

AN ABSTRACT OF THE THESIS OF

LOGAN R. HAZEN III for the degree of DOCTOR OF EDUCATION

in COLLEGE STUDENT SERVICES ADMINISTRATION presented on 4-28-80

Title: ALCOHOL USE, KNOWLEDGE AND ATTITUDES AMONG FRESHMAN WOMEN

Abstract approved:

**Redacted for Privacy**

  
Dr. Jo Anne J. Trow

The purpose of this study was to investigate the influence of alcohol on freshman women during the critical transition into college. Specifically, the study focused on differences in knowledge of alcohol facts and attitudes toward use of alcohol among freshman women prior to college. Further, the study focused on changes in use of alcohol, knowledge of alcohol facts, and attitude toward use of alcohol among freshman women during their initial term of college. To provide background, demographic characteristics based on level of alcohol use were compiled.

The subjects in this study were 132 entering freshman women attending Oregon State University in fall 1979. The data used in testing the hypotheses under investigation were collected during summer 1979 and during the first weeks of winter term 1980. Alcohol use and alcohol use group classification were determined by a Quantity-Frequency instrument. The Student Alcohol Questionnaire measured the subjects' knowledge of alcohol facts. The attitude instrument measured attitude toward intemperate (excessive) use of alcohol.

The hypotheses developed to test initial differences in knowledge of alcohol facts and attitude toward use of alcohol were tested utilizing the analysis of variance. Where significance was indicated, further analysis was conducted with the Student-Newman-Keuls procedure to determine specific initial differences among alcohol use groups. Paired t-tests were utilized to analyze changes in use of alcohol, knowledge of alcohol facts, and attitudes toward alcohol use for the total sample and individual use groups. The .05 level of significance was required for all tests.

The results of the study indicated:

1. There were no significant differences in knowledge of facts about alcohol among entering freshman women based on their level of alcohol use.
2. There were significant differences in attitude toward the use of alcohol among the entering freshman women.
  - a. The abstaining group of freshman women were significantly the least tolerant of intemperate use of alcohol by themselves and others.
  - b. The infrequent drinking group of freshman women supported intemperate drinking by themselves and others to a significantly greater extent than the abstaining group.
  - c. The infrequent drinking group of freshman women were significantly less tolerant of intemperate use of alcohol by themselves and others than the light, moderate and heavy drinking freshman women.

- d. The light, moderate and heavy drinking freshman women's attitudes toward intemperate use of alcohol were not significantly different from each other.
  - e. The light, moderate and heavy drinking groups of freshman women endorsed intemperate drinking by themselves and others to a significantly greater extent than the abstaining and infrequent drinking groups of freshman women.
3. There was a significant increase in the use of alcohol among the freshman women at the end of their first term of college.
  4. There was a significant increase in knowledge of alcohol facts among the freshman women at the end of their first term of college.
    - a. There was a significant increase in knowledge of alcohol facts among the light, moderate and heavy drinking freshman women at the end of their first term of college.
    - b. There was no significant change in knowledge of alcohol facts among the abstaining and infrequent drinking freshman women.
  5. There was a significant increase in tolerant attitudes toward use of alcohol among the freshman women at the end of their first term of college.
    - a. There were significant increases in favorable attitude toward intemperate use of alcohol among infrequent and light drinking freshman women at the end of their first term of college.

- b. There were no significant changes in attitude toward intemperate use of alcohol among abstaining, moderate and heavy drinking freshman women at the end of their first term of college.

ALCOHOL USE, KNOWLEDGE AND ATTITUDES  
AMONG FRESHMAN WOMEN

by

Logan Rhodes Hazen III

A THESIS

submitted to

Oregon State University

in partial fulfillment of  
the requirements for the  
degree of

Doctor of Education

Completed April 28, 1980

Commencement June 1980

APPROVED:

Redacted for Privacy

\_\_\_\_\_  
Professor of Education *[Signature]*  
in charge of major

Redacted for Privacy

\_\_\_\_\_  
Dean, School of Education

Redacted for Privacy

\_\_\_\_\_  
Dean of Graduate School

Date thesis is presented April 28, 1980

Typed by Cheryl E. Curb for Logan Rhodes Hazen III

## ACKNOWLEDGEMENTS

I wish to express my appreciation to those individuals who assisted in the development and completion of this dissertation. Sincere appreciation is extended to Dr. Jo Anne Trow, my major advisor and mentor. Her unflinching support, sound advice, and constantly high expectations helped me complete this dissertation. Throughout my program her example has helped me grow as a professional more than I can express.

Special thanks go to the other members of my doctoral committee. Dr. Edward Bryan provided fresh perspective whenever needed. Dr. Michael Colbert provided enthusiastic and unflinching confidence in me. Dr. Louis Oester provided the calm assurance of a good graduate representative. Dr. John Bigelow provided able replacement when Dr. Kurt Motamedi had to withdraw. And Ms. Suzi Maresh, while not a member of the committee, provided invaluable assistance with the statistical and computer requirements for this dissertation.

My thoughts and thanks go to Dr. Kurt Motamedi who had to withdraw in the last month of the dissertation. My hopes are with him as he fights the most important battle of his life.

Appreciation is extended to the freshman women who so willingly participated in this study. I worry for some of them because of the amount of alcohol they use, but I retain hopes that they will place alcohol in the proper perspective in their lives.

And finally, sincerest gratitude goes to my wife, Verna. This was truly a project that could not be done alone. Her caring and support, through both the highs and lows, sustained me.

## TABLE OF CONTENTS

<u>Chapter</u>		<u>Page</u>
I	INTRODUCTION	1
	Statement of the Problem	7
	Importance of the Study	8
	Research Hypothesis	9
	Limitations of the Study	10
	Definition of Terms	11
II	REVIEW OF ALCOHOL RELATED LITERATURE	13
	The Freshman Year as a Period of Change	14
	College Student Use of Alcohol	19
	Students' Knowledge of Alcohol Facts	34
	Students' Attitudes Toward Alcohol	39
III	METHODOLOGY AND PROCEDURES	46
	Subjects	46
	Sources of Data	47
	Quantity-Frequency Index	47
	Student Alcohol Questionnaire	52
	Attitude Measure	53
	Collection of Data	55
	Statistical Treatment of Data	56
IV	RESULTS	58
	Description of the Characteristics of the Alcohol Use Groups	58
	Abstainers	59
	Infrequent Drinkers	62
	Light Drinkers	66
	Moderate Drinkers	70
	Heavy Drinkers	75
	Initial Differences in Knowledge of Alcohol Facts and Attitudes Toward Alcohol Use	79
	Initial Knowledge of Alcohol Facts	79
	Initial Attitude Toward Use of Alcohol	82
	Summary of Initial Differences	85
	Changes in Alcohol Use, Knowledge and Attitudes During the Initial Term of College	86
	Changes in Alcohol Use	86
	Changes in Knowledge of Alcohol Facts	90
	Changes in Attitude Toward Use of Alcohol	94
	Summary of Changes in Use, Knowledge, and Attitude Toward Alcohol	98



## TABLE OF CONTENTS (Cont.)

<u>Chapter</u>		<u>Page</u>
V	DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS	99
	Discussion	101
	Demographic Differences	101
	Use of Alcohol	108
	Knowledge of Alcohol Facts	111
	Attitude Toward Use of Alcohol	114
	Conclusions	117
	Recommendations	119
	BIBLIOGRAPHY	123
	APPENDIX A. PRETEST QUESTIONNAIRE	131
	APPENDIX B. POSTTEST QUESTIONNAIRE	141
	APPENDIX C. SCORING FOR TEST INSTRUMENTS	149
	APPENDIX D. DEMOGRAPHIC CHARACTERISTICS OF THE ALCOHOL USE GROUPS	153

## LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Summary of Pretest Participation.	46
2	Categories of Alcohol Users.	52
3	Mean Scores of Freshman Women on the Student Alcohol Questionnaire.	80
4	Initial (Pretest) Scores on the Student Alcohol Questionnaire for Entering Freshman Women Grouped on the Basis of Their Level of Alcohol Use.	82
5	Initial (Pretest) Mean Scores of Attitude Toward Alcohol Use for Entering Freshman Women Grouped on the Basis of Their Level of Alcohol Use.	83
6	Mean Scores on Attitude Toward Alcohol Use for Entering Freshman Women Grouped on the Basis of Their Level of Alcohol Use.	84
7	Distribution of Participating Freshman Women Based on Their Level of Alcohol Use.	37
8	Crosstabulation of Entering (Pretest) Freshman Women Abstainers and Drinkers with the Freshman Women Abstainers and Drinkers at the End of Their First Term of College (Posttest).	88
9	Comparison of Alcohol Use by Freshman Women Upon Entering College (Pretest) and After One Term of College (Posttest).	89
10	Changes in Knowledge of Alcohol Facts by Abstaining Freshman Women at the End of Their First Term of College.	91
11	Changes in Knowledge of Alcohol Facts by Infrequent Drinking Women at the End of Their First Term of College.	91
12	Changes in Knowledge of Alcohol Facts by Light Drinking Freshman Women at the End of Their First Term of College.	92

LIST OF TABLES (Cont.)

<u>Table</u>		<u>Page</u>
13	Changes in Knowledge of Alcohol Facts by the Moderate Drinking Freshman Women at the End of Their First Term of College.	92
14	Changes in Knowledge of Alcohol Facts by the Heavy Drinking Freshman Women at the End of Their First Term of College.	93
15	Change in Knowledge of Alcohol Facts Among the Overall Group of Freshman Women at the End of Their First Term of College.	93
16	Change in Attitude Toward Use of Alcohol Among the Abstaining Freshman Women at the End of Their First Term of College.	95
17	Change in Attitude Toward Use of Alcohol Among Infrequent Drinking Freshman Women at the End of Their First Term of College.	95
18	Change in Attitude Toward Use of Alcohol Among the Light Drinking Freshman Women at the End of Their First Term of College.	96
19	Change in Attitude Toward Use of Alcohol Among Moderate Drinking Freshman Women at the End of Their First Term of College.	96
20	Change in Attitude Toward Use of Alcohol Among the Heavy Drinking Freshman Women at the End of Their First Term of College.	97
21	Change in Attitude Toward Use of Alcohol Among The Overall Group of Freshman Women at the End of Their First Term of College.	97

# ALCOHOL USE, KNOWLEDGE, AND ATTITUDES AMONG FRESHMAN WOMEN

## CHAPTER 1

### INTRODUCTION

According to the latest research there are an estimated 10 million problem drinkers in the United States today (National Institute of Alcohol Abuse and Alcoholism, 1978). Ten percent of those who drink can be classified as problem drinkers and another 26 percent show signs of potential problem drinking. In recently completed longitudinal research it was found that college problem drinkers were the most likely to be problem drinkers and least likely to be abstainers 25 years after college (Fillmore, 1974).

