

RELATIONSHIPS OF INFORMATION AND ATTITUDES CONCERNING
ALCOHOL TO THE DRINKING BEHAVIOR OF TENTH GRADE
STUDENTS IN SELECTED "WET" AND "DRY"
AREAS OF TEXAS

A DISSERTATION
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY IN HEALTH EDUCATION
IN THE GRADUATE SCHOOL OF THE
TEXAS WOMAN'S UNIVERSITY

COLLEGE OF
HEALTH, PHYSICAL EDUCATION, AND RECREATION

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DENTON, TEXAS

AUGUST, 1972

To my children, Kathy, Cindy, Tom, and Mary
Without their patience, tolerance,
and understanding, this dream
would never have become
a reality.

ACKNOWLEDGMENTS

With sincere gratitude and appreciation . . .

To Dr. Miriam L. Tuck, for her encouragement,
guidance, strength, and support.

To Dr. Martha Dilley, Dr. Marilyn Hinson, Dr. Nick
Lund, and Dr. Joel Rosentswieg, for their
time and invaluable suggestions.

To Charles Caraway, Shorty Lawson, Jack Pearce,
Gale Smith, the physical education teachers
and students who participated in this study,
for being so gracious and cooperative.

To my good friends, for lending me their shoulders
and their ears when I needed them most.

To Carole Normile, into whose hands I could place
this manuscript with utmost confidence.

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CHAPTER I

INTRODUCTION

Teen-age drinking is not an exclusive problem of the "now" generation of the 1960's and 1970's. Statistics are available which show that teen-age drinking in the 1930's, the 1940's, and the 1950's was widespread in every area of our country where surveys were conducted.¹

The elaborate American culture and adult social behavior suggest constantly to the adolescent that it is acceptable and desirable for him to drink.

A majority of adults in the United States drink at least occasionally, and research indicates that the proportion of drinkers and their drinking problems have remained stable since 1943.²

In addition, research indicates that the number of alcoholics and problem drinkers in the United States is increasing each year.³ In order to understand better where the abstinence of childhood might be changed into the drinking patterns of adulthood, a study of the drinking behavior of the adolescent or teen-ager could be helpful.

¹George L. Maddox, "Drinking Prior to College," in The Domesticated Drug, ed. by George L. Maddox (New Haven: College & University Press, 1970), pp. 109-112.

²Ibid., p. 107.

³Donald F. Godwin, Speech delivered at "Alcohol Education: A Workshop," Southern Methodist University, March, 1972.

Looking at the teen-age years, the adolescent is found to be emerging as a social being. By the end of the tenth grade in Texas, teen-agers may receive the mobility of adulthood through the "driver's license." They are then able to go places without parental supervision; sometimes they choose places from which they have been restricted by society or by their parents. This places the teen-ager in the precarious position between childhood and adulthood. To be treated as an adult, he must act as an adult. The teen-ager learns, therefore, the attitudes toward the use of alcoholic beverages appropriate to adulthood as he has come to understand the role of the adult.

At the same time, the public schools endeavor to give the adolescent information which will enable him to assume his adult role. Alcohol education is one small portion of the education received in the ninth or tenth grade health class.

Clearly many forces have helped to make American drinking patterns what they are at the present. Prosperity, urbanization, mobility, the various drinking customs brought to this country by many different ethnic groups, and more recently, the lessening influx of these new ways--these and other influences have been involved, and similar forces will doubtless be involved in the future.¹

¹Margaret Bacon and Mary Brush Jones, Teen-Age Drinking (New York: Thomas Y. Crowell Co., 1968), p. 112.

By looking at the drinking patterns of adolescence, factors could be found which lead to problem drinking as adults. Possibly, with these factors as guidelines for alcohol education and counseling programs, the problem drinkers or potential problem drinkers of adolescence will not spend their adult years classified as "alcoholics."

Statement of the Problem

The present investigation entailed a study to determine relationships of information and attitudes about alcohol to the reported drinking behavior of tenth grade students in selected high schools in four cities in Texas. In two of these cities, Abilene and Lubbock, the sale of alcoholic beverages is illegal within the city limits, and in two of the cities, Odessa and Waco, alcoholic beverages can be sold legally within the city limits. The "Alcohol Knowledge Test," the "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale," and a behavior questionnaire were administered to 760 tenth grade girls and 555 tenth grade boys by the investigator during May, 1972. Upon the basis of the findings, the investigator drew conclusions with respect to relationships of information and attitudes about alcohol to the reported drinking behavior of the students in the selected "wet" and "dry" areas of the State of Texas. Recommendations for alcohol education and counseling programs were suggested based upon these findings.

Rationale for the Study

Through the establishment of the National Institute of Alcohol Abuse and Alcoholism, President Nixon has emphasized the necessity for research in problems relating to alcohol use and abuse.¹ Interest in drinking behavior in general, not just abnormal drinking behavior, has appeared recently in various research papers. In the past, primary attention had been devoted to "excessive" use of alcohol, and research had been oriented toward physiological and psychological aspects. While these aspects of drinking are important, any comprehensive understanding of drinking behavior must include also the learned social aspects of drinking.²

Alcohol is becoming a respectable subject for investigation. It is no longer necessary to apologize for having chosen such a field for research or to defend one's self against the accusation of being supported by the Wets or the Drys.³

In the State of Texas, the "wet-dry" issue may still affect drinking behavior, as this question has not been resolved in all areas. Local option allows "open bars" and the sale of liquor within the city limits of some cities,

¹Richard M. Nixon, Address to Congress upon presentation of bill for the establishment of the National Institute of Alcohol Abuse and Alcoholism, December, 1970.

²George L. Maddox and Bevode C. McCall, Drinking Among Teen-Agers (New Brunswick: Rutgers Center of Alcohol Studies, 1964), p. 23.

³Bacon and Jones, Teen-Age Drinking, p. 5.

whereas in others this practice is still illegal. West Texas is especially involved in this issue, and many of the counties are still listed as "dry."¹ It has not been ascertained if the "wet" or "dry" environment is associated with adolescent information about, attitudes toward, or behavior with respect to alcohol.

The Quarterly Journal of Studies on Alcohol has reported much research which shows the relationship of certain factors to drinking behavior--sex of the respondent, peer-group approval, parental approval, participation in religious activities, and socio-economic background. Again, no relationship has been shown in light of attitudes toward and information about alcohol use and abuse. Some researchers have suggested that their findings may be used as a basis for alcohol education in the public schools, but few recommendations have been written for alcohol education programs based upon these findings, and no recommendations have been written for counseling problem drinkers.

There should be more studies of the formative period of twelve to twenty years of age, to supplement these studies of the population twenty-one and older. The surveys of the adult population indicated that a higher-than-average share of those who were problem drinkers in later life tended to report their having started drinking at an early age; and it is important to measure the correlates of early

¹Texas Almanac and State Industrial Guide (Dallas: A. H. Belo Corp., 1971), p. 608.

heavy drinking at an early point in time if valid findings are to be achieved.¹

Definitions and/or Explanations of Terms

For the purpose of clarification, the following definitions and/or explanations of terms have been established for use in the present study:

A. Alcohol: The investigator accepted the definition by Carroll:

Alcohol is the term which describes a chemical compound, ethyl alcohol. It is the essential and characteristic ingredient of beverage alcohol.²

B. Beer: The investigator accepted the definition by Carroll:

Beers are derived from cereals, namely, barley, rye, corn, and wheat. The process of beer-making is referred to as brewing, and the resultant product contains from 3 to 6 per cent alcohol by volume.³

C. Distilled spirits: The investigator accepted the definition by Carroll:

Distilled spirits, including whiskey, vodka, gin and brandy, are made from fermented mixtures which are heated in a still. Because

¹Don Cahalan, Problem Drinkers (San Francisco: Jossey-Bass, Inc., Publishers, 1970), p. 147.

²Charles R. Carroll, Alcohol: Use, Nonuse, and Abuse (Dubuque, Iowa: Wm. C. Brown Co., 1970), p. 20.

³Ibid., p. 24.

alcohol has a lower boiling point than that of other substances in the fermented mixture, the ethyl alcohol boils off first and its vapors are then cooled and condensed. The distilled fluid has a very high alcohol content along with some water and flavoring ingredients. The alcohol content of distilled spirits is indicated by the term proof. Most distilled beverages contain between 40 to 50 per cent alcohol by volume.¹

D. Wine: The investigator accepted the definition by Carroll:

Wine is most often made from the juice of grapes, but other fruits or berries can be used. The yeast, present in the air and on the skin of the grapes, converts the natural sugar of the juice into alcohol and carbon dioxide. Fermentation proceeds for several days at a warm temperature until the alcohol content of the mixture is between 10 to 14 per cent. Fortified wines, such as sherries, vermouth and apertifs, have an alcohol content as high as 24 per cent.²

E. Abstainer: The investigator accepted the definition by Cahalan, Cissin, and Crosley: "An abstainer is one who drinks less than once a year or not at all."³

F. Infrequent drinker: The investigator accepted the definition by Cahalan, Cissin, and Crosley: "An infrequent drinker is one who drinks at least once a year, but less than once a month."⁴

¹Ibid.

²Ibid., p. 22.

³Don Cahalan, Ira H. Cissin, and Helen M. Crosley, American Drinking Practices (New Brunswick: Rutgers Center on Alcohol Studies, 1969), p. 19.

⁴Ibid.

G. Light drinker: The investigator accepted the definition by Cahalan, Cissin, and Crosley: "A light drinker is one who drinks at least once a month, but typically only one or two drinks on a single occasion."¹

H. Moderate drinker: The investigator accepted the definition by Cahalan, Cissin, and Crosley: "A moderate drinker is one who drinks at least once a month, typically several times, but usually with no more than three or four drinks per occasion."²

I. Heavy drinker: The investigator accepted the definition by Cahalan, Cissin, and Crosley:

A heavy drinker is one who drinks nearly every day with five or more per occasion at least once in a while, or about once weekly with usually five or more per occasion.³

J. Problem drinker: The investigator accepted the definition by Plaut: "The problem drinker is one whose repetitive use of beverage alcohol causes physical, psychological, or social harm to the drinker or others."⁴

K. Alcoholism: The investigator accepted the definition by Keller: "Alcoholism is a chronic disease manifested

¹Ibid.

²Ibid.

³Ibid.

⁴Thomas F. A. Plaut, Alcohol Problems: A Report to the Nation by the Cooperative Commission on the Study of Alcoholism (New York: Oxford University Press, 1968), pp. 37-38.

by repeated implicative drinking so as to cause injury to the drinker's health or to his social or economic functioning."¹

- L. Temperate use: The investigator accepted the definition by Williams, DiCicco, and Unterberger: "Temperate use means moderate use of alcohol in social contexts."²
- M. Intemperate or irresponsible use: The investigator accepted the definition by Williams, DiCicco, and Unterberger: "Intemperate or irresponsible use means excessive use of alcohol or the use of alcohol for personal effects."³
- N. Binge drinking: The investigator accepted the definition by Cahalan: "Binge drinking means being intoxicated for at least several days at one time or for two days on more than one occasion."⁴
- O. Symptomatic drinking: The investigator accepted the definition by Cahalan: "Symptomatic drinking is
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¹Mark Keller, "The Definition of Alcoholism and the Estimation of Its Prevalence," in Society, Culture, and Drinking Patterns, ed. by David J. Pittman and Charles R. Snyder (New York: John Wiley & Sons, Inc., 1962), p. 316.

²Allan F. Williams, Lena M. DiCicco, and Hilma Unterberger, "Philosophy and Evaluation of an Alcohol Education Program," Quarterly Journal of Studies on Alcohol, XXXIX (September, 1968), 692.

³Ibid.

⁴Cahalan, Problem Drinkers, p. 28.

drinking which exhibits signs of physical dependence and loss of control."¹

- P. Psychological dependence: The investigator accepted the definition by Cahalan:

Psychological dependence is based on present behavior. This includes items on drinking to alleviate depression or nervousness or to escape from the problems of everyday living.²

- Q. "Wet area": The investigator has used the term "wet area" to designate an area where liquor and/or beer is legally sold within the city limits.
- R. "Dry area": The investigator has used the term "dry area" to designate an area where it is illegal to sell liquor or beer within the city limits.

Delimitations of the Study

The present study was subject to the following delimitations:

- A. The number of students participating in the present study.
- B. The number of high schools participating in the present study.
- C. The number of cities participating in the present study.

¹Ibid.

²Ibid., p. 29.

- D. The reliability and validity of the instruments used to gather the data.
- E. The extent to which all subjects in the present study were honest in their responses.
- F. The inability to use the random sampling design because of limitations imposed by individual school districts.
- G. The type and scope of information included in the questionnaire.

Purposes of the Study

The general purpose of the present study was to determine whether there was a significant relationship between the reported drinking behavior of tenth grade students in selected "wet" and "dry" areas of the State of Texas and their information about and attitudes toward alcohol use and abuse.

Specifically, the following hypotheses were tested:

- A. There is no significant difference between students living in a "dry" community and those living in a "wet" community in Texas with respect to:
 - 1. Information about alcohol use and abuse.
 - 2. Attitudes toward alcohol use and abuse.
 - 3. Reported drinking behavior.
- B. There is no significant difference between boys and girls with respect to their:

1. Information about alcohol use and abuse.
 2. Attitudes toward alcohol use and abuse.
 3. Reported drinking behavior.
- C. Boys and girls living in a "dry" community as opposed to those living in a "wet" community show no significant difference with respect to their:
1. Information about alcohol use and abuse.
 2. Attitudes toward alcohol use and abuse.
 3. Reported drinking behavior.
- D. There are no significant relationships between information about and attitudes toward alcohol use and abuse and the reported drinking behavior of tenth grade students living in "wet" and "dry" areas of the State of Texas.

Summary

The problems associated with teen-age drinking are not new to our state or to our nation. The American culture accepts temperate drinking behavior of the adult but sometimes frowns upon the drinking behavior of the adolescent. The social aspects of drinking are important correlates of the overall drinking practices of the adolescent. These factors should be understood along with the physiological and psychological aspects upon which this behavior is based. Numerous studies of teen-age drinking have been

completed, but few of these studies have dealt with information, attitudes or drinking behavior of the tenth grade student.

The present investigation entailed a study to determine relationships of information and attitudes about alcohol to the reported drinking behavior of tenth grade students in selected high schools in "wet" and "dry" areas of the State of Texas. The "Alcohol Knowledge Test," the "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale," and a behavior questionnaire were administered to 760 tenth grade girls and 555 tenth grade boys. Upon the basis of the findings, conclusions were drawn with respect to relationships of information and attitudes about alcohol to the reported drinking behavior of the students. Recommendations for alcohol education and counseling programs were suggested based upon these findings.

In Chapter II, a review of selected related literature, 1948 to the present, is presented.

CHAPTER II

REVIEW OF RELATED LITERATURE

A survey of previous studies and related literature indicated that the present investigation does not duplicate any previous study. The following review of completed research is confined to related studies from 1948 to the present. The years prior to 1948 were not surveyed because drinking practices in this country have changed within the past twenty-five years; therefore, studies completed prior to this time would not be related to the present study.¹

From 1948 to 1956 several projects^{2,3,4,5,6} were undertaken which studied drinking behavior and attitudes

¹Raymond G. McCarthy, ed., Alcohol Education for Classroom and Community (New York: McGraw-Hill Book Co., 1964), pp. 4-6.

²Raymond G. McCarthy and Edgar M. Douglas, "Instruction on Alcohol Problems in the Public Schools," Quarterly Journal of Studies on Alcohol, VIII (March, 1948), 609-35.

³Arthur D. Slater, "A Study of the Use of Alcoholic Beverages Among High School Students in Utah," Quarterly Journal of Studies on Alcohol, XIII (March, 1952), 78-86.

⁴Mathew N. Chappel, et al., The Use of Alcoholic Beverages Among High School Students (New York: Mrs. John S. Sheppard Foundation, 1953).

⁵John L. Miller, Attitudes of High School Students Toward Alcoholic Beverages (New York: Mrs. John S. Sheppard Foundation, 1956).

⁶Marston M. McCluggage, et al., Attitudes Toward the Use of Alcoholic Beverages (New York: Mrs. John S. Sheppard Foundation, 1956).

of thousands of adolescents in high schools in the United States. Each of these studies was similar in its findings, and they have been summarized by Maddox:

1. Adolescents generally had their first experience with alcohol about age thirteen or fourteen, even though tasting might occur before that time.
2. Every adolescent probably would partake of an alcoholic beverage before he graduated from high school. This was not to infer that permanent drinking habits would be established before then.
3. Different communities had different proportions of adolescents who drank, depending upon regional and ethnic cultural backgrounds.
4. Most adolescents had their first drinking experience at home with their parents or relatives present.
5. With adolescents who drank, at least one parent usually drank. Adolescents who abstained came from homes where one or both parents abstained.
6. Parental approval of adolescent drinking was granted for drinking in the home.
7. The variation in adolescent drinking was because of such factors as sex, age, socio-economic

position, rural or urban residence, and ethnic and/or religious background.

8. Adult role-playing motivated adolescents to drink to celebrate a special event or rid themselves of tensions and anxiety.
9. As the adolescent assumed more responsibilities, the chances were greater than he would drink; and with graduation from high school, the probability he would drink increased.
10. Adolescents classified alcohol as a social beverage rather than a drug, and they thought in terms of what the alcohol did for the drinker, rather than what it did to the drinker.
11. The legality of drinking by minors did not affect the amount of adolescent drinking.
12. Most adolescents did not consider drinking morally wrong under some circumstances.
13. The amount of problem drinking among adolescents seemed to be small.
14. Attitudes and adolescent behavior with respect to consumption of alcoholic beverages was similar to that of the adult.
15. Little evidence was found which showed any change in adolescent attitudes toward alcohol

or the use of alcoholic beverages from 1948 to 1956.¹

The emphasis was on behavior in each of these studies, utilizing the questionnaire or group interview method to accumulate the data. Very little statistical treatment, other than percentages, was used. No correlation was attempted in these studies, nor was any effort made to assess the adolescents' information about alcohol use and abuse.

Globetti surveyed students in two Mississippi communities, one "wet" and one "dry." Of the 2,495 students who answered the questionnaire on drinking behavior, 528 students were contacted and interviewed. Background factors were examined to obtain a general impression of the behavior of the students toward alcoholic beverages. These included the extent and frequency of alcohol use, the kind of alcoholic beverages consumed, and the source of alcoholic beverages. Other questions related to demographic factors, social participation, religious factors, and parental and peer-group factors were asked.²

¹Maddox, The Domesticated Drug, pp. 110-12.

²Gerald Globetti, A Survey of Teenage Drinking in Two Mississippi Communities (State College, Miss.: Mississippi State University, 1964), pp. 1-26.

The results of the study were:

1. More students drank in the community where alcohol sales were legal.
2. More male students than female students used alcohol.
3. As age increased, the proportion of students who drank increased.
4. There were no significant differences between black and white students and their behavior toward alcohol.
5. A student's socio-economic status had no relationship to his use or non-use of alcohol.
6. A student's social participation in formal school activities had no relationship to his use or non-use of alcohol.
7. Student's social adjustment or sociability with his peers was significantly associated with his drinking behavior; those students who used alcohol in the "wet" community were more out-going and accepted, while the reverse was the case in the "dry" community.
8. The importance of religion to a student was significantly related to his behavior toward alcohol: students who regarded religion as an important aspect of their lives appeared to de-emphasize the use of alcohol.
9. Those students who participated frequently in church activities tended to be abstainers, while student drinkers tended to be infrequent church attenders.
10. Homes where religion was emphasized tended to be homes with abstaining students.
11. Parental and peer-group influences were significantly associated with the drinking behavior: females were more susceptible to parental and peer-group influences; as age increased, the influence of family and peer-group decreased.¹

The focus of this study was on drinking behavior with very little mention of attitudes, and no mention of information pertaining to alcohol use and abuse. There were

¹Ibid.

noted differences in the "wet" and "dry" communities as to drinking behavior.

Alexander and Campbell investigated the influence of peer approval on adolescent drinking. Questionnaires on drinking behavior and attitudes were completed by 1,410 male seniors from thirty urban and rural high schools in North Carolina. In these communities, the religious denominations suggest total abstinence, and 65 per cent of the respondents believed drinking was wrong, even though one-third of these respondents reported drinking to some extent. The greater percentage of drinkers came from homes where the parents were not opposed to drinking. Most teen-agers who drank answered that their two best friends used alcohol also.¹

The majority of non-drinkers did report experiencing pressures to drink. Having friends who drink, tasting alcohol, and experiencing pressures to drink increased the likelihood that the non-drinker would feel curious about drinking. Both curiosity about drinking and having tasted alcohol previously were associated with the possibility that the non-drinker would begin to drink in the future. The authors concluded that "The study has demonstrated the utility of studying

¹C. Norman Alexander, Jr. and Ernest O. Campbell, "Peer Influence on Adolescent Drinking," Quarterly Journal of Studies on Alcohol, XXVIII (September, 1967), 444-53.

adolescent drinking as social behavior intimately linked to the behavior of the adolescents' peers."¹

The study undertaken by Alexander and Campbell points up the necessity of research in the social aspects of teen-age drinking. They have suggested the possibility of a relationship between sociability and drinking behavior. Teen-age attitudes toward alcohol use and abuse seem to be related to adolescent social behavior.

Nelson surveyed 1,325 senior students in nine high schools in Utah to find the extent of student drinking, the students' information concerning alcohol and alcoholism, the students' source of information, and the background and information known by the health teachers in these schools. The senior class was selected because all students within the class had finished a course of health instruction, and the author believed the heaviest drinking took place within this age group.²

Two different questionnaires were prepared. One contained thirty questions about drinking behavior and eight statements concerning attitudes toward alcohol use

¹Ibid., p. 453.

²Dale O. Nelson, "Drinking and Student Understanding of Alcohol and Alcoholism in Selected High Schools of Utah" (unpublished Master's thesis, Utah State University, Logan, 1967).

and abuse. Religious, social, and school activities also were surveyed by this questionnaire. The other questionnaire was an information test concerning alcohol and alcoholism. There were twenty-six true-false questions and eight multiple-choice questions. Since too much time was required for the completion of both instruments, one-half of the students were administered one form and one-half were administered the other form. Forty health education and driver education teachers in these schools completed a questionnaire developed for them.

Percentages were used to analyze the data. The findings included:

1. As the frequency of drinking increased, there were more boys who drank than girls.
2. There were more girl abstainers than boy abstainers.
3. The girls placed more emphasis on religion than did the boys.
4. The frequency of parental drinking did not increase with the frequency of their children drinking.
5. There seemed to be a high relationship between the importance of religion, church attendance, and parents' abstinence in the group of student abstainers and light drinkers.

This study differs from the present study in that no correlation could have been computed between the questionnaire and the information test because of the research design. Although several attitude statements were included, again no relationship was drawn between attitudes and behavior.

Demone studied social and cultural variables in relation to types of male adolescent drinking behavior. Subjects consisted of 3,388 males attending seven junior and senior high schools in Boston. These subjects were administered questionnaires, and from these instruments, a six category "typology of drinking behavior" was determined: abstainers, experimenters (those with one drinking experience), light moderate drinkers, heavy moderate drinkers, relief drinkers who exhibited limited pathological behavior, and pathological drinkers who exhibited signs of alcoholism.

Other selected variables--role models, cultural and sub-cultural groupings, social class, ethnic groupings, religion, and first drinking experience--were analyzed. Each variable was correlated with the typology.¹

¹Harold W. Demone, Jr., "Drinking Attitudes and Practices of Male Adolescents" (unpublished Doctoral dissertation, Brandeis University, 1966).

Findings were similar to other studies in regard to the first drinking experience, peer-group pressure, family influence, and religious relationships. However, suggestions were made concerning school alcohol education programs. Demone suggested that these programs be based on the assumption that adolescents are going to drink alcoholic beverages; therefore, they should be taught appropriate behavior. He stated that prevention, including re-evaluation of laws and regulations, programs for children of alcoholics, and early case findings should be encouraged. Profiles of abstainers, moderate drinkers, and pathological drinkers were one of the outcomes of this study.

The findings of this study again were based on responses to a questionnaire. An attitude scale and an information test were not used as a basis for the typology or profiles. The present study will make recommendations for alcohol education programs and counseling of problem drinkers from three different sources: an information test, an attitude scale, and a behavior questionnaire.

Williams, DiCicco, and Unterberger conducted a study using the "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale," a fifteen-item true-false test, and a twenty-four item behavior questionnaire to determine the effectiveness of an alcohol education

program. Research was undertaken at Xaverian Brothers High School, Westwood, Massachusetts, a suburb of Boston.

The subjects, 205 eleventh grade males, were divided into two groups: the experimental group participated in a one week alcohol education program, consisting of small group discussions about adolescent attitudes concerning drinking and lessons about the nature and effects of alcoholic beverages; the control group discussed one of three or four topics not related to alcohol each day during the week.

