing experimental error, so that unbiased approximations of treatment effects can be obtained (Kirk, 1968, p. 455). As a result of the removal of potential sources of bias, the groups are equated for comparison purposes. Analysis of covariance was used in this study to eliminate differences in safety attitude scores attributable to initial differences between subjects (Insko, 1967, p. 6).
Sample

This study was conducted at the University of Oregon which is a member of the Oregon State System of Higher Education located in Eugene, Oregon. It is a public coeducational liberal arts institution. Permission to conduct the study was granted by the Committees for the Protection of Human Subjects at both the University of Oregon and Oregon State University (see Appendix A).

Subjects were students enrolled in existing University of Oregon health education classes, spring term, 1979. College students were selected as the population for this study in order to control some of the extraneous variables that might contaminate the results. These variables included: experience, self-selection, and exposure to risk. The classes containing subjects were selected for this study on the basis of their potentially large enrollments and broad cross-section of students.

A total of 149 students served as subjects for this study and comprised three groups: Experimental I (N = 44), Experimental II (N = 35), and Control (N = 70). The experimental subjects were students aged 18-24 years enrolled in two sections of First Aid-HE 260. The Control Group consisted of students aged 18-24 years without previous college-level first aid instruction, enrolled in Personal Health-HE 250 (large section). Factors which had an effect on sample size included: spring term enrollment, age of students enrolled in the classes, voluntary nature of participation, and previous first aid and safety-related background of the students in the classes.
Experimental Setting

First aid instruction served as the experimental treatment in this study. Subjects' exposure to the treatment consisted of participation in First Aid-HE 260, spring term, 1979, at the University of Oregon. The objective of this course is to prepare students to render immediate and temporary care to injured or ill persons (American National Red Cross, 1973).

Two sections of HE 260 were offered spring term, 1979. The first section (Experimental I) was held twice a week for 50 minutes each session throughout the ten-week term. The second section (Experimental II) met one night a week for two hours. Each section was taught by a different instructor, but followed a lecture-discussion format with similar topic areas. Students in both sections also attended a laboratory session (20 students) for two hours every week to practice first aid skills. Course outlines are found in Appendix B.

The Control Group took Personal Health-HE 250 (large section) which met for 50 minutes, three times a week, throughout the term. This course is required for graduation from the University of Oregon. The class followed a lecture-discussion format to investigate personal health issues of importance to college students. The course outline is found in Appendix B.

First Aid-HE 260 and Personal Health-HE 250 were taught by qualified instructors who have regularly conducted these courses for the past two years. Instructors for First Aid-HE 260 were certified by the American National Red Cross. Course content for both courses...
followed the course descriptions listed in the University of Oregon Bulletin: 1978-1979 General Catalog. Three lower division undergraduate credits are given to students who successfully complete HE 250 or HE 260.
Instruments

Home and Traffic Safety Attitude Scales

Subjects' attitudes toward safety were determined from responses to two Thurstone equal-appearing intervals type safety attitude scales developed by Miller (see Appendix C). These scales were constructed to measure college students' attitudes toward home and traffic safety. Each scale is composed of 22 items, reflecting varying degrees of positiveness or negativeness toward home and traffic safety arranged in random order.

In responding to the safety attitude scales, each subject was asked to read all the attitude statements and to mark the items with which he or she agreed. The subject was then asked to select from that group the four statements he or she most agreed with and to mark only those items before submitting the inventory. The attitude score was then determined by finding the arithmetic median of the scale values of the four items each subject marked.

Safety Attitude Scale Selection

Scales and indices are useful because they are quantitative measuring devices that are better suited to statistical manipulation and precise interpretation than are other data-gathering methods, such as behavioral observation or interview techniques (Miller, 1977, p. 86). A comprehensive search was conducted for instruments designed to assess safety attitudes. In addition to a broad review of published literature
and unpublished dissertations, safety experts in the field were contacted.

Earl Heath (1963a) stated that few of the safety tests in print have been developed in full conformity with accepted test construction procedures. Most of the available instruments were developed for use in motor vehicle safety studies. Existing standardized instruments were found to be either too technical or specific for use in this study or inadequately developed according to test construction standards. Personality tests such as the Minnesota Multiphasic Personality Inventory (MMPI) and the California Psychological Inventory (CPI) were not appropriate to the purpose of this study.

Miller's (1969) Home and Traffic Safety Attitude Scales were chosen for use in this study following an evaluation of the test construction and validation procedures utilized in developing the devices. These scales were selected on the basis of the following criteria:

A. Thurstone-type devices have been found to be sensitive in measuring attitudes (Ostrom, 1969).

B. Equal-appearing intervals scales provide optimum use of testing time, because they are concise, but effective.

C. There is evidence that Miller's instruments are valid for the purpose of measuring attitudes toward home and traffic safety. The scales cover appropriate content in home and traffic safety. Eleven professionals in safety education (college educators with doctorates and publications) comprised a panel of judges. Panel members independently
classified each attitude statement into one of 11 positions along a continuum reflecting the degree of positiveness or negativeness toward home and traffic safety.

D. Reliability has been established for both scales. The Home Safety Attitude Scale has a test-retest reliability of .91; the test-retest reliability of the Traffic Safety Attitude Scale is .88 (Miller, 1969). The median reported reliability for attitude scales is .79 (Borg & Gall, 1979, p. 218).

E. The scales have been constructed according to accepted test construction and validation procedures (Miller, 1977, p. 88; Thurstone & Chave, 1929). These procedures included:

1) Instrument formulation -- 230 college students enrolled in Safety Education at West Virginia University wrote two descriptive paragraphs, one on traffic safety and one on home safety. A committee selected 150 statements which were most representative of the range of attitudes toward safety. These statements were ranked by judges and scale values for each item were computed.

2) Instrument administration -- The Home Safety Attitude Scale and the Traffic Safety Attitude Scale were administered in a Pretest-Post test fashion to a group of 77 students who were randomly selected from 194 students enrolled in Safety Education 181 at West Virginia University.

3) Recent instrument use -- Dr. Miller used the scales in

F. Miller's Home and Traffic Safety Attitude Scales are suitable for use with college students.

In addition to being valid, reliable, and usable, the Home Safety Attitude Scale and the Traffic Safety Attitude Scale were found to be appropriate to the purpose of this study. Therefore, the scales were determined to be suitable measures of the dependent variables.

Biographical Information

In order to: describe the sample population, eliminate non-eligible subjects, and categorize subjects for data analysis, a brief questionnaire was administered with the Home and Traffic Safety Attitude Scales as part of the pretest. Information requested from the participants included: age, gender, reason for taking the course, perceived accident susceptibility, exposure to first aid or safety-related courses, and parents' educational and occupational background (see Appendix D).

Since socioeconomic status is an important variable in social research (Anderson et al., 1975, p. 337; Miller, 1977, p. 211), the Hollingshead's Two Factor Index of Social Position (1957) was used to determine each subject's social status (see Appendix E). Extensive studies of the reliability and validity of the Index of Social Positions have been conducted (Miller, 1977, p. 231). The reliability of the Index has been established as .906.
The Index uses an occupational and an educational scale to determine social position (Miller, 1977, p. 212). The educational scale is premised on the assumption that people who have similar educational backgrounds tend to have similar tastes, attitudes, and behaviors. Moreover, occupation has been shown to be the best single predictor of social position, and occupational prestige ratings have remained fairly stable since 1925. Data are easily obtainable and an individual's social position score can be quickly computed (Miller, 1977, p. 231).

On the basis of educational and occupational information provided about their parents, subjects were assigned to one of five social classes designated by the Index. In testing hypotheses, comparisons were made between social position groupings.
Data Gathering Process

Data collection was facilitated by the administration of inventories to subjects during class meetings. A pretest, consisting of the Biographical Information Sheet, Home Safety Attitude Scale, and the Traffic Safety Attitude Scale, was administered to all students in attendance at the first class meeting, spring term, 1979. Pretests were distributed prior to the introductory lecture. Students in attendance at the last class meeting, spring term, received a post test consisting of the Home and Traffic Safety Attitude Scales. In order to retain as many subjects as possible in this study, the post test was administered at the final examination for those students unable to attend the last class meeting.

An informed consent document was distributed with each pretest and post test (see Appendix F). This document described: the purpose of the study, requirements of participation, risks of participation, preservation of confidentiality, voluntary nature of participation, and method by which participants could obtain the results. Verbal instructions accompanied the distribution of the consent forms and inventories. These instructions reiterated the contents of the consent form. Completion and return of the inventories was interpreted as evidence of informed consent to participate in this study.

Subjects in the three groups: Experimental I, Experimental II, and Control were identified for testing purposes only, by the last four digits of their student identification number. This method of
identification was used to assure confidentiality. Pretests and post tests were matched for data analysis.
Statistical Treatment of the Data

The purpose of this study was to determine if first aid instruction has an effect on the safety attitudes of college students. The investigation followed a Pretest-Post test Control Group Design. Both descriptive and inferential statistical procedures were used in analyzing the data.