Alcohol use and abuse has historically been regarded as a problem in college (Brubacher & Rudy, 1968) although more for reasons of discipline than for health. Student behavior associated with drunkenness led most colonial colleges to forbid the use of hard liquor and punch. While beer, ale and wine were served regularly with colonial Harvard meals, student drunkenness associated with "hard" liquors afforded penalties ranging from five shillings to expulsion from the college (Morrison, 1936). Leonard's (1956) review of the development of student personnel in higher education during the 1812 to 1862 period offers the following on the college alcohol problem:

The most persistent problem was drunkenness. In some colleges scarcely a meeting of the faculty went by without consideration of at least one problem of student drinking. Fines and threats of student expulsion seem to have had little or no effect on the attitudes of the student body when it came to weekend drinking (p. 98).

The growth of the temperance movement and Prohibition in the early nineteenth century led to strict rules against all forms of alcohol use by students although this, too, seemed to have little effect on college student imbibing (Brubacher & Rudy, 1968). Today many of these rules remain, although society's liberal attitudes toward alcohol and the lowering of the legal drinking age have eroded college alcohol policies (Roe, 1973).

Whether alcohol use and abuse by college students is any worse than that of the general public is debatable. Straus and Bacon (1953), leaders in college student alcohol research since the late 1940's, maintain that student drinking is not primarily the product of college, although colleges have been held responsible for student drinking. "Whether they like it or not, the colleges bear more responsibility than other groups for the general behavior of the young men and women who attend them" (Straus & Bacon, 1953, p. 206). Unfortunately, most of what is known about college drinking is based more on hearsay than empirical evidence (Ewing, 1977). Straus and Bacon summarize the situation:

A review of the innumerable references to college drinking in newspapers and magazines indicates that it is usually assumed that many students drink, that most of these drink frequently and to excess, and that the result is usually intoxication, often leading to situations involving serious problems, embarrassment or disgrace (1953, p. 37).

Even if student drinking is substantially the same as drinking by the general population, or if colleges are being unfairly held responsible for student behavior, the statistics clearly indicate that a problem exists in the colleges. Drinking among college students has

been increasing steadily since 1936 (NIAAA, 1978). Alcohol is accepted as the drug of choice by most students (Coder, Dezelsky, Toohey & Tow, 1974) and most students drink to some extent. A number of studies report that 71 to 96 percent of all students use alcohol at least once per year, with close to 50 percent drinking at least once per week (Kraft, 1977). Most colleges average 87 to 93 percent student drinkers (Kraft, 1976). In some surveys 40 to 50 percent of the students report getting drunk as often as once per month and 10 to 12 percent reported drinking two or more drinks per day.

Responses of colleges to the problem of student alcohol use and abuse have ranged from ignoring the problem to aggressive prevention programs. Colleges that have ignored the problem have been accused of a "conspiracy of silence" (Noble, 1978), avoiding recognition or reaction whenever possible and developing self-protective and negative responses where necessary (Straus & Bacon, 1953). Other colleges have responded by creating or increasing enforcement of campus rules prohibiting the use of alcohol (North, 1977). But just as Prohibition failed to stop drinking in its day, restrictive institutional efforts have had little effect on curbing student alcohol consumption.

Many colleges have expressed interest and concern for preventive approaches to student alcohol abuse, but relatively few have initiated active, comprehensive programs (Kraft, 1976). Even aggressive college responses have not always been successful. As Engs notes:

When a problem becomes popular and is seen as a crisis situation, "educational programs" are often developed hurriedly by a variety of agencies without being created for specific groups. Many of these programs are then fostered upon students and the public without being thoroughly evaluated as to their effect in changing knowledge, attitudes and more importantly behaviors (1977b, p. 39).

Globetti has also been outspoken on the failures of college alcohol abuse prevention programs. He maintains that programs have failed because they focused on what the older generation thinks younger people should be told rather than finding out what younger people themselves feel about alcohol and its use (Globetti, 1972). Prevention programs should be created specifically for particular audiences rather than based upon some generalized approach and these programs need to be socially and intellectually acceptable to target students (Globetti, 1973). The conclusion to be drawn from these various approaches to college alcohol problems seems to be that there is a clear lack of understanding of the student drinker and the nature of the alcohol problem.

Research into college student alcohol use, abuse and alcoholism has been far from exhaustive (Huebner, Slaughter, Goldman & Cady, 1976). Significantly more study has focused on high school and adolescent use and abuse (Hanson, 1974; Scroth, 1979). In a major review of literature on college student use of alcohol, Blane and Hewitt (1977) were able to find only 68 studies from 1936 to 1975 that were methodologically sound enough to allow any statistical comparisons, and most of those only allowed use versus abstinence comparisons. Thus little research is available to assist colleges in confronting college student drinking problems.

Review of general alcohol research literature reveals a clear research bias, one which is closely paralleled in college alcohol research. The majority of studies in recent decades about problem drinkers omit women, usually without comment (Corrigan, 1974). Scientists who studied the psychology of alcohol use and abuse usually limited their research to male drinkers and simply assumed that their findings applied equally well to women (Wilsnack, 1976). Speaking more forcefully, Sandmaier (1977) asserts that the drinking problems of women were neglected, ridiculed, denied or at best lumped together with those of men. The overall conclusion is that gaps in the research literature on women and alcohol misuse are numerous (Beckman, 1976).

Research into college women's use of alcohol is equally lacking. Blane and Hewitt's (1977) review of literature on alcohol and youth found only 26 studies between 1936 and 1975 where data specific to college women was reported. As a result there are very few definitive studies available on college women's drinking.

The fact that so few women's studies have been done is surprising, since the only significant changes in college drinking patterns in the past few decades have involved women. Hanson's (1974) summary of the situation is the most often quoted:

Seventy-seven percent of the males in the earlier study drank while 80 percent in the latter study reported drinking. On the other hand, 61 percent of the females in the earlier study drank, and this rose to 73 percent twenty years later (Straus & Bacon, 1953, p. 47; Hanson, 1972, p. 73). Thus the rise was three percent for males and 12 percent for females. Furthermore, while twenty years earlier there were 16 percentage points separating males and females, this has been reduced to only five percentage points (p. 11).



The Straus and Bacon (1953) study, which serves as the benchmark for college alcohol research, found that in the 17,000 students surveyed, the ratio of male to female drinkers was 4:1. Milman and Su (1973) reported that the ratio of heavy college male to female alcohol drinkers was 1.7:1. Similarly, Hope (1972) reported a 1.2:1 ratio between male and female drinkers and Hanson (1974) reported a 1.1:1 ratio. In spite of the general lack of research effort in the area of women's drinking, it is quite clear that significant changes have been taking place among college women drinkers.

These findings have current implications for colleges, such as increased behavioral, discipline, accident and health problems. Simple mathematics show that if 10 percent of all drinkers in society will be problem drinkers and 26 percent will show signs of problem drinking (NIAAA, 1978) this higher rate of college women's drinking raises the risk of exposure to alcohol abuse and could be a precursor to an increase in drinking problems in the future (Noble, 1978). NIAAA's (1978) findings may be low in light of findings by Johnson and Garzon (1977) that the proportion of drinkers among college graduates is markedly higher than other educational levels, and by Schuckit and Morressey's (1976) finding that the rates of heavy drinking among college women was higher than that of women in general.

Longitudinal studies are being completed which may indicate the impact of today's increased drinking. Utilizing a sample of Straus and Bacon's (1953) subjects, a sociologist (Fillmore, 1974) found that drinking habits in college were predictive of trouble 20 years later. It was concluded that if a student drank in youth and reported alcohol

problems, it could be predicted beyond operation of chance that he or she would report problems 20 years later. The implications of this are compounded by research indicating that there is less remission of alcohol problems for women (Fillmore, 1975); women do not do well in therapy for alcohol problems (Schuckit & Morressey, 1976); and that a telescoping effect occurs in women's alcohol problems, where women develop alcohol problems later in life than men, but end up in chronic treatment programs at about the same mean age as men (Johnson & Garzon, 1977).

The general lack of research into college alcohol use and abuse coupled with campus behavioral and health problems, colleges' seeming inability to respond effectively to alcohol problems, and the emerging findings of longitudinal studies suggest that research is needed. Studies on college women's drinking patterns seems particularly appropriate in light of the lack of definitive research and the increase in alcohol use by college women.

#### Statement of the Problem

The problem of the present study was to determine if there were differences in entering freshman women's knowledge of alcohol facts and their attitudes toward alcohol based on their previous use of alcohol. Further, the study ascertained whether there were changes in the freshman women's use of alcohol, knowledge of alcohol facts, and attitudes toward alcohol during their first term of college.

### Importance of the Study

The value of this study ranges from practical information useful to Oregon State University to general contributions to the small body of knowledge concerning college women's use of alcohol. The most immediate result of this study is a profile of the freshman women in relation to alcohol. This information in a general way can be useful to the university in better understanding its students and for making decisions based on more accurate information.

More specifically, the profile information helps the university respond to alcohol problems in much the same way Golbetti (1973) suggested. Prevention efforts can better be targeted to a specific group rather than the generalized student population, and socially and intellectually acceptable programs can be developed. Kraft (1976) noted that colleges and universities present some unique opportunities to practice primary prevention because: (1) the educational setting is especially conducive to such efforts; (2) most students have reached a stage in life where they begin making their own decisions about life; and (3) most have begun using alcohol, but few have developed chronic alcohol abuse patterns.

By studying a specific time period, the first academic term, a step can be taken toward identifying critical periods in the development of alcohol use habits. Gonzalez and Rozelle (1977) note that entering college students are away from home for the first time and are beginning to make decisions about how they will conduct their own lifestyles. This is a period where students observe the behaviors of their peers and experiment with the use of alcohol. If there are critical

developmental periods related to alcohol use, and these periods can be identified, then limited resources can be concentrated for maximum impact. Just as target groups need to be identified, critical time periods must also be identified.

This study contributes to the body of knowledge on college drinking and related problems, and can serve as a model for further research. As noted earlier, research into college student alcohol use has been far from exhaustive (Huebner et al., 1976) and research into college women's drinking specifically has been minimal. Because of this lack of knowledge this study makes an even more significant impact.

The final goal of this study, and perhaps the most elusive, is that this study may have an impact on the future. The research on the numbers of problems associated with alcohol are overwhelming. The implication that college and university graduates have above average frequency of problems associated with alcohol, and yet are in a unique setting for problem prevention places a heavy burden on higher education. This study may, in some way, help realize this potential in alcohol problem prevention.