The three instruments were administered anonymously before the program began, at the end of the program, a month following the program, and a year following the program. Prior to the program and a month after the program, the students were asked how many times they had consumed an alcoholic beverage and how many times they had become "tight" or drunk during the past year and past month.¹

The results were discussed in terms of temperate or social use of alcoholic beverages (referred to as TU), intemperate or irresponsible use of alcoholic beverages (referred to as IU), a combination score of the TU and IU scales, factual information, and drinking behavior.

¹Williams, DiCicco, and Unterberger, "Philosophy and Evaluation of an Alcohol Education Program," pp. 685-702.

Between the pre-test and the first post-test:

1. There was a significant increase in scores on the TU scale in the experimental group.
2. The increase in the experimental group scores was not significantly greater than the increase in the control group scores.
3. There was no significant change in scores on the IU scale in the experimental group.
4. There were significant increases in scores on the IU scale in the control group.

Between the pre-test and the second post-test:

1. There was a significant increase in scores on the TU scale within the experimental group.
2. The increase in scores within the experimental group was significantly greater than that which occurred within the control group.
3. There was a slight, insignificant increase in scores on the IU scale within the experimental group.
4. There was significant increase in scores on the IU scale within the control group.

The combination score, a total of the TU scale and the IU scale, showed a significant change from the experimental to the control group. "In the experimental group,

the increase resulted from a significant increase on TU and no change on IU. In the control group, the decrease resulted from no change on TU and a significant increase on IU."¹

The authors stated that the most distinctive finding in the study concerned the knowledge scores. Information about alcohol increased significantly in the experimental group but did not increase in the control group. The increases were constant one month and one year after the program was completed.

The study showed attitudes are related to reported drinking behavior. One year after the study, there was some increase in the percentage of boys who had partaken of alcoholic beverages, although those in the experimental group and control group were not affected in a different fashion. There was a non-significant tendency for more experimental group subjects to have become intoxicated, but experimental subjects became intoxicated less often than control subjects. It appeared to the authors that the program discouraged adolescents from becoming intoxicated often. The authors conclusion was that "This effect is a positive and encouraging one; it is the first evidence that

¹Ibid., p. 700.

teen-age drinking behavior can be modified in a positive way by education."¹

This research differs from the present study in several ways, even though one of the same instruments was used. Eleventh grade boys were the subjects, and the results of the study were discussed in relation to the effects of the alcohol education program. The information test given by these authors did not meet the criteria set forth by the investigator for an information test to be used in the present study.

Blane, Hill and Brown attempted to relate personality variables to attitudes toward the use of alcohol. According to these investigators, previous studies were descriptive, and attitudes were usually inferred from drinking behavior. Measures of alienation, self-esteem, and attitudes toward temperate and irresponsible use of alcohol were collected from all students in a rural consolidated high school in northern New England.

The sample consisted of 256 boys and 270 girls in grades nine through twelve. Questionnaires were administered to each class, along with the "Williams Attitudes Toward Temperate and Irresponsible Use of Alcohol Scale," the "Dean Alienation Scale," and the "Feelings of Inadequacy Subscale" of the "Janis and Field Personality Questionnaire."

¹Ibid., p. 701.

Intercorrelations were calculated between the "Temperate Use" (TU) and "Irresponsible Use" (IU) Scales, the "Alienation Scale," and the "Inadequacy Scale." Attitudes toward IU bore a significant positive correlation with alienation. Although there was a negative correlation between self-esteem and alienation, the negative correlation between IU and self-esteem was non-significant.

Sex differences were found that were typical of other studies on alcohol. The boys were more favorable than the girls toward both TU and IU of alcohol. The boys, also, scored significantly higher on self-esteem than did the girls. There was no significant difference between the boys and the girls on the "Alienation Scale."¹ This study did correlate teen-age attitudes with self-concept and alienation. No correlation was attempted with information about alcohol use and abuse.

Reister and Zucker studied adolescent drinking customs in the context of the informal social structure of the high school, in relation to demographic variables, and in relation to parental use of alcoholic beverages. Short questionnaires were administered to 754 junior and senior class students in the only high school of a middle Atlantic community of 13,000. From these questionnaires, fifty

¹Howard T. Blane, Marjorie J. Hill, and Elliot Brown, "Alienation, Self-Esteem, and Attitudes Toward Drinking in High-school Students," Quarterly Journal of Studies on Alcohol, XXIX (June, 1968), 350-54.

"regular drinkers" were drawn who agreed to participate in further research. The stratified sample lived within the city limits and consisted of 50 per cent boys, 50 per cent girls, and, 50 per cent juniors and 50 per cent seniors. An additional stratified sample of fifty moderate and fifty non-drinking adolescents was selected adhering to the same criteria.¹

Non-drinkers were defined as those individuals who never drank, moderate drinkers as those whose consumption was between non-drinkers and regular drinkers, and the regular drinkers were those individuals who drank fairly heavily in terms of adolescent standards.²

The non-drinkers and moderate drinkers were matched with the regular drinkers on the basis of four variables: high school course of study, anticipated future education, social class, and age.

Data were gathered from questionnaires, diaries, and interviews. Eight informal social subgroup categories, ranging in number from five to thirty-three per subgroup, were identified from data collected from the personal diaries and interviews. These subgroups were called:

1. Collegiates (n = 20)--well-rounded with a satisfactory academic performance in the

¹Albert E. Riester and Robert A. Zucker, "Adolescent Social Structure and Drinking Behavior," Personnel and Guidance Journal, XLVII (December, 1968), 304-12.

²Ibid., p. 306.

- college preparatory program and actively involved in the glamorous extracurricular activities such as football and cheerleading.
2. Leathers (n = 16)--do not compete in either the academic or extracurricular programs and frequently get into trouble with school authorities.
 3. Peripheral collegiates (n = 33)--have acquaintances rather than close friends who hold core membership in the collegiate group.
 4. Peripheral leathers (n = 12)--have acquaintances rather than close friends who hold core membership in the leather group.
 5. True individuals or hippies (n = 5)--have a clique of close friends who are not from their own high school.
 6. Quiet or average kids (n = 33)--do not hold membership in a specific peer subgroup and describe themselves as not being group-affiliated.
 7. Intellectuals (n = 9)--totally involved in academic competition in the high school.
 8. Kids who have a steady (n = 15)--totally involved in an intense relationship with an individual of the opposite sex.¹

A highly significant relationship was found between informal social group membership and the category of drinking behavior. "Collegiate" and "leather" subgroups were associated with high use of alcohol.

Cultural background, as measured by the religious affiliation of the student, did not relate to the teenagers' use or non-use of alcohol; however, students whose parents were semi-professional seemed to drink more frequently than the students whose parents were of the higher

¹Ibid., p. 307.

social strata. Non-whites were found to be low users of alcoholic beverages.

Parental use of alcohol related significantly at the .001 level to teen-age use of alcohol. Teen-agers were more likely to be users if both parents were users of alcohol, and non-drinkers in the teen-age sample came from families where parents were non-drinkers.

The most frequent situation for the consumption of alcoholic beverages was a social one involving groups of people, rather than being alone or in the company of one friend of the opposite sex. The "collegiates," although the highest users of alcohol, were not likely to become the problem drinkers as were the "leathers" and, possibly, the "average kids."

The conclusion reached by the authors was that a preventive program should revolve around an understanding of the social structure of the high school. An educational program that is able to involve the subgroups which are now not accepted by peers could reduce the number of individuals who are potentially problem drinkers.

Although the size of the original sample was ample, the size of some of the subgroups was very small and could have biased the findings. The focus of this study was reported drinking behavior, and attitudes and information of the subgroups did not enter into the research.

Preston conducted a study to investigate the role of religion and its relationship to alcohol use among a selected group of teen-agers. Two communities with different socio-cultural feelings were used in this study. Although the communities were only 100 miles apart, one consisted of a large Baptist population where abstinence was considered the proper behavior pattern, whereas the other community consisted of a large number of Jews and Catholics and the overt use of alcohol was practiced.

Four dimensions of religiosity were used:

1. Students were asked to state their church preference and this variable was then cross-tabulated with their use or non-use of alcohol.
2. A second variable was an index designed to measure the importance of religion to students.
3. Third, the participation of students in organized religious activities was related to their behavior toward alcohol.
4. A final variable consisted of relating parental church attendance to the use or non-use of alcohol by the students.¹

Respondents consisted of 516 black and white high school students, of both sexes, from the two communities. These students were interviewed in groups of twenty-five. Students were classified into three categories: drinkers, who drank at least twice a year; tasters, who had tasted

¹James D. Preston, "Religiosity and Adolescent Drinking Behavior," Sociological Quarterly, X (Summer, 1969), p. 374.

alcoholic beverages on at least one occasion; and abstainers, who had never tasted alcohol. There were 38 per cent drinkers; 37 per cent, tasters; and 25 per cent, abstainers. Chi-square was used as the test of significance at the .05 level of probability.

The overall finding of the study was that religion acts as an important agent of social control with regard to adolescent behavior toward alcohol. Specifically, it was found that:

1. Student abstainers place more emphasis on the role of religion in their lives than did student drinkers.
2. A smaller percentage of Protestants from an anti-alcohol background were drinkers than were Jews, Catholics, and Episcopalians.
3. Students who scored high on an index designed to measure the importance of religion were less likely to be drinkers than were students who scored low.
4. Students who were very active in organized religion were less likely to use alcohol than those who were inactive.
5. Students whose parents emphasized religion by frequent church attendance were less likely to drink than were students whose parents attended church infrequently or not at all.¹

Preston found that student drinkers from an abstinence background tended to drink more frequently than students from a more tolerant background. He stated that the student's guilt feelings could be the causative factor:

¹Ibid., pp. 379-80.

therefore, the student drank more to ease his conscience which could have contributed to his excessive drinking.

Although religiosity plays an important role in teen-age drinking, other studies have found factors which must be considered, also. Certainly, a student's attitude toward alcohol use and abuse is influenced by his religious background, but in many cases, wrong information about the physiological effects of alcohol are disseminated by well-meaning persons. Information that is current and accurate should be the basis for intelligent decisions made by youth relative to alcohol use and abuse.

Forslund and Gustafson investigated the relative influence of peer pressure, parental drinking practice, and sex of the student on unsupervised drinking of alcoholic beverages by high school seniors. The sample included the entire senior class of an Albuquerque High School. A questionnaire was developed so that the group could be classified, according to their own perception, as to "no pressure from peer group," "moderate pressure from peer group," and "strong pressure from peer group." These groupings were subdivided as to whether "father drinks or abstains" and as to whether "mother drinks or abstains." Girls were tabulated separately from boys. The data were analyzed by Coleman's multivariate method.

The findings of the study showed that peer-group influence was significantly related to whether or not a high school senior will drink alcoholic beverages away from adult supervision. A higher proportion of boys than girls drank alcoholic beverages, but peer effect was stronger than the sex factor. A greater percentage of the daughters drank alcoholic beverages if the mothers drank; and, the mother's drinking behavior affected the son's drinking behavior in the same way. The fathers who drank alcoholic beverages seemed to influence their daughters' drinking behavior, since the daughters' drinking patterns were similar to their fathers' patterns; however, the fathers' drinking behavior had little, if any, effect on the drinking practices of their sons.¹

The authors stated that other factors are involved which were not measured in this study. These factors include:

. . . anticipatory socialization to adult roles, religious and moral considerations, fear of the potential consequences of drinking, a like or dislike of the taste or effects of alcoholic beverages, and other factors such as social class and ethnic membership.²

¹Morris A. Forslund and Thomas J. Gustafson, "Influence of Peers and Parents and Sex Differences in Drinking by High-School Students," Quarterly Journal of Studies on Alcohol, XXXI (December, 1970), 868-75.

²Ibid., p. 874.

The questionnaire used by Forslund and Gustafson reported student and parental drinking behavior. No data were collected concerning student information about or attitudes toward the use or abuse of alcohol.

Pearce and Garrett examined the drinking behavior of adolescents in selected schools of Idaho and Utah for the purpose of comparing delinquent and non-delinquent youth. The delinquent youth in the study were confined to one of the state detention homes during the research, whereas the non-delinquent youth were enrolled in a secondary school in one of the states. A questionnaire was administered which contained twenty-six questions about drinking behavior and demographic information.¹

The following differences were discovered:

1. A larger percentage of the delinquent group drank alcoholic beverages than of the non-delinquent group.
2. The delinquents drank more frequently.
3. Delinquent girls drank as frequently as delinquent boys, while non-delinquent girls who drank reported they did so less frequently than non-delinquent boys or delinquent girls.
4. The delinquent group began drinking at an earlier age than the non-delinquent group.
5. Delinquents generally took their first drink with someone other than a parent or relative, while the majority of non-delinquents took their first drink with parents or relatives.

¹Janice Pearce and H. Dean Garrett, "A Comparison of the Drinking Behavior of Delinquent Youth Versus Non-Delinquent Youth in the States of Idaho and Utah," Journal of School Health, XL (March, 1970), 131-35.

6. Beer was the beverage most frequently consumed by both groups, but a higher percentage of delinquents drank hard liquor than non-delinquents.
7. More delinquents "passed out" or could not remember activities while under the influence of alcohol than non-delinquents.
8. Delinquents were arrested for drinking more frequently than non-delinquents.
9. Drinking was not influenced by family income, the size of the community in which the respondents lived, or had lived prior to detention, or with whom the students lived.
10. There was a relationship between parental drinking behavior and the drinking behavior of the adolescents in both the delinquent and the non-delinquent group.
11. Subjects who drank frequently had more favorable attitudes toward drinking than those who did not drink.¹

Chi-squares were significant at or beyond the .01 level of significance for each item on the questionnaire except the item regarding the frequency with which the fathers drank, and that item was significant at the .05 level.

This study focused only on drinking behavior. One question was asked on attitudes toward drinking, but no attitude scale was administered. No effort was made to determine the respondents' information about alcohol use and abuse.

Globetti and Harrison conducted a study to determine the attitudes of high school students toward alcohol

¹Ibid., p. 135.

education. This research was undertaken in a Mississippi community, using 440 students as subjects.

The data reported that the high school student felt he should learn more about alcohol use and abuse, and that few of the students were receiving this information. The students believed the family, the school, and the church had not assumed their responsibilities in dealing with this topic.

The authors concluded that the school could improve student attitudes about alcohol use and abuse. In a concurrent study conducted with the adult population of the community, the findings reflected that 90 per cent of the adults had never participated in a discussion group pertaining to alcohol use and abuse. Almost half of this population had gleaned all of their information from radio, television, and magazine articles.¹

The selection of schools for the present study presented many of the same "roadblocks" which seem to exist relative to alcohol education. Communities prefer to overlook the existing difficulties involved in alcohol use and abuse. Some communities were reluctant to participate in.

¹Gerald Globetti and Danny E. Harrison, "Attitudes of High School Students Toward Alcohol Education," Journal of School Health, XL (January, 1970), 36-39.

the present study. Alcohol education suffers in school curricula because of lack of time, lack of qualified teachers, and because of conflicting ideas within the community as to what constitutes alcohol education.

Barron studied the family relationships, problem drinking, and antisocial behavior of 103 junior and senior high school boys, ages sixteen to eighteen. The instruments administered to these boys were the "Antisocial Behavior Checklist" and the "Park Problem Drinking Scale."

Parents were contacted, and 60 per cent of them cooperated by giving information on parental control and rejection of the adolescent through use of items from the "Parent-Child Activity Inventory." The parents were measured as to antisocial behavior by means of the "Kalin and Williams Antisocial Behavior Scale." Parental drinking practices were obtained from the "Quantity-Frequency-Variability Index."¹

The hypothesis that adolescent problem drinking is correlated positively with antisocial behavior was tested by means of a Pearson Product-Moment Correlation between the "Park Problem Drinking Scale" and the

¹Frank Barron, "Family Relationships, Problem Drinking, and Anti-Social Behavior Among Adolescent Males" (unpublished Master's thesis, Michigan State University, 1970).

"Antisocial Behavior Checklist." The coefficient of .66 was significant at the .0005 level.

Analyses of variance tested the other three hypotheses: that adolescents who are rejected by their parents will have a higher incidence of problem drinking; that direct control of the parents will have a "curvilinear relationship to problem drinking and antisocial behavior in that lax or overstrict controls will be associated with higher antisocial behavior and problem drinking than will moderate direct controls";¹ and, that adolescents whose parents are heavy drinkers and are antisocial will be problem drinkers and evidence antisocial behavior more so than those with "non-deviant" parents. None of these hypotheses were accepted; therefore, it was concluded that there was "no significant relationship between the quality of the parental modal and rejection in terms of adolescent antisocial behavior and problem drinking."²

Even though the statistical techniques used in this study were similar to the ones used in the present study, the variables discussed and the instruments used to measure these variables were different. Barron's study was undertaken with all male subjects whereas the present research was conducted with male and female subjects.

¹Ibid., p. 20.

²Ibid., p. 40.

Summary

A survey of previous studies and related literature indicated that the present study does not duplicate any previous study from 1948 to the present. The years prior to 1948 were not surveyed because drinking practices in this country have changed within the past twenty-five years; therefore, studies completed prior to this time would not be related to the present study.

From 1948 to 1956, emphasis in the studies about teen-agers was on drinking behavior. The findings were analyzed in terms of percentages.

Research since 1956 has studied some of the social aspects related to adolescent drinking patterns:

1. the "wet-dry" issue
2. the influence of peer approval on adolescent drinking
3. the drinking patterns and understanding of alcohol and alcoholism by high school students
4. the social and cultural variables related to drinking behavior
5. the effectiveness of an alcohol education program
6. the personality variables related to attitudes toward the use of alcohol

7. adolescent drinking and the informal social context of the school
8. the role of religion and its relationship to alcohol
9. the influences of peer and parental drinking patterns
10. a comparison of drinking behavior of delinquent and non-delinquent youth
11. the attitudes of high school students toward alcohol education
12. family relationships, problem drinking, and antisocial behavior

Many of the studies have collected their data exclusively with a questionnaire. Previous research was not undertaken to show relationships among information, attitudes, and behavior.

Chapter III includes a description of procedures employed in the development of this study.

CHAPTER III

PROCEDURES FOLLOWED IN THE DEVELOPMENT OF THE STUDY

The present study was conducted to determine whether there was a significant relationship between the reported drinking behavior of tenth grade students in selected "wet" and "dry" areas of the State of Texas, and their information about and attitudes toward alcohol use and abuse. The following procedures were employed in the development of the study.

Criteria for the Selection of the Alcohol Information Test

The criteria accepted for the selection of the information test for use in the present study were the following:

1. The test should be a valid and a reliable instrument.
2. The test should be multiple choice in order that guessing is kept at a minimum.
3. The test should be administered within a thirty minute period.

4. The test should measure information about alcohol use and abuse relevant to the adolescent.
5. The test should be clear and concisely worded so that the adolescent can understand the meaning of each question.

Selection of the Alcohol Information Test

The test selected for the present study was developed by Benson¹ and found to be valid and reliable. Validity was established by a ten member jury composed of two persons from the following fields: science education, sociology, school health education, medicine, and alcohol education. Test items were retained if at least eight of the ten jury members accepted the question and the five alternatives. The split-halves method of ascertaining test reliability yielded a coefficient of .99. This coefficient was considered excellent for the test.

The final "Alcohol Knowledge Test" was a seventy-six item multiple choice test. For the time span allowed for testing in the present study, the investigator selected forty items from this test, using the same criteria as Benson:

¹Berneda Benson, "The Construction and Administration of a Knowledge Test Regarding the Use of Alcoholic Beverages for High School Students" (unpublished Master's thesis, Texas Woman's University, 1967).

1. The relevance of the information in the stem.
2. The clarity of the stem and lead question.
3. The lack of ambiguity in the tentative option choice.
4. The scientific accuracy of the information in the stem and the answer selected.
5. The degree of difficulty of the test items for high school students.
6. The test item will determine the high school students' knowledge of alcohol.¹

Twenty items were selected which pertained to the physiological effect of alcohol on the human body. Twenty items were selected which pertained to general information about alcohol use and abuse--statistics, definitions, and related materials. The items were maintained in the same order as in the original test. Scores were calculated separately for physiological information and general information. These scores were totalled to yield the overall information score.

The revised "Alcohol Knowledge Test" is found in Appendix A. Physiological information question numbers and general information question numbers are listed, along with scoring procedures for the test.

Criteria for Selection of the
Alcohol Attitude Scale

An attitude is the sum total of a man's inclinations and feelings, prejudice and bias, preconceived notions, ideas, fears, threats, and convictions about any specified topic An opinion is his verbal

¹Ibid., p. 39.

expression of an attitude. . . . All that we can do with an attitude scale is to measure the attitude actually expressed with the full realization that the subject may be consciously hiding his true attitude or that the social pressure of the situation has made him really believe what he expresses.¹

Using this philosophy as a guideline, the criteria accepted for the attitude scale in the present study were the following:

1. The scale should be a valid and reliable instrument.
2. The wording of the statements should be meaningful and interesting to the high school student.
3. The statements should be brief and uncomplicated.
4. The wording of the statements should afford the opportunity for the reader to agree or disagree.
5. The statements should avoid double negatives.
6. The statements should avoid ambiguity.²

Selection of the Alcohol Attitude Scale

The attitude scale accepted for the present study was constructed by Williams. It is a combination of two

¹Louis Thurstone, "Attitude Can Be Measured," in Attitude Measurement, edited by Gene F. Summers (Chicago: Rand McNally & Company, 1970), pp. 128-29.

²A. N. Oppenheim, Questionnaire Design and Attitude Measurement (New York: Basic Books, Inc., Publishers, 1966), pp. 114-15.

scales, "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages."¹ The scales were both found to be valid and reliable instruments.

Validity was determined in a study by Williams, DiCicco, and Unterberger, who compared the responses of eleventh and twelfth grade boys and girls on the "Temperate Use Scale" and the "Irresponsible Use Scale" to drinking behavior categories:

1. abstainers--no drinks in the past year
2. moderate drinkers--a drink on at least one occasion during the past year but not getting tight or drunk
3. excessive drinkers--tight or drunk on at least one occasion during the previous year.²

The prediction was that excessive drinkers would score highest on the "Irresponsible Use Scale," followed by moderate drinkers and abstainers. On the "Temperate Use Scale" it was predicted also that the order would be excessive drinkers, moderate drinkers, and abstainers. Both predictions were supported by the collected data.

Reliability was determined for each scale. The test re-test of the boys' scores was .83 for the "Temperate Use Scale" and .85 for the "Irresponsible Use Scale."

¹Alan F. Williams, "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages" (Washington, D. C.: Superintendent of Documents, n.d.).

²Williams, DiCicco, and Unterberger, "The Evaluation of an Alcohol Education Program," p. 693.

Girls' test re-test coefficients were .85 for the "Temperate Use Scale" and .78 for the "Irresponsible Use Scale."

Internal reliability was determined using the split-halves method which yielded a coefficient of .91 for the "Temperate Use Scale" and .93 for the "Irresponsible Use Scale." All of the coefficients were considered very good.

The combined scale consists of forty-two statements concerning the temperate and irresponsible use of alcoholic beverages. Twenty-two statements comprise the "Temperate Use Scale," whereas the "Irresponsible Use Scale" is composed of twenty statements. The two scales are intermingled into one.

Interpretation of the IU scale is clear-cut. All questions have to do with the excessive use of alcohol or the use of alcohol for personal effects. A high score indicated approval of excessive use by oneself and others.

The TU scale is the scale on which high scores are desired. "Temperate" means moderate use of alcohol in social contexts. By scoring high on this scale, the teen-ager was not put into the position of endorsing these behaviors for himself; that is, questions were phrased so that the respondent could endorse moderate drinking for others while not necessarily approving it for himself. Thus a high TU score may indicate only a recognition that there is such a phenomenon as responsible drinking and a tolerance of this type of use of alcohol by others.¹

The statements met the criteria of brevity, positive wording, and non-ambiguity. Respondents were asked to

¹Ibid., p. 692.

"strongly agree," "moderately agree," "slightly agree," "slightly disagree," "moderately disagree," or "strongly disagree." No neutral choice was offered. The attitude scales were scored separately and yielded two scores, temperate use and irresponsible use, along with a combination score.

The "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale" is found in Appendix B. Statements included in each scale are listed, along with scoring instructions for both scales.

Criteria for the Selection of the Questionnaire

The questionnaire is an acceptable technique of research as it is sometimes the only means of obtaining certain kinds of data.¹ In the present study, information related to the drinking behavior of the respondents was obtained by means of the questionnaire.

The criteria accepted for the questionnaire in the present study were:

1. The instrument should be valid, reliable, and objective.

¹Henry L. Smith, Educational Research Principles and Practices (Bloomington: Educational Publications, 1944), p. 148.