Post test results were subjected to a three-way analysis of covariance (ANACOVA) with the pretest as a covariate, to determine whether treatment effects, gender effects, social position effects, and interaction effects were significant. The three-way ANACOVA with unequal cell size was used to test hypotheses one through seven as shown in Table 2. The factors consisted of three levels of treatment, two levels of gender, and four levels of social position (social position five was empty). The dependent variables were scores on the Home and Traffic Safety Attitude Scales which represented a measure of subjects' safety attitudes.
### Table 2. Analysis of Covariance: Three-Way Fixed Model

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (1)</td>
<td>2</td>
<td>A</td>
<td>A/2</td>
<td>MS Gr./MS Error</td>
</tr>
<tr>
<td>Gender (2)</td>
<td>1</td>
<td>B</td>
<td>B/1</td>
<td>MS Ge./MS Error</td>
</tr>
<tr>
<td>Social Position (3)</td>
<td>3</td>
<td>C</td>
<td>C/3</td>
<td>MS S.P./MS Error</td>
</tr>
<tr>
<td>Group x Gender (4)</td>
<td>2</td>
<td>D</td>
<td>D/2</td>
<td>MS Gr. x Ge./MS Error</td>
</tr>
<tr>
<td>Group x Social Position (5)</td>
<td>6</td>
<td>E</td>
<td>E/6</td>
<td>MS Gr. x S.P./MS Error</td>
</tr>
<tr>
<td>Gender x Social Position (6)</td>
<td>3</td>
<td>F</td>
<td>F/3</td>
<td>MS Ge. x S.P./MS Error</td>
</tr>
<tr>
<td>Group x Gender x Social Position (7)</td>
<td>6</td>
<td>G</td>
<td>G/6</td>
<td>MS Gr. x Ge. x S.P./MS Error</td>
</tr>
<tr>
<td>Error</td>
<td>124</td>
<td>H</td>
<td>H/124</td>
<td></td>
</tr>
<tr>
<td>Total (N - 2)</td>
<td>147</td>
<td>I</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

df = degrees of freedom  
SS = Sum of Squares  
MS = Mean Squares

Decisions regarding hypotheses involved comparisons of computed F values with critical F values. If the computed F equaled or exceeded the critical F, the null hypothesis was rejected. The .05 level of significance was used to evaluate F-ratios in this study. Critical F values for hypotheses one through seven are shown in Table 3.

One additional hypothesis was tested for experimental subjects only. A one-way analysis of variance (ANOVA) with unequal cell size was used to test hypothesis eight which investigated differences in safety attitude scores based on whether First Aid-HE 260 was a
required or elective course. The one-way ANOVA used to test hypothesis eight is shown in Table 4.

Table 3. Hypothesis Decision Table

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Tabular df</th>
<th>Critical F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2,124</td>
<td>3.07</td>
</tr>
<tr>
<td>2</td>
<td>1,124</td>
<td>3.92</td>
</tr>
<tr>
<td>3</td>
<td>3,124</td>
<td>2.68</td>
</tr>
<tr>
<td>4</td>
<td>2,124</td>
<td>3.07</td>
</tr>
<tr>
<td>5</td>
<td>6,124</td>
<td>2.17</td>
</tr>
<tr>
<td>6</td>
<td>3,124</td>
<td>2.68</td>
</tr>
<tr>
<td>7</td>
<td>6,124</td>
<td>2.17</td>
</tr>
</tbody>
</table>

Table 4. One-Way Analysis of Variance: Hypothesis Eight

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>Tabular df</th>
<th>Critical F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reason for Course (8)</td>
<td>1</td>
<td>A</td>
<td>A/1</td>
<td>1,77</td>
<td>4.00</td>
</tr>
<tr>
<td>Error</td>
<td>77</td>
<td>B</td>
<td>B/77</td>
<td>1,77</td>
<td></td>
</tr>
<tr>
<td>Total (N -1)</td>
<td>78</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The rejected F for the major hypothesis was given further analysis using a multiple comparisons test. Scheffe's test was selected for this phase of the analysis, since sample sizes were unequal, and the research situation was not controlled enough to afford the use of a less stringent procedure.

Rejected interaction hypotheses were to be subjected to plots which would have indicated the existence and relationship between the
independent and the dependent variables. Interactions were to have been considered either ordinal or disordinal in type.

Data were transferred to computer cards and analyzed through the services of the Oregon State Computer Center.
IV. ANALYSIS OF THE DATA

This study investigated the effect of first aid instruction on college students' attitudes toward safety. More specifically, it determined if differences in safety attitude scores existed among subjects when grouped by: (1) treatment, (2) gender, and (3) social position. In addition, the reason for taking the first aid course was investigated as a factor affecting students' safety attitudes. Attitudes toward safety were measured by Miller's (1969) Home and Traffic Safety Attitude Scales.

In order to facilitate the presentation of data analysis and interpretation, this chapter is divided into five sections. The first section discusses the characteristics of the sample studied. Section two shows the descriptive statistical results. Section three presents the pretest and adjusted post test means. The results of significance testing are discussed in section four. In the last section, descriptive statistics and results of significance testing based on the reason students took the first aid course are presented.

Characteristics of the Sample

The sample for this study consisted of 149 students (aged 18-24 years) without previous college level first aid or safety-related courses who: (1) were enrolled in First Aid-HE 260 or Personal Health-HE-250, (2) consented to participate, and (3) completed both the pretest and the post test. Of the total sample, 79 subjects or 53
percent were enrolled in two sections of First Aid-HE 260 which constituted the treatment program. The other 70 subjects (47 percent) were enrolled in Personal Health-HE 250, which constituted the control program. The original student population and the subsequent sample derived from the population are shown in Table 5.

Table 5. Student Population

<table>
<thead>
<tr>
<th>Class</th>
<th>Enrollment</th>
<th>Pretest</th>
<th>Post Test</th>
<th>Matched Pretest &amp; Post Test</th>
<th>Eligible Subjects</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 260 (I)</td>
<td>93</td>
<td>80 (86%)</td>
<td>72 (77%)</td>
<td>64 (69%)</td>
<td>44 (47%)</td>
<td>44</td>
</tr>
<tr>
<td>HE 260 (II)</td>
<td>74</td>
<td>64 (87%)</td>
<td>56 (75%)</td>
<td>50 (68%)</td>
<td>35 (47%)</td>
<td>35</td>
</tr>
<tr>
<td>HE 250 (Control)</td>
<td>208</td>
<td>156 (75%)</td>
<td>114 (55%)</td>
<td>94 (45%)</td>
<td>70 (34%)</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>

The sample contained a higher proportion of females than males. Sixty percent of the sample (or 90 subjects) were females. In contrast, 40 percent (or 59 subjects) were males. The distribution of subjects by gender and treatment group is shown in Table 6.

Table 6. Distribution of Subjects by Gender and Treatment Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental I</td>
<td>14</td>
<td>30</td>
<td>44</td>
</tr>
<tr>
<td>Experimental II</td>
<td>14</td>
<td>21</td>
<td>35</td>
</tr>
<tr>
<td>Control (III)</td>
<td>31</td>
<td>39</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>90</td>
<td>149</td>
</tr>
<tr>
<td>Percentage</td>
<td>40%</td>
<td>60%</td>
<td>100%</td>
</tr>
</tbody>
</table>
The distribution of subjects by social position and treatment group is summarized in Table 7. Based on social position classification, 71 percent (N = 106) of the subjects were assigned to levels I and II of the Hollingshead's Two Factor Index of Social Position. No participants were classified in level V, which represents the lowest social position. From a descriptive standpoint, social status was positively skewed as depicted in Illustration 1: Histogram of Social Position.

Table 7. Distribution of Subjects by Social Position* and Treatment Group

<table>
<thead>
<tr>
<th>Social Class Levels</th>
<th>Experimental I</th>
<th>Experimental II</th>
<th>Control</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>15</td>
<td>14</td>
<td>26</td>
<td>55</td>
<td>37%</td>
</tr>
<tr>
<td>II</td>
<td>14</td>
<td>11</td>
<td>26</td>
<td>51</td>
<td>34%</td>
</tr>
<tr>
<td>III</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>25</td>
<td>17%</td>
</tr>
<tr>
<td>IV</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>18</td>
<td>12%</td>
</tr>
<tr>
<td>V</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>44</strong></td>
<td><strong>35</strong></td>
<td><strong>70</strong></td>
<td><strong>149</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

*Based on Hollingshead's Two Factor Index of Social Position
Illustration 1
Histogram of Social Position

Social Position* classifications based on Hollingshead's Two Factor Index of Social Position
Descriptive Statistical Results

The initial step in data analysis is the presentation of descriptive statistics which summarize the data collected (Gay, 1976, p. 223). Use of descriptive statistics allows the results to be organized and condensed into a meaningful format. In the following section the data collected are described through the use of descriptive statistics.

In this study, scores on the Home Safety Attitude Scale and the Traffic Safety Attitude Scale represented subjects' safety attitudes. In order to make comparisons between groups, safety attitude scores were considered indicators of positive or negative attitudes toward safety. High median scores represented positive safety attitudes and low median scores represented negative safety attitudes. These assumptions were based on scaling procedures used in the construction of the two Thurstone-type scales.

Home Safety Attitude Scale

Table 8 summarizes the pretest and post test means and standard deviations for the treatment groups on the Home Safety Attitude Scale. Pretest means for all three groups were high considering that the lowest score possible was 1.7 and the highest score possible was 9.85. All treatment groups showed improvements in their home safety attitude scores at post test time. Still, post test means for both experimental groups were higher than the post test mean for the control group.
Standard deviations for the Control Group on both the pretest and post test were higher than standard deviations for the experimental groups, indicating a wider range of scores. The decrease in standard deviations on post test scores demonstrated that there was less variability in home safety attitudes for all treatment groups at post test time.