### Research Hypotheses

In order to facilitate statistical analysis the participating college women were grouped on the basis of their use of alcohol and the following null form hypotheses were tested:

1. There are no significant differences in knowledge of alcohol facts among the entering freshman women based on their use of alcohol.

2. There are no significant differences in attitudes toward the use of alcohol among the entering freshman women based on their use of alcohol.

3. There are no significant changes in the use of alcohol among the freshman women at the end of the first academic term.

4. There are no significant changes in knowledge of alcohol facts among the freshman women at the end of the first academic term.

5. There are no significant changes in attitudes toward the use of alcohol among the freshman women at the end of the first academic term.

#### Limitations of the Study

Several possible limitations must be considered when extending the results beyond the immediate study. The nature of the participants in the study and the institution, the instruments used and the possible influence of extraneous variables, and the intent of the study itself are factors to be considered.

The subjects in this study were limited to entering freshman women at Oregon State University during Fall, 1979, a group which may not necessarily be representative of entering freshman women in general. Similarly the environment at Oregon State University may not be representative of universities in general.

The data gathered from the participants in this study are limited by the ability of the instruments used to validly measure use of alcohol, knowledge of alcohol facts, and attitudes toward the use of alcohol.

The possibility also exists that some uncontrolled variables may have affected the responses of the participants.

Finally it must be noted that the intent of this study was primarily descriptive of entering freshman women's use, knowledge of alcohol facts, and attitudes toward alcohol use and changes that occurred over an academic term. Cause and effect relationships assumed from the results must be made with caution.

### Definition of Terms

For the purpose of clarity the following terms are defined for the study:

Freshman women refers to female students enrolling in college and Oregon State University for the first time in Fall, 1979, and who completed this first academic term at Oregon State University.

First academic term refers to Oregon State University's Fall term, beginning in mid-September, 1979, and finishing in mid-December, 1979.

Use of alcohol refers to the amount of alcohol the participant in the study consumed as measured by a Quantity-Frequency index. For the purposes of this study five levels of use were defined:

- a. Abstainer refers to a participant who does not consume any alcohol.
- b. Infrequent drinker refers to a participant who drinks up to 0.3 ounces of absolute alcohol per week, or the equivalent of less than one beer per week.

- c. Light drinker refers to a participant who drinks 0.4 to 1.0 ounces of absolute alcohol per week, or the equivalent of one to two beers per week.
- d. Moderate drinker refers to a participant who drinks 1.1 to 2.3 ounces of absolute alcohol per week, or the equivalent of five to six bottles of beer, one to two times per week.
- e. Heavy drinker refers to a participant who drinks 2.4 or more ounces of absolute alcohol per week, or the equivalent of six or more beers, more than two times per week.

Knowledge of alcohol facts refers to the participant's ability to ascertain the correctness of statements about alcohol facts, the effects of alcohol, myths about drinking, and facts about alcoholic beverages as measured by the Student Alcohol Questionnaire (Engs, 1978).

Attitude toward the use of alcohol for the purposes of this study refers to the strength of the participant's agreement or disagreement with statements about intemperate (excessive) use of alcohol by themselves or others.

## CHAPTER II

## REVIEW OF ALCOHOL RELATED LITERATURE

An extensive review of the literature revealed a general lack of research evidence specific to the problems of this study. However, there is a growing body of research on specific factors associated with college student alcohol use. Although these factors have yet to be incorporated into a single theory, a brief review of the most significant of these contributes to an understanding of influences present in the current study. This chapter is, therefore, concerned with reporting on related research in the areas of college students' and more specifically women college students' use of alcohol, knowledge of alcohol facts, and attitudes toward alcohol and its use.

The initial section briefly reviews the literature supporting the research assumption that the freshman year is an active period of change and development for the college student.

The next section, dealing with use of alcohol, focuses on pre-college use rates, various demographic influences on alcohol use, reasons for using alcohol and problems experienced as the result of use of alcohol.

The third section, that on knowledge of alcohol facts, deals with college students' general alcohol knowledge levels, demographic factors that influence knowledge levels, and the relationship between knowledge of alcohol facts and alcohol-related behavior.

The final section, student attitudes toward alcohol, focuses on the relationship between attitude and behavior, research problems with



alcohol attitude studies, influences of various demographic factors on alcohol attitudes, and efforts to change attitudes and influence alcohol-related behavior.

### The Freshman Year as a Period of Change

The fact that attendance in college influences the individual development of students, bringing about changes in knowledge, attitudes, and behaviors, has long been recognized. Prior to the last two decades, and even somewhat today, much research had been concerned with specific personality characteristics, thus contributing limited understanding of the impact of the college experience on the student (Dressel & Lehmann, 1965). However, more recently a wide variety of research has been conducted and theory has been presented to describe and explain the developmental processes of college students (Knefelkamp, Widick & Parker, 1978).

Erikson, speaking of college age adolescents in general, sees the youth as neither a child nor an adult, thus existing in a "natural state of uprootedness" (1964, p. 90). In this stage of development the student must:

pause, reflect, and make sense of himself if he is to manage the complexities of adulthood effectively. The individual must take his childhood self-images, assess his present assets and liabilities, define his future hopes, and actively synthesize an identity, a core self-concept which provides a sense of sameness and continuity...the task of establishing a workable self-definition is preeminent during the adolescent/young adult years (in Knefelkamp et al., 1978, p. 5).

Working specifically with college youth, Chickering (1969, 1974) has written extensively on the developmental processes of college

students. Chickering views the student in essentially an identity formation or identity resolution period, constantly in cycles of differentiation and integration. Newly differentiated perceptions and behaviors are reintegrated and organized to establish a coherent picture of self. Growth in this framework does not come as a result of simple maturation, but as a result of stimulation according to Chickering.

Keniston (1971) developed another theory of psychosocial development of students by studying students in the 1960's. He concluded that the period of college attendance has become so distinctive an experience for today's youth that new developmental tasks have been created. The central theme for Keniston which is applicable beyond the decade he studied, is the tension between self and society. The college period is seen as a stage where the identity task shifts from the individual's preoccupation with who oneself is to the dynamic tension between what he or she wants and what society demands.

There has been some debate whether the developmental growth of students is due to the influence of college or simply part of the general maturation process. Research by Trent and Medsker (1968) indicated that college students have different developmental growth rates than non-students. This longitudinal study followed 10,000 young adults through their first four years after high school, measuring attitude and value changes. The results of the research indicated that the most personality development took place among college persisters, followed by students who withdrew from college, then by employed youth.

In reviewing other longitudinal studies, Astin (1977) noted that such studies clearly show that students undergo a variety of changes

in attitudes, values, and self-concept after entering college. Students develop a more positive self-image as reflected in a greater sense of interpersonal and intellectual competence, and they develop more liberal political views and attitudes toward social issues. At the same time they show less religious behavior and altruism, and show reduced interest in athletics, business, music, and status. Most dramatic is the decline in religious behavior and the accompanying increase in hedonistic behavior (Astin, 1977, p. 212), "which includes drinking" (1977, p. 95). The amount of change varies with sex, race, and ability of the students.

In summarizing the results of both longitudinal and cross-sectional research with college students, Dressel and Lehmann (1965) noted that the research demonstrated that significant changes in attitudes, values, interests, and beliefs do occur between the freshman and senior years. Similarly, Schroeder (1973) noted that with few exceptions studies of the attitudes and values of college students from their freshman to their senior year indicated marked changes.

Of interest to the current study, Freedman (1960) reported on a longitudinal study at Vassar College with an all-women's student population. Substantial personality changes were noted between when the women students entered as freshmen and when they left college four years later. Seniors tended to be more mature but less feminine; they were less authoritarian, more tolerant, and displayed greater religious liberalism; they demonstrated greater acceptance of intellectual values and greater internal conflict than freshmen. In a related study, Lehmann, Sinha and Hartnett (1966) found that college females underwent

a more marked change in their attitudes and values than their male counterparts.

The present study is concerned with student developmental changes during the freshman year and the evidence indicates that this is perhaps the period of most change for the college student. Schroeder (1973, p. 27) notes that "research evidence accumulated from many studies indicated that changes occur early in the college experience, mainly within the first two years, and more particularly within the first year (Webster, Freedman & Heist, 1962; Lehmann & Dressel, 1962; Freedman, 1965; Sanford, 1967)." A more recent study by Waterman, Geary and Waterman (1974) supports Schroeder's observations.

Freedman (1965) concluded that the freshman year appeared to be the period in which changes in interests, opinions, and attitudes were most likely to occur. The situation of the freshman would appear to be "highly favorable to change. His social role of learner is defined to a considerable extent in terms of readiness to change, and his life circumstances are marked by the relative absence of commitments and encumbrances" (p. 26).

In Student Development in Tomorrow's Higher Education, Brown (1972) states that from a developmental standpoint the college years, especially the freshman year, represent critical stages in the developmental process. The independence the freshman gains "is not just superficial decision making...the basic values of the student are now tested as he attempts to work through his ethical, religious, and moral values" (p. 32). Changes related to socialization take place quite early in college. Brown notes that the characteristics of the student when

entering college have a significant impact on how the student is impacted by the college experience, and that the environmental factors most likely to influence the student's developmental pattern include the peer group, the living unit, the faculty, and the classroom experience.

Discussing the developmental status of freshmen in The American College, one of Sanford's (1962) theses is that the college freshman is in a distinctive "stage of development" (p. 254). Any action by the college to promote the growth of the student must be based on an understanding of this stage. "When we consider some of the common features of the freshman's situation--his absence from home, the academic requirements and expectations, the presence of a student society and culture to which he must adapt himself--it seems we are justified in thinking of his entrance to college as bringing about a developmental crisis" (p. 266). Sanford goes on to profile part of the developmental situation of the freshman:

...the freshman...is more developed than the adolescent and less developed than the adult in respect to both impulse and ego. The maximum crisis of adolescence is over, and controlling mechanisms are again ascending. But the controls developed for the purpose of inhibiting impulses are still unseasoned and uncertain...thus the freshman tends to be a convert to adulthood, an enthusiastic supporter and imitator of adult ways. The achievement of flexible control, an arrangement in which there is genuine freedom of impulse...still lies ahead. He is now ready to concentrate upon his relations with the external world--to improve his understanding of the world and to find a place within it (1962, p. 260).

In summary, the literature supports the idea that the period of college attendance is a period of marked developmental change for the student. Further, the freshman year is the time when the student is the most open

to change and when the most change takes place. This readiness to change has implications for student experimentation and use of alcohol.