2. The items on the instrument should be absolutely clear to the respondents.
3. The items on the instrument should include data which the respondents are able to give.
4. The items on the instrument should lend themselves to tabulation.
5. The items on the instrument should follow a logical sequence in order to stimulate interest and facilitate answering.¹

Selection of the Questionnaire

The questionnaire used in the present study yielded information in three areas:

1. Demographic information
2. Drinking behavior information
3. Current problems information

Questions on drinking behavior were patterned after those used by Nelson.² The drinking classification of each respondent was determined by his answers to these questions:

1. ON THE AVERAGE, about how frequently do you
drink alcoholic beverages?

¹Deobold B. Van Dalen and William J. Meyer, Understanding Educational Research (New York: McGraw-Hill Book Co., 1962), pp. 450-51.

²Nelson, "Drinking and Student Understanding of Alcohol."

2. On occasions when you drink, about how much do you drink ON THE AVERAGE?

Current problems questions were suggested in the study by Cahalan.¹ These questions, placed in six categories, were:

1. Frequent intoxication--Have you ever been intoxicated?
2. Binge drinking--Have you ever been intoxicated for two or more days at a time?
3. Symptomatic drinking
 - a. Do you drink before going to a party?
 - b. Do you drink to get rid of a hangover?
 - c. Do you have difficulty stopping once you have started drinking?
 - d. Do you have blackouts or lapses of memory while drinking?
 - e. Do you skip meals while on a "drinking bout?"
 - f. Do you "toss down" drinks for a quicker effect?
4. Psychological dependence
 - a. Do you drink to ease depression or nervousness?

¹Cahalan, Problem Drinking, pp. 28-34.

- b. Do you drink to escape the problems of everyday living?

5. Interpersonal relations I

- a. Have any of your family or relatives told you to "cut down" on your drinking?
- b. Have any of your friends told you to "cut down" on your drinking?
- c. Have you lost or damaged a friendship because of drinking?
- d. Has drinking caused you to miss school?
- e. Has drinking caused you to miss an appointment?
- f. Has drinking caused you to lose a job?

6. Interpersonal relations II

- a. Has drinking caused you problems with the police or another law enforcement official?
- b. Has drinking caused you to have an automobile accident?
- c. Has drinking damaged your health?
- d. Has drinking affected you financially?
- e. Has drinking caused you to be aggressive or cross?
- f. Has drinking caused you to get into a fight or heated argument?

To increase the objectivity of the questionnaire, directions were standardized, the questionnaire was mimeographed, and the statements were worded so that the respondent could answer with a check-mark.

According to Oppenheim, researchers should ". . . look primarily at the possibility of bias due to question wording and at the reliability and validity problems raised by questionnaire techniques."¹

The investigator endeavored to increase the reliability and validity of the questionnaire by means of:

1. Using statements which had been used with high school students in another survey.
2. Asking only questions relating to drinking behavior and problems associated with drinking.
3. Stating each item briefly and clearly.

According to Oppenheim, a questionnaire is given a high degree of validity if the returns are based upon a sufficient number of replies and the replies are complete.² Questionnaires were answered by 1,315 subjects. Due to either an incomplete information test, an incomplete attitude scale, or an incomplete questionnaire, 266 respondents were not used in the present study.

¹Oppenheim, Questionnaire Design and Attitude Measurement, p. 69.

²Ibid., p. 34.

The initial questionnaire was submitted to each of the school districts. Several questions about religion and socio-economic background were deleted from the final questionnaire upon request of the school district(s).

The final questionnaire contained twelve questions concerning demographic information, twenty questions about drinking behavior, and twenty-two questions for classification of current drinking problems. A copy of the questionnaire is found in Appendix C.

Construction of the Student Profile Sheet

The data were compiled on one sheet for use by the keypuncher in punching IBM cards for the computer. This "Student Profile Sheet" contained information in the following categories:

1. Demographic information--age, sex, school, environment
2. Information test--overall score, physiological information score, general information score
3. Attitude scale--combination score, temperate use score, irresponsible use score
4. Behavior questionnaire--frequency of drinking, number of drinks, drinking classification, current problems list, "Current Problems Index" score

A copy of the "Student Profile Sheet" is found in Appendix E.

Selection of Cities and High Schools
for the Study

Since West Texas is still involved in the "wet-dry" issue, the investigator chose cities in this area for the present study. Four cities of comparable size were selected, two "dry" and two "wet." The four City Directors of Health and Physical Education of the school districts were contacted and asked to participate in the study. In two of the cities, the Superintendents of the school districts chose not to participate. Another city was contacted, and the Superintendent also chose not to participate. The design was completed with the four cities of Abilene, Lubbock, Odessa, and Waco. Abilene and Lubbock were classified as "dry" cities, since liquor and beer cannot legally be sold within the city limits; Odessa and Waco were classified as "wet" cities because liquor and/or beer can legally be sold within the city limits. Two high schools were selected in each city by the City Director. The names of these schools are cited in Appendix F.

Selection of the Subjects
for the Study

The instruments used in the present study were administered to 1,315 tenth grade students in the physical

education classes of the eight schools participating in this study. The classes were selected in a manner which was acceptable to each school district's wishes. To reach the appropriate sample size, all physical education classes were used in the smaller schools. In the larger schools, only a portion of the classes were used to maintain the appropriate sample size. All tenth grade students in these classes who were present when the instruments were administered were included in the sample.

Administration of the Instruments

The instruments were administered to the students by the investigator during May, 1972. The administration was accomplished in one class period for each physical education class. Anonymity of all respondents was explained at the beginning of the testing period. The behavioral questionnaire was administered first, followed by the attitude scale and the information test. Standardized instructions, which are found in the Appendices, were read at the beginning and end of each period, and before the administration of each instrument.

Treatment of the Data

Following the administration of the instruments, the data were treated as follows:

1. The "Alcohol Knowledge Test" was scored and yielded three scores: an overall score, a physiological information score, and a general information score. Means and standard deviations were computed for the three scores.
2. The "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale" was scored and yielded three scores: a combination score, a temperate use score, and an irresponsible use score. Means and standard deviations were computed for the three scores.
3. Drinking classification, based on amount and frequency of drinking, and a "Current Problems Index" score were computed for each respondent. Frequency distributions were computed for each of the four groups in the study.
4. For each of the eight variables above, a two-way analysis of variance was computed, using the .05 level of significance to determine if there were any significant differences between boys and girls in the "wet" and "dry" areas. The Duncan's Multiple Range Test was used as the subsequent test to determine where differences between groups occurred.

5. Correlation coefficients were computed at the .05 level between each pair of the eight variables to determine if there were significant relationships among information, attitudes, and behavior of tenth grade students, regardless of environment.

Summary

In this chapter, the procedures followed in the development of the study were presented. Three instruments for the collection of the data were selected in accordance with the criteria established. The "Alcohol Knowledge Test" yielded an overall score, a physiological information score, and a general information score. The "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale" yielded three scores: a combination score, a temperate use score, and an irresponsible use score. The behavioral questionnaire presented information on amount and frequency of drinking, problems associated with drinking, and demographic information.

Schools were selected in two "wet" and two "dry" cities. Two schools were selected in each city. Subjects were chosen in accordance with the individual school district's wishes, so that the sample size of approximately 100 boys and 100 girls from each school was attained.

Data were tabulated on the three instruments for each subject. Eight two-way analyses of variance were computed to see if there were significant differences between boys and girls in the "wet" and "dry" areas with respect to information, attitudes, and behavior in relation to alcohol use and abuse at the .05 level of significance. Duncan's Multiple Range Test was used as the subsequent test to determine where differences between groups occurred. To discern whether relationships among information, attitudes, and behavior existed, simple Pearson Product-Moment correlations were computed between each pair of the eight variables.

In Chapter IV, the analysis of the data will be presented.

CHAPTER IV

PRESENTATION OF THE FINDINGS

The general purpose of the study was to determine whether there was a significant relationship between the reported drinking behavior of tenth grade students in "wet" and "dry" areas of the State of Texas and their information about and attitudes toward alcohol use and abuse.

Three instruments, the "Alcohol Knowledge Test," the "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale," and a behavioral questionnaire were administered to 760 tenth grade girls and 555 tenth grade boys in four selected cities in the State of Texas. Of these subjects, 1,049 submitted instruments which were used for the final analysis of the data. These students were divided into four groups:

1. From the "wet" environment--188 boys
2. From the "dry" environment--216 boys
3. From the "wet" environment--257 girls
4. From the "dry" environment--388 girls

Drinking classification, "Current Problems Index" score, information test scores, and attitude scale scores were determined for each individual in the four groups.

Determination of Problem Drinking

Using the definitions adopted for the purposes of this study as stated in Chapter I, each student was classified as to his reported drinking behavior. According to his responses with respect to amount and frequency of drinking, given on the behavioral questionnaire, each respondent was classified as: an "abstainer," an "infrequent drinker," a "light drinker," a "moderate drinker," or a "heavy drinker." The "Current Problems Index" score was then computed to ascertain the "problem drinker."

Table 1 shows the method of determining individual scores on the "Current Problems Index." The six categories of drinking problems that were established for the present study were: "frequent intoxication"; "symptomatic drinking"; "interpersonal relations I"; "interpersonal relations II"; "psychological dependence"; and "binge drinking." In each of these areas, answers by the students reflected a degree of problem drinking characterized in this study empirically as "no problem," "slight problem," "moderate problem," or "severe problem."

In the "frequent intoxication" category, if the student responded "many times," he was classified in the "severe problem" area; if he responded "several times," he was classified in the "moderate problem" area. The "slight

TABLE 1

DETERMINATION OF SCORES ON THE CURRENT PROBLEMS INDEX

| Degree of problem | Categories of Drinking Problems | | |
|-------------------|---------------------------------------|---------------------------------------|---|
| | Frequent intoxication (1 question) | Symptomatic drinking (6 questions) | Interpersonal relations I & II (6 questions) |
| | Answered | Total | |
| No (0) | Not at all | 0 - 2 points | |
| Slight (1) | | 3 - 4 points | |
| Moderate (3) | Several times | 5 - 6 points | |
| Severe (6) | Many times | 7 or more points | |

| Degree of problem | Psychological dependence (2 questions) | Binge drinking (1 question) |
|-------------------|---|--------------------------------|
| | Answered | Answered |
| No (0) | One question: occasionally; both questions not at all | Not at all |
| Slight (1) | Both questions: occasionally | One time |
| Moderate (2) | One question: frequently | Several times |
| Severe (3) | Both questions: frequently | Many times |

Note: Weights assigned to each question:
 frequently = 2 points
 occasionally = 1 point

problem" area was not calculated in this category, as there was no useable answer. If the student answered "not at all," he was classified in the "no problem" area.

In the "symptomatic drinking" and "interpersonal relations I and II" categories, there were weights assigned to the six questions included in each area. If the answer to a question was "frequently," the weight assigned was two points; if the answer was "occasionally," the weight assigned was one point. When the respondent's answers totalled seven points or more, he was classified in the "severe problem" area; if his answers totalled five or six points, he was classified in the "moderate problem" area; if his answers totalled three or four points, he was classified in the "slight problem" area; if his answers totalled less than three points, he was classified in the "no problem" area.

The "psychological dependence" category contained two questions. If the respondent answered both questions "frequently," he was classified in the "severe problem" area; if he answered one question "frequently," he was classified in the "moderate problem" area; if he answered both questions "occasionally," he was classified in the "slight problem" area; if he answered one question "occasionally," or both questions "not at all," he was classified in the "no problem" area.

In the "binge drinking" category, if the student responded "many times," he was classified in the "severe problem" area; if he responded "several times," he was classified in the "moderate problem" area; if he responded "one time," he was classified in the "slight problem" area; if he responded "not at all," he was classified in the "no problem" area.

All categories were totalled, and each respondent was given a "Current Problems Index" score, based upon the number and severity of problems associated with drinking. The higher the "Current Problems Index" score, the more problems the respondent had checked.

The "Current Problems Index" score was used with the drinking classification to determine the "problem drinker." Figure 1 presents the method which was used to determine the "problem drinker." The heavier the drinker, the lower the "Current Problems Index" score needed for classification as a "problem drinker," as both the amount and frequency of drinking, and the problems associated with drinking, defined the "problem drinker." The number of points necessary in each classification was revealed by Figure 1: six points or more necessary for the "heavy drinker," nine points or more necessary for the "moderate drinker," twelve points or more necessary for the "light

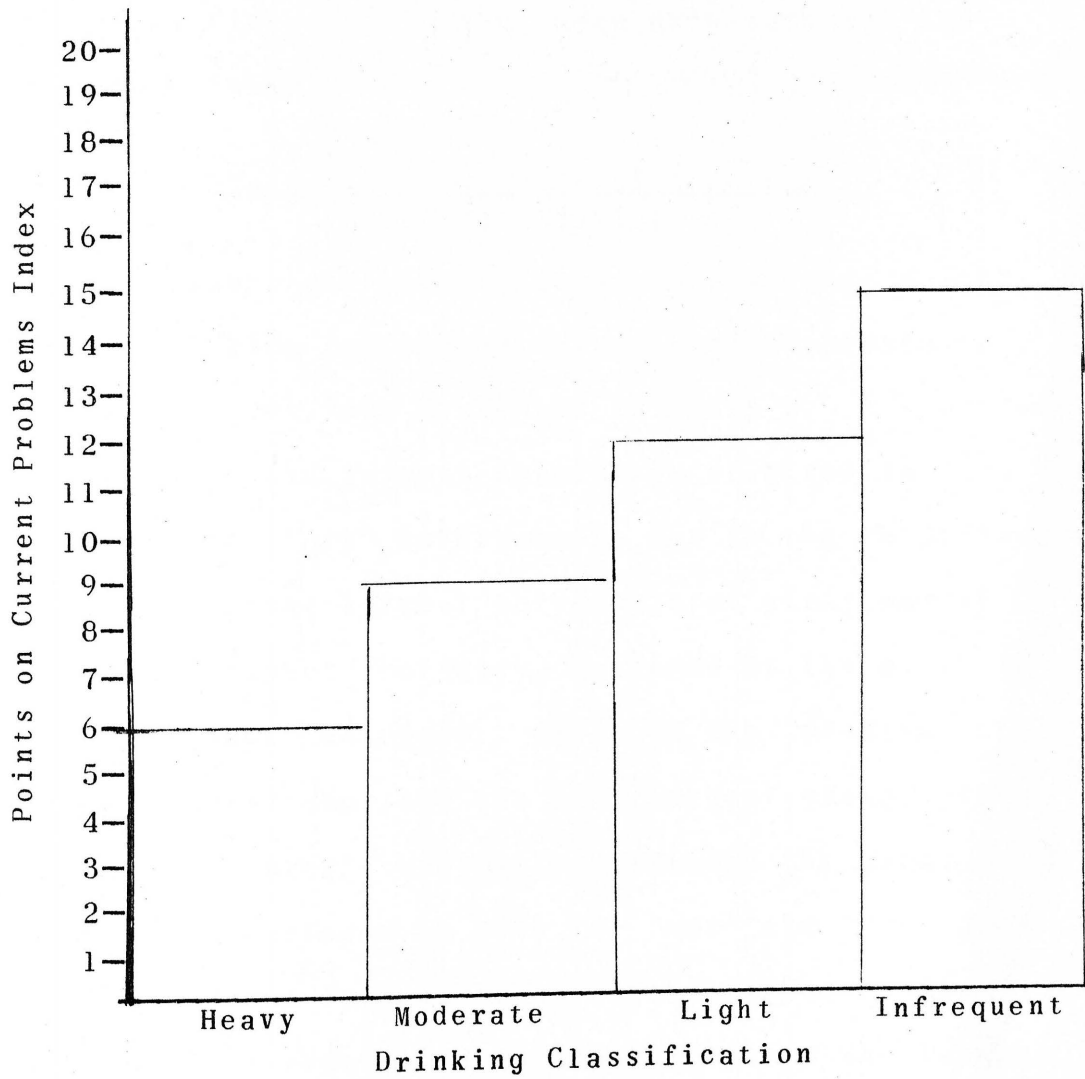


Fig. 1.--Determination of Problem Drinking*

*For example, if a person scored 6 or more points on C.P.I. and has classified himself as a "heavy drinker," he was placed in the "problem drinker" category.

drinker," and fifteen points or more necessary for the "infrequent drinker."

Statistical Analysis of Reported
Drinking Behavior

The number and percentage of respondents in each of the six drinking categories, classified according to environment and sex, are presented in Table 2. A study of Table 2 revealed the largest percentage of girls in both the "wet" and the "dry" environments was in the "abstainer" category; the second largest percentage of girls was in the "moderate drinker" category, followed by the girls in the "light drinker" category. Girls in the "problem drinker" category comprised the next largest group; girls in the "heavy drinker" category constituted the group with the smallest percentages in both the "wet" and "dry" areas.

Boys in the "wet and "dry" areas differed only slightly in their reported drinking behavior. The largest percentage of boys in both environments was found in the "moderate drinker" category, followed closely by boys in the "infrequent drinker" category and those in the "abstainer" category. "Problem drinkers" comprised the next largest percentage in the "dry" area, whereas "light drinkers" comprised the next largest category in the "wet" area. In the "dry" area, the two smallest percentages were in the

TABLE 2

DRINKING BEHAVIOR CLASSIFIED ACCORDING TO ENVIRONMENT
AND SEX FOR RESPONDENTS (n=1049)

| | Wet | | | | Dry | | | |
|------------------------|--------------|-------|---------------|-------|--------------|-------|---------------|-------|
| | Boys (n=188) | | Girls (n=257) | | Boys (n=216) | | Girls (n=388) | |
| | No. | % | No. | % | No. | % | No. | % |
| Abstainers | 36 | 19.15 | 86 | 33.47 | 41 | 18.98 | 132 | 34.03 |
| Infrequent drinkers | 37 | 19.68 | 74 | 28.79 | 45 | 20.83 | 99 | 25.52 |
| Light drinkers | 33 | 17.55 | 35 | 13.62 | 30 | 13.89 | 51 | 13.14 |
| Moderate drinkers | 39 | 20.74 | 47 | 18.29 | 48 | 22.22 | 65 | 16.75 |
| Heavy drinkers | 19 | 10.11 | 6 | 2.33 | 18 | 8.33 | 9 | 2.32 |
| Problem drinkers | 24 | 12.77 | 9 | 3.50 | 34 | 15.74 | 32 | 8.25 |

"problem drinker" area and the "heavy drinker" area. Smallest percentages in the "wet" area were in the "light drinker" and "heavy drinker" categories. The table revealed a larger percentage of both girl and boy "problem drinkers" in the "dry" area than in the "wet" area.

The numbers in Table 2 were treated statistically, using a two-way analysis of variance, method of unweighted means. This method was used because of the difference in the sizes of the four groups. The results of this analysis are reported in Table 3. The following null hypotheses were tested at the .05 level of significance:

- A. Boys and girls in the "wet" and "dry" environments do not differ with respect to their reported drinking behavior as revealed by their drinking classification.
- B. There is no significant difference between the "wet" environment and the "dry" environment with respect to reported drinking behavior as revealed by drinking classification.
- C. There is no significant difference between boys and girls with respect to their reported drinking behavior as revealed by their drinking classification.

The Analysis of Variance Summary Table, Table 3, indicated there was no significant difference ($p > .05$) between boys and girls in the "wet" and "dry" environments

TABLE 3

ANALYSIS OF VARIANCE BETWEEN BOYS AND GIRLS IN SELECTED WET AND DRY
AREAS OF TEXAS IN RELATION TO DRINKING CLASSIFICATION

| Source | Degrees of freedom | Sum of Squares | Mean Square | F | p |
|----------------------|-----------------------|-------------------|----------------|----------|-------|
| Between environments | 1 | 2.6537 | 2.6537 | 1.0998 | n. s. |
| Between sexes | 1 | 152.5824 | 152.5824 | 63.2355* | .0001 |
| Environment x sex | 1 | 0.4713 | 0.4713 | 0.1953 | n. s. |
| Error | 1045 | 2521.5050 | 2.4129 | | |

*Significant at the .01 level.


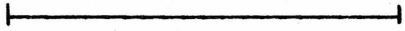
with respect to their reported drinking behavior, as revealed by their drinking classification. A comparison of group means using Duncan's Multiple Range Test, Table 4, showed there were significant differences. The boys in both the "wet" and the "dry" environments rated themselves significantly higher on the drinking classification scale than did the girls in the "wet" and "dry" environments. There was no significant difference ($p > .05$) between the two groups of boys, nor was there a significant difference between the two groups of girls. The absence of significant interaction between the sex of the respondent and the environment in which he lived was disclosed by viewing the similarity of the slopes of the two lines (Figure 2).

The main effect of environmental conditions on reported drinking behavior yielded a non-significant F ratio. This value indicated environment had little effect on the drinking classification of the respondents.

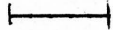
The only significant difference ($p < .05$) was reflected in the F ratio between sexes of the respondents. Boys rated themselves higher on the drinking classification scale than did girls, regardless of the environmental factor. The results of the analysis failed to support null hypothesis C, there is no difference between boys and girls with respect to their reported drinking behavior as measured by their drinking classification; thus, it was rejected.

TABLE 4

DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
GROUP MEANS FOR DRINKING CLASSIFICATION

| | Girls in wet env. 1.3774 | Girls in dry env. 1.5258 | Boys in wet env. 2.2128 | Boys in dry env. 2.2731 | K | R(.05) | R(.01) |
|--|--------------------------------|--------------------------------|-------------------------------|-------------------------------|---|--------|--------|
| Girls in wet env. (1.3774) | _____ | .1484 | .8354* | .8957* | 4 | .3020 | .3900 |
| Girls in dry env. (1.5258) | _____ | _____ | .6870* | .7473* | 3 | .2920 | .3800 |
| Boys in wet env. (2.2128) | _____ | _____ | _____ | .0603 | 2 | .2770 | .3640 |
| <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> | | | | | | | |

*Significant at the .01 level.

 Non-significant at the .05 level.

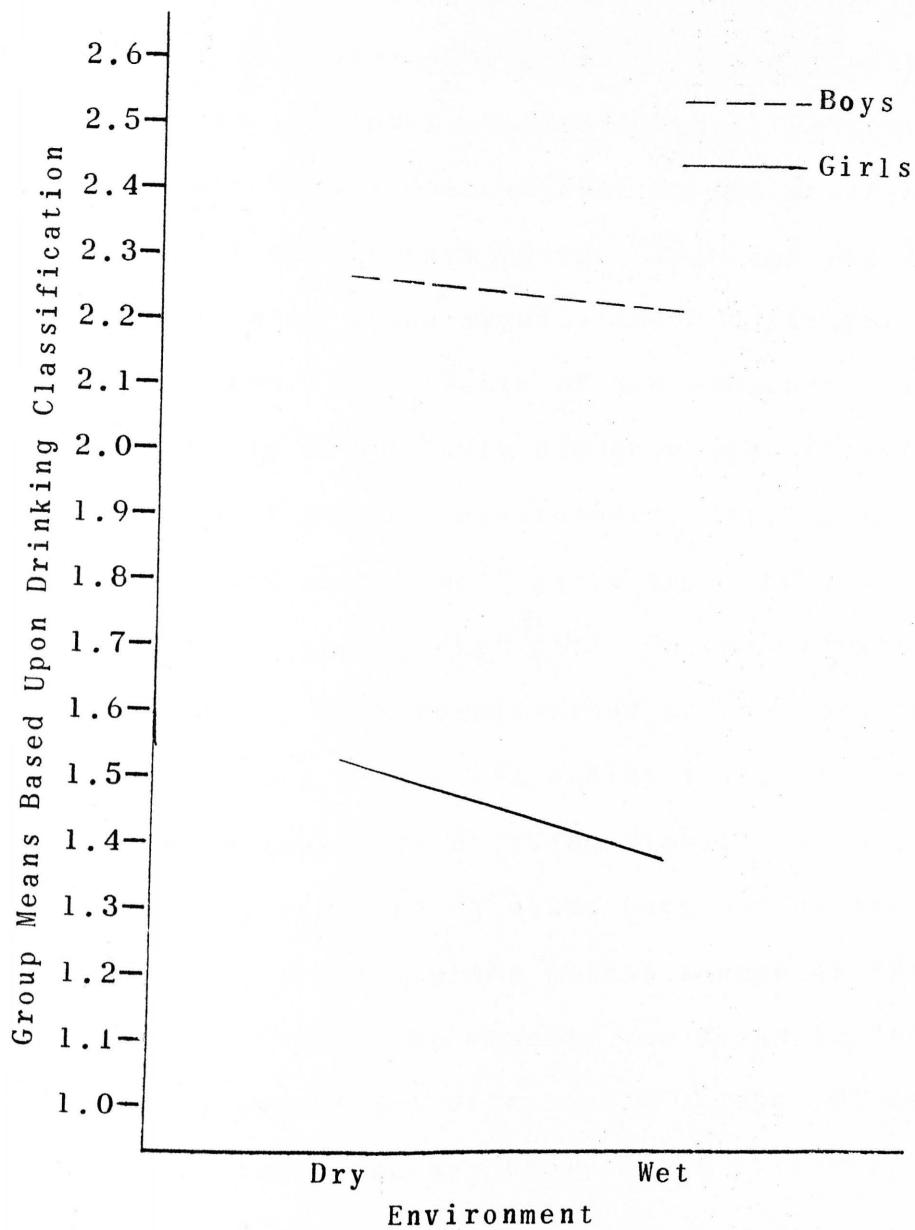


Fig. 2.--Graphic Presentation of Drinking Classification Group Means

Null hypothesis B, there is no difference between the "wet" and the "dry" environment with respect to reported drinking behavior as measured by drinking classification was not rejected at the .05 level of significance, indicating any difference that occurred could best be explained by the natural variability within each group. Although the ANOVA summary table indicated a non-significant F ratio for null hypothesis A, the combined effects of sex and environment, the Duncan's Multiple Range Table did show significant differences between both sex and environment, "dry" boys scoring significantly above "wet" girls and "wet" boys scoring significantly above "dry" girls on the drinking classification scale. The overall trend of the data, however, indicated the sex of the respondent to be the most important factor in regard to drinking classification.