Table 8. Pretest and Post test Means and Standard Deviations on the Home Safety Attitude Scale by Treatment Group

<table>
<thead>
<tr>
<th>Measures</th>
<th>EXPERIMENTAL I Pre-test</th>
<th>Post test</th>
<th>EXPERIMENTAL II Pre-test</th>
<th>Post test</th>
<th>CONTROL Pre-test</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>8.6027</td>
<td>8.7636</td>
<td>8.5009</td>
<td>8.5229</td>
<td>8.0019</td>
<td>8.2929</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>.9782</td>
<td>.5580</td>
<td>.7176</td>
<td>.6176</td>
<td>1.2509</td>
<td>1.0937</td>
</tr>
<tr>
<td>N</td>
<td>44</td>
<td>35</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pretest and post test means and standard deviations for males and females on the Home Safety Attitude Scale are presented in Table 9. There were small increases in the means from pretest to post test for both males and females. Mean scores were higher for females than males on both the pretest and the post test. At the time the post test was given, the mean for male subjects approached the female pre-test mean. The standard deviations for both groups decreased on the post test, indicating less variability in home safety attitudes.
Table 9. Pretest and Post test Means and Standard Deviations on the Home Safety Attitude Scale for Males and Females

<table>
<thead>
<tr>
<th>Gender</th>
<th>Pretest</th>
<th>Post test</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>8.2241</td>
<td>8.4071</td>
<td>59</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.0967</td>
<td>.8935</td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>8.4657</td>
<td>8.6080</td>
<td>90</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>.9054</td>
<td>.6374</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>

Pretest and post test means and standard deviations on the Home Safety Attitude Scale by social position are presented in Table 10. Although some differences existed between groups on the pretest means, the post test means were more homogeneous. The post test means for social position groups I and III increased an average of .287 and the post test means for groups II and IV remained about the same as their respective pretest measurements.

There were differences in standard deviations between the groups, indicating variation in the ranges of scores. Subjects in the lowest social position (group IV) had the least variation in home safety attitude scores on both the pretest and post test. In addition, subjects in groups III and IV were more consistent in their home safety attitude scores than were subjects in groups I and II based on
the post test standard deviations obtained. The post test standard deviations for all four social position groups decreased, indicating a reduced variation in subjects' home safety attitudes at post test time.

Table 10. Pretest and Post test Means and Standard Deviations on the Home Safety Attitude Scale by Social Position

<table>
<thead>
<tr>
<th>Social Position</th>
<th>Pretest Mean</th>
<th>Pretest Standard Deviation</th>
<th>Post test Mean</th>
<th>Post test Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>8.1478</td>
<td>1.5723</td>
<td>8.4524</td>
<td>.9918</td>
<td>55</td>
</tr>
<tr>
<td>II</td>
<td>8.5575</td>
<td>.7969</td>
<td>8.5868</td>
<td>.4355</td>
<td>51</td>
</tr>
<tr>
<td>III</td>
<td>8.3033</td>
<td>.7990</td>
<td>8.5719</td>
<td>.2209</td>
<td>25</td>
</tr>
<tr>
<td>IV</td>
<td>8.5278</td>
<td>.3122</td>
<td>8.5208</td>
<td>.2701</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>
Traffic Safety Attitude Scale

Table 11 summarizes the pretest and the post test means and standard deviations for the treatment groups on the Traffic Safety Attitude Scale. Pretest means for all three groups were high considering that the lowest score possible was 1.8 and the highest score possible was 9.35. All treatment groups demonstrated more positive post test traffic safety attitudes. The differences in post test means between the groups were less than .15.

Standard deviations for all treatment groups decreased on the post test. Both experimental groups showed less variability in traffic safety attitudes than the control group showed.

Table 11. Pretest and Post test Means and Standard Deviations on the Traffic Safety Attitude Scale by Treatment Group

<table>
<thead>
<tr>
<th>Measures</th>
<th>EXPERIMENTAL I</th>
<th>EXPERIMENTAL II</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test</td>
<td>Post-test</td>
<td>Pre-test</td>
</tr>
<tr>
<td>Mean</td>
<td>7.8659</td>
<td>7.9205</td>
<td>7.7771</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.2228</td>
<td>.9790</td>
<td>1.4730</td>
</tr>
<tr>
<td>N</td>
<td>44</td>
<td>35</td>
<td>70</td>
</tr>
</tbody>
</table>

The pretest and post test means and standard deviations for males and females on the Traffic Safety Attitude Scale are shown in Table 12. As with home safety attitudes, female traffic safety attitudes were more positive than males on both the pretest and post test. Male traffic safety attitudes on the post test remained lower than
pretest female traffic safety attitudes. The female post test traffic safety attitude score was .64 higher than the male post test traffic safety attitude score.

The variation in the male traffic safety attitudes was greater than the variation in female traffic safety attitudes, indicating that males had a wider range of traffic safety attitudes. Post test standard deviations for both groups reflected reduced variability in traffic safety attitude scores.

Table 12. Pretest and Post test Means and Standard Deviations on the Traffic Safety Attitude Scale for Males and Females

<table>
<thead>
<tr>
<th>Gender</th>
<th>Pretest</th>
<th>Post test</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.4442</td>
<td>7.5191</td>
<td>59</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.6793</td>
<td>1.2210</td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.9709</td>
<td>8.1585</td>
<td>90</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.0641</td>
<td>.9094</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>

Table 13 summarizes the pretest and post test means and standard deviations on the Traffic Safety Attitude Scale by social position. Post test means increased from pretest to post test for all social position groups, with the exception of group III. The mean score for social position III decreased approximately .13. Post test means
showed some differences. The greatest contrast was between social position groups I and III. The difference between the means was .46.

Table 13. Pretest and Post test Means and Standard Deviations on the Traffic Safety Attitude Scale by Social Position

<table>
<thead>
<tr>
<th>Social Position</th>
<th>Pretest</th>
<th>Post test</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.8092</td>
<td>7.8582</td>
<td>55</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.1431</td>
<td>1.0407</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.7186</td>
<td>7.9901</td>
<td>51</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.3266</td>
<td>.8773</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.6691</td>
<td>7.5327</td>
<td>25</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.1085</td>
<td>.9767</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.7514</td>
<td>7.7481</td>
<td>18</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.3595</td>
<td>1.2282</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>

The standard deviations varied between the groups on both the pretest and post test. Standard deviations for all social position groups decreased from the pretest to the post test, indicating less variation in traffic safety attitudes at post test time. Subjects in
the lowest social position (group IV) had the least consistent traffic safety attitudes. In contrast, this group had the most consistent home safety attitudes.
This study analyzed eight null hypotheses. Hypotheses one through seven were concerned with the effects on attitudes toward safety of: (1) treatment group, (2) gender, (3) social position, and (4) combinations of treatment group, gender, and social position. Hypothesis eight investigated the relationship between the student's reason for taking the first aid course and his/her safety attitudes. Two three-way analyses of covariance were employed to test hypotheses one through seven. Hypothesis eight was tested by two one-way analyses of variance. The .05 level of significance was used to evaluate the F-ratios.

In testing hypotheses one through seven, the influence of initial safety attitudes was accounted for by analyses of covariance. Pretest scores on the Home Safety Attitude Scale and the Traffic Safety Attitude Scale were used as the covariates. As shown in Tables 20 and 21 (pp. 71-72), the pretests were highly significant covariates.

Prior to statistical comparison, post test group means were adjusted for initial differences between the groups on the basis of pretest results. Since statistical analyses were performed using the adjusted post test means, they are presented in this section.

Table 14 shows the pretest and adjusted post test means on the Home Safety Attitude Scale when the effects of the covariate were removed for treatment group. Post test mean scores for both experimental groups were adjusted downward and the post test mean score for the control group was adjusted upward. Following the adjustment, the post
test mean for Experimental II was lower than the pretest measurement. The final differences between the adjusted post test treatment group means were small.

Table 14. Pretest and Adjusted Post test Means on the Home Safety Attitude Scale by Treatment Group

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Pretest</th>
<th>Adjusted Post test</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental I</td>
<td>8.6027</td>
<td>8.6210</td>
<td>44</td>
</tr>
<tr>
<td>Experimental II</td>
<td>8.5009</td>
<td>8.3740</td>
<td>35</td>
</tr>
<tr>
<td>Control</td>
<td>8.0019</td>
<td>8.5030</td>
<td>70</td>
</tr>
</tbody>
</table>

The pretest and adjusted post test means on the Home Safety Attitude Scale after the effects of the covariate were removed for gender are shown in Table 15. The post test mean for males varied little, and the post test mean for females was adjusted downward. Both groups showed improved home safety attitudes from the pretest to the post test. The difference between the adjusted post test means was only .058.

Table 15. Pretest and Adjusted Post test Means on the Home Safety Attitude Scales for Males and Females

<table>
<thead>
<tr>
<th>Gender</th>
<th>Pretest</th>
<th>Adjusted Post test</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>8.2241</td>
<td>8.4700</td>
<td>59</td>
</tr>
<tr>
<td>Females</td>
<td>8.4657</td>
<td>8.5280</td>
<td>90</td>
</tr>
</tbody>
</table>
Table 16 depicts the pretest and adjusted post test means on the Home Safety Attitude Scale when the effects of the covariate were removed for social position. On the basis of initial pretest differences in home safety attitude scores, small differences still existed between groups on the adjusted post test mean scores. Following adjustment, post test means for social position groups II and IV decreased, the post test mean for group III remained about the same, and the mean for group I (the highest social position) increased. The adjusted post test means for social position groups II and IV were lower than their respective pretest means.

Table 16. Pretest and Adjusted Post test Means on the Home Safety Attitude Scale by Social Position

<table>
<thead>
<tr>
<th>Social Position</th>
<th>Pretest</th>
<th>Adjusted Post test</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>8.1478</td>
<td>8.5090</td>
<td>55</td>
</tr>
<tr>
<td>II</td>
<td>8.5575</td>
<td>8.4867</td>
<td>51</td>
</tr>
<tr>
<td>III</td>
<td>8.3033</td>
<td>8.5690</td>
<td>25</td>
</tr>
<tr>
<td>IV</td>
<td>8.5278</td>
<td>8.4320</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>

Pretest and adjusted post test means on the Traffic Safety Attitude Scale after the effects of the covariate were removed for treatment group are shown in Table 17. As a result of adjustment, post test means were lowered for all three treatment groups. The post test mean for Experimental I was .03 lower than the pretest mean.
Adjusted post test mean scores for both experimental groups were higher than the adjusted post test mean scores for the control group.