### College Student Use of Alcohol

One overall conclusion that must be noted in any review of literature concerning college student alcohol use is that no definitive "college drinking pattern" has been demonstrated. In what remains the benchmark study in the field of college alcohol research, Straus and Bacon (1953) surveyed nearly 17,000 college students from 27 institutions and concluded that for the great majority of students drinking does not start in college and shows no dominant collegiate pattern. Nearly 20 years later Maddox (1970) noted the research continues to indicate that exposure to higher education does not produce a distinctive kind of drinker.

The fact that the majority of students entering college have already used alcoholic beverages is well documented. In a major study Blane and Hewitt (1977) reviewed the literature on alcohol and youth from 1940 to 1975 and statistically analyzed the results of all the studies. In the section on high school youth they found that just over 50 percent of the students drank in the 1941-1960 periods. This percentage increased to 60 percent from 1961 to 1965, and further increased to nearly 70 percent in the 1966-1970 and 1971-1975 study periods. The latter results represented a significant increase over earlier periods. A closer analysis of the data indicated while there were 18 percent fewer women drinkers than men among high school students in the pre-1966 periods, this had changed in the later periods to where there were only seven percent fewer women drinkers.

The most recent research on pre-college alcohol use was summarized in the Third Special Report to the U.S. Congress on Alcohol and Health (Noble, 1978). In a national survey 74 percent of the pre-college men and 70 percent of the women had used alcohol. Further, 23 percent of the high school boys and 15 percent of the high school girls were classified as problem drinkers (defined as being drunk six or more times in a year or suffering major negative consequences of drinking two or more times in the preceding year). The figures for high school seniors were significantly above the average (41 and 21 percent, respectively).

Gonzalez and Rozelle (1977) summarize the developmental stages of the entering college student in relation to alcohol use. For the most part the students entering college have already made the decision whether or not to drink. The students are now very likely away from home for the first time and thus are beginning to make decisions on how they will conduct their own lifestyle according to the authors. Many will be experimenting with alcohol and observing others in order to make decisions on how they will drink.

Most reviews of literature on college drinking start with the work of Straus and Bacon (1953). This study, published under the title Drinking in College, as noted earlier, was based on a large, geographically diverse college student sampling. It continues as the model for current research and the foundation for comparison for recent findings. Their initial student usage data indicated that in the early 1950's 77 percent of the men and 61 percent of the college women considered themselves drinkers, a 16 percent differential by sex.

In a later study (Rogers, 1958) students from a midwestern university were surveyed. In this study a 23 percent differential by sex was reported, with 61 percent of the males and 38 percent of the females reporting they drank.

Several studies in the late 1970's reflect more recent findings. Hanson (1974) sampled over 2000 students from a national pool to find that 80 percent of the college men and 73 percent of the college women considered themselves drinkers. At a major southern university the figures were 85 and 82 percent, respectively (Glassco, 1975). And in a survey of 13 universities from all regions of the country, Engs (1977a) found that 82 percent of the men and 75 percent of the women were drinkers.

When contrasted with Straus and Bacon's 1953 figures, the recent figures indicate a 12 to 21 percent increase of women drinkers. Engs (1977a, p. 3) in reviewing the recent literature on college student alcohol use summarized that "there appears to be only a slight increase in the percentage of male students drinking in the early 1970's as compared to the 1950's. There does, however, appear to be an appreciable increase in the women drinkers over this same period."

However, in contrast to the conclusion that higher percentages of men than women drink, several studies have shown just the opposite. Straussberger and Straussberger's (1965) research found more women, by seven percent, drank. Pollock (1969), using freshmen and sophomore students from a western university, found that the percentage of women drinkers was higher than men, 68 to 62 percent. Research by Sanford and Singer (1968) noted that 13 percent more women than men were drinkers in the college students they surveyed.



Several authors have discussed the apparent inconsistency in reports of drinking by sex. Orford, Waller, and Peto (1974) reported that men scored higher than women on measures of frequency, quantity and rate of drinking, but found the differences to be unimpressive and not consistently significant. Another study concluded that although women generally drank less, a lot depends on the definition of less (Knupfer & Room, 1964).

The apparent inconsistency in results could be attributed to methodological problems according to Blane and Hewitt (1977). They conducted a major review of literature on alcohol and youth with the intent of statistically analyzing all compatible data. For college youth only 31 men's and 26 women's alcohol studies between 1936 and 1975 could be compared statistically. These studies were analyzed by time period utilizing the mean percentage of college drinkers for each study. The results show that for the 1936-1965 period roughly 78 percent of the college men and 71 percent of the women drank; for the 1966-1970 period 92 percent of the men and 90 percent of the women drank; and for the 1971-1975 period 89 and 85 percent drank. The percentage of drinkers reported in the latter two periods were significantly higher than those in the earlier periods, but were not significantly different themselves.

The overall statistical review of the data on college women led Blane and Hewitt to conclude that a curvilinear pattern of use existed, with higher women's usage in the late 1960's, lower usage in the early 1970's, and then increased usage starting in 1974 (there were too few pre-1966 studies for statistical analysis).

Moving away from the area of overall usage levels, the remainder of this section briefly reviews research into specific factors related to general college student alcohol usage and, whenever possible, research specific to college women. These areas include frequency and quantity drunk, academic achievement, religion, parental and peer influences, and reasons and problems associated with alcohol usage. This review represents areas which have attracted the most research attention to date.

Frequency and quantity of alcohol consumption, or a combination of both (called a Quantity-Frequency measure, discussed in Chapter 3) are commonly studied factors. Frequency of use is probably the most often reported factor after "use versus non-use" statistics. In spite of this there has not been enough quality research in the area published to make meaningful statistical comparisons or to suggest specific trends (Blane & Hewitt, 1977). However, rough comparisons with individual studies suggest some general trends.

A comparison of Straus and Bacon's (1953) frequency of use figures and Barnhart's 1974 data show a change from 16 percent to 49 percent of all college student drinkers reporting drinking at least once per week. Miller and Hunsaker's (1970) study noted that 45 percent of the students drank "once per week" or more, while a similar study found 63 percent of the students drank with roughly the same frequency (Groves, 1974). Further, the number of drinkers in all frequency categories are generally greater today than in Straus and Bacon's findings (Blane & Hewitt, 1977).

As noted in the previous chapter, reports of college women's alcohol overall "use versus non-use" figures, much less frequency by sex figures, are scarce (Corrigan, 1974; Wilsnack, 1976; Sandmier, 1977; Beckman, 1976). However, three more recent studies do offer some comparison to Straus and Bacon's (1953) findings that 37 percent of the college women drank one to four times per month, while ten percent drank more than once a week. A study using California State College students (Pollock, 1969) found nearly 40 percent of the women drank one to two times per month while nearly 20 percent drank one or more times per week.

Kuder and Madson (1976) found that virtually eight out of ten Colorado State University women drinkers averaged one to three drinks per week, with another eight percent drinking more heavily. In a very recent study, Hill and Burgen (1979) reported that over 60 percent of the college women surveyed drank "occasionally" (less than two times per week) and almost another quarter drank "two or more" times per week.

Quantity of alcohol consumed is another factor researchers have attempted to analyze. However, methodological problems have not been resolved well enough to allow reporting of quantity to be used as an independent factor (Straus & Bacon, 1953; Cisin, 1963; Cahalan, Cisin & Crossley, 1969). Again Pollock (1969), Kuder and Madson (1976) and Hill and Burgen (1979) were among the few studies which reported figures on women. Pollock's study of freshmen and sophomore women noted that 39 percent of those sampled drank an average of two to four drinks per sitting, while another 15 percent drank five or more drinks on an average occasion. Kuder and Madson reported in "drinks per week"

units, finding that 56 percent of the women drank one or two drinks per week, 25 percent drank three to six drinks per week, and 19 percent consumed seven or more drinks in an average week. Hill and Burgan noted that 34 percent of the women beer drinkers and 45 percent of the liquor drinkers averaged two to four drinks per sitting (compared to Straus and Bacon's 1953 figures of 26 and 33 percent, respectively) and another 11 percent of the beer drinkers and 12 percent of the liquor drinkers drank more than four drinks per sitting (compared to Straus and Bacon's 1953 figures of one to seven percent for each).

As discussed later in Chapter 3, the combined Quantity-Frequency (Q-F) measure is the most commonly used reporting method currently. Straus and Bacon (1953) developed the earliest form of Q-F measure and as a result of their findings classified women drinkers into two categories. Seven out of 10 women were Type 1 drinkers (drinking small amounts of alcohol less than once per week) while the remaining three out of ten were "heavy" or Type 2 drinkers (drinking moderate to large amounts of alcohol two to four times per month or any amount more than once per week).

In the most recently published survey using a large, national student sample, Engs (1977a) found a six-point Q-F classification to be the most descriptive. It was found that about one quarter of the women surveyed were abstainers. Fourteen percent were "infrequent" drinkers and a similar number were "light" drinkers. As consumption increased, 27 percent were moderate drinkers (once per month with no more than three to four drinks total or once per week with one or two drinks), 18 percent were moderate-heavy drinkers (three to four drinks

once per week or four to five drinks once per month) and finally four percent of the women were heavy drinkers (more than once per week with five or more drinks per occasion).

The use of alcohol by college women based on their class standing (year in college) has been fairly well studied. Straus and Bacon's (1953) figures indicated that 46 percent of the freshmen women drank, along with 59 percent of the sophomores, 66 percent of the juniors and 77 percent of the senior women (compared with 69, 81, 83, and 87 percent, respectively, of the college men sampled). It was concluded that the incidence of drinking by both sexes increases with each year in college with a gradual narrowing of the gap between the percentage of men and women drinkers.

Rogers (1958) in a midwestern university study found roughly the same steadily increasing percentage by year in college pattern of alcohol use for college women, although it was from a much more conservative drinking population. The percent of drinkers rose gradually from 20 percent (freshmen women) to 57 percent (senior women). A later study (Hope, 1972) surveyed freshmen and sophomore women for similar differences based on class standing. It was found that 54 percent of the entering freshmen women drank, while 81 percent of the sophomore women drank. This 27 percent increase for women drinkers is contrasted with a six percent increase for the men sampled.

Hanson's 1974 research further supported the increase by class standing hypothesis; however, the results also indicated a somewhat dramatic change within the pattern. Women's use increased each year from freshmen (70 percent) to senior year (85 percent) as predicted.

However, the range of increase was reduced from 31 to 15 percent, and more significantly nearly a quarter more of the freshmen women were drinkers.

The pattern of increased usage by year in college may be disappearing, however. A recent national study by Engs (1977a) found no significant difference in alcohol usage based on year in college, thus supporting findings by Pollock (1969), Penn (1974), and Glassco (1975).