In addition, reported drinking behavior of the respondents was analyzed using the points scored on the "Current Problems Index." The results are shown in Table 5. The following null hypotheses were tested at the .05 level of significance, using a two-way analysis of variance, method of unweighted means:

- A. Boys and girls in the "wet" and "dry" environments do not differ with respect to their reported drinking behavior as revealed by their scores on the "Current Problems Index."

TABLE 5

ANALYSIS OF VARIANCE BETWEEN BOYS AND GIRLS IN SELECTED WET AND DRY
AREAS OF TEXAS IN RELATION TO THE CURRENT
PROBLEMS INDEX SCORE

| Source | Degrees of freedom | Sum of Squares | Mean Square | F | p |
|----------------------|--------------------|----------------|-------------|----------|-------|
| Between environments | 1 | 40.2336 | 40.2336 | 3.2235 | n. s. |
| Between sexes | 1 | 470.0974 | 470.0974 | 37.6637* | .0001 |
| Environment x sex | 1 | 7.8427 | 7.8427 | 0.6283 | n. s. |
| Error | 1045 | 13043.1268 | 12.4815 | | |

*Significant at the .01 level.

- B. There is no significant difference between the "wet" environment and the "dry" environment with respect to reported drinking behavior as revealed by scores on the "Current Problems Index."
- C. There is no significant difference between boys and girls with respect to their reported drinking behavior as revealed by their scores on the "Current Problems Index."

Table 5, the Analysis of Variance Summary Table, revealed there was no significant difference ($p > .05$) between boys and girls in "wet" and "dry" environments with respect to their reported drinking behavior as measured by their scores on the "Current Problems Index." A comparison of group means using Duncan's Multiple Range Test, Table 6, showed there were significant differences. The boys in both the "wet" and the "dry" environments scored significantly higher on the "Current Problems Index" than did the girls in the "wet" and "dry" environments. There was no significant difference ($p > .05$) between the two groups of boys, nor was there a significant difference between the two groups of girls. The absence of significant interaction between the sex of the respondent and the environment in which he lived was disclosed by viewing the similarity of the slopes of the two lines (Figure 3).

TABLE 6

DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
GROUP MEANS FOR THE CURRENT PROBLEMS INDEX SCORE

| | Girls in wet env. 1.2879 | Girls in dry env. 1.8737 | Boys in wet env. 2.8564 | Boys in dry env. 3.0833 | K | R(.05) | R(.01) |
|-------------------------------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|---|--------|--------|
| Girls in wet env. (1.2879) | _____ | .5858 | 1.5685* | 1.7954* | 4 | .6939 | .8970 |
| Girls in dry env. (1.8737) | _____ | _____ | .9827* | 1.2096* | 3 | .6711 | .8731 |
| Boys in wet env. (2.8564) | _____ | _____ | _____ | .2269 | 2 | .6376 | .8379 |
| | ----- | | ----- | | | | |

*Significant at the .01 level.

|-----| Non-significant at the .05 level.

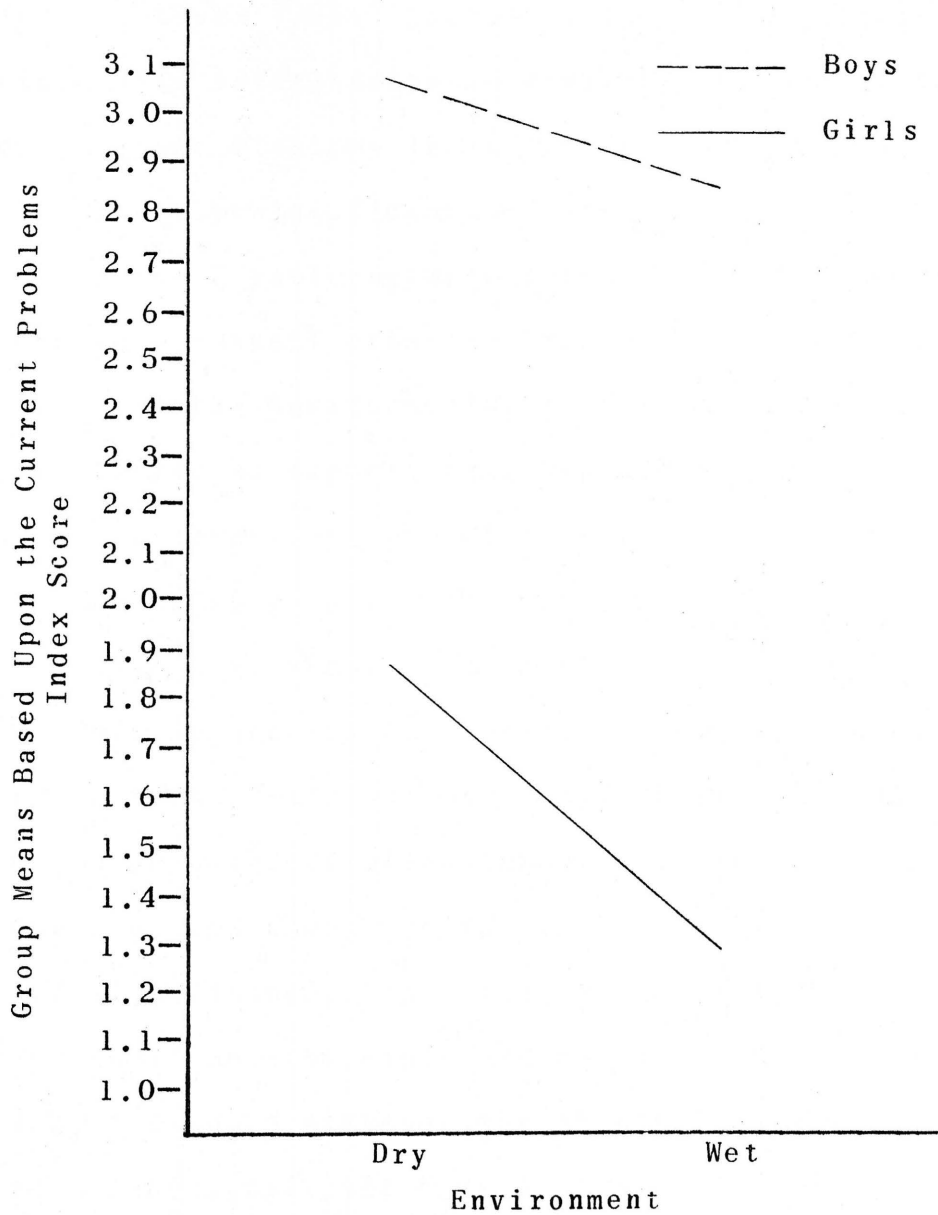


Fig. 3.--Graphic Presentation of Current Problems
Group Index Means

The main effect of environmental conditions on "Current Problems Index" scores yielded a non-significant F ratio. This value indicated environment had little effect on the "Current Problems Index" score of the respondents.

The only significant difference ($p < .05$) was reflected in the F ratio between sexes of the respondents. Boys had more current drinking problems than did girls, regardless of the environmental factor. The results of the analysis failed to support null hypothesis C, there is no difference between boys and girls with respect to their reported drinking behavior as measured by the "Current Problems Index" score; thus, it was rejected.

Null hypothesis B, there is no significant difference between the "wet" and the "dry" environment with respect to reported drinking behavior as measured by the "Current Problems Index" score was not rejected at the .05 level of significance, indicating any difference that occurred could best be explained by the natural variability within each group. Although the ANOVA summary table indicated a non-significant F ratio for hypothesis A, the combined effects of sex and environment, the Duncan's Multiple Range Table did show significant differences between both sex and environment, boys in the "dry" environment having significantly more current problems than girls

in the "wet" environment, and boys in the "wet" environment having significantly more current problems than girls in the "dry" environment. The overall trend of these data, as with drinking classifications, indicated the sex of the respondent to be the most important factor in regard to current problems. These factors supported the data found in Table 4 which show that a higher percentage of boys were found to be "problem drinkers" than were girls, regardless of environment.

The "Current Problems Index" scores revealed, also, the frequency and severity of problems reported by the four groups of respondents. A study of Table 7 showed that the greatest percentage of students with a current problem reported it was in the area of "frequent intoxication." Boys reported more severe problems in this area than did girls. The other problems, "binge drinking," "symptomatic drinking," "psychological dependence," and "interpersonal relations I and II," were reported by a small percentage of the respondents and did not appear to be severe problems at the tenth grade level. The same general pattern of drinking problems was evidenced in each of the two environments. The possibility exists that the environments were more homogeneous than the definitions seemed to suggest. The availability of alcohol outside the city limits and the

possible presence of "bootleggers" in the "dry" areas could have helped to account for the non-significant differences between environments.

TABLE 7

REPORTED DRINKING BEHAVIOR: FREQUENCY OF CURRENT PROBLEMS

| Problem | Wet | | | | Dry | | | |
|--------------------------|------|-------|-------|-------|------|-------|-------|-------|
| | Boys | | Girls | | Boys | | Girls | |
| | No. | % | No. | % | No. | % | No. | % |
| Frequent Intoxication | | | | | | | | |
| No | 101 | 53.73 | 195 | 75.88 | 122 | 56.48 | 282 | 72.68 |
| Slight | ... | ... | ... | ... | ... | ... | ... | ... |
| Moderate | 57 | 30.32 | 52 | 20.23 | 62 | 28.70 | 73 | 18.81 |
| Severe | 30 | 15.96 | 10 | 3.89 | 32 | 14.81 | 33 | 8.51 |
| Binge Drinking | | | | | | | | |
| No | 159 | 84.57 | 248 | 96.50 | 172 | 79.63 | 354 | 91.23 |
| Slight | 18 | 9.57 | 3 | 1.17 | 24 | 11.11 | 25 | 6.44 |
| Moderate | 9 | 4.79 | 4 | 1.56 | 17 | 7.87 | 8 | 2.06 |
| Severe | 2 | 1.06 | 2 | 0.78 | 3 | 1.39 | 1 | 0.26 |
| Symptomatic Drinking | | | | | | | | |
| No | 143 | 76.06 | 218 | 84.83 | 159 | 73.61 | 318 | 81.96 |
| Slight | 31 | 16.49 | 30 | 11.67 | 34 | 15.74 | 42 | 10.82 |
| Moderate | 8 | 4.26 | 8 | 3.11 | 12 | 5.56 | 12 | 3.09 |
| Severe | 6 | 3.19 | 1 | 0.39 | 11 | 5.09 | 16 | 4.12 |
| Psychological Dependence | | | | | | | | |
| No | 166 | 88.30 | 231 | 89.89 | 200 | 92.59 | 333 | 85.82 |
| Slight | 20 | 10.64 | 20 | 7.78 | 12 | 5.56 | 42 | 10.82 |
| Moderate | 2 | 1.06 | 2 | 0.78 | 1 | 0.46 | 6 | 1.55 |
| Severe | 0 | 0.00 | 4 | 1.56 | 3 | 1.39 | 7 | 1.80 |

TABLE 7--Continued

| Problem | Wet | | | | Dry | | | |
|----------------------------|------|-------|-------|-------|------|-------|-------|-------|
| | Boys | | Girls | | Boys | | Girls | |
| | No. | % | No. | % | No. | % | No. | % |
| Interpersonal Relations I | | | | | | | | |
| No | 184 | 97.87 | 254 | 98.84 | 207 | 95.83 | 381 | 98.19 |
| Slight | 2 | 1.06 | 3 | 1.17 | 6 | 2.78 | 6 | 1.55 |
| Moderate | 2 | 1.06 | 0 | 0.00 | 1 | 0.46 | 1 | 0.26 |
| Severe | 0 | 0.00 | 0 | 0.00 | 2 | 0.93 | 0 | 0.00 |
| Interpersonal Relations II | | | | | | | | |
| No | 166 | 88.29 | 251 | 97.67 | 193 | 89.35 | 372 | 95.87 |
| Slight | 16 | 8.51 | 6 | 2.33 | 17 | 7.87 | 2 | .52 |
| Moderate | 6 | 3.19 | 0 | 0.00 | 4 | 1.85 | 14 | 3.61 |
| Severe | 0 | 0.00 | 0 | 0.00 | 2 | 0.93 | 0 | 0.00 |

The frequency distribution and resulting percentages of scores on the "Current Problems Index" were computed. These data are presented in Appendix G.

Statistical Analysis of the
"Alcohol Knowledge Test"

The "Alcohol Knowledge Test" yielded three scores: an overall score, a physiological information score, and a general information score. Table 8 presents the means and standard deviations for the overall test and its component parts. A study of Table 8 revealed that the mean score of 13.68, attained by girls in the "dry" environment, was

TABLE 8

MEANS AND STANDARD DEVIATIONS OF THE ALCOHOL KNOWLEDGE TEST
ADMINISTERED TO BOYS AND GIRLS IN SELECTED WET
AND DRY AREAS OF TEXAS

| | Wet | | | | Dry | | | |
|--------------------------|--------------|------|---------------|------|--------------|------|---------------|------|
| | Boys (n=188) | | Girls (n=257) | | Boys (n=216) | | Girls (n=388) | |
| | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. |
| Overall test | 12.43 | 4.15 | 12.67 | 3.82 | 12.87 | 4.28 | 13.68 | 4.30 |
| Physiological portion | 5.96 | 2.31 | 5.94 | 2.15 | 6.33 | 2.30 | 6.38 | 2.46 |
| General portion | 6.47 | 2.59 | 6.77 | 2.48 | 6.64 | 2.68 | 7.23 | 2.64 |

higher than the mean score of the other three groups: boys in the "dry" environment who scored 12.87; girls in the "wet" environment who scored 12.67; and boys in the "wet" environment who scored 12.43. There were forty possible points on the test, and the mean score for each group was considered very low. This data indicated that none of the groups possessed an adequate amount of information pertaining to alcohol use and abuse.

The two portions of the information test, physiological and general, yielded similar findings, with the girls in the "dry" environment again attaining the highest mean scores of 6.38 and 7.30. The low mean scores on both portions of the information test indicated that the respondents had little information pertaining either to the physiological effects of alcohol on the body or to general information about alcohol use and abuse.

The mean scores of the overall test and its component parts were used in the analysis of the data. A two-way analysis of variance, method of unweighted means, was computed for each. The following null hypotheses were tested for the overall score on the information test at the .05 level of significance:

- A. Boys and girls in the "wet" and "dry" environments do not differ with respect to their overall scores on the "Alcohol Knowledge Test."

- B. There is no significant difference between the "wet" environment and the "dry" environment with respect to the overall scores on the "Alcohol Knowledge Test."
- C. There is no significant difference between boys and girls with respect to their overall scores on the "Alcohol Knowledge Test."

The Analysis of Variance Summary Table, reported in Table 9, disclosed no significant difference ($p > .05$) between boys and girls in the "wet" and "dry" environments with respect to the overall scores on the Alcohol Knowledge Test." A comparison of group means using Duncan's Multiple Range Test, Table 10, indicated there was a difference. Girls in the "dry" environment scored significantly higher than the other three groups. The graphic presentation of the data, Figure 4, shows the significant score of the girls in the "dry" environment, as well as the non-significant differences between boys in the "dry" environment, girls in the "wet" environment, and boys in the "wet" environment. The lack of significant interaction can be seen in Figure 4, also.

The main effect of environmental conditions on overall scores on the "Alcohol Knowledge Test" yielded a significant F ratio ($p < .05$). Figure 4 shows the reason for this significant value: girls in the "dry" environment and

TABLE 9

ANALYSIS OF VARIANCE BETWEEN BOYS AND GIRLS IN SELECTED WET AND DRY
AREAS OF TEXAS IN RELATION TO THE ALCOHOL
KNOWLEDGE TEST

| Source | Degrees of freedom | Sum of Squares | Mean Square | F | p |
|----------------------|--------------------|----------------|-------------|----------|-------|
| Between environments | 1 | 129.5852 | 129.5852 | 7.5093** | .01 |
| Between sexes | 1 | 67.9699 | 67.9699 | 3.9388* | .05 |
| Environment x sex | 1 | 19.7133 | 19.7133 | 1.1424 | n. s. |
| Error | 1045 | 18033.2227 | 17.2567 | | |

*Significant at the .05 level.

**Significant at the .01 level.

TABLE 10

DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
GROUP MEANS FOR THE ALCOHOL KNOWLEDGE TEST

| | Boys in wet env. 12.4255 | Girls in wet env. 12.6693 | Boys in dry env. 12.8704 | Girls in dry Env. 13.6830 | K | R(.05) | R(.01) |
|--|--------------------------------|---------------------------------|--------------------------------|---------------------------------|---|--------|--------|
| Boys in wet env. (12.4255) | _____ | .2438 | .4449 | 1.2575** | 4 | .8146 | 1.0530 |
| Girls in wet env. (12.6693) | _____ | _____ | .2011 | 1.0137* | 3 | .7879 | 1.0249 |
| Boys in dry env. (12.8704) | _____ | _____ | _____ | .8126* | 2 | .7484 | .9836 |
| <div style="text-align: center;"> </div> | | | | | | | |

*Significant at the .05 level.

**Significant at the .01 level.

┌───┐ Non-significant at the .05 level.

┌───┐ Non-significant at the .01 level.

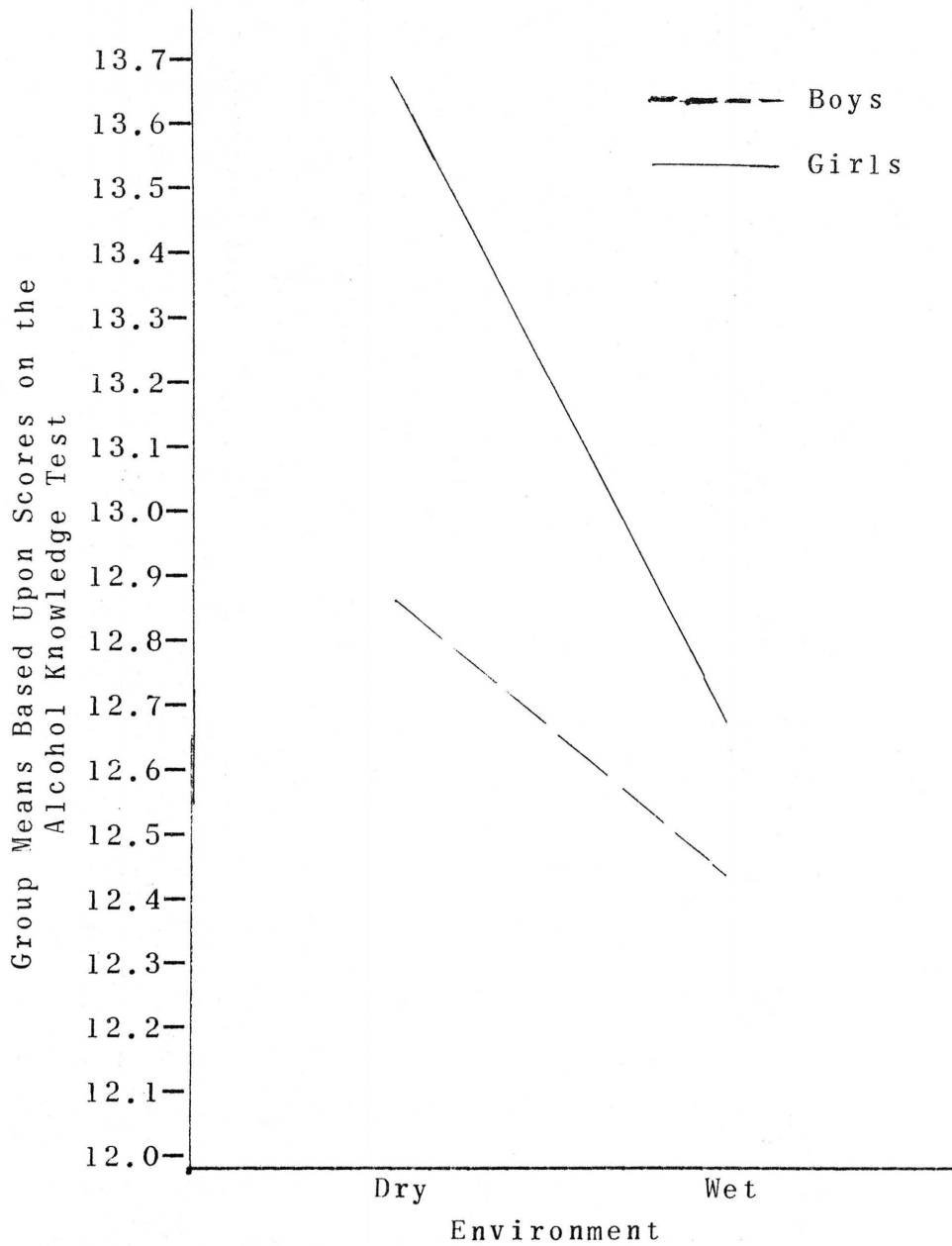


Fig. 4.--Graphic Presentation of the Alcohol Knowledge Test Group Means

boys in the "dry" environment both scored higher than boys and girls in the "wet" environment; however, the only significant difference was in the scoring of the girls in the "dry" environment. The results of the analysis failed to support null hypothesis B, there is no significant difference between environments with respect to overall scores on the "Alcohol Knowledge Test"; thus, it was rejected.

The other main effect, sex of the respondent, also yielded a significant F ratio ($p < .05$). Figure 4 and the Duncan's Multiple Range Table showed the difference was a result of the significantly high scores attained by the girls in the "dry" environment. Boys in the "dry" environment scored higher than the other two groups, but these scores were not significantly different. The significant F ratio was attributed to the scoring of the girls in the "dry" environment over the scoring of the other three groups. Null hypothesis C, there is no significant difference between sexes with respect to their overall scores on the "Alcohol Knowledge Test," was rejected.

Even though both main effect F ratios were significant ($p < .05$), hypothesis A, the combined effect of environment and sex, was not rejected at the .05 level significant differences in scoring were attributed to the girls in the "dry" environment, with combined effects non-significant in the other three groups.

For the physiological portion of the knowledge test, the following null hypotheses were tested at the .05 level of significance:

- A. Boys and girls in the "wet" and "dry" environments do not differ with respect to their scores on the physiological portion of the "Alcohol Knowledge Test."
- B. There is no significant difference between the "wet" environment and the "dry" environment with respect to the scores on the physiological portion of the "Alcohol Knowledge Test."
- C. There is no significant difference between boys and girls with respect to their scores on the physiological portion of the "Alcohol Knowledge Test."

Table 11, the Analysis of Variance Summary Table, disclosed no significant difference ($p > .05$) between boys and girls in the "wet" and "dry" environments with respect to the physiological information scores on the "Alcohol Knowledge Test." A comparison of group means using Duncan's Multiple Range Test, Table 12, showed no significant difference between any of the four groups.

The main effect of environmental conditions on physiological information scores yielded a significant F ratio ($p < .05$). Figure 5 reveals the difference: boys and girls in the "dry" environment scored above boys and girls in the

TABLE 11

ANALYSIS OF VARIANCE BETWEEN BOYS AND GIRLS IN SELECTED WET AND DRY
AREAS OF TEXAS IN RELATION TO THE PHYSIOLOGICAL PORTION
OF THE ALCOHOL KNOWLEDGE TEST

| Source | Degrees of freedom | Sum of Squares | Mean Square | F | p |
|----------------------|-----------------------|-------------------|----------------|---------|-------|
| Between environments | 1 | 30.7514 | 30.7514 | 5.6797* | .02 |
| Between sexes | 1 | 1.0663 | 1.0663 | 0.1969 | n. s. |
| Environment x sex | 1 | 1.7961 | 1.7961 | 0.3317 | n. s. |
| Error | 1045 | 5657.8544 | 5.4142 | | |

*Significant at the .05 level.