Table 17. Pretest and Adjusted Post test Means on the Traffic Safety Attitude Scale by Treatment Group

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Pretest</th>
<th>Adjusted Post test</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental I</td>
<td>7.8659</td>
<td>7.8350</td>
<td>44</td>
</tr>
<tr>
<td>Experimental II</td>
<td>7.7771</td>
<td>7.8160</td>
<td>35</td>
</tr>
<tr>
<td>Control</td>
<td>7.6107</td>
<td>7.6850</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>

Table 18 summarizes the pretest and adjusted post test means on the Traffic Safety Attitude Scale when the effects of the covariate were removed for gender. Following adjustment, the male post test mean remained about the same and the female mean decreased. A .42 difference still existed between the two adjusted post test means. Thus, descriptively, there was a difference in the traffic safety attitudes of males and females. The significance of this difference was later evaluated through statistical analysis.

Table 18. Pretest and Adjusted Post test Means on the Traffic Safety Attitude Scale for Males and Females

<table>
<thead>
<tr>
<th>Gender</th>
<th>Pretest</th>
<th>Adjusted Post test</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>7.4442</td>
<td>7.5710</td>
<td>59</td>
</tr>
<tr>
<td>Females</td>
<td>7.9709</td>
<td>7.9860</td>
<td>90</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>
Pretest and adjusted post test means after the effects of the covariate were removed for social position on the Traffic Safety Attitude Scale are presented in Table 19. The adjusted post test means for the two lowest social positions (groups III and IV) were lower than their respective pretest measurements. Adjusted post test means for all social positions remained about the same as the original post test means. Subjects in social position III had lower adjusted post test traffic safety attitude mean scores than subjects in the other three social position groups.

Table 19. Pretest and Adjusted Post test Means on the Traffic Safety Attitude Scale by Social Position

<table>
<thead>
<tr>
<th>Social Position</th>
<th>Pretest</th>
<th>Adjusted Post test</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>7.8092</td>
<td>7.8330</td>
<td>55</td>
</tr>
<tr>
<td>II</td>
<td>7.7186</td>
<td>7.9990</td>
<td>51</td>
</tr>
<tr>
<td>III</td>
<td>7.6691</td>
<td>7.5490</td>
<td>25</td>
</tr>
<tr>
<td>IV</td>
<td>7.7514</td>
<td>7.7400</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>
Results of Hypothesis Testing

The first seven null hypotheses were formulated to determine whether the differences between the adjusted post test means, previously discussed descriptively, were statistically significant. The results of the three-way analyses of covariance for hypotheses one through seven are summarized in Tables 20 and 21. Hypotheses one through three were concerned with the main effects of the variables, while hypotheses four through seven analyzed interaction effects of the variables. Tables 20 and 21 are followed by the findings related to hypotheses one through seven.
Table 20. Three-Way Analysis of Covariance: Home Safety Attitude Scale

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>Computed F</th>
<th>Tabular F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (H.S.A.S.)</td>
<td>21.626</td>
<td>1</td>
<td>21.626</td>
<td>39.198</td>
<td>3.92</td>
<td>.001*</td>
</tr>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Group</td>
<td>.877</td>
<td>2</td>
<td>.438</td>
<td>.795</td>
<td>3.07</td>
<td>.454</td>
</tr>
<tr>
<td>Gender</td>
<td>.081</td>
<td>1</td>
<td>.081</td>
<td>.147</td>
<td>3.92</td>
<td>.702</td>
</tr>
<tr>
<td>Social Position</td>
<td>.179</td>
<td>3</td>
<td>.060</td>
<td>.108</td>
<td>2.68</td>
<td>.955</td>
</tr>
<tr>
<td>First Order</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Group x Gender</td>
<td>.363</td>
<td>2</td>
<td>.182</td>
<td>.329</td>
<td>3.07</td>
<td>.720</td>
</tr>
<tr>
<td>Treatment Group x Social Position</td>
<td>6.982</td>
<td>6</td>
<td>1.164</td>
<td>2.109</td>
<td>2.17</td>
<td>.057</td>
</tr>
<tr>
<td>Gender x Social Position</td>
<td>.599</td>
<td>3</td>
<td>.200</td>
<td>.362</td>
<td>2.68</td>
<td>.780</td>
</tr>
<tr>
<td>Second Order</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Group x Gender x Social Position</td>
<td>3.186</td>
<td>6</td>
<td>.531</td>
<td>.962</td>
<td>2.17</td>
<td>.454</td>
</tr>
<tr>
<td>Residual</td>
<td>68.414</td>
<td>124</td>
<td>.552</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>114.935</td>
<td>148</td>
<td>.777</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant
Table 21. Three-Way Analysis of Covariance: Traffic Safety Attitude Scale

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>Computed F</th>
<th>Tabular F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (T.S.A.S.)</td>
<td>20.224</td>
<td>1</td>
<td>20.224</td>
<td>19.347</td>
<td>3.92</td>
<td>.001*</td>
</tr>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Group</td>
<td>.516</td>
<td>2</td>
<td>.258</td>
<td>.247</td>
<td>3.07</td>
<td>.782</td>
</tr>
<tr>
<td>Gender</td>
<td>4.161</td>
<td>1</td>
<td>4.161</td>
<td>3.980</td>
<td>3.92</td>
<td>.048*</td>
</tr>
<tr>
<td>Social Position</td>
<td>2.816</td>
<td>3</td>
<td>.939</td>
<td>.898</td>
<td>2.68</td>
<td>.444</td>
</tr>
<tr>
<td>First Order Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Group x Gender</td>
<td>.174</td>
<td>2</td>
<td>.087</td>
<td>.083</td>
<td>3.07</td>
<td>.920</td>
</tr>
<tr>
<td>Treatment Group x Social Position</td>
<td>6.300</td>
<td>6</td>
<td>1.050</td>
<td>1.005</td>
<td>2.17</td>
<td>.426</td>
</tr>
<tr>
<td>Gender x Social Position</td>
<td>1.733</td>
<td>3</td>
<td>.578</td>
<td>.553</td>
<td>2.68</td>
<td>.647</td>
</tr>
<tr>
<td>Second Order Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Group x Gender x Social Position</td>
<td>5.198</td>
<td>6</td>
<td>.866</td>
<td>.829</td>
<td>2.17</td>
<td>.550</td>
</tr>
<tr>
<td>Residual</td>
<td>129.622</td>
<td>124</td>
<td>1.045</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>185.873</td>
<td>148</td>
<td>1.256</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant
Hypothesis One

There are no significant differences between the adjusted post test safety attitude scores of subjects who receive first aid instruction and the adjusted post test safety attitude scores of subjects who do not receive first aid instruction.

Hypothesis one was retained. Values derived from the analyses of covariance are presented in Tables 20 and 21. Results showed that exposure to first aid instruction had no significant effect on subjects' adjusted post test safety attitude scores. This finding indicates that the Home and Traffic Safety Attitude Scales did not identify any significant differences in safety attitudes between subjects who received first aid instruction and subjects who did not receive first aid instruction.

Hypothesis Two

There are no significant differences between the adjusted post test safety attitude scores of male subjects and female subjects.

As indicated in Tables 20 and 21, gender had a significant effect on subjects' adjusted post test traffic safety attitude scores, but not on subjects' adjusted post test home safety attitude scores. Thus, hypothesis two was rejected for traffic safety attitude scores, but was retained for home safety attitude scores.

Since gender was a main effect on the Traffic Safety Attitude Scale, Scheffe's test was performed to further evaluate the
significance obtained. As indicated in Chapter III, Scheffe's test was selected for follow-up analysis, because the procedure is stringent and sample sizes were unequal.

Table 22. Scheffe's Test for the Effects of Gender on Traffic Safety Attitude Scores

<table>
<thead>
<tr>
<th>Group</th>
<th>Traffic Safety Means</th>
<th>Difference</th>
<th>Computed Post Hoc F</th>
<th>Critical F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>7.5170</td>
<td>.415</td>
<td>5.87*</td>
<td>3.93</td>
</tr>
<tr>
<td>Females</td>
<td>7.9860</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

Hypothesis Three

There are no significant differences between the adjusted post test safety attitude scores of subjects when categorized according to their social position.

The three-way analyses of covariance showed no significant differences in adjusted post test safety attitude scores between social position categories. The results are presented in Tables 20 and 21. Since there was no significant social position effect on attitudes toward safety, hypothesis three was retained.

Hypotheses four through seven were concerned with interaction effects. These hypotheses were all retained. None of the interaction F values were significant; therefore, the factors of treatment group,
gender, and social position were not affecting each other for the levels being tested.

**Hypothesis Four**

There is no significant interaction between gender and receiving or not receiving first aid instruction on subjects' adjusted post test safety attitude scores.

The interaction F values for gender and the treatment were not significant. The results presented in Tables 20 and 21 show that the computed F values were .329 and .083 respectively and the tabular F value was 3.07. Thus, null hypothesis four was retained.

**Hypothesis Five**

There is no significant interaction between social position and receiving or not receiving first aid instruction on subjects' adjusted post test safety attitude scores.

Tables 20 and 21 summarize the results of testing hypothesis five. No significant interaction was found between social position and the treatment on subjects' post test safety attitude scores; therefore, hypothesis five was retained.