Because of the academic setting attempts have been made to correlate student alcohol use to academic performance utilizing the grade point average. Most studies have simply compared abstainers' grades to drinkers' grades. The results have been somewhat contradictory. A common assumption, supported by the research of Milman and Su (1973), is that alcohol usage will lead to poor academic performance. They found grade point averages were negatively correlated to heavy use of alcohol, with a significant linear correlation between poorer grades and increasing use of alcohol. Jessor, Carmen, and Grossman (1968), in a study exploring factors associated with need satisfaction, found a similar relationship between grades and drinking.

In a study on marijuana, alcohol and academic achievement (Finnell & Jones, 1975) a slightly different but not totally contradictory conclusion was reached about alcohol usage and grades. Based on longitudinal data, it was found that alcohol users reached their predicted academic achievement levels; however, abstainers exceeded their predicted achievement levels.

In a more recent study (Engs, 1977a) the findings supported the original hypothesis that alcohol affected grades negatively. The

results indicated a significant correlation between grade point average and the Quantity-Frequency level; the higher the grade point average the less the student tended to drink.

Religion is one of the few factors which has been shown to have a strong effect on alcohol use. As is true in most areas of college student alcohol use, Straus and Bacon's (1953) work remains the definitive work on the topic. Jewish, Catholic, Protestant and Mormon affiliated students were studied and it was found that alcohol usage was consistent with the sanctions of each religion. Jewish students, whose religion has no specific sanctions on alcohol use, had the highest percentage of users (94 percent of the Jewish students surveyed). Catholic students, who have no religious sanctions against alcohol but encourage abstinence by youth, were the next highest user group, followed by the Protestant students, whose churches tended to take mixed positions on alcohol use. Mormons, whose religion is noted for the most severe sanctions against alcohol use, were the most abstinent students (46 percent of the men and 77 percent of the women students surveyed abstained). Where religious sanctions prevailed women were more abstinent than their male counterparts, suggesting religious pressure was more effective on women students.

Participation in religious activities did not seem to influence the drinking or abstinence of the Jewish or Catholic students in Straus and Bacon's (1953) study. Among the Protestant students religious participants tended toward abstinence as a group while irregular or non-participants tended more toward drinking. The most striking pattern was with the Mormon students, where 20 percent of the men and

six percent of the women who regularly participated in church activities also drank, while three quarters of the men and half of the women non-church participants drank.

A 1976 study conducted by Moos, Moos, and Kulik compared freshmen student abstainers, moderate and heavy drinkers. Among the findings it was noted that proportionately more heavy drinking students (of both sexes) were Catholic and proportionately more abstainers (of both sexes) were Protestant.

Straus and Bacon's (1953) conclusions on the influence of religion noted above have also been supported by a study by Hanson (1974) which noted that the patterns were roughly the same except that the overall usage rates indicated a higher incidence of drinking for all the religious groups except for the Mormon group. Hanson considered the Mormon statistics an aberration in that the sample group was from the mutually-reinforcing atmosphere of Brigham Young University.

Parents' use of alcohol has been studied as a possible influence on college students' drinking. Hanson (1974) in a review of literature on drinking attitudes and behaviors among college students concluded that "the incidence of student drinking will be positively associated with the incidence of parental drinking" (p. 7). Straus and Bacon (1953) concluded that the parental example was an important influence in the decision of students to drink. This conclusion was based on the fact that nearly 90 percent of the students from homes where both parents drank were also drinkers compared to just over 50 percent who came from abstinent homes. In situations where only fathers drank nearly 90 percent of their college daughters drank, while in situations



where only mothers drank nearly three fourths of their college daughters drank.

Hope (1972) found that college females drank in much greater numbers than their mothers, while correlations with father's drinking were inconclusive. In every classification except seniors, college women drank at a rate of at least two to one when compared to their mothers. Similarly, Parfrey (1974) found no significant association between father and college daughters' drinking, but did observe a significant association between the use of alcohol by mothers and the drinking practices of their college daughters.

Glassco (1974) went beyond the earlier studies of parent and student drinking correlations (which simply considered drinkers versus abstainers) by relating student drinking to their parents' amount of alcohol usage. It was found that compared with their fathers, 60 percent of the college women with abstaining fathers also drank themselves, 97 percent with moderate drinking fathers drank, and a slightly lower number (94 percent) drank and had heavy drinking fathers. Sixty-eight percent of the college women with abstaining mothers, 97 percent with moderate drinking mothers, and 100 percent of those with heavy drinking mothers also drank themselves, thus supporting earlier findings on the influence of parental drinking.

The influence of peers on almost every adolescent behavior have been studied, although not heavily in relation to alcohol use. Rogers (1970) summarized previous findings in a review of literature. Drinking among college students is regarded as primarily a social behavior and students are seldom found drinking in isolation. The decision whether

to drink or abstain is for a large part influenced by the reference groups important to the students.

Hanson's (1974) review of literature concluded that the incidence of drinking among college students is associated with the incidence of drinking among their friends. Over half of the students Hanson surveyed had their first drinking experience with friends while fewer than one third had their first drinking experience with their parents.

As might be expected in a field where little research has been conducted, there are conflicting conclusions on the influence of friends on drinking. Work cited by Britt and Campbell (1977) indicated that high school students making the transition to college predominantly accommodated their friendships to match their earlier usage of alcohol. More specifically, the students constructed a social reality around alcohol, selecting individuals and groups which were compatible both with the student's level of alcohol use and the constraints of his or her normative structure.

The influence of peers on drinking habits is less clear in other studies. Parfrey (1974) found that encouragement of students by their friends to drink was not significantly associated with student patterns of drinking behavior. A similar study found that over half of the students felt no pressure from their friends to drink (Hanson, 1974), which implies that half did feel pressure. Forsland and Gustafson (1970) found that at least for pre-college students, males seemed to drink regardless of the amount of peer pressure, whereas an increase in peer pressure from none to moderate resulted in a significant increase in the proportion of females who drank.

It is appropriate to briefly note reasons given by students for drinking and some problems associated with student alcohol use. Straus and Bacon's (1953) data on college women's reasons for drinking indicated enjoyment of taste, complying with custom, to be gay (happy, festive), to relieve tension, to get along better on dates and to relieve symptoms of illness or physical discomfort were the most often cited reasons (in order). The responses to the date and illness categories were the only ones significantly different (in this case higher) than those of the men studied. Women's most frequent reasons for abstaining included (in order) dislike of the taste or health effects, contrary to religious-moral training, and parents' or friends' disapproval.

Looking at more recent studies, Looney (1976) found that drinking for taste, to be sociable, to get high or to get drunk (20 percent of the respondents) were the most often cited reasons. To have fun, to relax, and to enjoy the taste were the top reasons cited by college women in a study by Panken, Gonzalez, and Martin (1976).

A Texas University study (Hill & Bergan, 1979) reported that while men drank when they felt good, more women reported drinking when they felt either "nervous" or "content." Women also more often reported relaxation or reduction of tension and increased sociability when drinking.

In an Oregon study Penn (1974) noted that 37 percent of the total group surveyed reported alcohol was valuable for relief from tension or relaxation. Sorority women, the only group cited composed exclusively of women, reported using alcohol for the same reasons but in much greater numbers.

In a final and somewhat more involved study, Jung (1977) categorized students as mature (e.g., drinking on special occasions) or immature (e.g., drinking to increase self-confidence) drinkers and studied their motives for drinking. The most frequently cited motives for drinking of mature drinkers (in order) were special occasions, to be friendly and to be polite, with no other response being given more than 15 percent of the time. For immature drinkers, special occasions, to be friendly, to reduce inhibitions, to get "high" or "smashed," to be "in," to relieve tension or pressure, to increase self-confidence and six other reasons were cited more than 15 percent of the time.

Student problems associated with drinking are many and varied. Straus and Bacon (1953) reported that 49 percent of the college women surveyed reported being "tight" at least once, 18 percent reported being drunk, and nine percent had passed out as a result of drinking. Blane and Hewitt (1977) noted, with slight reservations because of methodological weaknesses in more recent research, that a review of literature indicates current rates of "tight" experiences are comparable to Straus and Bacon's findings, but the "drunk" experiences may be higher today. Similarly, Demone and Wechsler (1976) noted that the frequency of intoxication has risen dramatically especially among women, and this drunkenness (versus drinking per se) represents a distinct and disturbing alcohol problem.

Few recent studies have separated data on drinking problems by sex with the exception of Hill and Bergan (1979), who noted that 60 percent of the women sampled had been drunk "occasionally." Five percent

reported having been drunk weekly. Hanson's (1974) study indicated that for both sexes, 12 percent had alcohol-related trouble with family, six percent with school authorities, and seven percent with the law.

Engs' (1977a) study of a national college population (not separated by sex) found that drinking problems reported by at least 45 percent of the students included (in order) hangovers, nausea and vomiting, driving after drinking, driving after excessive drinking, and driving while drinking. Nearly one quarter of those surveyed had missed college classes because of a hangover and nearly one student in ten had experienced legal problems associated with drinking. Engs found that it was common for about half of all students to have had up to four problems occur as a result of drinking. Engs' findings were closely substantiated by the earlier findings of Panken et al. (1976).

In summary, the literature indicates that the use of alcohol by college students is quite common. Most students begin drinking prior to college and the percentage of drinkers continues to increase in college. Many attempts have been made to correlate various demographic factors to alcohol use, but with the exception of religion the correlations have been inconclusive.

#### Student's Knowledge of Facts About Alcohol

Of the three major areas explored in this study (alcohol use, knowledge, and attitudes of college women students), college students' knowledge of alcohol facts has been studied the least. No studies have been reported which are similar to the current study, where knowledge

of alcohol facts are compared to the level of alcohol usage and, in addition, explores changes in alcohol knowledge as a function of the general college environment (non-treatment changes). The studies that have been reported have either been cross-sectional in nature, dealing with several different groups at only one point in time, or as a part of the evaluation of a specific treatment process, such as a campus alcohol education program.

The few studies that have been reported have indicated that college students as a whole have a general lack of knowledge (Engs, 1978), in fact only one youth study (with high school students) concluded that students had an adequate knowledge of alcohol information (Sliepcevitch, 1964). Milgran (1978) accurately summarized the research by concluding the majority of young people graduating from high school know little about alcohol and even less about their own feelings about alcohol use.

Pollock (1969) surveyed 465 California college students on drug and alcohol knowledge and found that out of 62 questions the mean number of correct responses was 35. In a 1975 west coast study (Evans, Deward, and Blank) the mean number of correct responses for a similar survey on alcohol knowledge was about 40 percent.

Engs (1978) likewise obtained results showing that students possess little knowledge about alcohol as the students answered just a little over half of the questions accurately. One third thought alcohol was a stimulant and nearly half believed coffee was an effective method of sobering up. Over 80 percent did not know the legal definition of drunkenness (0.1% blood alcohol concentration in most states), over 60

percent did not know what "proof" on a bottle represented and a similar percentage did not know food would slow down the absorption of alcohol into the blood stream.