TABLE 12

DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
GROUP MEANS FOR THE PHYSIOLOGICAL PORTION
OF THE ALCOHOL KNOWLEDGE TEST

| | Girls in wet env. 5.9377 | Boys in wet env. 5.9574 | Boys in dry env. 6.2269 | Girls in dry env. 6.3789 | K | R(.05) | R(.01) |
|-------------------------------|--------------------------------|-------------------------------|-------------------------------|--------------------------------|---|--------|--------|
| Girls in wet env. (5.9377) | _____ | .0197 | .2892 | .4412 | 4 | .4526 | .5850 |
| Boys in wet env. (5.9574) | _____ | _____ | .2695 | .4215 | 3 | .4377 | .5694 |
| Boys in dry env. (6.2269) | _____ | _____ | _____ | .1520 | 2 | .4158 | .5465 |

┌─ Non-significant at the .05 level.

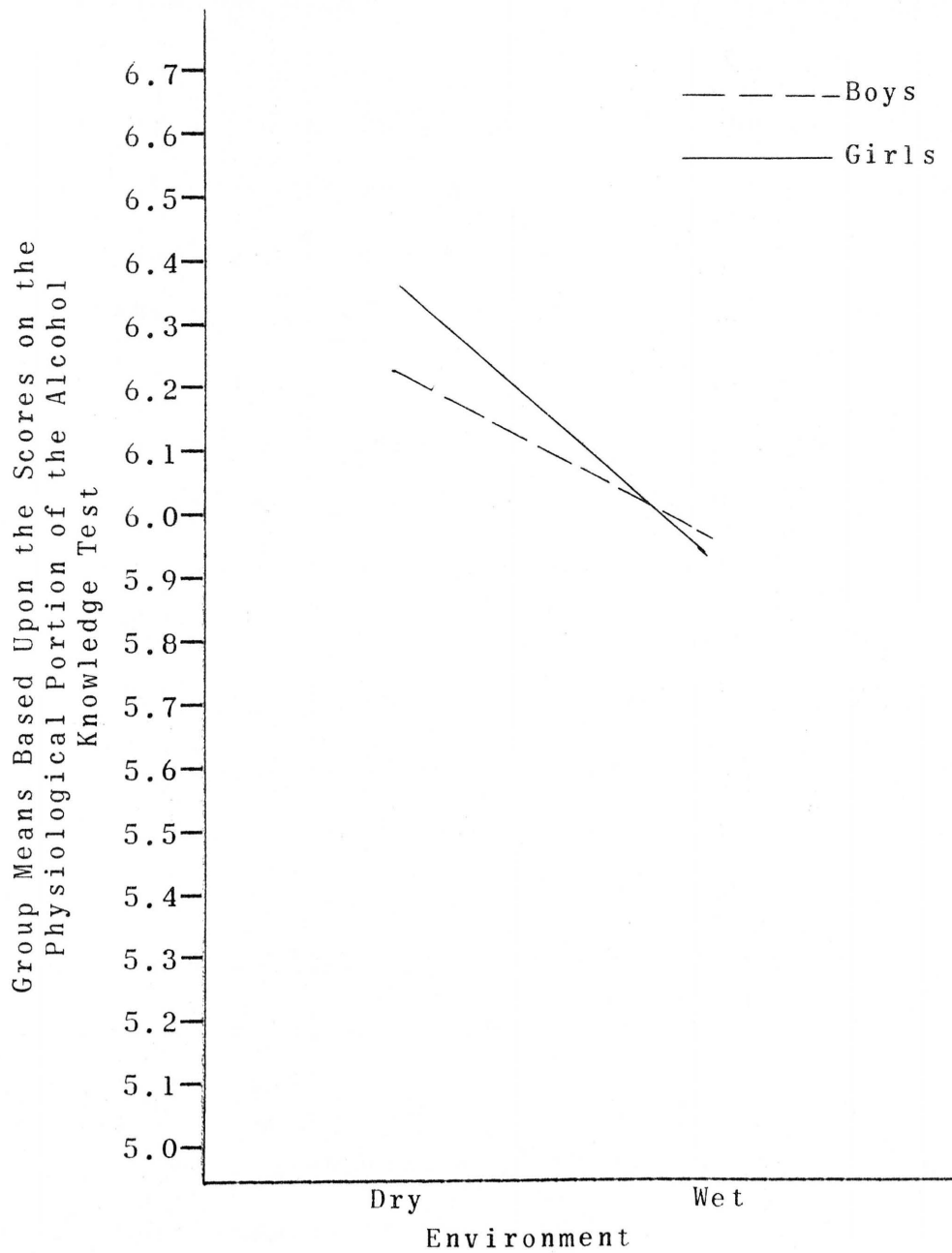


Fig. 5.--Graphic Presentation of the Physiological Portion of the Alcohol Knowledge Test Group Means

"wet" environment; however, these differences were all non-significant.

The results of the analysis failed to reject hypothesis A, there is no significant difference between boys and girls in the "wet" and "dry" environments in scores on the physiological portion of the "Alcohol Knowledge Test"; any differences in scoring could be attributed to the natural variability within the groups.

For the general portion of the information test, the following null hypotheses were tested, at the .05 level of significance:

- A. Boys and girls in the "wet" and "dry" environments do not differ with respect to their scores on the general portion of the "Alcohol Knowledge Test."
- B. There is no significant difference between the "wet" environment and the "dry" environment with respect to the scores on the general portion of the "Alcohol Knowledge Test."
- C. There is no significant difference between boys and girls with respect to their scores on the general portion of the "Alcohol Knowledge Test."

The Analysis of Variance Summary Table, Table 13, indicated there was no significant difference ($p > .05$)

TABLE 13

ANALYSIS OF VARIANCE BETWEEN BOYS AND GIRLS IN SELECTED WET AND DRY
AREAS OF TEXAS IN RELATION TO THE GENERAL PORTION OF
THE ALCOHOL KNOWLEDGE TEST

| Source | Degrees of freedom | Sum of Squares | Mean Square | F | p |
|----------------------|--------------------|----------------|-------------|----------|-------|
| Between environments | 1 | 30.1867 | 30.1867 | 4.4599* | .03 |
| Between sexes | 1 | 55.8787 | 55.8787 | 8.2556** | .004 |
| Environment x sex | 1 | 7.5948 | 7.5948 | 1.1221 | n. s. |
| Error | 1045 | 7073.1343 | 6.7685 | | |

*Significant at the .05 level.

**Significant at the .01 level.

between boys and girls in the "wet" and "dry" environments with respect to their scores on the general portion of the "Alcohol Knowledge Test." A comparison of group means using Duncan's Multiple Range Test, Table 14, showed there were significant differences similar to the differences found in the overall scores. The girls in the "dry" environment scored significantly higher on the general portion of the test than the other three groups. There were no significant differences in the scores of the boys in the "dry" environment, the girls in the "wet" environment, or the boys in the "wet" environment. The lack of significant interaction can be seen in Figure 6.

Both main effects showed significant F values ($p < .05$), similar to the findings on the overall test. These significant values were attributed to the scoring by the girls in the "dry" environment.

Even though both main effect F ratios were significant ($p < .05$), hypothesis A, the combined effect of environment and sex, was not rejected; significant differences in scoring were attributed to the girls in the "dry" environment with combined effects non-significant in the other three groups.

The results of the analyses of the overall test score and its component parts revealed that the overall

TABLE 14

DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
GROUP MEANS FOR THE GENERAL PORTION OF THE
ALCOHOL KNOWLEDGE TEST

| | Boys in wet env. 6.4681 | Boys in dry env. 6.6435 | Girls in wet env. 6.7704 | Girls in dry env. 7.2990 | K | R(.05) | R(.01) |
|-------------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|---|--------|--------|
| Boys in wet env. (6.4681) | _____ | .1754 | .3023 | .8309* | 4 | .3319 | .4290 |
| Boys in dry env. (6.6435) | _____ | _____ | .1269 | .6555* | 3 | .3210 | .4176 |
| Girls in wet env. (6.7704) | _____ | _____ | _____ | .5186* | 2 | .3049 | .4007 |

└────────────────────────────────┘

*Significant at the .01 level.

└─ Non-significant at the .05 level.

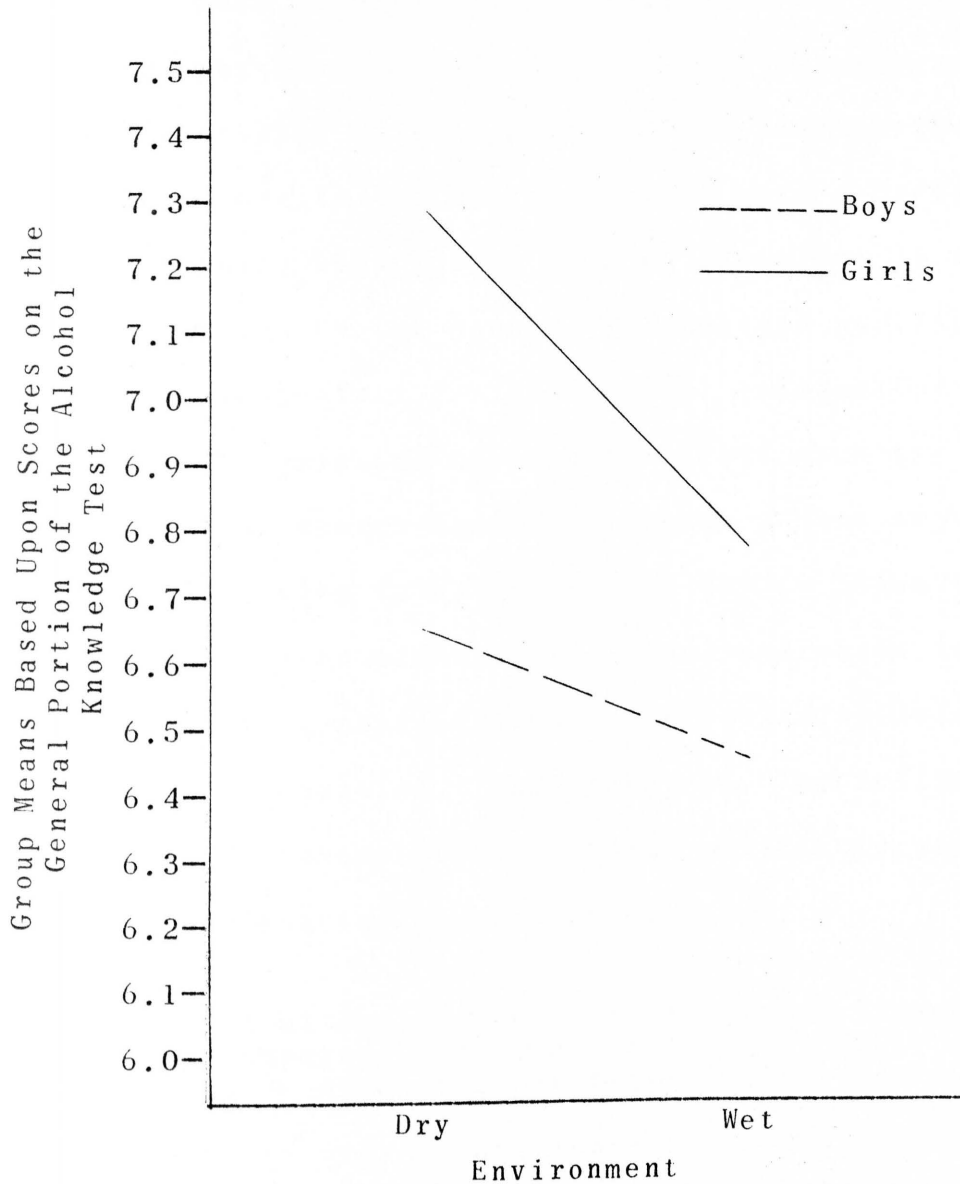


Fig. 6.--Graphic Presentation of the General Portion
of the Alcohol Knowledge Test
Group Means

scores were more affected by the scores on the general information portion. Since there were no significant differences in scoring on the physiological information portion, differences in the overall scores were attributed to the significantly high scores made by the girls in the "dry" environment on the general information portion of the "Alcohol Knowledge Test." This general information is possibly being disseminated by agencies other than the school. The home and the church sometimes preach a more negative and moralistic view to girls than to boys. Since this information is often offered by persons untrained in alcohol education, physiological aspects are not always taken into consideration. Unfortunately, the influence of these persons is exemplified by their ability to maintain the abstinence setting within the city limits.

Statistical Analysis of the "Attitudes Toward
Temperate and Irresponsible Use of
Alcoholic Beverages Scale"

The "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale" yielded three scores: a temperate or social use score (TU); an irresponsible use score (IU); and a combination score, which was composed of the total temperate use score and the total irresponsible use score. Table 15 reveals the means and standard

TABLE 15

MEANS AND STANDARD DEVIATIONS OF THE ATTITUDES TOWARD TEMPERATE AND
IRRESPONSIBLE USE OF ALCOHOLIC BEVERAGES SCALE

| | Wet | | | | Dry | | | |
|-------------------------|--------------|-------|---------------|-------|--------------|-------|---------------|-------|
| | Boys (n=188) | | Girls (n=257) | | Boys (n=216) | | Girls (n=388) | |
| | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. |
| Temperate Use Scale | 61.79 | 18.27 | 59.30 | 22.09 | 63.69 | 22.44 | 59.90 | 22.37 |
| Irresponsible Use Scale | 44.20 | 19.58 | 38.04 | 20.61 | 44.95 | 23.70 | 37.22 | 22.82 |
| Combination Scale | 105.42 | 33.63 | 99.55 | 54.21 | 108.65 | 43.57 | 97.01 | 42.38 |

deviations for temperate use, irresponsible use, and combination scores.

A study of Table 15 showed that the mean score of 63.69 for the "Temperate Use Scale" obtained by the boys in the "dry" environment, suggested most tolerant attitudes toward temperate or social use of alcohol were professed by this group. The mean scores of the other three groups were similar: 61.79 scored by boys in the "wet" environment, 59.90 scored by girls in the "dry" environment, and 59.30 scored by girls in the "wet" environment.

The highest mean scores on the "Irresponsible Use Scale" were attained by both groups of boys, 44.95 for boys in the "dry" environment and 44.20 for boys in the "wet" environment. Both groups of girls attained lower mean scores: girls in the "wet" environment scoring 38.04 and girls in the "dry" environment scoring 37.22. These data would suggest that boys had more tolerant attitudes toward irresponsible use of alcohol than did girls, regardless of environment.

The combination scores followed the same pattern, with boys in the "dry" environment professing the most tolerant attitudes toward all alcohol use and abuse. Their mean score of 108.65 was followed by the mean score of boys in the "wet" environment with 105.42. Girls in the

"wet" environment attained a mean score of 99.55, and girls in the "dry" environment obtained a mean score of 97.01.

The mean scores on the "Temperate Use Scale," the "Irresponsible Use Scale," and the "Combination Scale" were used in the analysis of the data. A two-way analysis of variance, method of unweighted means, was computed for each. The following null hypotheses were tested for the "Temperate Use Scale," at the .05 level of significance:

- A. Boys and girls in the "wet" and "dry" environments do not differ with respect to their scores on the "Temperate Use Scale."
- B. There is no significant difference between the "wet" environment and the "dry" environment with respect to scores on the "Temperate Use Scale."
- C. There is no significant difference between boys and girls with respect to their scores on the "Temperate Use Scale."

The Analysis of Variance Summary Table, Table 16, indicated there was no significant difference ($p > .05$) between boys and girls in the "wet" and "dry" environments with respect to their attitudes toward temperate use of alcohol. A comparison of group means using Duncan's Multiple Range Test, Table 17, showed there was one significant difference. The boys in the "dry" environment had more tolerant attitudes toward temperate use of alcohol

TABLE 16

ANALYSIS OF VARIANCE BETWEEN BOYS AND GIRLS IN SELECTED WET AND DRY
AREAS OF TEXAS IN RELATION TO THE TEMPERATE USE OF
ALCOHOLIC BEVERAGES SCALE

| Source | Degrees of freedom | Sum of Squares | Mean Square | F | p |
|----------------------|--------------------|----------------|-------------|---------|-------|
| Between environments | 1 | 369.2035 | 379.2035 | 0.8098 | n. s. |
| Between sexes | 1 | 2399.2600 | 2399.2600 | 5.1235* | .02 |
| Environment x sex | 1 | 101.3920 | 101.3920 | 0.2165 | n. s. |
| Error | 1045 | 489353.7105 | 468.2811 | | |

*Significant at the .05 level.

TABLE 17

DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
GROUP MEANS FOR THE TEMPERATE USE OF ALCOHOLIC
BEVERAGES SCALE

| | Girls in wet env. 59.2996 | Girls in dry env. 59.9021 | Boys in wet env. 61.7926 | Boys in dry env. 63.6852 | K | R(.05) | R(.01) |
|--------------------------------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|---|--------|--------|
| Girls in wet env. (59.2996) | _____ | .6025 | 2.4920 | 4.3856* | 4 | 4.1936 | 5.4210 |
| Girls in dry env. (59.9021) | _____ | _____ | 1.8905 | 3.7831 | 3 | 4.0560 | 5.2764 |
| Boys in wet env. (61.7926) | _____ | _____ | _____ | 1.8826 | 2 | 3.8531 | 5.0638 |

*Significant at the .05 level.

— Non-significant at the .05 level.

than did the girls in the "wet" environment. There was no significant difference between boys in the "dry" environment and "boys in the "wet" environment, nor between boys in the "dry" environment and girls in the "dry" environment. The non-significant interaction between environment and sex is shown in Figure 7 by the similar slopes of the two lines.

The only significant difference ($p < .05$) was reflected in the F ratio between sexes of the respondents. This value was a result of the significant difference between the boys in the "dry" environment and the girls in the "wet" environment.

The results of the analysis failed to reject null hypothesis C, there is no significant difference ($p > .05$) between boys and girls in the "wet" and "dry" environments with respect to their scores on the temperate use scale; any difference in scoring could be attributed to the natural variability within the groups.

The following null hypotheses were tested for the "Irresponsible Use Scale," at the .05 level of significance:

- A. Boys and girls in the "wet" and "dry" environments do not differ with respect to their scores on the "Irresponsible Use Scale."
- B. There is no significant difference between the "wet" environment and the "dry" environment with respect to

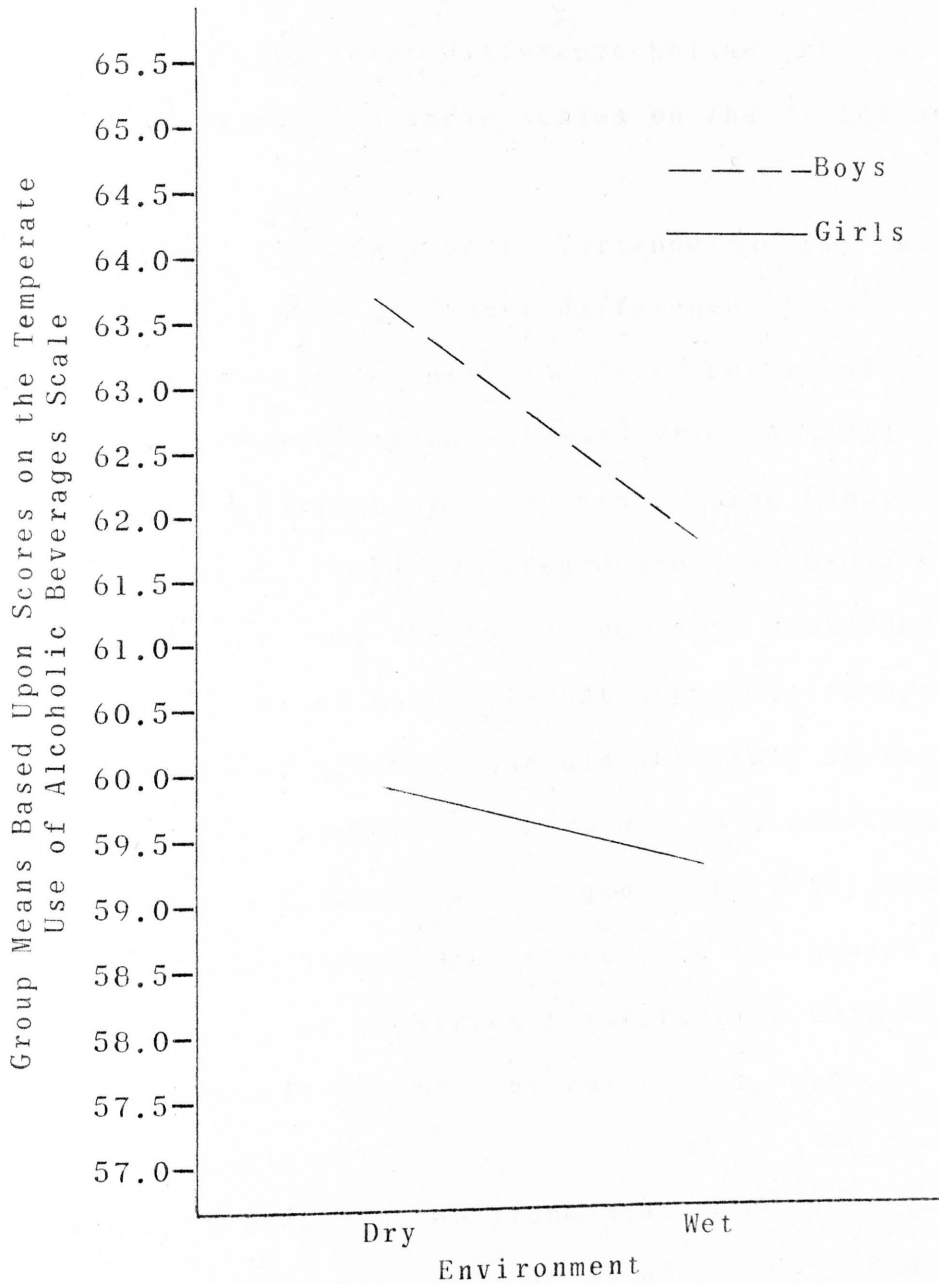


Fig. 7.--Graphic Presentation of the Temperate Use of Alcoholic Beverages Scale Group Means

the scores of tenth grade students on the "Irresponsible Use Scale."

- C. There is no significant difference between boys and girls with respect to their scores on the "Irresponsible Use Scale."

Table 18, the Analysis of Variance Summary Table, revealed there was no significant difference ($p > .05$) between boys and girls in "wet" and "dry" environments with respect to their attitudes toward irresponsible use of alcohol. A comparison of group means using Duncan's Multiple Range Test, Table 19, showed there were differences. The boys in both the "wet" and "dry" environments professed significantly more tolerant attitudes toward irresponsible use of alcohol than did the girls in the "wet" and "dry" environments. There was no significant difference ($p > .05$) between the two groups of boys, nor was there a significant difference between the two groups of girls. The absence of significant interaction between the sex of the respondent and the environment in which he lived was disclosed by Figure 8.

The main effect of environmental conditions on attitudes toward irresponsible use of alcohol yielded a non-significant F ratio. This value indicated environment had little effect on the irresponsible use score of the respondents.

TABLE 18

ANALYSIS OF VARIANCE BETWEEN BOYS AND GIRLS IN SELECTED WET AND DRY
AREAS OF TEXAS IN RELATION TO THE IRRESPONSIBLE USE OF
ALCOHOLIC BEVERAGES SCALE

| Source | Degrees of freedom | Sum of Squares | Mean Square | F | p |
|----------------------|--------------------|----------------|-------------|----------|-------|
| Between environments | 1 | 0.2721 | 0.2721 | 0.0006 | n. s. |
| Between sexes | 1 | 11749.5628 | 11749.5628 | 24.4190* | .0001 |
| Environment x sex | 1 | 152.1808 | 152.1808 | 0.3163 | n. s. |
| Error | 1045 | 502818.1632 | 481.1657 | | |

*Significant at the .01 level.

TABLE 19

DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
GROUP MEANS FOR THE IRRESPONSIBLE USE OF
ALCOHOLIC BEVERAGES SCALE

| | Girls in dry env. 37.2191 | Girls in wet env. 38.0428 | Boys in wet env. 44.1968 | Boys in dry env. 44.9537 | K | R(.05) | R(.01) |
|--------------------------------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|---|--------|--------|
| Girls in dry env. (37.2191) | _____ | .8237 | 6.977* | 7.7346* | 4 | 4.2238 | 5.4600 |
| Girls in wet env. (38.0428) | _____ | _____ | 6.1540* | 6.9109* | 3 | 4.0852 | 5.3144 |
| Boys in wet env. (44.1968) | _____ | _____ | _____ | .7569 | 2 | 3.8808 | 5.1002 |
| | ----- | | ----- | | | | |

*Significant at the .01 level.

|-----| Non-significant at the .05 level.