**Hypothesis Six**

There is no significant interaction between gender and social position on subjects' adjusted post test safety attitude scores.
As presented in Tables 20 and 21, the computed F values were determined to be .362 and .553 respectively and the tabular F value was 2.68. Because the computed F values were smaller than the tabular F value, the hypothesis was retained.

**Hypothesis Seven**

There is no significant interaction between gender, social position, and receiving or not receiving first aid instruction on subjects' post test safety attitude scores.

This hypothesis was retained. The interaction F values for gender, social position, and treatment group were not significant. Statistical summaries of the analyses of covariance are presented in Tables 20 and 21.
Reason for Taking the First Aid Course

This study also investigated the effect of the reason experimental subjects took the first aid course on their attitudes toward safety. Hypothesis eight was generated to test the differences in safety attitude scores based on whether First Aid-HE 260 was a required or an elective course.

The two experimental groups were combined for this analysis. Of the 79 experimental subjects, 19 reported that they were required to take the first aid course, and 60 reported that they were not required to take the course. Differences in safety attitude scores, based on whether first aid instruction was required or elective, were evaluated through one-way analysis of variance procedures.

The standard measures for post test scores on the Home Safety Attitude Scale based on the reason subjects took the first aid course are presented in Table 23. Post test means were very high considering that the lowest score possible was 1.7 and the highest score possible was 9.85. There was a low variability of scores as indicated by the standard deviations obtained. The difference between the two post test means was only .07.
Table 23. Standard Measures of Post test Home Safety Attitude Scale Scores based on Reason for taking the First Aid Course

<table>
<thead>
<tr>
<th>Standard Measures</th>
<th>Reason for Course</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>8.7079</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>.4144</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>7.6000-9.5000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>8.6408</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>.6421</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>6.6000-9.8500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 24 summarizes the standard measures for post test scores on the Traffic Safety Attitude Scale based on the reason subjects took the first aid course. Post test means were high, considering that the lowest score possible was 1.8 and the highest score possible was 9.35. The difference between the two means was only .039. Post test traffic safety attitude scores varied more on the Traffic Safety Attitude Scale than they did on the Home Safety Attitude Scale based on the standard deviations obtained.

Table 24. Standard Measures of Post test Traffic Safety Attitude Scale Scores based on Reason for taking the First Aid Course

<table>
<thead>
<tr>
<th>Standard Measures</th>
<th>Reason for Course</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.9737</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.2117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>7.3897-8.5577</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.9342</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>.9347</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>7.6927-8.1756</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total = 79
Hypothesis Eight

There are no significant differences between post test safety attitude scores for subjects who take first aid instruction as a requirement or as an elective.

The results of the one-way analyses of variance used to test hypothesis eight are presented in Tables 25 and 26. These results showed no significant differences in post test safety attitude scores for subjects required to take the first aid course and subjects not required to take the course. Therefore, hypothesis eight was retained.

Table 25. One-way Analysis of Variance for Scores on the Home Safety Attitude Scale

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>Computed F</th>
<th>Tabular F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reason for Course</td>
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<td>Within Group</td>
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</tr>
</tbody>
</table>

Table 26. One-way Analysis of Variance for Scores on the Traffic Safety Attitude Scale

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>Computed F</th>
<th>Tabular F</th>
<th>Sig. of F</th>
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</thead>
<tbody>
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<td>Reason for Course</td>
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</tbody>
</table>
Summary

The results of hypothesis testing were presented in this chapter. Data were analyzed for 149 subjects. Analysis of covariance and analysis of variance were the statistical procedures used to analyze the data. A summary of hypothesis significance test results is presented in Table 27. One significant finding emerged from hypothesis testing: gender had a main effect on subjects' adjusted post test traffic safety attitude scores. Thus, there were significant differences between the traffic safety attitudes of male students and female students. It was found that female students had significantly more positive traffic safety attitudes than the male students. There was no significant gender effect, however, on subjects' adjusted post test home safety attitude scores. All other hypotheses were retained, indicating that first aid instruction, social position, and reason for taking the first aid course did not have a significant effect on college students' attitudes toward safety. Hypotheses were tested at the .05 level of significance.
Table 27. Hypothesis Significance Test Results

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>$H^0$ One</td>
<td>.795</td>
<td>.247</td>
<td>3.07</td>
<td>x</td>
<td>x</td>
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<td>$H^0$ Two</td>
<td>.147</td>
<td>3.980*</td>
<td>3.92</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>$H^0$ Three</td>
<td>.108</td>
<td>.898</td>
<td>2.68</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>$H^0$ Four</td>
<td>.329</td>
<td>.083</td>
<td>3.07</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>$H^0$ Five</td>
<td>2.109</td>
<td>1.005</td>
<td>2.17</td>
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<td>.362</td>
<td>.553</td>
<td>2.68</td>
<td>x</td>
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<td></td>
<td>x</td>
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<tr>
<td>$H^0$ Seven</td>
<td>.962</td>
<td>.829</td>
<td>2.17</td>
<td>x</td>
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<td></td>
<td>x</td>
</tr>
<tr>
<td>$H^0$ Eight</td>
<td>.182</td>
<td>.022</td>
<td>4.00</td>
<td>x</td>
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<td>x</td>
</tr>
</tbody>
</table>

$^1$ Home Safety Attitude Scale  
$^2$ Traffic Safety Attitude Scale  
$^3_p = .05$  
* Significant
V. SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Summary

This study was undertaken to determine the effect of first aid instruction on college students' attitudes toward safety. It evolved from previous studies of the relationship between first aid and accidents in Canada and the United Kingdom. These earlier studies were concerned with the effect of first aid training on accident rates; while the current research concentrated on the effects of first aid instruction on safety attitudes.

The sample consisted of 149 students (aged 18-24 years), without previous college level first aid or safety-related courses, enrolled in two lower division health courses at the University of Oregon, spring term, 1979. The 79 experimental subjects were students enrolled in two sections of First Aid-HE 260; control subjects were 70 students enrolled in Personal Health-HE 250 (large section).

A Pretest-Post test Control Group Design was employed in this study. The pretest was administered to subjects at the beginning of spring term to assess their attitudes toward safety prior to treatment. This pretest consisted of a biographical information section and two Thurstone-type scales which measured attitudes toward home and traffic safety. Following treatment, the Home and Traffic Safety Attitude Scales were administered again as the post test.
Eight null hypotheses were generated for this study. The first seven hypotheses related to the effect of treatment group, gender, social position, and combinations of these factors on safety attitudes. Hypothesis eight tested the relationship between the experimental subjects' reason for taking the first aid course and their attitudes toward safety.

Two three-way analyses of covariance were used to test the first seven hypotheses. Hypothesis eight was analyzed according to one-way analysis of variance procedures. The .05 level of significance was used to evaluate the results. The following hypotheses were tested and conclusions reached:

**Hypothesis One**

There are no significant differences between the adjusted post test safety attitude scores of subjects who receive first aid instruction and the adjusted post test safety attitude scores of subjects who do not receive first aid instruction.

There was no significant treatment group effect. Students who received first aid instruction did not have significantly different attitudes toward safety than students who did not receive first aid instruction.

**Hypothesis Two**

There are no significant differences between the adjusted post test safety attitude scores of male subjects and female subjects.
There was a significant gender effect on traffic safety attitudes, but not on home safety attitudes. Male students did have significantly different traffic safety attitudes than female students; however, male students did not have significantly different home safety attitudes than female students.

**Hypothesis Three**

There are no significant differences between the adjusted post-test safety attitude scores of subjects when categorized according to their social position.

There was no significant social position effect. Students in different social position categories did not have significantly different safety attitudes.

**Hypothesis Four**

There is no significant interaction between gender and receiving or not receiving first aid instruction on subjects' adjusted post-test safety attitude scores.

There was no significant interaction effect between treatment group and gender. Male or female students who received first aid instruction did not have significantly different safety attitudes than male or female students who did not receive first aid instruction.
Hypothesis Five

There is no significant interaction between social position and receiving or not receiving first aid instruction on subjects' adjusted post test safety attitude scores.

There was no significant interaction effect between treatment group and social position. Students in different social position categories who received first aid instruction did not have significantly different safety attitudes than students in different social position categories who did not receive first aid instruction.

Hypothesis Six

There is no significant interaction between gender and social position on subjects' adjusted post test safety attitude scores.

There was no significant interaction effect between gender and social position. Male students in different social position categories did not have significantly different attitudes toward safety than female students in different social position categories.

Hypothesis Seven

There is no significant interaction between gender, social position, and receiving or not receiving first aid instruction on subjects' adjusted post test safety attitude scores.

There was no significant interaction effect between treatment
group, gender, and social position. Male or female students in different social position categories who received first aid instruction did not have significantly different safety attitudes than male or female students who did not receive first aid instruction.

**Hypothesis Eight**

There are no significant differences between post test safety attitude scores for subjects who take first aid instruction as a requirement or as an elective.

Experimental subjects' reason for taking the first aid course did not have a significant effect on their safety attitudes. Students who took the first aid course as a requirement did not have significantly different attitudes toward safety than subjects who took the first course as an elective.

In summary, the findings of this study did not support a relationship between first aid instruction and positive attitudes toward safety as an outcome of this instruction. In addition, the reason subjects took the first aid course did not have an effect on their safety attitudes. One significant finding did emerge from hypothesis testing: it was found that males and females differ significantly in their traffic safety attitudes. The same result was not found for home safety attitudes.
Discussion

A variety of safety programs have been developed to help reduce our country's accident problem. It has been established that safety education is an effective technique for the prevention of accidents. Moreover, the development of positive attitudes toward safety is an important part of all safety education programs. Accordingly, the need to identify and utilize, on a widespread basis, education programs which increase an individual's personal safety has also been demonstrated.