Hill and Bergan (1979) asked students 12 questions on the effects of alcohol on the human system. Most students only got half correct, with men scoring slightly higher than women. The most frequently missed areas included factual information on alcohol proofs, oxidation rates, sobering techniques, drug combinations and legal definitions.

In a study utilizing the Kilander Health Knowledge Test with 49 Texas college students, Campbell and Early (1967) found women had a significantly higher knowledge of alcohol and drugs than men. This finding that women know more about alcohol facts supported similar research with high school students (Sliepcevitch, 1964).

Engs (1976), however, used the same Kilander Health Knowledge Test with 100 volunteers for crisis intervention centers, primarily students in a southern university, with differing results. It was found that men had significantly higher scores in the area of alcohol and drugs than women.

In the most recent study reported on the topic, Engs (1978) added support to the contention male students generally know more about alcohol facts than female college students. With a nationally drawn sample of college students Engs found that significantly more men scored above the mean than did women on the Student Alcohol Questionnaire (discussed in Chapter 3).

The previously cited Engs (1978) study is perhaps the best current study of alcohol knowledge and college students.

The Student Alcohol Questionnaire (SAQ) knowledge scores were compared with various demographic variables of the students surveyed. These included sex class, grade point average, race, and religion. The results of these comparisons, noted below, have added a great deal to the field of college student knowledge of alcohol facts (Engs, 1978).

Engs found a slightly significant relationship between class level and alcohol knowledge as measured by the SAQ. Juniors and seniors in this case tended to obtain more high scores than the freshmen and sophomores (Engs, 1978).

Statistical analysis of student knowledge scores and grade point averages showed no significant relationship between the two variables. However, a trend appeared in observable but non-significant levels, indicating that students with lower grades tended to have lower scores (Engs, 1978).

The Engs' study found a highly significant relationship between knowledge scores and race. A much higher percentage of white students obtained scores above the mean than did black students (Engs, 1978).

Religion also turned out to be significantly correlated to the knowledge score. Generally students from religions which allowed drinking had much higher scores than students from backgrounds which did not allow drinking. Students with higher knowledge scores came from Roman Catholic, Jewish, and the Protestant churches that allowed drinking, while the Mormon, Pentacostal, Protestant, Mohammedan and other religions not allowing drinking scored lower (Engs, 1978).

The previously cited literature dealt with college student's general knowledge of alcohol facts and not with the relationship



between alcohol knowledge and behavior. A few studies have attempted to relate alcohol knowledge to behavior, or more specifically to negative behavior. Gonzalez (1978) surveyed nearly 500 college student drinkers from five southern campuses for the relationship between a set of proposed responsible drinking behaviors, the student's knowledge about alcohol, and the negative consequences the students had experienced as a result of using alcohol. No relationship was found between knowledge about alcohol and the incidence of negative consequences experienced as the result of drinking.

The step beyond correlating alcohol knowledge and behavior is to manipulate knowledge in hopes of changing behavior. On campus this is traditionally the goal of alcohol education programs. The assumption behind the alcohol education model is that a causative relationship holds between controlled presentation of information and changes in attitude and behavior (Globetti, 1973). In other words, the way to change an individual's attitudes and behavior is by increasing in some way that person's factual knowledge (Kinder, 1975).

To date, however, there has been no empirical evidence of the effectiveness of alcohol education programs on drinking behavior (Dennison, Prevet & Affleck, 1977). The few evaluative efforts have reported gains in factual knowledge and/or shifts in alcohol related attitudes by the students (Williams, DiCicco & Unterberger, 1968), but no measurable effect on alcohol-related behavior.

Typical of studies attempting to change alcohol related behavior by increasing knowledge was a study by Engs (1976). This study utilized an experimental and a control group of students. The

experimental group was exposed to an alcohol education program designed to increase knowledge of basic facts about alcohol, while the control received no such treatment. The results indicated that there was a significant difference in knowledge about alcohol between the experimental and control groups as a result of the treatments. However, there was no significant difference in the number of negative behavioral consequences that each group experienced as a result of alcohol use.

In summary, research concerning college students' knowledge of alcohol facts has been extremely limited. The literature indicates that students have a general lack of knowledge about alcohol. Several demographic factors have been positively associated with knowledge of alcohol facts, but lack of attempts at replication leave the findings unsubstantiated. No empirical evidence has been presented that knowledge of alcohol facts influences alcohol-related behavior.

#### Students' Attitudes Toward Alcohol

The concept or role of attitudes about alcohol and use of alcohol is important in research into college students alcohol use. There is a strong theme in the literature which supposes that the assessment of attitudes toward drinking is necessary for both an understanding of the nature of the drinking experience, and also for the prediction of later drinking behavior (Orford et al., 1974).

Many feel that there is a strong learned component in alcohol use (Jessor et al., 1968; Maddox & McCall, 1964) as opposed to attitudinal influences, but the issue is far from resolved. Huebner et al. (1976) summarizes the situation. "If attitudes toward alcohol are seen as

occurring prior to variations in drinking behavior, then a causal role for attitudes is implied. Conversely, if attitudes toward alcohol are viewed as the result of drinking behavior, the emphasis on attitude change becomes secondary. It appears, however, that this is not a simple either/or situation for, clearly, attitudes and behavior have reciprocal functions" (p. 386). Cahalan (1970) concurs by noting "attitudes affect drinking and drinking affects attitude" (p. 156).

Major problems exist with the research that has been conducted on attitudes about alcohol. Statistical and methodological problems appear to be the rule rather than the exception in the area of alcohol attitude research (Kinder, 1975). Only a small number of studies can be considered methodologically sound. Few even agree on the definition of what is an attitude toward alcohol.

Veevers (1971) summarizes the researchers' problem:

A researcher who wishes to assess social attitudes toward alcohol use is in somewhat of a quandry. Even with the most common approach, that of direct and structured questions, he is confronted by a proliferation of specific techniques with virtually no guidance as to which is preferred under what circumstances. Moreover, there is some research evidence suggesting that often different techniques yield essentially the same results. All the researcher can do is choose one of the techniques on the basis of preference or convenience, and hope for his purposes it assesses the attitude dimension adequately (p. 103).

Like the areas of student alcohol use and student knowledge of alcohol facts, the research on attitudes of the college population toward alcohol and alcoholism has been far from exhaustive (Huebner et al., 1976). Coupled with the problems of attitude definition and methodology, a patchwork of literature, not unified by any theory, has resulted. Therefore this review of literature can only present research

findings which appear to be key to the topic but which have not yet been integrated into an overall theory.

Several factors which can loosely be titled "demographics" have been correlated with college student attitudes toward alcohol and its use. Attempts to correlate attitudes with demographic variables have generally yielded inconsistent results, with the exception that religious upbringing does appear to be a significant variable (Kinder, 1975).

Straus and Bacon (1953) found attitudes closely paralleled the position of the student's religion on alcohol. Favorable attitudes (people should be allowed to drink) were expressed by students from Catholic, Jewish and Protestant denominations which allowed drinking. Unfavorable attitudes (people should not be allowed to drink) were expressed by students with conservative Protestant and Mormon backgrounds. The frequency of attendance in church activities accounted for variability with religious groups, with infrequent church participants indicating more favorable attitudes toward alcohol use. These findings were confirmed by later studies (Linsky, 1965).

Weir (1969) studied variables that affect the degree of change in attitude toward alcohol in a student population. The four significant variables Weir found included age, intelligence, involvement in a family alcohol problem, and ego involvement in the particular issue (which was, in turn, influenced by the sex of the student).

Knowledge of alcohol facts, as noted in the preceding section of this chapter, has been studied in relation to college students alcohol use, and correlations between knowledge and alcohol attitudes have been attempted. Although the research evidence is partially contradictory,

the majority of the research suggests that factual knowledge about alcohol is not consistently and significantly correlated with alcohol attitudes (Kinder, 1975).

The influence of parents on student attitudes toward alcohol has been debated also. Hanson (1974) concluded after reviewing the literature that the incidence of drinking among college students was positively associated with parental attitudes concerning drinking. In a 1973 study by Hoffman and Warner, however, it was found there was essentially no relationship between attitudes toward alcohol held by parents and their college student children. A related study involving students from a small university (Freeman, 1972) supported Hoffman and Warner's findings.

The finding that parental attitudes have no influence on student's attitudes is in disagreement with findings by Adelson (1970). In the Adelson study it was shown that students held basically the same attitudes as their parents. In a similar study (Walker, Jasinska & Carnes, 1978) it was found that parents could influence student attitudes to a certain degree, but not nearly as effectively as peers.

Focusing on peer influence, Roger's (1970) study of peer groups in relation to alcohol use found that "attitude changes can effectively be brought about via group influence (p. 309). For college students group influence is strong where the group is especially attractive to the individual; where the individual feels a strong association with the group; and where the group holds high prestige with the individual" (p. 310). In a similar report, Cahalan (1970) found that peer influence was the most effective means of treatment and prevention in a college

population, thus concluding that peer pressure can affect attitudes of student alcohol users.

One area of attitude research involving women and alcohol that has drawn recent attention is the so-called "double standard." Straus and Bacon (1953) described the "double standard" as an attitude which prescribes greater license in drinking to men than to women. Morella (1974), in a review of female alcoholics in history, culture, and jurisprudence, noted that historically men college drinkers would be dismissed as just having fun while women college students on a drinking spree would be met with public outrage.

In general most of Straus and Bacon's (1953) data on attitudes, whether toward drinking, drunkenness or abstention in others revealed double standard according to sex. Knupfer (1964) reported the same phenomenon existed with both male and female respondents a decade after Straus and Bacon's work.

The more recent studies have noted some slightly but not overwhelming changes in the double standard attitude. Johnson and Garzon (1977) found while there was a more permissive attitude today about women's drinking, there has been little change from attitudes of disgust and scorn toward female intoxication. Hanson (1977) concluded that "the double standard for alcohol is disappearing for women and is consistent with similar reductions of the double standard in sexual behavior, smoking and other women's behavior" (p. 20).

A goal of research on alcohol attitudes is to discover how attitude influences drinking behavior. Attempts at prediction or control of alcohol use and alcoholism generally assume that social attitudes are relevant (Veevers, 1971).

There has been significant evidence to show that attitudes and behavior are highly correlated. Straus (1970), reviewing early work with Bacon, noted that a "high degree of consistency was found between the students' drinking behavior and their opinions regarding the propriety of drinking in others" (p. 36). Orford et al. (1974) added support to this finding by noting that consistency between drinking behavior and attitudes was apparent among students. Veevers (1971) also demonstrated a high correlation between students attitudes toward drinking of alcoholic beverages and their reported drinking behavior.