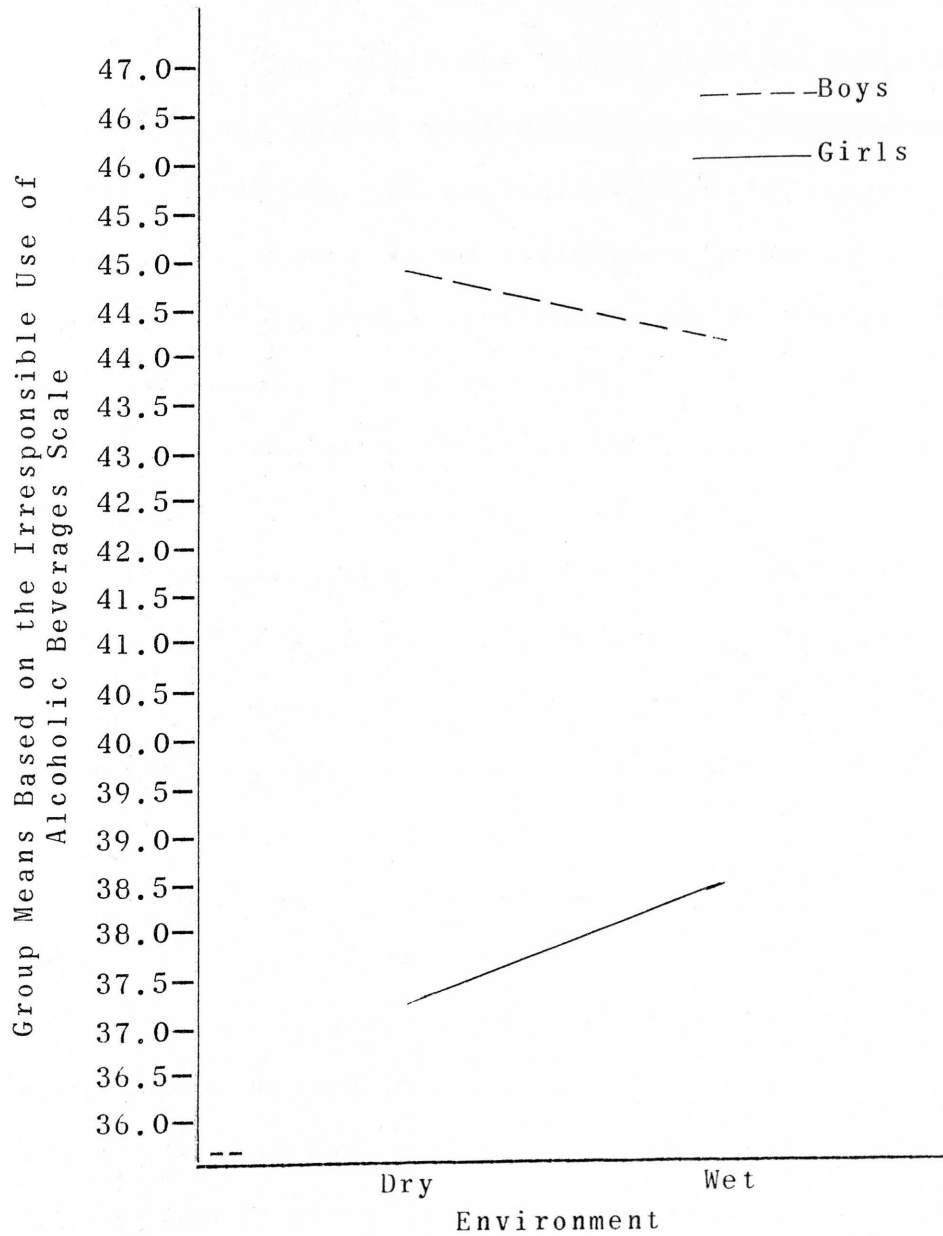


Fig. 8.--Graphic Presentation of the Irresponsible Use of Alcoholic Beverages Scale Group Means

The only significant difference ($p < .05$) was reflected in the F ratio between sexes of the respondents. Boys had more tolerant attitudes toward irresponsible use of alcohol than did girls, regardless of the environmental factor. The results of the analysis failed to support null hypothesis C, there is no difference between boys and girls with respect to their attitudes toward irresponsible use of alcohol; thus, it was rejected.

Null hypothesis B, there is no difference between the "wet" and the "dry" environment with respect to attitudes toward irresponsible use of alcohol, was not rejected at the .05 level of significance, indicating that any difference that occurred could best be explained by the natural variability within each group. Although the ANOVA summary table indicated a non-significant F ratio for hypothesis A, the combined effects of sex and environment, the Duncan's Multiple Range Table showed significant differences between both sex and environment: boys in the "dry" environment scored significantly above girls in the "wet" environment and boys in the "wet" environment scored significantly above girls in the "dry" environment. The overall trend of the data, however, indicated the sex of the respondent to be the most important factor in regard to attitudes toward irresponsible use of alcohol.

The following null hypotheses were tested for the "Combination Scale" at the .05 level of significance:

- A. Boys and girls in the "wet" and "dry" environments do not differ with respect to their attitudes toward temperate and irresponsible use of alcohol as shown on the "Combination Scale."
- B. There is no significant difference between the "wet" environment and the "dry" environment with respect to attitudes toward temperate and irresponsible use of alcohol as shown on the "Combination Scale."
- C. There is no significant difference between boys and girls with respect to their attitudes toward temperate and irresponsible use of alcohol as shown on the "Combination Scale."

Table 20, the Analysis of Variance Summary Table, revealed there was no significant difference ($p > .05$) between boys and girls in "wet" and "dry" environments with respect to their attitudes toward temperate and irresponsible use of alcohol. A comparison of group means, using Duncan's Multiple Range Test, Table 21, showed there were differences. Boys in the "dry" environment professed significantly more tolerant attitudes toward temperate and irresponsible use of alcohol than both girls in the "dry" environment and girls in the "wet" environment. There was

TABLE 20

ANALYSIS OF VARIANCE BETWEEN BOYS AND GIRLS IN SELECTED WET AND DRY
AREAS OF TEXAS IN RELATION TO THE COMBINATION SCALE OF TEMPERATE
AND IRRESPONSIBLE USE OF ALCOHOLIC BEVERAGES

| Source | Degrees of freedom | Sum of Squares | Mean Square | F | p |
|----------------------|-----------------------|-------------------|----------------|---------|-------|
| Between environments | 1 | 29.3573 | 29.3673 | 0.0148 | n. s. |
| Between sexes | 1 | 18684.2293 | 18684.2293 | 9.4458* | .0001 |
| Environment x sex | 1 | 2028.5632 | 2028.5632 | 1.0255 | n. s. |
| Error | 1045 | 2067066.3623 | 1978.0539 | | |

*Significant at the .01 level.

TABLE 21

DUNCAN'S MULTIPLE RANGE TEST FOR DIFFERENCES BETWEEN
GROUP MEANS FOR THE COMBINATION SCALE

| | Girls in dry env. 97.0103 | Girls in wet env. 99.5486 | Boys in wet env. 105.4202 | Boys in dry env. 108.6528 | K | R(.05) | R(.01) |
|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---|--------|---------|
| Girls in dry env. (97.0103) | _____ | 2.5383 | 8.4099* | 11.6425** | 4 | 8.5985 | 11.1150 |
| Girls in wet env. (99.5486) | _____ | _____ | 5.8716 | 9.1042* | 3 | 8.3163 | 10.8186 |
| Boys in wet env. (108.6528) | _____ | _____ | _____ | 3.2326 | 2 | 7.9000 | 10.3826 |
| <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> </div> <div style="text-align: center;"> </div> </div> | | | | | | | |

*Significant at the .05 level.

**Significant at the .01 level.

— Non-significant at the .05 level.

— Non-significant at the .01 level.

a non-significant difference between the attitudes of the boys in the "dry" environment and boys in the "wet" environment. Boys in the "wet" environment professed significantly more tolerant attitudes than girls in the "dry" environment. The two groups of girls did not score significantly different on the "Combination Scale." The graphic presentation of this data (Figure 9) reveals the lack of significant interaction.

The main effect of environmental conditions on attitudes toward temperate and irresponsible use of alcohol yielded a non-significant F ratio. This value indicated environment had little effect on the "Combination Scale" score of the respondents.

The only significant difference ($p < .05$) was reflected in the F ratio between sexes of the respondents. Boys in the "dry" area had more tolerant attitudes toward temperate and irresponsible use of alcohol than did girls in either environment; boys in the "wet" area professed more tolerant attitudes than did girls in the "dry" environment. The results of the analysis failed to support null hypothesis C, there is no difference between boys and girls with respect to their attitudes toward temperate and irresponsible use of alcohol; thus, it was rejected.

Null hypothesis B, there is no difference between the "wet" and the "dry" environment with respect to

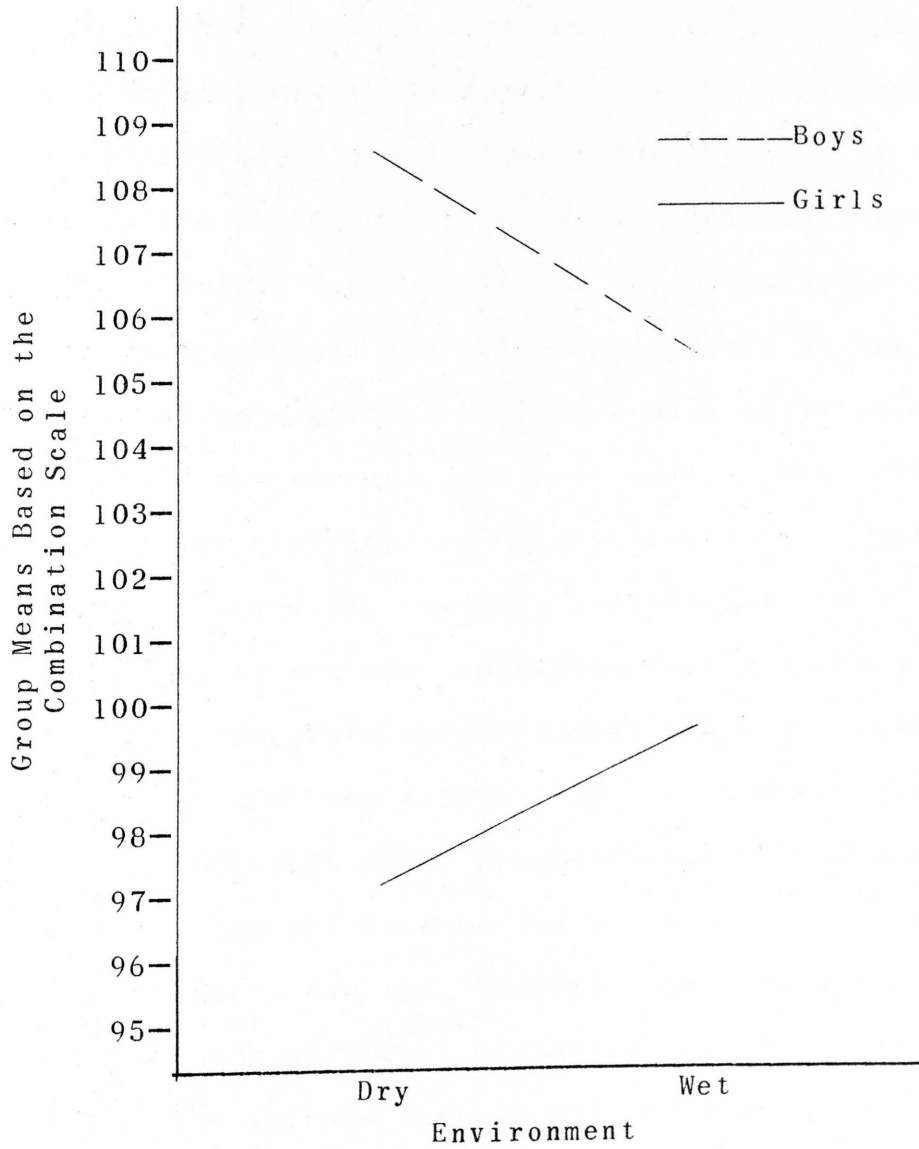


Fig. 9.--Graphic Presentation of the Combination Scale Group Means

attitudes toward temperate and irresponsible use of alcohol, was not rejected at the .05 level of significance, indicating any difference that occurred could best be explained by the natural variability within each group. Although the ANOVA summary table indicated a non-significant F ratio for null hypothesis A, the combined effects of sex and environment, the Duncan's Multiple Range Table did show significant differences between both sex and environment, boys in the "dry" environment scoring significantly above both girls in the "wet" and "dry" environments, and boys in the "wet" environment scoring above girls in the "dry" environment. The overall trend of the data, however, indicated the sex of the respondent to be the most important factor in regard to attitudes toward temperate and irresponsible use of alcohol.

The results of the analyses of the "Combination Scale" and its component parts revealed that the "Combination Scale" was more affected by the scores on the "Irresponsible Use Scale" than the "Temperate Use Scale." Since there was only one significant difference on the "Temperate Use Scale," the difference between boys in the "dry" environment as compared to girls in the "wet" environment, differences in the combination score were attributed to the significantly high scores made by boys in both environments on the "Irresponsible Use Scale." This fact suggested that

boys approved of excessive use of alcohol by themselves and others more so than girls. The accessibility of alcohol to boys and the pervasive social acceptance of male drinking could have accounted for the difference in attitude responses between boys and girls. The scoring trend of the four groups on the "Temperate Use Scale" suggested that tenth grade respondents recognize the concept of responsible drinking, and that they accept this type of alcohol use.

Correlation Analysis

To determine whether there were significant relationships between the reported drinking behavior of tenth grade students and their information about and attitudes toward alcohol use and abuse, simple Pearson Product-Moment Correlations were computed between: the overall score on the "Alcohol Knowledge Test"; the physiological information score of the "Alcohol Knowledge Test"; the general information score of the "Alcohol Knowledge Test"; the "Temperate Use Scale" score; the "Irresponsible Use Scale" score; the "Combination Scale" score; drinking classification; and the "Current Problems Index" score.

The correlation coefficients obtained between the overall score on the "Alcohol Knowledge Test" and the attitude scale scores were similar to the correlations obtained using the portions of the test; therefore, only the overall

test score was used for correlational purposes with the attitude scales. The correlation coefficients obtained between the overall score and the measures of reported drinking behavior were similar; therefore, only the overall test score was used for correlational purposes with reported drinking behavior.

The correlation coefficients obtained between the "Temperate Use Scale" and the "Alcohol Knowledge Test" were different from the coefficients obtained using the "Irresponsible Use Scale" and the "Alcohol Knowledge Test"; thus, both scales were used for correlational purposes with the overall score on the "Alcohol Knowledge Test."

The "Temperate Use Scale" correlation coefficients were different from the "Irresponsible Use Scale" coefficients in relation to reported drinking behavior; thus, both scales were used for correlational purposes with reported drinking behavior.

A fairly strong relationship was found between drinking classification and "Current Problems Index" score. For correlation with information and attitudes, drinking classification was used as the measure of reported drinking behavior.

Table 22 presents the correlation coefficients for boys in the "dry" environment. The correlation of the

TABLE 22

CORRELATION COEFFICIENTS FOR BOYS IN SELECTED DRY AREAS OF TEXAS

| | Overall information | Physiological portion | General portion | Temperate Use Scale | Irresponsible Use Scale | Combination Scale | Drinking Classification | Current Prob- lems Index |
|----------------------------|------------------------|--------------------------|--------------------|------------------------|----------------------------|----------------------|----------------------------|-----------------------------|
| Overall information | | .83* | .88* | -.05 | -.23* | -.15* | -.27* | -.26* |
| Physiological portion | | | .47* | .02 | -.12 | -.05 | -.23* | -.25* |
| General portion | | | | -.09 | -.27* | -.20* | -.23* | -.19* |
| Temperate Use Scale | | | | | .78* | .94* | .55* | .33* |
| Irresponsible Use Scale | | | | | | .95* | .73* | .57* |
| Combination Scale | | | | | | | .68* | .48* |
| Drinking Classification | | | | | | | | .74* |

*Significant at .05 level.

Table r = .13

"Alcohol Knowledge Test" with drinking classification produced a slight negative relationship ($r = -.27$), suggesting that those respondents who scored lowest on the "Alcohol Knowledge Test" tended to report a higher drinking classification. This relationship was statistically significant ($p < .05$); however, significance is only an estimate of the likelihood the relationship would occur by chance; it is not a judgment of the strength of the correlation. As shown in Table 22, this correlation was not very strong; thus, no further use was made of the relationship between information and reported drinking behavior of boys in the "dry" environment.

The "Alcohol Knowledge Test" was correlated with the "Temperate Use Scale" scores and the "Irresponsible Use Scale" scores. A negligible relationship ($r = -.05$) was found between the "Alcohol Knowledge Test" and the "Temperate Use Scale." A slight negative relationship ($r = -.27$) was found between the "Alcohol Knowledge Test" and the "Irresponsible Use Scale," suggesting that those who scored lowest on the "Alcohol Knowledge Test" showed a very slight tendency to have more tolerant attitudes toward irresponsible use of alcohol. The relationship, although significant, was so slight that no further use was made of the correlation between information and attitudes toward temperate and irresponsible use of alcohol by boys in the "dry" environment.

There was a moderate positive relationship ($r=.55$) between the "Temperate Use Scale" and drinking classification, suggesting that those who had more tolerant attitudes toward social drinking reported a higher drinking classification. There was a stronger relationship ($r=.73$) between the "Irresponsible Use Scale" and drinking classification; the conclusion was drawn, therefore, that those who professed the more tolerant attitudes toward irresponsible use of alcohol were those who drank the most and had the most problems with alcohol use and abuse.

The relationship between the "Temperate Use Scale" and drinking classification and between the "Irresponsible Use Scale" and drinking classification were strong enough to compute a multiple correlation coefficient based upon these data. No significant differences were found between boys in the "dry" environment and boys in the "wet" environment with respect to attitudes and reported drinking behavior; therefore, the groups were combined for this analysis. The results will be discussed after the interpretation of Table 23, Correlation Coefficients for Boys in Selected "Wet" Areas of Texas.

Table 23 reveals the correlation coefficients for boys in the "wet" environment. The correlation of the "Alcohol Knowledge Test" with drinking classification

TABLE 23

CORRELATION COEFFICIENTS FOR BOYS IN SELECTED WET AREAS OF TEXAS

| | Overall information | Physiological portion | General portion | Temperate Use Scale | Irresponsible Use Scale | Combination Scale | Drinking Classification | Current Prob- lems Index |
|----------------------------|------------------------|--------------------------|--------------------|------------------------|----------------------------|----------------------|----------------------------|-----------------------------|
| Overall information | | .83* | .87* | .05 | -.23* | -.13 | -.24* | -.20* |
| Physiological portion | | | .44* | .00 | -.20* | -.12 | -.21* | -.14 |
| General portion | | | | .07 | -.19* | -.11 | -.19* | -.19* |
| Temperate Use Scale | | | | | .65* | .88* | .46* | .33* |
| Irresponsible Use Scale | | | | | | .88* | .63* | .48* |
| Combination Scale | | | | | | | .59* | .45* |
| Drinking Classification | | | | | | | | .72* |

*Significant at .05 level.

Table $r_{188} = .15$

produced a slight negative relationship ($r = -.24$), suggesting that boys in the "wet" environment who scored lowest on the "Alcohol Knowledge Test" also tended to report a higher drinking classification. This correlation, although significant, was not very strong; thus, no further use was made of the relationship between information and reported drinking behavior of boys in the "wet" environment.

The "Alcohol Knowledge Test" was correlated with the "Temperate Use Scale" and the "Irresponsible Use Scale." A negligible relationship ($r = .05$) was found between the "Alcohol Knowledge Test" and the "Temperate Use Scale." A slight negative relationship ($r = -.23$) was found between the "Alcohol Knowledge Test" and the "Irresponsible Use Scale," suggesting that those who scored lowest on the "Alcohol Knowledge Test" showed a slight tendency to profess more tolerant attitudes toward irresponsible use of alcohol. The relationship, although significant, was so slight that no further use was made of the correlation between information and attitudes toward temperate and irresponsible use of alcohol by boys in the "wet" environment.

There was a moderate positive relationship ($r = .46$) between the "Temperate Use Scale" and drinking classification, suggesting that those who had more tolerant attitudes

toward social drinking reported a higher drinking classification. There was a stronger relationship ($r=.63$) between the "Irresponsible Use Scale" and drinking classification in the "wet" area, also; those who professed the more tolerant attitudes toward irresponsible use of alcohol were those who drank the most and had the most problems with alcohol use and abuse.

The relationship between the "Temperate Use Scale" and drinking classification, and between the "Irresponsible Use Scale" and drinking classification, was strong enough to compute a multiple correlation coefficient based upon these data. The boys in the "wet" environment were combined with the boys in the "dry" environment for this computation. The multiple coefficient ($R=.68$) revealed that these responses could not be used together to gain a stronger relationship for a more accurate predictive basis for reported drinking behavior, since the simple correlation of reported drinking behavior with the "Irresponsible Use Scale" was the same ($r=.68$). These data indicated that the "Irresponsible Use Scale" could be used just as accurately for a simple regression analysis as the combined TU-IU coefficient could be used for multiple regression; however, neither were strong enough to be considered as a basis for attempting a productive regression analysis.

Table 24 presents the correlation coefficients for girls in the "dry" environment. The correlation of the "Alcohol Knowledge Test" overall score with drinking classification produced a negligible relationship ($r=-.08$).

The "Alcohol Knowledge Test" was correlated with the "Temperate Use Scale" and the "Irresponsible Use Scale." A negligible relationship ($r=-.03$) was found between the "Alcohol Knowledge Test" and the "Temperate Use Scale." A slight negative relationship ($r=-.23$) was found between the "Alcohol Knowledge Test" and the "Irresponsible Use Scale," suggesting that those who scored lowest on the "Alcohol Knowledge Test" showed a slight tendency to have more tolerant attitudes toward irresponsible use of alcohol. The relationship, although significant, was so slight that no further use was made of the correlation between information and attitudes toward temperate and irresponsible use of alcohol by girls in the "dry" environment.

There was a moderate positive relationship ($r=.60$) between the "Temperate Use Scale" and drinking classification, suggesting that those who had more tolerant attitudes toward social drinking reported a higher drinking classification. There was a stronger relationship ($r=.70$) between the "Irresponsible Use Scale" and drinking classification. The conclusion was drawn, therefore, that those who

TABLE 24

CORRELATION COEFFICIENTS FOR GIRLS IN SELECTED DRY AREAS OF TEXAS

| | Overall information | Physiological portion | General portion | Temperate Use Scale | Irresponsible Use Scale | Combination Scale | Drinking Classification | Current Prob- lems Index |
|----------------------------|------------------------|--------------------------|--------------------|------------------------|----------------------------|----------------------|----------------------------|-----------------------------|
| Overall information | | .83* | .86* | -.03 | -.23* | -.14* | -.08 | -.08 |
| Physiological Portion | | | .42* | -.01 | -.18* | -.10* | -.04 | -.07 |
| General portion | | | | -.04 | -.21 | -.13* | -.09 | -.07 |
| Temperate Use Scale | | | | | .75* | .94* | .60* | .42* |
| Irresponsible Use Scale | | | | | | .94* | .70* | .58* |
| Combination Scale | | | | | | | .70* | .53* |
| Drinking Classification | | | | | | | | .79* |

*Significant at .05 level.

Table $r = .10$

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professed the more tolerant attitudes toward irresponsible use of alcohol were those who drank the most and had the most problems with alcohol use and abuse.

The relationship between the "Temperate Use Scale" and drinking classification, and between the "Irresponsible Use Scale" and drinking classification, were strong enough to compute a multiple correlation coefficient based upon these data. No significant differences were found between girls in the "dry" environment and girls in the "wet" environment with respect to attitudes and reported drinking behavior; therefore, the groups were combined for this analysis. The results will be discussed after the interpretations of Table 25, Correlation Coefficients for Girls in Selected "Wet" Areas of Texas.

Table 25 reveals the correlation coefficients for girls in the "wet" environment. The correlation of the "Alcohol Knowledge Test" with drinking classification produced a negligible relationship ($r = .02$).