In view of the need for effective approaches to the accident problem, this study investigated the influence of first aid instruction on safety attitudes. The purpose of the study was to determine if subjects who were exposed to first aid instruction would have more positive safety attitudes than subjects not exposed to first aid instruction.

First aid programs have existed to help reduce the likelihood of death and disability associated with accidents and sudden illnesses. This accident mitigation benefit of first aid instruction is widely recognized (Licht, 1975, p. 531). In addition, it has been the commonly held belief of many first aid instructors that completion of a first aid course increases a person's safety awareness, thus reducing his or her susceptibility to accidents (Glendon et al., 1978, p. 28). Indeed, research findings in Canada and the United Kingdom supported this belief based on data indicating reduced accident rates following first aid training.
Unfortunately, the results of this study did not provide evidence that first aid instruction fits the guidelines of a safety education program; specifically, the course did not influence safety attitudes. The findings clearly did not support the hypothesis that exposure to first aid has an effect on college students' attitudes toward safety. No significant differences in safety attitudes were found between students who received first aid instruction and students who did not receive first aid instruction.

There are several possible explanations for the results obtained. First, methodological limitations involving sampling, population, and instrumentation may have contributed to the nonsignificant findings. Secondly, students' high pretest safety attitudes limited the potential for safety attitude improvement in response to the first aid instruction. Finally, an influence on safety attitudes may, in fact, not be a secondary outcome of first aid instruction. Any of these factors, or a combination of the factors, may have affected the results.

Methodological Considerations

As has been noted, methodological limitations encountered in conducting this study may have contributed to the nonsignificant findings obtained. One difficulty encountered was the absence of randomization in the selection of the sample and in the formation of the treatment groups. Since it was neither possible nor feasible to use a randomized design, intact groups (existing college classes) were used as the population from which the sample was derived. Accordingly, this sample constituted the resultant three treatment groups.
Although statistical control through analysis of covariance was used to remove initial differences between the groups prior to first aid instruction, this procedure cannot ensure that all bias has been removed. Experimental control through randomization is considered the best method of controlling extraneous variables, but this method is impractical and/or impossible in most educational settings (Kirk, 1968, pp. 455-456). In future investigations of the effect of first aid instruction on safety attitudes, however, an attempt should be made to employ a completely randomized design. In other words, subjects should be both randomly selected from the original population and randomly assigned to treatment groups.

The examination of a population different than one selected for this study seems indicated. First, pretest attitudes for this sample were higher than those predicted using Miller's (1969) previous research and the range of scores possible on the two safety attitude scales. Secondly, although use of this population afforded control over some of the extraneous variables which have contaminated previous research, the opportunity for reinforcement of learning in regard to accidents and injuries was minimal. Miller and Agnew (1973) have suggested that the relationship between first aid instruction and safety is associated with the reinforcement effect of the environmental setting.

In reference to subjects' initial safety attitudes, it should be noted that Miller's (1969) pretest group mean on the Home Safety Attitude Scale was 6.25, and the pretest group mean on the Traffic Safety
Attitude Scale was 3.66. In contrast, the Home Safety Attitude Scale pretest means obtained in this study were: 8.6027 (Experimental I), 8.5009 (Experimental II), and 8.0019 (Control). Pretest group means for the Traffic Safety Attitude Scale were: 7.8659 (Experimental I), 7.7771 (Experimental II), and 7.6107 (Control). Thus, these high initial safety attitudes reduced the likelihood that there would be a significant improvement in safety attitudes at post test time.

The reason that subjects in this study had such high pretest safety attitudes cannot be fully explained by the data obtained. Since 11 to 13 years of age has been identified as an attitude formation period (Myers & Bean, 1968, p. 320), it is possible that the sample was exposed to educational programs which developed positive safety attitudes during this time.

Another plausible explanation for the results obtained in this study involved the classification of 71 percent of the subjects into social position classes I and II. High pretest safety attitudes may have been a product of their past background experiences and opportunities. It has been established that persons of similar socioeconomic environments possess similar tastes, attitudes, and behaviors (Miller, 1977, pp. 211-212; Myers & Bean, 1968, p. 236). In addition to the overrepresentation of subjects in social position groups I and II, no subjects were assigned to social position group V (the lowest social position). This group would be expected to show safety attitudes different than the other social position groups, based on previous research findings (Harano et al., 1975). This combination of circumstances could have influenced the results.
The second consideration in investigating a new population is the amount of learning reinforcement available. Miller and Agnew (1973) previously used industrial employees for researching the effects of first aid instruction on accident rates. These researchers theorized that first aid instruction influenced subjects to become more aware of the causes and consequences of accidents, and as a result, subjects became safer. Furthermore, they reasoned that part of the subjects' reduced accident susceptibility was due to reinforcement factors in the working environment. That is, subjects were in close proximity to hazards and job-related accidents and could better internalize the first aid instruction received.

Another factor that has been shown to influence the internalization of safety education is the "other fellow" belief (Thygerson, 1977, p. 9). The "other fellow" belief is widely held by human beings. People who hold this belief assume that accidents always happen to someone else but never to them. This belief has long hindered accident prevention efforts.

The safety attitudes of a population, such as workers, who are in close proximity to accidents and their consequences, should be investigated to determine if first aid instruction does function to reinforce the influence of safety factors in the environment. The population selected, however, should have safety attitudes which are representative of the general population.

Another methodological consideration involved instrumentation. The two instruments selected for use in this study measured attitudes
toward home and traffic safety. Students' scores on the Home and Traffic Safety Attitude Scales were used to estimate their overall safety attitudes. These scales were selected on the basis of their established reliability and validity. An alternative approach could have been the development and validation of an instrument designed to measure safety attitudes and safety-related attitudes, such as attitudes toward injury, first aid, risk, and danger. However, the development and validation of such an instrument would constitute a major undertaking.

**Gender**

A significant main effect of gender on traffic safety attitudes, but not home safety attitudes, was found in this study. Males and females differed in their traffic safety attitudes; females had significantly more positive traffic safety attitudes than males. Based on the results of this study, educators should give consideration to gender differences in the planning and implementing of programs designed to influence traffic safety attitudes. Since males' traffic safety attitudes are significantly less positive than females', methods to improve male traffic safety attitudes should be investigated. Otherwise, educators should expect differences between the sexes in their responses to traffic safety programs.

It should be noted that the significant gender effect on traffic safety attitudes is consistent with the findings of past traffic safety research indicating significant differences between male and
female accident rates (Lauer, 1964, pp. 130-140; Schuster, 1968; Thygerson, 1977, pp. 131-133). Similarly, Miller and Agnew (1973), in their research into the effects of first aid instruction on accident rates, found that males had more industrial accidents than females. Consequently, they recommended separate accident data analyses for the two sexes.

Social Position

Socioeconomic status results were not consistent with past research findings. Previous studies indicated a relationship between a person's social status and his or her attitudes (Miller, 1977, p. 212). The present study was unable to verify any significant differences in safety attitude scores of subjects in different social positions. As previously discussed, social positions I and II were over-represented and social position V was not represented in this study. This combination of circumstances may have influenced the nonsignificant social position results obtained.

Reason for the First Aid Course

This study also investigated why students took the first aid course and if this reason had an effect on their safety attitude scores. The purpose was to determine if students who took the course as an elective would have more positive safety attitudes than students who took the first aid course as a requirement. An additional hypothesis was generated to test this relationship. No support was
found for the contention that differences in safety attitudes exist between students required to take first aid instruction and students not required to take first aid instruction.

Some consideration must be given to the idea that first aid instruction may not have an effect on safety attitudes. Based on the findings of this study, if first aid instruction does have an effect on attitudes, it does not appear to be an effect on attitudes toward safety. Perhaps, instead, first aid instruction influences people's attitudes in related areas, such as attitudes toward injury, first aid, risk, and/or danger. The possibility that first aid instruction might influence attitudes in areas related to safety was also suggested by Atherley et al. (1973) who theorized that increased knowledge about potential injuries affected people's attitudes toward risk and danger.

However, before discarding the theory that first aid instruction has an effect on safety attitudes, it should be remembered that this study investigated only one type of first aid course. Students were exposed to Standard First Aid and Personal Safety (American National Red Cross), which is a course recommended for the general public. There are other types of first aid courses available to both the general public and restricted groups. For example, the American National Red Cross offers an Advanced First Aid and Emergency Care course designed for those persons who are responsible for administering emergency care to victims of illness or injury. In addition to the American National Red Cross offerings, there are also first aid
courses geared specifically to the needs of enrollees, which are offered by organizations such as the Bureau of the Mines and the United States Forest Service. In further investigations, the effect of the type of first aid course on safety attitudes should be examined.
Recommendations

Ultimately, accident prevention is the individual's responsibility. Effective safety education programs, however, can assist in the development of this personal responsibility. Although this investigation into the effects of first aid instruction did not prove that the program influences safety attitudes, the theory is worthy of further research. First aid instruction would be a practical and inexpensive program to offer on a widespread basis if it could be shown to help reduce a person's accident potential.

The results of this study may provide background data for subsequent investigations into the outcomes of first aid instruction. Before sound conclusions can be drawn regarding the effect of first aid instruction on safety attitudes, additional research is needed. The following steps are suggested based on the nonsignificant findings and the significant finding of this study:

1. Replicating the study using a completely randomized design.
2. Sampling of a different population. A suggested population for study would be workers (excluding high-risk occupations) because they are in close proximity to accidents and their consequences.
3. Developing and validating an instrument to measure general safety attitudes and safety-related attitudes.
4. Investigating separate traffic safety education approaches for males and females.
5. Conducting a comparative investigation into the effects of
first aid instruction on attitudes toward: injury, first aid, safety, risk, and danger.