Despite Rand's et al. (1970) contention that attitudes toward alcohol and its use are formed prior to college and that little can be done to modify such attitudes, most alcohol educators agree with Huebner et al. (1976) that the relationship between attitude and behavior has implications for both alcohol treatment and prevention education. The basic contention is that effective means of attitude change can be implemented after establishing the relative importance of various attitudes.

Unfortunately, neither Rand's et al. (1970) or Huebner's et al. (1976) contentions have been experimentally tested with a significant college population. The studies with high school populations have produced ambiguous results. Williams et al. (1968) presented an alcohol education program over a one term period to high school boys. At the end of the program there were significant changes in attitude toward temperate (moderate) use of alcohol by the experimental group. However, these changes were not significantly different from changes in the control group. The changes were maintained over one-month and

one-year periods, but again the differences between the experimental and control groups were not significant. Because of methodological problems the results were inconclusive for changes in alcohol related behavior.

Weir (1968), however, found contrasting results with high school students. As the result of a lengthy (one year) alcohol education program, significant changes in attitude occurred for the experimental group over the control group.

In summary, while attitudes toward alcohol are seen as an important factor in understanding college student use of alcohol, methodological and definition problems have hampered research conclusions. Most research into factors influencing attitudes has produced inconclusive results. While the idea remains that attempts to change attitudes toward alcohol can result in positive changes in alcohol related behaviors, empirical proof with college populations has yet to be reported.



## CHAPTER III

## METHODOLOGY AND PROCEDURES

The purpose of this chapter is to summarize the methodology used in testing the hypotheses developed for this study. Specifically, the chapter describes the subjects, the sources of the data, and the procedures used in collecting and analyzing the data.

Subjects

The subjects selected for this study were freshmen women entering Oregon State University in fall term, 1979. A total of 2026 women fulfilled the requirements for inclusion in the study population. Utilizing standard random sampling techniques 416 women were invited to participate in the study. Subjects were selected from three pools of entering freshmen women: those participating in the Summer Orientation and Advising Program (SOAP) residential orientation program (those staying in university residence halls during orientation); those participating in the SOAP day orientation (those commuting to campus for orientation); and those not participating in the SOAP programs. Table 1 summarizes participation in the pretest phase of the study.

Table 1. Summary of Pretest Participation.

	SOAP Residential Orientation	SOAP Day Orientation	Non-SOAP Orientation	Total
Invited	153	151	112	416
Usable Returns	58	75	43	176*
Percentage	38%	50%	38%	42%

\*This figure represents 8.7% of the total freshmen women.

A total of nine women were disqualified between the summer pretest and the winter term posttest because they withdrew from the university during the fall term, leaving 167 eligible participants. Of these, 132 women, or 79 percent of the initial participants, completed the study.

### Sources of Data

The primary source of data for this study was a composite questionnaire containing a measure of alcohol use (Quantity-Frequency Index), a test of knowledge of alcohol facts (Student Alcohol Questionnaire), and a measure of attitude toward alcohol use. Demographic and alcohol-problem data were collected for background purposes but were not used directly in testing the hypotheses developed for this study. The questionnaire also contained a procedure creating a personal code number for each participant, thus allowing direct comparison of pretest and post-test data.

### Quantity-Frequency Index

The problem of accurately measuring alcoholic beverage consumption and classifying people based on alcohol consumption is complex. Factors such as quantity consumed, type or strength of beverage, the frequency, regularity, and consistency of drinking habits are only a few of the variables that must be considered. While researchers such as Cisin (1963) and Cahalan, Cisin, and Crossley (1969) note that no single criterion or method adequately encompasses the multiple factors for precise measurement, the quantity-frequency index approach is the best current method.

Straus and Bacon's (1953) initial approach to the measurement problem still serves as the basis of current techniques. Because measurement of quantity consumed or frequency of consumption alone were not adequate indexes of drinking, Straus and Bacon developed the basic quantity-frequency formula to account for both factors at the same time. Major studies by Maxwell (1952), Mulford and Miller (1960, Knupfer et al. (1963) and Jessor et al. (1968) used more complex versions of the basic formula with only moderate increases in precision.

The basic quantity-frequency (Q-F) index estimates the approximate amount a person drinks by multiplying the amount usually drunk on an average occasion by the reported frequency of drinking over a period of time. Borrowing from measures suggested by Jessor et al. (1968), the participants in this study were first asked to estimate how frequently they drank the three major types of alcoholic beverages (beer, wine, and hard liquor). Responses were on a six point scale ranging from "one or more drinks per day" to "at least once per year" or "never." The midpoint of the choice interval served as the frequency figure for computations. If the student indicated drinking "one or two times per week" (choice C), all calculations were based on 1.5 usages per week. A complete description of the frequency measure is found in Appendix C-1.

The quantity of alcohol consumed was measured by asking the participants to estimate the amount they drank of each beverage in an average sitting. Response choices for each beverage ranged from "seven or more bottles/glasses of beer" (or "one bottle-ten glasses of wine" or "seven or more drinks of hard liquor") to "never" drinking the beverage. For computational purposes the midpoint of each choice interval was

multiplied by the average amount of absolute alcohol per serving for each beverage. A response of "five or six bottles/glasses of beer" in an average sitting (choice B) was figured on the basis of 5.5 bottles multiplied by .444 ounces of absolute alcohol, the average amount per bottle of beer. This yielded an absolute alcohol per serving figure (in ounces) for each beverage for each individual (see Appendix C-1).

The subject's individual Q-F score was developed by combining the quantity and frequency measures for each beverage. The following formula illustrates the computational process:

$$(Q_1 \times F_1) + (Q_2 \times F_2) + (Q_3 \times F_3) = \text{Q-F Score}$$

where Q = quantity of beverage consumed

F = frequency of alcohol consumed

1 = beer

2 = wine

3 = hard liquor

Q-F Score = overall average amount of absolute alcohol (in ounces) consumed by the individual per week.

As Cisin (1963) and Cahalan, Cisin, and Crossley (1969) have noted, extensive reliability and validity tests have not been conducted with Q-F indexes, nor is such a procedure necessary for studies such as the current one. The Q-F index is most useful as a convenient tool for the purpose of group comparisons (Mulford and Miller, 1960). Cisin notes:

It seems appropriate to point out that what is of interest here is not the detailed accuracy of any subject's report; the uniqueness of any individual and the reproducibility of his behavior should be the problem of clinical studies and not of gross, large scale surveys. Rather, what is of interest here is the classification of individuals into rather broad categories. Thus question of validity ought not to be asked about the truthfulness of any individual statements, but about the resultant summary classification of each individual (1963, p. 608).

Basic confirmation of satisfactory reliability and validity of Q-F measures have been reported by Mulford and Miller (1960) utilizing internal consistency checks and by Kirsch et al. (1965) with pre-treatment alcoholics and control groups.

The advantages of utilizing the Q-F measure include summarizing the quantity and frequency of consumption of beverages of differing alcohol content in a single figure; a complex question is broken into components adding to the overall accuracy; the results are easily comprehensible and can be translated easily into other meaningful units (beers, drinks, etc.); and it permits calculation of group statistics which were not possible when discrete, descriptive categories are used. The disadvantages of the Q-F measure is that within a narrow time frame discrimination is lost between the person who drinks a large amount once per week and one who drinks lesser amounts daily.

Various categorization systems for types of drinkers, based on the Q-F indexes, have been published. Straus and Bacon (1953) initially suggested two sets of categorizations, one for men and one for women college students. Men were divided into five types of drinkers, ranging from abstainers/infrequent drinkers (virtually no alcohol use) to heavy drinkers (more than 1.3 ounces of absolute alcohol or roughly three

beers, one or more times per week). However, only two types of women drinkers were noted. The women's categorization basically kept the men's abstainer/infrequent drinker category, then collapsed all men's drinker categories into one category for all women drinkers.

Later studies for the most part utilized Straus and Bacon's (1953) categorizations of men drinkers for both sexes. In a study sampling the general population of Iowa, Mulford and Miller (1960) increased the quantity standard from 1.3 ounces to 1.6 ounces of absolute alcohol as the breaking point between non-problem and problem drinking. Studies by Rosellini and Worden (1979) and Engs (1977a) further increased the amount of alcohol considered to be problem.

For the purposes of this study the drinker classification categories suggested by Engs (1977a) were utilized. These categories were developed recently and utilized college students as subjects. Engs' six categories of college drinkers were reduced to five for this study by collapsing the "heavy" and "problem" drinkers into one category. To simplify computations each category was stated in terms of ounces of alcohol consumed per week. Table 2 describes the alcohol use categories for this study.

Table 2. Categories of Alcohol Users.

Type	Absolute Alcohol per Week	Description
Abstainer	0	Does not consume any alcohol.
Infrequent	up to 0.3 oz.	Does drink, but averages much less than one beer per week.
Light	0.4 to 1.0 oz.	Averages the equivalent of one to two beers per week.
Moderate	1.1 to 2.3 oz.	Averages the equivalent of five to six bottles of beer, one time per week.
Heavy	2.4 oz. or more	Averages the equivalent of six or more beers, more than once per week.

### Student Alcohol Questionnaire

The Student Alcohol Questionnaire (SAQ) was developed by Ruth Engs (1978) for the University 50+ 12 Project. Started in 1975, this project involved 62 public and private universities in research and educational programs in the area of college student alcohol use and abuse. The SAQ contains both behavioral and knowledge scales; however, only the latter was used to test the hypotheses in this study.

The knowledge section consisted of a series of 36 true-false statements. The statements were developed from published material of the American Medical Association, Alcoholics Anonymous, and the National Council on Alcoholism. The statements cover: facts about alcohol (e.g. Alcohol is a drug); the effects of alcohol (e.g. Liquor taken straight will affect you quicker than liquor mixed with water); myths about drinking (e.g. A person cannot become an alcoholic by just drinking beer); and facts about alcoholic beverages (e.g. Proof on a bottle of

liquor contained in the bottle). Students were given the choice of True, False or Don't Know responses (see Appendix C-2).

Engs' (1978) initial form of the questionnaire was reviewed by a panel of alcohol researchers and educators to obtain content validity. The second draft was presented to a group of students for sampling and content evaluation, from which the current form was developed.

The final questionnaire was administered to 122 Indiana University students utilizing a test-retest design with a one month interval. Test-retest reliability for the SAQ was .79. In Engs' (1978) national study involving 1128 students from 13 geographically varied universities, the Kuder-Richardson reliability to the SAQ was found to be .79.