The "Alcohol Knowledge Test" was correlated with the "Temperate Use Scale" and the "Irresponsible Use Scale." A negligible relationship ($r = .01$) was found between the "Alcohol Knowledge Test" and the "Temperate Use Scale." A slight negative relationship ($r = -.20$) was found between the "Alcohol Knowledge Test" and the "Irresponsible Use Scale,"

TABLE 25

CORRELATION COEFFICIENTS FOR GIRLS IN SELECTED WET AREAS OF TEXAS

| | Overall information | Physiological portion | General portion | Temperate Use Scale | Irresponsible Use Scale | Combination Scale | Drinking Classification | Current Prob- lems Index |
|----------------------------|------------------------|--------------------------|--------------------|------------------------|----------------------------|----------------------|----------------------------|-----------------------------|
| Overall information | _____ | .82* | .84* | .01 | -.20* | -.06 | .02 | -.03 |
| Physiological portion | _____ | _____ | .40* | -.02 | -.14* | -.04 | -.01 | -.04 |
| General portion | _____ | _____ | _____ | .01 | -.21* | -.07 | .03 | -.01 |
| Temperate Use Scale | _____ | _____ | _____ | _____ | .68* | .64* | .57* | .40* |
| Irresponsible Use Scale | _____ | _____ | _____ | _____ | _____ | .62* | .58* | .46* |
| Combination Scale | _____ | _____ | _____ | _____ | _____ | _____ | .40* | .30* |
| Drinking Classification | _____ | _____ | _____ | _____ | _____ | _____ | _____ | .73* |

*Significant at .05 level.

Table $r_{257} = .12$.

again suggesting that girls who scored lowest on the "Alcohol Knowledge Test" showed a slight tendency to have more tolerant attitudes toward irresponsible use of alcohol. This correlation, although significant, was not very strong; thus, no further use could be made of the relationship between information and attitudes toward temperate and irresponsible use of alcohol by girls in the "wet" environment.

There was a moderate positive relationship ($r=.57$) between the "Temperate Use Scale" and drinking classification, suggesting that those who had more tolerant attitudes toward social drinking reported a higher drinking classification. There was a moderate positive relationship ($r=.58$) between the "Irresponsible Use Scale" and drinking classification. The conclusion was drawn, therefore, that those who professed the more tolerant attitudes toward both temperate and irresponsible use of alcohol were those who drank the most and had the most problems with alcohol use and abuse.

The relationship between the "Temperate Use Scale" and drinking classification, and between the "Irresponsible Use Scale" and drinking classification, were strong enough to compute a multiple correlation coefficient based upon these data. The girls in the "wet" environment were

combined with the girls in the "dry" environment for this computation. The multiple coefficient ($R=.68$) revealed that the "Temperate Use Scale" and the "Irresponsible Use Scale" responses could not be used together to gain a stronger relationship for a more accurate predictive basis for reported drinking behavior, since the simple correlation of reported drinking behavior scores with the "Irresponsible Use Scale" was slightly less ($r=.64$). The "Irresponsible Use Scale" coefficient could be considered almost as reliable as the combined TU-IU coefficient; however, neither were strong enough to be considered as a basis for attempting a productive regression analysis.

Summary

In this chapter, the results of the investigation to determine relationships between information and attitudes toward alcohol use and abuse to the reported drinking behavior of tenth grade students in selected "wet" and "dry" areas of Texas were presented. The subjects were divided into four groups for analyses of the data: boys from the "wet" environment, boys from the "dry" environment, girls from the "wet" environment, and girls from the "dry" environment.

Each student was classified as to his reported drinking behavior, according to his responses on the

behavioral questionnaire. Individual scores were then determined on the "Current Problems Index." Those students whose combined scores met the criteria for "problem drinker" were classified as such.

Reported drinking behavior of the four groups was analyzed by computing two-way analyses of variance for drinking classification and the "Current Problems Index" scores. Both measures revealed that boys evidenced heavier drinking and more problem drinking than did girls, regardless of environment. The possibility exists that the environments were more homogeneous than the definitions seemed to suggest. The availability of alcohol outside the city limits and the possible presence of "bootleggers" in the "dry" areas could have helped to account for the non-significant difference between environments.

Information concerning alcohol use and abuse was analyzed by computing two-way analyses of variance for the overall "Alcohol Knowledge Test" score and its component parts, physiological and general information scores. The results revealed that the overall scores were more affected by the scores on the general information portion. There were no significant differences in the scores on the physiological information portion. Differences in the overall scores were attributed to the significantly higher

scores made by the girls in the "dry" environment on the general information portion of the test. This general information is possibly being disseminated by agencies other than the schools. The home and the church sometimes preach a more biased, negative, and moralistic view to girls than to boys. Since this information is often offered by persons untrained in alcohol education, physiological aspects are not always taken into consideration. Unfortunately the influence of these persons is exemplified by their ability to maintain the abstinence setting within the city limits.

Analysis of the "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale" was accomplished by two-way analyses of variance on the "Temperate Use Scale," the "Irresponsible Use Scale," and the "Combination Scale." The results revealed that the "Combination Scale" was affected more by the "Irresponsible Use Scale" than the "Temperate Use Scale." There was only one significant difference on the "Temperate Use Scale," the difference between boys in the "wet" environment in relation to girls in the "dry" environment. This fact would suggest that tenth grade students in these areas professed more tolerant attitudes toward temperate use of alcohol, regardless of environment or sex. The significant

difference on the attitude scale was in relation to the "Irresponsible Use Scale," where boys professed more tolerant attitudes toward irresponsible use of alcohol than did girls, regardless of environment. The accessibility of alcohol to boys and the pervasive social acceptance of male drinking could account for the difference in attitude responses between boys and girls. The scoring trend of the four groups on the "Temperate Use Scale" suggested that tenth grade respondents recognize the concept of responsible drinking, and that they accept this type of alcohol use.

To determine whether significant relationships existed between information and attitudes concerning alcohol use and abuse to reported drinking behavior, simple Pearson Product-Moment correlations were computed for the eight variables. The "Alcohol Knowledge Test," the "Temperate Use Scale," the "Irresponsible Use Scale," and drinking classification were used as measures of information, attitudes, and behavior. There was no strong correlation between information and behavior, nor was there a strong correlation between information and attitudes in any of the four groups. The mean scores of all groups on the "Alcohol Knowledge Test" were considered very low; therefore, no strong relationship could have existed between information and attitudes, nor between information and behavior.

There were no significant differences between attitudes and reported drinking behavior of students in the "wet" and "dry" environments; thus, the two groups of boys and the two groups of girls were combined for correlation of attitudes with behavior. In both cases, moderate positive relationships were found between attitude scale scores and drinking classification. The "Irresponsible Use Scale" showed a stronger relationship to drinking classification than did the "Temperate Use Scale." Multiple correlation coefficients were computed using the combined TU-IU coefficients; however, neither simple nor multiple coefficients were strong enough to be considered as a basis for attempting productive regression analysis.

A summary and discussion of the study, conclusions based upon the findings, and recommendations for alcohol education programs, counseling programs, and further studies are presented in Chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The social aspect of teen-age drinking has come to be regarded as an important correlate of a behavior once thought to be dependent solely upon a physical or psychological need. Studies in the past have attempted to define some of the factors that lead the adolescent to alcohol use and abuse.

The present investigation entailed a study to determine relationships of information and attitudes about alcohol to the reported drinking behavior of tenth grade students in selected high schools in four Texas cities. In Abilene and Lubbock, the sale of alcoholic beverages is illegal within the city limits, and in Odessa and Waco, beer and/or liquor can be sold legally within the city limits. The "Alcohol Knowledge Test," the "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages Scale," and a behavioral questionnaire were administered to 760 tenth grade girls and 555 tenth grade boys.

The subjects were divided into four groups for analyses of the data: boys from the "wet" environment,

boys from the "dry" environment; girls from the "wet" environment, and girls from the "dry" environment. Each student was classified as to his reported drinking behavior, according to his responses on the behavioral questionnaire. Individual scores were then determined on the "Current Problems Index." Those students whose combined scores met the criteria for "problem drinker" were classified as such.

Reported drinking behavior of the four groups was analyzed by computing two-way analyses of variance for drinking classification and the "Current Problems Index" scores. Both measures revealed that boys reported heavier drinking practices and more problem drinking behavior than did girls, regardless of the environment. Similar studies related to drinking behavior included the research by the Mrs. John S. Shephard Foundation during the early 1950's, Globetti's study in Mississippi, Nelson's study in Utah, and Forslund and Gustafson's investigation in New Mexico. All attained the same general conclusion as that achieved by the present investigation.

The findings of the present study also revealed that problem drinking existed at the tenth grade level. The most recurrent problem expressed was in the area of "frequent intoxication." There were few problems associated with "symptomatic drinking," "psychological dependence,"

"interpersonal relations," or "binge drinking." There was a greater percentage of problem drinkers in the "dry" environment than in the "wet" environment, regardless of the sex; otherwise, there was no significant difference between environments as to reported drinking behavior. Globetti's study reported that more students drank where alcohol sales were legal. These data differ from the present findings that revealed no differences in the percentages of students who drank, regardless of the environment. The possibility exists that, in the present study, the environments were more homogeneous than the definitions seemed to suggest. The availability of alcohol outside the city limits and the possible presence of "bootleggers" in the "dry" areas could have helped to account for the non-significant difference between environments.

Information concerning alcohol use and abuse was analyzed by computing two-way analyses of variance for the overall "Alcohol Knowledge Test," and its component parts, physiological and general information scores. Differences in the overall scores were attributed to the significantly higher scores made by girls in the "dry" environment on the general information portion of the test, since there were no significant differences in the scores on the physiological portion of the test. This general information

is possibly being disseminated by agencies other than the school. The home and the church sometimes preach a more negative and moralistic view to girls than to boys. Since this information is often offered by persons untrained in alcohol education, physiological aspects are not always taken into consideration. Unfortunately, the influence of these persons is exemplified by their ability to maintain the abstinence setting within the city limits.

The four groups of students expressed similar, tolerant attitudes toward temperate use of alcohol in social contexts. Boys in both environments professed more tolerant attitudes toward irresponsible use than did girls in both environments. Blane, Hill, and Brown previously found boys' attitudes more favorable toward irresponsible use of alcohol than girls' attitudes; however, these authors also reported boys' attitudes were more tolerant toward temperate use of alcohol.

The accessibility of alcohol to boys and the pervasive social acceptance of male drinking could account for the difference in attitude responses between the boys and the girls. The scoring trend of the four groups on the "Temperate Use Scale" suggested that tenth grade students recognize the concept of responsible drinking, and that they accept this type of alcohol use.

Simple Pearson Product-Moment correlations were computed to determine relationships of information and attitudes about alcohol use and abuse to reported drinking behavior. The findings revealed no strong relationships between information and attitudes, nor between information and behavior, of tenth grade boys and girls, regardless of the environment. The low mean score on the information test could account for the slight relationships that were found. There were fairly strong positive relationships between attitudes and behavior; thus, boys and girls who professed more tolerant attitudes toward alcohol use and abuse tended to rate themselves higher on the drinking classification scale.

A multiple correlation analysis was computed to determine whether the "Temperate Use Scale" and the "Irresponsible Use Scale" could be used together to provide a basis for regression analysis; however, the multiple correlation analyses did not yield stronger coefficients than the simple correlation coefficients. Neither simple nor multiple correlation coefficients were strong enough to be considered as the bases for attempting productive regression analyses.

Conclusions

The findings revealed that boys and girls in the "wet" and "dry" environments do not differ with respect to their information about alcohol use and abuse, their attitudes toward alcohol use and abuse, and their reported drinking behavior. Any significant differences found were attributed to either the main effect of sex of the respondent or the influence of the environment in which the respondent lived.

It was concluded further that no strong relationships existed between information and attitudes of tenth grade boys and girls with respect to alcohol use and abuse, nor did strong relationships exist between information and behavior. Significant positive relationships did exist between attitudes toward temperate and irresponsible use of alcohol and reported drinking behavior. Since the obtained correlation coefficients were not of sufficient strength, responses on the attitude scales could not be used as the basis for a regression analysis.

Recommendations for Alcohol Education Programs

"Alcohol education becomes more complex as research discovers more about the effects of alcohol on the human

body."¹ The low mean score on the "Alcohol Knowledge Test" suggested that teachers were not making these programs relevant to the needs of the students. The following guidelines were suggested, based upon the findings of this study:

Alcohol Education programs should:

- A. Stress the need for a greater understanding of the effects of alcohol on the human body. These effects should be related to the adolescent and his body.
- B. Explain that persons who evidence "problems" with alcohol are not necessarily "alcoholics."
- C. Assist students with an understanding of the early signs of "problem drinking" in adolescence.
- D. Assist students with an understanding of the role of emotions in "problem drinking."
- E. Discuss the social aspects of drinking in the context of behavioral objectives.
- F. Enable students to understand the causes of intoxication and why frequent intoxication can lead to more severe interpersonal problems.
- G. Teach students tolerance toward other persons' attitudes in regard to alcohol use or non-use.

¹Frances Todd, Teaching About Alcohol (New York: McGraw-Hill Book Co., 1964), p. v.

Recommendations for Counseling Problem or
Potential Problem Drinkers

"If we are to become engaged in prevention, we must change our focus from an exclusive attention to normal drinking and/or full blown alcoholism, and begin to focus on what we refer to as 'alcohol related problems.'"¹ The presence of problem drinkers in the tenth grade suggested the need for appropriately prepared personnel to counsel adolescents who have problems or potential problems with alcohol abuse. Counselors of adolescents with alcohol problems or potential problems should realize that:

- A. Students need facts upon which to base decisions.
- B. Avenues must be found within the school to discover the problem or potential problem drinker; these students must be encouraged to speak with someone who understands the problem and is able to communicate on a positive level with the students.
- C. A value judgment should not be made about the adolescent who has a drinking problem; otherwise, the student will be unable to identify some of the underlying factors which could be causing the problem.
- D. It is necessary for counselors and others to become

¹Frontiers of Alcoholism, edited by Morris E. Chafetz, Howard T. Blane, and Marjorie J. Hill (New York: Science House, 1970), p. 257.

actively involved in the alcohol education program within the school.

- E. More recent material must be made available for the adolescent to help him make the proper choice(s) pertaining to the use of alcohol.
- F. Social pressures which influence the adolescents' attitudes and behavior with respect to alcohol should be taken into consideration.

Recommendations for Further Studies

After conducting the present study, the investigator recommends that the following studies be undertaken:

- A. A study to determine the relationships of information and attitudes to reported drinking behavior of eleventh and/or twelfth grade students.
- B. A study to determine the relationships of information and attitudes to reported drinking behavior of college students.
- C. A study to determine the relationships of information and attitudes to reported drinking behavior of students in rural areas of the State of Texas.
- D. A pilot study to determine the effect of an alcohol education program upon the reinforcement of information, attitudes, and behavior of high school students.

- E. A pilot study to determine the effect of an alcohol education program upon the reinforcement of information, attitudes, and behavior of college students.
- F. A study to determine the differences between information, attitudes, and behavior of students who live in large urban areas as compared to those who live in small urban or rural areas.
- G. A longitudinal study of ninth grade students and their information, attitudes, and reported drinking behavior during high school.
- H. A comparison of the information, attitudes, and behavior of high school athletes and non-athletes with respect to alcohol use and abuse.
- I. A comparison of the information, attitudes, and behavior of college athletes and non-athletes with respect to alcohol use and abuse.
- J. A comparison of the information, attitudes, and behavior of socio-cultural groups within the high school environment with respect to alcohol use and abuse.
- K. A comparison of the attitudes of high school students toward alcohol use and abuse to other drug use and abuse.
- L. A study of student information, attitudes, and behavior with respect to alcohol use and abuse compared to their parents' information, attitudes, and behavior with respect to alcohol use and abuse.

- M. A study of the information, attitudes, and behavior of high school health education teachers in the State of Texas with respect to alcohol use and abuse and its context within the total health education curriculum as suggested by the Texas Education Agency.

APPENDIX A

INSTRUCTIONS FOR THE KNOWLEDGE TEST

Please turn to the page in front of you marked "Alcohol Knowledge Test" and also take out the remaining answer sheet with 40 multiple choice answer sets.

All answers are to be marked on the answer sheet. Please answer each question to the best of your ability, marking your answer sheet a, b, c, d, or e, by circling the appropriate letter. Do not ask me any questions. If there is a word that you do not know, you will have to try to answer the question without knowledge of the meaning of the word, for I cannot answer any questions for you.

ALCOHOL KNOWLEDGE TEST

Prepared by Berneda Benson
Texas Woman's University
1966

1. According to some authorities, the proportion of young people in the United States who will become alcoholics is one out of
 - a. Fifteen.
 - b. Eighteen.
 - c. Twenty.
 - d. Twenty-five.
 - e. Thirty.
2. The most immediate effects of alcohol are those on the
 - a. Liver.
 - b. Heart.
 - c. Brain.
 - d. Digestive tract.
 - e. Muscles.
3. Which of the following is affected first when people drink alcoholic beverages?
 - a. Disturbed reaction time and coordination
 - b. Disturbed vision and speech
 - c. Disturbed judgment and removed inhibitions
 - d. Disturbed balance and coordination
 - e. Disturbed walking and standing
4. Life insurance companies consider alcoholics bad risks because they
 - a. Lack respect for others.
 - b. Often do not keep up their payments.
 - c. Lack family responsibility.
 - d. Won't carry big policies.
 - e. Have a shorter life span.

5. Alcohol taken in small amounts often creates a false sense of well-being. This would
 - a. Increase one's chances of having an accident.
 - b. Decrease one's chances of having an accident.
 - c. Have no effect on one's driving.
 - d. Improve one's driving efficiency.
 - e. Encourage carefulness.
6. Taking a drink of water "the morning after the night before" when considerable beer has been drunk will produce intoxication.
 - a. Never
 - b. Always
 - c. Sometimes
 - d. Rarely
 - e. Frequently
7. Alcohol used in moderation over a number of years will cause
 - a. Permanent damage to the nerve tissue.
 - b. No damage to the nerve tissue.
 - c. Temporary paralysis of the nerve tissue.
 - d. Acute inflammation of the nerve tissue.
 - e. Irritation of the nerve tissue.
8. For the average individual weighing 150 pounds, 3 ounces of pure alcohol taken within a one-hour period will
 - a. Not affect driving ability.
 - b. Make one a more cautious driver.
 - c. Render an individual unfit to drive.
 - d. Increase one's driving skills.
 - e. Make the driver more alert.
9. For the average person, one ounce of alcohol taken on an empty stomach will
 - a. Interfere with reflexes and coordination.
 - b. Not affect muscle coordination.
 - c. Increase muscle coordination.
 - d. Make one more alert.
 - e. Slow heart action.
10. The causes of alcoholism are

- a. Physical, psychological, and social.
 - b. Heredity and poor environment.
 - c. Nutritional deficiencies.
 - d. Economic depression and poor health.
 - e. Poor social environments.
11. Alcoholic beverages taken in cold weather will
- a. Increase the body's temperature.
 - b. Lower the body temperature.
 - c. Keep a person from freezing.
 - d. Increase the body's resistance to cold.
 - e. Constrict the blood vessels.
12. The greatest single danger to young people from drinking is
- a. Alcoholism.
 - b. Automobile accidents.
 - c. Personal and social consequences of intoxication.
 - d. Brain damage.
 - e. Social disapproval.
13. Intoxication is caused by the effect of alcohol on the
- a. Brain.
 - b. Lungs.
 - c. Liver.
 - d. Kidneys.
 - e. Muscles.
14. Of the following, which home condition has been shown to be related to incidence of alcoholism in the later life of children?
- a. Wealth
 - b. Poor health status of the family
 - c. Poverty
 - d. Parents of low intelligence
 - e. Family discord and divorce
15. The same amount of alcohol affects
- a. Everybody in the same way.
 - b. Larger persons more than smaller ones.
 - c. Smaller persons more than larger ones.
 - d. Adults more than teenagers.
 - e. Teenagers more than adults.

16. Children who become alcoholics are more apt to come from homes where the parents are
 - a. Non-drinkers.
 - b. Moderate drinkers.
 - c. Occasional drinkers.
 - d. Alcoholics.
 - e. Heavy drinkers.
17. Of the following effects of the use of alcohol, which one is the most directly due to the lowering of the normal inhibitions of the drinker?
 - a. Crime
 - b. Family problems
 - c. Poverty
 - d. Sexual promiscuity
 - e. Personality problems
18. There are several kinds of alcohol, but the one found in alcoholic beverages is
 - a. Methyl alcohol.
 - b. Ethyl alcohol.
 - c. Amyl alcohol.
 - d. Wood alcohol.
 - e. Denatured alcohol.
19. In the United States, the most commonly used alcoholic beverages are
 - a. The brewed ones--beer and ale.
 - b. Brandy, gin, and ale.
 - c. Whiskey, gin, and vodka.
 - d. Wine and brandy.
 - e. Whiskey and wine.
20. Aspirin taken with Coca-Cola will
 - a. Produce intoxication similar to alcohol intoxication.
 - b. Not produce any type of intoxication.
 - c. Act as a depressant.
 - d. Have no effect.
 - e. Make one less mentally alert.
21. Recent studies of 8,000 high school students' drinking habits and attitudes indicate that their drinking patterns are closely related to

- a. Drinking practices of their companions.
 - b. Drinking practices of their parents.
 - c. Drinking practices of the society in which they live.
 - d. Attitudes of the community to drinking.
 - e. Parents' social and economic status.
22. In the United States, the two chief causes of arrest by law enforcement agencies are
- a. Assault and intoxication.
 - b. Robbery and intoxication.
 - c. Traffic violations and intoxication.
 - d. Car theft and intoxication.
 - e. Gambling and intoxication.
23. The chief characteristic of an alcoholic is his
- a. Lack of responsibility.
 - b. Lack of ambition.
 - c. Inability to get along with people.
 - d. Uncontrollable drinking.
 - e. Lack of education.
24. According to figures released by the F. B. I., what per cent of all the crimes committed in the United States are associated with alcohol?
- a. Ten per cent
 - b. Twenty-five per cent
 - c. Thirty-three per cent
 - d. Fifty per cent
 - e. Seventy-five per cent
25. Individuals vary in tolerance of alcohol depending on their
- a. Age and size.
 - b. Drinking habits and personality.
 - c. Age and personality.
 - d. Size and drinking habits.
 - e. Attitudes and health.
26. The first major step in alcohol metabolism occurs in the
- a. Stomach.
 - b. Body tissue.

- c. Liver.
 - d. Large intestine.
 - e. Small intestine.
27. The ailments most frequently found in chronic alcoholics are
- a. Heart and kidney ailments.
 - b. Liver and heart ailments.
 - c. Nutritional deficiencies.
 - d. Liver and kidney ailments.
 - e. High blood pressure and ulcers.
28. When promiscuous behavior results from excessive drinking of alcoholic beverages, it is because of the alcohol's
- a. Relaxing effect.
 - b. Depressant effect on the central nervous system.
 - c. Stimulating effect on the central nervous system.
 - d. Having reduced one's ability to think.
 - e. Having made one feel gay and happy.
29. The rate at which alcohol is oxidized in the body is
- a. Retarded by sleep.
 - b. Increased by exercise.
 - c. Decreased by exercise.
 - d. An unchanging rate.
 - e. Increased by drinking coffee.
30. A person's life is in danger if the amount or per cent of alcohol in his blood reaches a concentration of
- a. 0.10 per cent.
 - b. 0.20 per cent.
 - c. 0.30 per cent.
 - d. 0.50 per cent.
 - e. 0.60 per cent.
31. Which of the following has the greatest influence upon the rate of alcohol absorption in the body?
- a. Concentration of alcohol in the drink
 - b. Dilution of the drink and stomach content
 - c. Dilution of the drink
 - d. How fast it was drunk
 - e. Certain mixes in which alcohol was drunk

32. Over 90% of the alcohol taken into the body is disposed of through
- a. The urine.
 - b. The digestive tract.
 - c. Oxidation.
 - d. The lungs.
 - e. Muscular activity.
33. Research studies confirm that for highly skilled work the use of alcohol
- a. Increases total efficiency.
 - b. Decreases total efficiency.
 - c. Has no effect on work.
 - d. Follows no general pattern.
 - e. Only affects coordination.
34. The energy produced in the body by oxidation or burning of alcohol is
- a. Used up in muscular activity.
 - b. Stored in the body.
 - c. Used to stimulate circulation.
 - d. Used to stimulate the mental processes.
 - e. Used to stimulate the central nervous system.
35. In the United States, it is estimated that there are approximately
- a. Five million alcoholics.
 - b. Three million alcoholics.
 - c. Six million alcoholics.
 - d. Six and one-half million alcoholics.
 - e. Four million alcoholics.
36. Which one of the following statements best describes alcoholism according to physicians?
- a. It is a mental disorder.
 - b. It is a physical disorder.
 - c. It is a physical and mental illness.
 - d. It is a criminal problem.
 - e. It is a temporary problem.
37. The quickest way to sober up a drunk is to

- a. Give him black coffee.
 - b. Give him hot tea.
 - c. Put him in a cold shower.
 - d. Put him in a hot shower.
 - e. Stop his drinking of alcohol.
38. Extreme thirst following excessive drinking occurs because
- a. Alcohol dries out the body tissues.
 - b. Of the loss of body fluids through excessive urination.
 - c. Of the loss of body fluids through excessive perspiration.
 - d. Of the loss of salt from the body.
 - e. Alcohol changes the water balance of the body cells.
39. Alcoholic beverages are classified according to
- a. Type--beer, whiskey, etc.
 - b. Method of production.
 - c. Alcohol content.
 - d. Method of production and alcohol content.
 - e. Type and alcohol content.
40. Competent authorities state that a person is intoxicated when the alcohol in the body reaches a level of
- a. 0.05 per cent.
 - b. 0.08 per cent.
 - c. 0.10 per cent.
 - d. 0.15 per cent.
 - e. 0.20 per cent.