6. Investigating the effect of the type of first aid course on safety attitudes.
BIBLIOGRAPHY


Heath, E.D. Tests and measurement as applied to accident prevention situations. *American Society of Safety Engineers Journal*, September 1963, 8(9), 7-14. (a)

______. Tests and measurement as applied to accident prevention situations (Part 2). *American Society of Safety Engineers Journal*, November 1963, 8(11), 9-14. (b)


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Nichols, G.V., Jr. The psychology of safety. *School Shop*, April 1972, 31, 82-84.


APPENDIX A

APPROVAL FROM THE COMMITTEES FOR THE PROTECTION OF HUMAN SUBJECTS
MEMORANDUM

To: Linda Kroeger
From: S. Harold Smith, Chair
Re: Proposal Entitled:

The materials enclosed with this notice have been reviewed and
approved by the College Committee for the Protection of Human Subjects.

Please note that the conditions of approval are based on the fulfillment of those stated below:

CONDITIONS:

* 1. Consent form needs a sentence stating "Completion of the form (survey) instrument will be interpreted as your consent for participation in the study."

March 8, 1979

SHS/979
OREGON STATE UNIVERSITY
Committee for Protection of Human Subjects

Summary of Review

Title: An Assessment of the Safety Attitudes of College Students Following Completion of a First Aid Course

Program Director: Gordon W. Anderson (Linda A. Kroeger)

Recommendation:

XX Approval

Provisional Approval

Disapproval

No Action

Remarks:

Date: March 9, 1979

cc: Committee Chairman
mep

Signature: J. Ralph Shay
Assistant Dean of Research
Phone: 754-3437

Course Description:

This course will deal with the specific health concerns of the university student. The class text will provide the basic resource for class discussion. The text will be supplemented by guest speakers and films. Class discussion and student participation will be encouraged. Please, don't be shy!

Course Requirements:

1. Class attendance and participation
2. Three (3) "objective" examinations
3. Outside reading assignments from text

Evaluation:

Exams worth 100 points each, total possible will be 300; No extra credit. No incompletes will be given.

Office Hours:

Monday & Wednesday 9:30 to 11:00 or by appointment
Office is located at #304 Carling Hall, phone 4132
REQUIRED TEXT:


Objective:

To develop the necessary knowledge and ability needed in detecting the nature of an injury and applying proper first aid.

Course Requirements:

1. Carefully read and know the required text.

2. Attend and actively participate in all lab sessions (lab counts 50% of total grade.) Lab grade is weighted, i.e., more important than the lecture grade. An example would be a C in lab + a B in lecture = C+, B in lab + a C in lecture = B-.

3. An individual must receive a B- or better from the course in order to be certified by the American National Red Cross.

4. The grade will be lowered by one letter grade for each lab that is not attended or made up. If an individual misses a skill test s/he will receive a NP for his/her lab grade.

5. To receive your first aid card, provide your lab instructor with a self-addressed stamped envelope. All other cards may be picked up at the Health Education Office, 250 Esslinger approximately 3-4 weeks after completion of the course.

TENTATIVE SCHEDULE

April 3 General Introduction
Shock & Implications 4

April 10 Wounds & Bleeding 2,3,14

April 17 Respiratory and Cardiac Problems 5,6

April 24 Common Medical Emergencies 8,15,16

May 1 Midterm Examination
Chapt. 2,3,4,5,6,8,14,15,16

May 8 Fractures
Sprains & Strains 13

May 15 Poisoning 7

May 22 Thermal Injuries 9,10,12

May 29 Head & Spinal Injuries

June 5 FINAL EXAM (COMPREHENSIVE)
7 p.m.
University of Oregon
Department of Health Education

WT 260 First Aid
Instructor: Linda Kroeger
Class Hours: 03:30 - 10:20 MT + Lab
Room: 207 Chapman
Office: 250 Esslinger
Phone: 686-4133 or 686-4119(msg)

REQUIRED TEXTS:

Optional Text:
Grant & Murray, Emergency Care, Brady Co. Bowie, Maryland, 1978.

Objective:
To develop the necessary knowledge and ability needed in detecting the nature of an injury and applying proper first aid.

Course Requirements:
1. Carefully read and know the required text.
2. Attend and actively participate in all lab sessions (lab counts 50% of total grade.)
3. Score 70% or better on the midterm and final written exam.

Grading System:
1. If an individual received an A or B from the course, S/he will receive certification dependent upon attendance, skill proficiency, and written examination performance.
2. The grade will be lowered by one letter grade for each lab that is not attended or made up. If an individual misses a skill test s/he will receive a NP for his/her lab grade.
3. All students are to attend their assigned lab unless an emergency arises. Only one make up in another lab is allowed.
4. For all tests, bring a number 2 pencil and your social security number.
5. Lecture grade is derived on a total point basis.
6. To receive your first aid card, provide your lab instructor with a self-addressed stamped envelope. All other cards may be picked up at the Health Education Office, 250 Esslinger approximately 3-4 weeks after completion of the course.

#3700
Kroeger/jw
HE 260 First Aid

Materials for Lab Sessions

1 roll of 1" roller gauze
1 roll of 2" roller gauze
1 box of 4" or 4" compresses
2 triangular bandages
1 roll of 1" tape (optional)

TENTATIVE SCHEDULE

Thur. March 29  Introduction, text, requirements, certification
Tues. April 3   General Directions for Administering
                First Aid
                Scope of the accident problem
                Chapter 1 (ARC)
                Wonderful Human
                Machine
Thur. April 5   Legal Implications, definition of death,
                Shock and its treatment
                Chapter 4
Tues. April 10  Wounds and Bleeding
                Film: "Bleeding" What to do
                Chapters 2, 14
Thur. April 12  Special Wounds, infection
Tues. April 17  Special Wounds, eye injuries
                Speaker: Dr. Fine
Thur. April 19  Respiratory emergencies
                Film: New Pulse of Life
                Chapter 5, 6
Tues. April 24  Respiratory emergencies (cont.)
                Film: How to Save a Choking Victim
Thur. April 26  Midterm Exam
                Chapters 1, 2, 3, 4, 5, 6, 14
                and Wonderful Human Machine
Tues. May 1    Injuries to bones, joints & muscles
                Film: Fractures and Splinting
                Chapter 13
Thur. May 3    Strains, sprains, dislocations;
                Transportation
Tues. May 8    Poisoning, methods of entry, types
                and treatment, venomous bites
                Chapter 7
Thur. May 10   Poisoning continued
Tues. May 15   Ill effects of heat and cold:
                Burns and their treatment
                Chapter 9
Thur. May 17   Head injuries
Tues. May 22   Major heat problems; heat stroke,
                heat exhaustion, radiation
                Chapters 10, 17
HE 260  First Aid

-3-

Kroeger, L

Thur. May 24  Hypothermia and frostbite
   Film:  By Nature's Rule
   Chapter 11

Tues. May 29  Common medical emergencies
   Chapter 16

Thur. May 31  Common medical emergencies (cont.)
   Chapters 3, 15

Thur. June 7  FINAL EXAM:  Comprehensive
   8:00 am
### STANDARD LAB SCHEDULE

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<tr>
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<td>3-6</td>
<td>Introduction, materials, supplies, expectations, the cursory exam</td>
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<tr>
<td>2</td>
<td>10-13</td>
<td>The cursory exam continued, methods of controlling bleeding (direct pressure, pressure points, tourniquet, treatment of shock)</td>
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</tr>
<tr>
<td>3</td>
<td>17-20</td>
<td>Bandaging</td>
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<tr>
<td>4</td>
<td>24-27</td>
<td>Artificial respiration and CPR</td>
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<tr>
<td>5</td>
<td>1-4</td>
<td>Skill testing session</td>
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<tr>
<td>6</td>
<td>2-11</td>
<td>Fixation splinting (extremities, ribs, etc)</td>
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<tr>
<td>7</td>
<td>15-16</td>
<td>Splinting - back and neck immobilization Transportation methods</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>22-25</td>
<td>Situation practice</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>20-June 1</td>
<td>Skill testing final</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX C

INSTRUMENTS
In each of the following statements carefully before checking any of them. Then as you are re-reading the statements, put an "I" beside any of the statements you agree with. Then after you have placed an "I" beside the statements you most agree with, choose only four statements from that group. Please scratch out or erase the I from the item or items you want to eliminate.

Please recheck your paper before handing it in to make sure that only four statements have been checked with an "I".

Better education in home safety could eliminate many home accidents.

A program of awareness is needed in home safety.

Much of home safety is just "Dead Wood."

Home safety is not practiced much in homes today.

People cannot be forced to use home safety even if they know all about it.

Home safety encompasses the awareness of the person to use home safety around the home.

I feel that home safety is unimportant and uninteresting.

I really don't pay much attention to home safety.

Educational home safety programs are essential.

I feel safety education could be utilized in a better way than teaching home safety.

To be safe in the home is to feel assured and at ease.

Home safety is very vital in our safety programs today.

Home safety is important because people spend many hours in the home relaxing and sleeping and do not pay much attention to safety.

Home safety is too easy to be interesting.

I think electricity is the most dangerous part of home safety.

Home safety should also teach steps in First Aid and other emergency procedures.

Young people must be trained in good safety habits.

I feel home safety is worthless.

Many people do not realize that safety hazards can and do exist in the home.

I feel that the home is the best place to learn all safety.

I have no interest in home safety.

Home safety education can only be taught at home.
TRAFFIC SAFETY

Directions

Read each of the following statements carefully before checking any of the statements you agree with. Then after you have placed an "X" beside the statements you most agree with, choose only four statements from that group. Please scratch out or erase the X from the items you want to eliminate.

Please recheck your paper before handing it in to make sure that only FOUR statements have been checked with an "X".

---

I feel that the car manufacturers should show more concern in traffic safety.  
I feel the only way to think about traffic safety is defensively.  
Safe cars will help stop accidents.  
Traffic safety does not waste my time.  
Traffic safety involves two things, good condition of the road and good condition of the vehicle.  
There is no solution to today's traffic safety problem.  
When I drive, I don't worry about myself making a mistake; I look for the other driver to do something foolish.  
I feel traffic safety should be expanded more in the schools.  
I feel traffic safety should be emphasised more in schools and to the public.  
Traffic safety should be self-learned.  
Traffic safety is essential to the well being of humanity, because it saves thousands of lives each year.  
Traffic safety is dull.  
Traffic safety is very important to our society.  
I feel traffic safety practices are almost a fantasy.  
The American people will never accept traffic safety.  
I feel traffic safety would be safer if everyone had to have a certain reaction time to be licensed.  
I believe today's traffic safety needs a complete overhaul.  
Traffic safety is important because today more people are driving and being associated with traffic.  
Traffic safety is not interesting.  
The individual and the construction of highways are the most important factors of traffic safety.  
I feel the manufacturers of automobiles should play the major role in traffic safety.  
Traffic safety is important because it gives all drivers certain rules to follow.
Dr. Jerry L. Miller  
1808 Bimini Road  
Lexington, Kentucky  40502

Dear Dr. Miller:

May I please have your permission to use and reproduce the following instruments for my doctoral study:

- Home Safety Attitude Scale (1969)
- Traffic Safety Attitude Scale (1969)

I plan to administer these instruments in a Pretest - Post Control Group manner Spring term, 1979 to University of Oregon students. The anticipated number of copies needed for the study is 1,000 for each instrument.

Research results will be included in an unpublished dissertation, and hopefully some portion of the study will be published at a later date. I anticipated completion of my research in August 1979.

You will be given full credit for the development and validation of the instruments. In return for your permission, I will send you a copy of the completed dissertation.

Thank you for your cooperation. Please sign the consent form and return it in the envelope provided if you approve my request.

Sincerely,

Linda A. Kroeger
Dear Linda Kroeger:

You have my permission to use and reproduce the following instruments for use in your doctoral study as requested in your letter.

Home Safety Attitude Scale (1969)
Traffic Safety Attitude Scale (1969)

[Signature]

Date: 2/27/79

Jerry L. Miller, Ed.D.
APPENDIX D

BIOGRAPHICAL INFORMATION SHEET
BIOGRAPHICAL INFORMATION

DIRECTIONS: Please complete the following information. All responses will be kept confidential. This information is necessary in order to analyze the results of the Safety Attitude Scales.

LAST FOUR DIGITS OF YOUR STUDENT IDENTIFICATION NUMBER __+__+__ Middle Initial __.

1. AGE: (at your last birthday) ________ Years

2. SEX: (check one) _____ Male _____ Female

3. ARE YOU REQUIRED TO TAKE THIS COURSE EITHER FOR GRADUATION OR FOR YOUR MAJOR? (check one)
   _____ Yes _____ No

4. ARE YOU ENROLLED IN FIRST AID-HE 260 THIS TERM? (check one)
   _____ Yes _____ No

5. IF YOU ARE ENROLLED IN FIRST AID-HE 260 THIS TERM, ARE YOU IN THE ADVANCED SECTION? (check one)
   _____ Yes, _____ No, _____ Not enrolled in First Aid

6. CHECK ANY OF THE FOLLOWING PROGRAMS THAT YOU HAVE ALREADY TAKEN. IF YOU CHECK ANY OF THESE PROGRAMS, PLEASE SEE THE BOX BELOW.
   _____ Accident Prevention and Safety Programs (RE 361) or equivalent
   _____ Emergency Medical Technician (EMT) Training
   _____ First Aid Course
   _____ Nursing
   _____ Paramedic Training
   _____ Other Safety-related Course

IF YOU CHECKED ONE OR MORE OF THE PROGRAMS LISTED IN QUESTION NUMBER 6, PLEASE PROVIDE THE FOLLOWING INFORMATION ABOUT THE COURSES:

<table>
<thead>
<tr>
<th>Name of Course</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where course taken? (ie High School)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When taken (year)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of hours/week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMMENTS:
Briefly describe the course, and include whether a certificate was issued.
7. CHECK THE STATEMENT BELOW WHICH INDICATES THE HIGHEST YEAR OF EDUCATION COMPLETED BY YOUR MOTHER, STEP-MOTHER, OR FEMALE GUARDIAN.

___ Completed graduate professional training
___ Graduated from a college or university
___ Completed some college
___ Graduated from high school (or trade school)
___ Completed some high school (10th or 11th grade)
___ Junior High School (completed 7th, 8th, or 9th grade)
___ Completed less than seven years of school

WHAT IS THE OCCUPATION OF YOUR MOTHER, STEP-MOTHER, OR FEMALE GUARDIAN? BE SPECIFIC AND GIVE A BRIEF EXPLANATION OF HER JOB RESPONSIBILITIES.

__________________________

__________________________

CHECK THE STATEMENT BELOW WHICH INDICATES THE HIGHEST YEAR OF EDUCATION COMPLETED BY YOUR FATHER, STEP-FATHER, OR MALE GUARDIAN.

___ Completed graduate professional training
___ Graduated from a college or university
___ Completed some college
___ Graduated from high school (or trade school)
___ Completed some high school (10th or 11th grade)
___ Junior high school (completed 7th, 8th, or 9th grade)
___ Completed less than seven years of school

WHAT IS THE OCCUPATION OF YOUR FATHER, STEP-FATHER, OR MALE GUARDIAN? BE SPECIFIC AND GIVE A BRIEF EXPLANATION OF HIS JOB RESPONSIBILITIES.

__________________________

8. CHECK THE STATEMENT BELOW WHICH BEST DESCRIBES YOUR ACCIDENT SUSCEPTIBILITY.

___ Very susceptible to accidents
___ Susceptible to accidents
___ Average susceptibility to accidents
___ Not susceptible to accidents
___ Very unsusceptible to accidents
APPENDIX E

HOLLINGSHEAD'S TWO FACTOR INDEX OF SOCIAL POSITION
HOLLINGSHEAD'S TWO FACTOR INDEX OF SOCIAL POSITION (1957)

To calculate each individual's social position classification:

1. Assign a scale value based on the occupational information provided. The occupational scale is divided into seven professional groupings according to the value placed on different occupations by members of our society.

   1 - Executives and proprietors of large concerns, and major professionals

   2 - Managers and proprietors of medium-sized businesses and minor professionals

   3 - Administrative personnel of large concerns, owners of small independent businesses and semiprofessionals

   4 - Owners of little businesses, clerical and sales workers, and technicians

   5 - Skilled workers

   6 - Semiskilled workers

   7 - Unskilled workers

2. Assign a scale value for education based on the information provided. The educational scale is also divided into seven positions which reflect the highest year of schooling attained.

   1 - Completed graduate professional education

   2 - Standard college or university graduation

   3 - Partial college education

   4 - Secondary school graduation

   5 - Partial high school (completed 10th or 11th grade)

   6 - Junior high school (completed 7th, 8th, or 9th grade)

   7 - Less than seven years of school
3. Multiply the occupational scale value by the factor weight for occupation (7), and the educational scale value by the factor weight for education (4). Following multiplication, sum the two scores to obtain the Index of Social Position Score.

Occupational rating \times 7 = \hspace{2cm} \text{Educational rating} \times 4 =

\text{Index of Social Position Score} = \hspace{2cm}

4. Determine the social position classification as follows:

<table>
<thead>
<tr>
<th>Range of Computed Scores</th>
<th>Social Position Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-17 (upper class)</td>
<td>I</td>
</tr>
<tr>
<td>18-27 (upper middle class)</td>
<td>II</td>
</tr>
<tr>
<td>28-43 (middle class)</td>
<td>III</td>
</tr>
<tr>
<td>44-60 (lower middle class)</td>
<td>IV</td>
</tr>
<tr>
<td>61-77 (lower class)</td>
<td>V</td>
</tr>
</tbody>
</table>
APPENDIX F

INFORMED CONSENT DOCUMENT
CONSENT TO PARTICIPATE IN RESEARCH

You have been selected to participate in a study to assess attitudes of college students toward home and traffic safety, which I am conducting as part of a doctoral research project. You are not required to participate in this study, but your help would be greatly appreciated. You also have the option of withdrawing from the study at any time if you so wish.

If you choose to be a part of the study, you will be asked to complete the following forms:

(1) Biographical Information Sheet - Information requested includes age, sex, socioeconomic status, and first aid background.
(2) Home Safety Attitude Scale - 22 items
(3) Traffic Safety Attitude Scale - 22 items

The two Attitude Scales will be administered twice; the first day of class and again the last day of class, Spring Term, 1979.

As a participant, you are asked to answer as honestly as possible. Some of the information requested may seem personal in nature, but please be assured that your confidentiality will be maintained. You will be identified by the last four digits of your Student I.D. number only - and this is necessary for analysis of the information provided. Your responses will in no way be used to determine your grade for this course, and are in fact not a part of the course.

Please feel free to ask questions at any time. If you are interested in the results of the study, they will be available at the Department of Health Education - 250 Esslinger Hall. Completion of the forms will be interpreted as your consent for participation in the study. Thank you for your valuable contribution.

Linda Kroeger
Assistant Professor of Health Education