Number _____

KNOWLEDGE TEST--ANSWER SHEET

| | | | | | | | | | | | |
|-----|---|---|---|---|---|-----|---|---|---|---|---|
| 1. | a | b | c | d | e | 21. | a | b | c | d | e |
| 2. | a | b | c | d | e | 22. | a | b | c | d | e |
| 3. | a | b | c | d | e | 23. | a | b | c | d | e |
| 4. | a | b | c | d | e | 24. | a | b | c | d | e |
| 5. | a | b | c | d | e | 25. | a | b | c | d | e |
| 6. | a | b | c | d | e | 26. | a | b | c | d | e |
| 7. | a | b | c | d | e | 27. | a | b | c | d | e |
| 8. | a | b | c | d | e | 28. | a | b | c | d | e |
| 9. | a | b | c | d | e | 29. | a | b | c | d | e |
| 10. | a | b | c | d | e | 30. | a | b | c | d | e |
| 11. | a | b | c | d | e | 31. | a | b | c | d | e |
| 12. | a | b | c | d | e | 32. | a | b | c | d | e |
| 13. | a | b | c | d | e | 33. | a | b | c | d | e |
| 14. | a | b | c | d | e | 34. | a | b | c | d | e |
| 15. | a | b | c | d | e | 35. | a | b | c | d | e |
| 16. | a | b | c | d | e | 36. | a | b | c | d | e |
| 17. | a | b | c | d | e | 37. | a | b | c | d | e |
| 18. | a | b | c | d | e | 38. | a | b | c | d | e |
| 19. | a | b | c | d | e | 39. | a | b | c | d | e |
| 20. | a | b | c | d | e | 40. | a | b | c | d | e |

KNOWLEDGE TEST DIVISIONS

Physiological

2
3
5
7
8
9
11
13
15
25
26
27
28
29
30
31
32
34
38
40

General

1
4
6
10
12
14
16
17
18
19
20
21
22
23
24
33
35
36
37
39

The maximum score on the entire knowledge test is 40. Physiological test items have a maximum score of 20, and general information items have a maximum score of 20.

APPENDIX B

INSTRUCTIONS FOR ATTITUDE SCALE

On the next pages, you will find various statements about drinking under the heading "Attitudes Toward Temperate and Irresponsible Use of Alcoholic Beverages." With this scale, you will find an answer sheet on which I want you to mark your answers. Do not write on the attitude scale itself. For each statement, circle one of the six possible responses--strongly agree or a, moderately agree or b, slightly agree or c, slightly disagree or d, moderately disagree or e, of strongly disagree or f. This will indicate how you feel about the statement.

This is not a test, so there are not any "right" or "wrong" answers. Any answer is the right answer if it is the TRUE answer for you. I hope that you will give your frank and honest opinion. Please read the statements carefully and do not skip any. You will not have any time to think a long time about any statement; decide your opinion, mark it, and go on to the next statement.

The one term you may not be familiar with is the term "abstainer." This refers to a person who does not drink, by his own choice.

ATTITUDES TOWARD TEMPERATE AND IRRESPONSIBLE
USE OF ALCOHOLIC BEVERAGES

Prepared by Allan F. Williams
Massachusetts Division of Alcoholism, Boston
1965

1. It is okay to get "tight" or drunk as long as you are in your own home.
2. Many persons can benefit from one or two drinks at a cocktail party.
3. The use of alcohol is a custom which should be abandoned by our society.
4. Teenagers who drink to excess do not deserve good reputations.
5. The use of alcohol as a beverage by anyone is immoral.
6. A person who gets "tight" or drunk is just asking for trouble.
7. There is nothing wrong with the custom many people have of taking a drink or two to relax.
8. A person who has never been "tight" or drunk is really missing a good thing.
9. Alcohol in moderation has no real effect on a person's emotional health.
10. Getting "tight" at a beach party is just harmless fun.

11. Alcohol used in moderation can be an important contribution to social relationships.
12. A drunk person is a sad sight.
13. Drunkenness is excusable under many circumstances.
14. Taking a cocktail before dinner is the first step toward alcoholism.
15. The social drinker has less will power than the abstainer.
16. It is possible for alcohol to be used responsibly by people.
17. Moderate use of alcohol is not harmful to a person's physical health.
18. Drunkenness is always undesirable.
19. If people have fun when they get "tight," there's no reason why they shouldn't drink in this manner.
20. Drunkenness lowers the dignity of human beings.
21. Teenagers getting "tight" is excusable if there's nothing else for them to do and everybody is bored.
22. As long as a person keeps out of trouble, it's all right for him to drink to excess.
23. National prohibition, even if workable, is undesirable.
24. Getting "tight" or drunk is a good way to let off steam.
25. The way people act when they're "tight" or drunk should be enough to convince anyone not to drink to excess.

26. It's all right to get "tight" once in a while, as long as it doesn't become a habit.
27. All high school teachers should be abstainers.
28. There is nothing wrong with the custom of many families of having wine with meals.
29. Everybody should get drunk at least once.
30. People who sell alcoholic beverages are preying on the weaknesses of others.
31. Alcoholic beverages are harmful even when used in moderation.
32. Total abstinence is the only way of life.
33. If people didn't get drunk, the world would be a better place.
34. Getting drunk for kicks is part of growing up.
35. Any kind of drinking is wrong for teenagers under any circumstances.
36. The social use of alcohol by millions of people gives them satisfaction to which they have a right.
37. Liquor advertising should be legally prohibited.
38. Individuals should be allowed to decide for themselves whether they should be abstainers or drinkers.
39. Drinking of any sort is a threat to health and well-being.
40. Excessive drinking can cause only misery in the long run.

41. Drunkenness is a sign of immaturity.
42. Drinking of alcoholic beverages should be classed with the illegal use of dope.

Number _____

ATTITUDE SCALE ANSWER SHEET

| | STRONGLY AGREE | MODERATELY AGREE | SLIGHTLY AGREE | SLIGHTLY DISAGREE | MODERATELY DISAGREE | STRONGLY DISAGREE |
|----|-------------------|---------------------|-------------------|----------------------|------------------------|----------------------|
| 1 | a | b | c | d | e | f |
| 2 | a | b | c | d | e | f |
| 3 | a | b | c | d | e | f |
| 4 | a | b | c | d | e | f |
| 5 | a | b | c | d | e | f |
| 6 | a | b | c | d | e | f |
| 7 | a | b | c | d | e | f |
| 8 | a | b | c | d | e | f |
| 9 | a | b | c | d | e | f |
| 10 | a | b | c | d | e | f |
| 11 | a | b | c | d | e | f |
| 12 | a | b | c | d | e | f |
| 13 | a | b | c | d | e | f |
| 14 | a | b | c | d | e | f |
| 15 | a | b | c | d | e | f |
| 16 | a | b | c | d | e | f |
| 17 | a | b | c | d | e | f |
| 18 | a | b | c | d | e | f |
| 19 | a | b | c | d | e | f |
| 20 | a | b | c | d | e | f |
| 21 | a | b | c | d | e | f |
| 22 | a | b | c | d | e | f |
| 23 | a | b | c | d | e | f |
| 24 | a | b | c | d | e | f |
| 25 | a | b | c | d | e | f |
| 26 | a | b | c | d | e | f |
| 27 | a | b | c | d | e | f |
| 28 | a | b | c | d | e | f |
| 29 | a | b | c | d | e | f |
| 30 | a | b | c | d | e | f |
| 31 | a | b | c | d | e | f |
| 32 | a | b | c | d | e | f |
| 33 | a | b | c | d | e | f |
| 34 | a | b | c | d | e | f |
| 35 | a | b | c | d | e | f |
| 36 | a | b | c | d | e | f |
| 37 | a | b | c | d | e | f |
| 38 | a | b | c | d | e | f |
| 39 | a | b | c | d | e | f |
| 40 | a | b | c | d | e | f |
| 41 | a | b | c | d | e | f |
| 42 | a | b | c | d | e | f |

SCORING INSTRUCTIONS FOR SCALES ON "TEMPERATE AND
IRRESPONSIBLE USE OF ALCOHOLIC BEVERAGES"

| "Temperate Use Scale" | | "Irresponsible Use Scale" | |
|-----------------------|-------------|---------------------------|-------------|
| Favorable | Unfavorable | Favorable | Unfavorable |
| 2 | 3 | 1 | 4 |
| 7 | 5 | 8 | 6 |
| 9 | 14 | 10 | 12 |
| 11 | 15 | 13 | 18 |
| 16 | 27 | 19 | 20 |
| 17 | 30 | 21 | 25 |
| 23 | 31 | 22 | 33 |
| 28 | 32 | 24 | 40 |
| 36 | 35 | 26 | 41 |
| 38 | 37 | 29 | |
| | 39 | 34 | |
| | 42 | | |

For favorable questions the following scoring system
is used:

Strongly agree - 5
Moderately agree - 4
Slightly agree - 3
Slightly disagree - 2
Moderately disagree - 1
Strongly disagree - 0

For unfavorable questions the following scoring
system is used:

Strongly agree - 0
Moderately agree - 1
Slightly agree - 2
Slightly disagree - 3
Moderately disagree - 4
Strongly disagree - 5

The theoretical range of the "Temperate Use Scale" is 0 - 110; the range of the "Irresponsible Use Scale" is 0 - 100. The higher the score, the more favorable the attitude toward temperate use or irresponsible use of alcoholic beverages.

APPENDIX C

INSTRUCTIONS AT THE BEGINNING OF THE PERIOD

My name is Betty Tevis, and I am a graduate student at Texas Woman's University, working on my doctoral degree in Health Education. I am writing my dissertation about the social aspects of teen-age drinking, and I have come to ask your help in making my study a success. Through your knowledge, I hope to be able to help future teen-agers who may have drinking problems, so you can help me by being perfectly honest with me in all of your answers.

In front of you is a stack of papers with a paper clip holding them together. If you will pick up the top paper, you will see it is marked "Questionnaire." The number in the corner of the paper is the same number you will find on the two answer sheets you will use later. This number is to allow me to correlate your answers on the questionnaire with your answers on the other two instruments. Throughout this study I will have no idea of any of your names and all of your answers will be completely anonymous.

Now, take this questionnaire, and please answer each question to the best of your ability and as honestly as you can by marking an "x" on the line which best answers

the question. Only one answer to each question, please. You only have ten minutes to complete this questionnaire, which is plenty of time if you will answer each question and then quickly go on to the next question.

Number _____

QUESTIONNAIRE

1. Indicate your sex: Male _____
Female _____
2. What was your age on your last birthday? 13 _____
14 _____
15 _____
16 _____
17 _____
18 _____
Over 18 _____
3. With whom do you live most of the time?
Both parents _____
Mother only _____
Father only _____
Mother and Stepfather _____
Father and Stepmother _____
Foster parents _____
Other relatives _____
Others (not relatives) _____
4. Number of children in your family (including yourself): 1 _____
2 _____
3 _____
4 _____
5 _____
More than 5 _____
5. Indicate your position in the family: Oldest child _____
One of the middle children _____
Youngest child _____
6. Do you work: Yes _____
No _____
If yes, how many hours per week do you usually work? 0 - 20 _____
21 - 40 _____
Over 40 _____
7. Does your Father (or Stepfather) work: No _____
Part-time _____
Full-time _____

8. Does your Mother (or Stepmother) work? No _____
Part-time _____
Full-time _____
9. School attendance: I rarely miss school _____
I miss several classes monthly _____
I miss several classes weekly _____
10. What is your overall grade average at school? A _____
B _____
C _____
D _____
F _____
11. Do you participate in athletics? Yes _____
No _____
If yes, how many sports do you 1 - 2 _____
participate in? 3 - 4 _____
5 or more _____
12. Do you participate in extracurricular Yes _____
clubs? No _____
If yes, how many clubs are you active in? 1 - 2 _____
3 - 4 _____
5 or more _____
13. Are alcoholic beverages kept in your home? Yes _____
No _____
14. Are alcoholic beverages served as part of Yes _____
meals at your home? No _____
15. Does either of your parents Mother: Not at all _____
drink? Occasionally _____
Frequently _____
Heavily _____
Father: Not at all _____
Occasionally _____
Frequently _____
Heavily _____
16. Do your close friends drink? Not at all _____
Occasionally _____
Frequently _____
Heavily _____

17. Have you ever taken a drink which contained alcohol? Yes ☐
No ☐

IF THE ANSWER TO QUESTION 17 IS NO, YOU DO NOT
COMPLETE THE REST OF THIS QUESTIONNAIRE

18. At what age did you take your first drink?
11 years or younger ☐
12 years ☐
13 years ☐
14 years ☐
15 years ☐
16 years ☐
17 years ☐
18 years or older ☐
19. What was the first kind of alcoholic beverage you drank? Beer ☐
Wine ☐
Whiskey ☐
20. Where did you have your first drink? At home ☐
Home of a friend ☐
Restaurant ☐
Tavern, bar, or night club ☐
Automobile ☐
High school function ☐
Other place ☐
21. Did you drink with your parents' permission? Yes ☐
No ☐
22. How did you obtain the alcoholic beverage for your first drink? Bought it myself ☐
Stole it ☐
Friend gave it to me ☐
Parents gave it to me ☐
Relative gave it to me ☐
Older person bought it ☐
Other ☐
23. With whom were you when you drank it? Parents ☐
My date ☐
A group of friends ☐
Alone ☐
Other ☐

24. ON THE AVERAGE, about how frequently do you drink alcoholic beverages? I do not drink _____
Once or twice a year _____
Once every 4 or 5 months _____
Once every 2 or 3 months _____
Once a month _____
Twice a month _____
Three times a month _____
Once a week _____
Several times a week _____
Daily _____
25. How would you classify yourself as to your drinking? I do not drink _____
Occasional drinker _____
Moderate drinker _____
Heavy drinker _____
26. On occasions when you drink, about how much do you drink ON THE AVERAGE? I do not drink _____
One - two drinks _____
Three - four drinks _____
Five - six drinks _____
Seven or more drinks _____
27. Have you ever been intoxicated? Not at all _____
One time _____
Several times _____
Many times _____
28. Have you ever been intoxicated for two or more days at a time? Not at all _____
One time _____
Several times _____
Many times _____
29. Do your parents know that you drink? I do not drink _____
Yes _____
No _____
30. If so, do they approve of your drinking? I do not drink _____
Yes _____
No _____
31. What do you usually drink? I do not drink _____
Beer _____
Wine _____
Whiskey _____

32. Where do you get the alcoholic beverages that you drink? I do not drink _____
Parents and/or relatives _____
Legitimate merchant _____
Bootlegger _____
Friends _____
Other _____
33. Where do you usually drink? I do not drink _____
At home _____
Friend's home _____
Beer parlor or tavern _____
Social affairs _____
Automobile _____
Other _____
34. Do you have a car available for your personal use? Yes _____
No _____
- If so, to whom does it belong? My own _____
Family _____
Other _____
35. Do you drink before going to a party? Not at all _____
Occasionally _____
Frequently _____
36. Do you drink to get rid of a hangover? Not at all _____
Occasionally _____
Frequently _____
37. Do you have difficulty stopping once you have started drinking? Not at all _____
Occasionally _____
Frequently _____
38. Do you have blackouts or lapses of memory while drinking? Not at all _____
Occasionally _____
Frequently _____
39. Do you skip meals while on a "drinking bout"? Not at all _____
Occasionally _____
Frequently _____
40. Do you "toss down" drinks for a quicker effect? Not at all _____
Occasionally _____
Frequently _____

- | | | |
|-----|---|--------------------|
| 41. | Do you drink to ease depression or nervousness? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 42. | Do you drink to escape the problems of everyday living? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 43. | Have any of your family or relatives told you to "cut down" on your drinking? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 44. | Have any of your friends told you to "cut down" on your drinking? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 45. | Have you lost or damaged a friendship because of drinking? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 46. | Has drinking caused you problems with the police or another law enforcement official? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 47. | Has drinking caused you to have an automobile accident? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 48. | Has drinking damaged your health? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 49. | Has drinking affected you financially? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 50. | Has drinking caused you to be aggressive or cross? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 51. | Has drinking caused you to get into a fight or heated argument? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |
| 52. | Has drinking caused you to miss school? | Not at all _____ |
| | | Occasionally _____ |
| | | Frequently _____ |

53. Has drinking caused you to
miss an appointment?

Not at all _____
Occasionally _____
Frequently _____

54. Has drinking caused you to lose
a job?

Not at all _____
Occasionally _____
Frequently _____

APPENDIX D

INSTRUCTIONS AT THE END OF THE PERIOD

Please listen carefully to these instructions.

First, take your completed questionnaire and your two completed answer sheets and place the paper clip on them, clipping them all together.

Now, as you leave the room you will see two plastic boxes, marked for your convenience. Please put the answer sheets in the box so marked and the attitude scale and knowledge test in the other box.

I appreciate your help in my study. I hope we all have made a contribution to the education of teen-agers in our state and nation. Next year, I would like to return to your school and share my findings with you. Thanks to each and every one of you.

APPENDIX E

PROFILE SHEET

Number _____

Age _____

Knowledge test _____

Attitude scale _____

Sex _____

Physiological _____

Temperate use _____

School _____

General _____

Intemperate use _____

Combination _____

Behavior Questionnaire

Current Problems Index _____

Drinking
Classification _____

Frequent intoxication _____

Number of drinks _____

Binge drinking _____

Frequency of drinking _____

Symptomatic drinking _____

Psychological dependence _____

Parents/relatives _____

Neighbors/friends _____

School/job _____

Police/accidents _____

Health _____

Financial _____

Belligerence _____

APPENDIX F

SUPERINTENDENTS, ASSISTANT SUPERINTENDENTS, AND/OR
DIRECTORS OF HEALTH AND PHYSICAL EDUCATION WHO
WERE ASKED TO PARTICIPATE IN THE
PRESENT STUDY

Abilene

Mr. Shorty Lawson, Director of Health and Physical Education
Abilene Public Schools

Amarillo*

Mr. Bob Ashworth, Superintendent
Amarillo Public Schools

Mr. Steve Gergeni, Director of Health and Physical Education
Amarillo Public Schools

El Paso*

Mr. Ted Keeple, Director of Health and Physical Education
El Paso Public Schools

Lubbock

Dr. E. C. Leslie, Assistant Superintendent
Lubbock Public Schools

Mr. Charles Caraway, Director of Health and Physical
Education
Lubbock Public Schools

Midland*

Mr. Hal Battle, Director of Health and Physical Education
Midland Public Schools

*Did not wish to participate.

Odessa

Mr. Bill Holmes, Assistant Superintendent
Odessa Public Schools

Mr. Gail Smith, Director of Secondary School Curriculum
Odessa Public Schools

Waco

Mr. Avery R. Downing, Superintendent
Waco Public Schools

Mr. Jack Pearce, Director of Health and Physical Education
Waco Public Schools

April 7, 1972

Mr. Shorty Lawson
Director of Health and Physical Education
Abilene Public Schools
Abilene, Texas

Dear Mr. Lawson:

As a doctoral student at Texas Woman's University, on leave from Texas Tech University, I am in the process of collecting data for my dissertation. I would like to ask your permission to use the physical education classes in the Abilene High Schools.

My study will be involved with the social aspects of teenage drinking. I would like to emphasize, however, that under no circumstances will any individual student ever be identified. Each student will be assigned a number on his papers in order to correlate instruments which will be used.

Enclosed you will find a brief description of my study. This is the first time a study of this kind has ever been done. Hopefully, it should make a good contribution to the future education of our youth in Texas. The instruments that I shall use to collect my data are not entirely finished, but I shall send them to you for your approval within the next week.

Your assistance will be greatly appreciated. If any other information is needed, I will be glad to furnish it.

Sincerely,

A handwritten signature in cursive script that reads "Betty Tevis".

Betty Tevis

May 20, 1972

Mr. Charles Caraway
Director of Health and Physical Education
Lubbock Public Schools
Lubbock, Texas

Dear Mr. Caraway:

Just a note of thanks for allowing me to use your schools for my research. All of the physical education personnel, the administrators, and the students at both schools were most cooperative.

I know how besieged you are with requests for research, and I hope that my study will provide worthwhile information which can be used to benefit the students in the Lubbock Public Schools.

When my study is finished, I would like to share my findings with the students who participated in the study. If I can be of service to your School District in the future, please feel free to call upon me.

Sincerely,

A handwritten signature in cursive script that reads "Betty Tevis".

Betty Tevis

SCHOOLS PARTICIPATING IN THE PRESENT STUDY

Abilene

Wednesday, May 17

Cooper High School
3639 Sales Blvd.

Number of tenth graders: 655

Number of participants in study: 182

Thursday, May 18

Abilene High School
2800 North 6th

Number of tenth graders: 769

Number of participants in study: 219

Lubbock

Wednesday, May 3

Estacado High School
1504 Itasca

Number of tenth graders: 385

Number of participants in study: 80

Thursday, May 4

Coronado High School
3307 Vicksburg

Friday, May 5

Number of tenth graders: 634

Number of participants in study: 273

Odessa

Wednesday, May 10

Ector High School
800 W. Clements

Number of tenth graders: 251

Number of participants in study: 105

Thursday, May 11

Permian High School
42nd and Down

Number of tenth graders: 893

Number of participants in study: 190

Waco

Monday, May 22

Richfield High School
42nd and Colcord

Number of tenth graders: 800

Number of participants in study: 169

Tuesday, May 23

Jefferson Moore High School
500 N. University Parks Drive

Number of tenth graders: 240

Number of participants in study: 97

APPENDIX G

TABLE 26
FREQUENCY DISTRIBUTION OF POINTS ON THE
CURRENT PROBLEMS INDEX ACCORDING
TO ENVIRONMENT AND SEX

| Score | "Wet" | | | | "Dry" | | | |
|-------|-------|------|-------|------|-------|------|-------|------|
| | Boys | | Girls | | Boys | | Girls | |
| | No. | % | No. | % | No. | % | No. | % |
| 0 | 89 | 47.3 | 177 | 68.9 | 109 | 50.5 | 256 | 66.0 |
| 1 | 8 | 4.3 | 13 | 5.1 | 8 | 3.7 | 18 | 4.6 |
| 2 | 2 | 1.1 | 2 | .8 | 3 | 1.4 | 3 | .8 |
| 3 | 27 | 14.4 | 22 | 8.6 | 30 | 13.9 | 27 | 7.0 |
| 4 | 16 | 8.5 | 23 | 8.9 | 11 | 5.1 | 21 | 5.4 |
| 5 | 10 | 5.3 | 3 | 1.2 | 8 | 3.7 | 13 | 3.4 |
| 6 | 5 | 2.7 | 7 | 2.7 | 9 | 4.2 | 8 | 2.1 |
| 7 | 12 | 6.4 | 2 | .8 | 4 | 1.9 | 9 | 2.3 |
| 8 | 4 | 2.1 | 0 | .0 | 6 | 2.8 | 7 | 1.8 |
| 9 | 6 | 3.2 | 4 | 1.6 | 9 | 4.2 | 7 | 1.8 |
| 10 | 0 | .0 | 1 | .4 | 4 | 1.9 | 4 | 1.0 |
| 11 | 2 | 1.1 | 1 | .4 | 0 | .0 | 3 | .8 |
| 12 | 0 | .0 | 1 | .4 | 4 | 1.9 | 6 | 1.5 |
| 13 | 3 | 1.6 | 0 | .0 | 3 | 1.4 | 0 | .0 |
| 14 | 0 | .0 | 0 | .0 | 2 | .9 | 1 | .3 |
| 15 | 1 | .5 | 0 | .0 | 1 | .5 | 0 | .0 |
| 16 | 1 | .5 | 1 | .4 | 1 | .5 | 4 | 1.0 |

| Score | "Wet" | | | | "Dry" | | | |
|-------|-------|-----|-------|----|-------|----|-------|----|
| | Boys | | Girls | | Boys | | Girls | |
| | No. | % | No. | % | No. | % | No. | % |
| 17 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 |
| 18 | 0 | .0 | 0 | .0 | 1 | .5 | 0 | .0 |
| 19 | 2 | 1.1 | 0 | .0 | 1 | .5 | 0 | .0 |
| 20 | 0 | .0 | 0 | .0 | 0 | .0 | 1 | .3 |
| 21 | 0 | .0 | 0 | .0 | 1 | .5 | 0 | .0 |
| 22 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 |
| 23 | 0 | .0 | 0 | .0 | 1 | .5 | 0 | .0 |

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