#### Attitude Measure

The attitude measure used in this study was developed by Williams, DiCicco, and Unterberger (1968). It was developed for use as an evaluation tool for alcohol education programs. Based on the theory that attitude influences drinking behavior, the intent was to measure changes in student's attitudes toward alcohol use in that situation as a result of an educational program. The goal of the program was development of positive attitudes toward moderate use or abstention from alcohol use. Subjects used in the initial study were secondary students in the Boston area.

The attitude portion of the questionnaire contained 42 statements about alcohol use. Students indicated their strength of agreement or disagreement with each statement by selecting responses from a five point Likert type scale. These statements combined to yield two attitude



scores--intemperate use (IU) and temperate use (TU). For the purposes of this study only the intemperate or IU score was used because of its greater ability to differentiate between drinkers once higher levels of drinking behavior have been reached. The IU scale, composed of eleven positive and nine negative statements, measures the student's attitude toward intemperate (excessive) use of alcohol. A high IU score indicates approval of excessive use of alcohol by oneself and others.

In developing the IU scale, 43 statements about intemperate use of alcohol were submitted to students, with 20 statements being selected as the most discriminating. To establish reliability, Williams et al. administered the final set of statements to another group of students in scrambled order, twice in a three week period. The test-retest reliability for women was .78 on the IU scale. Internal consistency reliability was determined by coefficient alpha analysis for all possible divisions of the test into two parts. The IU coefficient was .93.

Validity was determined by dividing the students into three groups: abstainers, moderate drinkers, and heavy drinkers. Predictions were supported that excessive drinkers would score highest, followed by the moderate drinkers, and then the abstainers. By further dividing the two drinker groups into infrequent and frequent drinkers (e.g. infrequent-heavy and frequent-heavy drinkers), the IU scale was able to differentiate between the five total groups at statistically significant levels. (See Appendix C-3 for the attitude measurement information.)

### Collection of Data

The data used in this study was collected in two phases. The pretest data was collected in the summer of 1979 from the three pools of eligible participants. The SOAP residential group was asked to attend a meeting in the residence hall the first evening of orientation. The SOAP day group was asked to attend a meeting in the Memorial Union the day of orientation. The questionnaire was explained, administered, and collected by the author at these meetings. The non-SOAP participants were identified with the aid of the Registrar and were mailed the questionnaire. The mailing included a cover letter explaining the project and a return addressed, postage-paid envelope. Subjects were given two weeks to return completed questionnaires and none were accepted after the day the residence halls opened for the freshmen fall term.

In late December 1979, the campus addresses of the participants were located with the aid of Student Housing and Student Services records. Pretest participants who withdrew during the term, as identified by Registrar's records, were removed from the study.

The posttest questionnaire was mailed to the remaining participants during the first full week of classes winter term, 1980. The mailing also included a personal note encouraging participation and a return addressed envelope. Participants were given two weeks to return the completed questionnaire. Follow-up efforts were made for one week after the requested return date to encourage participation by those not returning questionnaires on time.

### Statistical Treatment of the Data

The hypotheses under investigation were analyzed using the analysis of variance, the Student-Newman-Keuls procedure, and paired t-tests.

The analysis of variance (ANOVA or F statistic) was used for analysis of the first two hypotheses, those stating that no significant difference in (1) knowledge of alcohol facts or (2) attitudes toward alcohol use existed among the various alcohol use groups. The ANOVA was selected because of its ability to analyze two or more sample means. A computed F value equaling or exceeding the tabular F value indicated that the null hypothesis being tested could be rejected. The level of significance for this study was set at the .05 level.

A finding of significant difference using the ANOVA merely indicates that a difference exists somewhere in the comparisons of sample means. To locate where specific significant differences exist an inspection of all differences between pairs of means must be performed. In this study the Student-Newman-Keuls procedure was used to locate specific significant differences between the mean scores because of its ability to detect real differences more frequently than less powerful methods such as the Least Significant Difference test (Snedecore & Cochran, 1967).

The final three hypotheses, those dealing with changes in use, knowledge, and attitudes during the period under observation, were statistically analyzed through the use of paired t-tests. The paired t-test utilizes the difference in the subject's pretest and posttest scores on each measure to test for significant difference or in this

case significant change in alcohol use, knowledge, and attitude. As with the F score, a computed t score equaling or exceeding the tabular t score indicated rejection of the null hypothesis. The level of significance for the t-tests in this study was set at .05 (two tail).

## CHAPTER IV

## RESULTS

The objective of this study was to determine if initial differences in knowledge of alcohol facts and attitudes toward alcohol use existed among entering college freshman women based on their level of alcohol use, and further, to ascertain whether changes occurred in freshman women's use of alcohol, knowledge of alcohol facts, and attitudes toward alcohol use during their first term of college. The purpose of this chapter is to present the results of the analysis of data pertinent to this investigation. The initial section describes the demographic characteristics of the five groups formed on the basis of the participant's precollege level of alcohol use. The next section reports on the research hypotheses dealing with initial differences in knowledge of alcohol facts and attitudes toward alcohol use. The final section reports on the remaining hypotheses dealing with changes in use of alcohol, knowledge of alcohol facts, and attitudes toward alcohol use at the end of the freshman women's initial term of college.

Description of the Characteristics of the Alcohol Use Groups

The description of the characteristics of each alcohol use group was based on the characteristics of the members of that group at each testing. Because some of the freshman women changed their use of alcohol during the first term of college, the membership of the pretest and posttest alcohol use groups changed slightly. Therefore, descriptions of pretest groups refer to the precollege composition of those groups

and posttest references were for the college compositions of the alcohol use groups.

### Abstainers

The abstainer group was composed of those freshman women who had taken less than a sip of beer, wine or hard liquor prior to entering college. Twenty-five women, or 18.9 percent of the total sample, were classified as abstainers. This number was somewhat below the 25 percent of abstainers Engs (1977a) found in a national student survey. Eighty percent of the abstainers were 18 years old, while 16 percent were 19 or older and the remaining portion were 17 years old (Appendix D-1). The largest group of abstainers came from small cities (44 percent) and the smallest group (4 percent) came from large cities (Appendix D-2). Over three-fourths (76 percent) came from family situations where both parents were in the home during their senior year of high school, 16 percent came from "mother only" families and the remaining eight percent came from step-parent homes (Appendix D-3).

Academically, all abstainers had greater than a 3.00 high school grade point average, with three-fourths between 3.50 and 4.00 (Appendix D-4). In college 71 percent had grade point averages above 3.00 (33 percent 3.00 to 3.49 and 38 percent above 3.50), while 14.3 percent fell in the 2.00 to 2.49 range and 9.5 percent were below 2.00 (Appendix D-5). The grade point average data for both high school and college, when compared with the other alcohol use groups, support the contention (Jessor, Carmen & Grossman, 1968; Milman & Su, 1973; Engs, 1977a) that lower consumption of alcohol correlates with higher grades. The largest number of abstainers intended to major in science (36 percent)

followed by equal numbers (12 percent) in engineering, agriculture, forestry and business (Appendix D-6).

The majority of abstainers were from Protestant churches (80 percent), although the largest single group (28 percent) were not affiliated with the major Protestant religions. Judaism was the only major religion which was not significantly represented in the overall study (Appendix D-7). Nearly half of the abstainers attended church two or more times per month (24 percent attended one or more times per week) prior to college, while 20 percent did not attend church at all (Appendix D-8). During the first college term church attendance by abstainers two or more times per month went up, with an increase of 9.3 percent coming in the "one or more times per week" portion of that category. Non-attenders increased from 20 percent to 28.6 percent of the total group (Appendix D-9). The overall comparison of religious participation versus use of alcohol generally supports Straus and Bacon's (1953) findings that religious participation decreases with increased use of alcohol.

Focusing on the parents of abstainers, 40 percent of the fathers abstained and 44 percent of the mothers abstained (Appendices D-10 and 11). These figures were very similar to those in Glassco's (1974) findings which predicted that 40 percent of the women with abstaining fathers would be abstainers (36 percent here were), and that 32 percent of the women with abstaining mothers would be abstainers (31.4 percent were). Sixty percent of the parents preferred their daughters did not drink while in high school, according to the participants, and 36 percent reportedly let the student make her own decisions on alcohol use

Appendix D-12). The parents of college abstainers' attitudes reversed according to the students and 60 percent of the parents let the student make their own decisions and 28 percent still preferred the student not drink alcohol (Appendix D-13).

Eighty-five percent of the college abstainers were not sorority affiliated, where 52.4 percent of these women lived in coed residence halls and 33.3 percent lived in women's halls (Appendix D-16). All freshman women, including sorority pledges, are required to live in university residence halls.

When asked prior to college how many peer problem drinkers each abstainer knew, about one quarter did not know any problem drinkers, but 60 percent knew of two or more problem drinkers. Thirty-six percent indicated they knew six or more problem drinkers, the highest percentage known by any of the five alcohol use group classifications (Appendix D-29). In college 72 percent indicated they knew at least one peer who was a problem drinker with the modal number being two to three. Twenty percent indicated knowing six or more problem drinkers (Appendix D-30).

Using the modal category for each demographic characteristic, the typical precollege and college abstaining freshman woman was 18 years old, came from a small city, and had both parents living at home during her senior year in high school. She had above a 3.00 grade point average in both high school and college and was most likely to be interested in a science major. She was Protestant and attended church one or more times per week in both high school and college. Her parents both drank and while preferring she not drink prior to college, let her make her own choices about alcohol after entering college. She lived in a coed



residence hall her first term in college and was not affiliated with a sorority. She was likely to know one or more problem drinkers.

### Infrequent Drinkers

Those freshman women classified as infrequent drinkers were those who had drunk more than just a sip of alcohol previously, but averaged less than the equivalent of one drink per week. The 31 infrequent drinkers comprised 23.5 percent of the sample population, well above the 14 percent Engs (1977a) reported for a national study of college women. Eighty percent of the infrequent drinkers were 18 years old, with another 18 percent 19 or older and a small number being 17 years old (Appendix D-1). The largest number (29 percent) of the infrequent drinkers came from rural areas, which was also the highest percent of rural women for any of the alcohol use categories. The majority of the remaining women came from suburban and town settings (Appendix D-2). Over two-thirds of the infrequent drinkers came from homes with both parents present during their senior year of high school (Appendix D-3).

Over 90 percent of the infrequent drinkers had above a 3.00 grade point average (58 percent were above 3.50) in high school (Appendix D-4). This percentage dropped to 54 percent for the first term of college, and only 27.3 percent of the women were above a 3.50 average. Nearly ten percent averaged below a 2.00 (Appendix D-5). Science (25.8 percent) and business (19.4 percent) were the most frequently chosen majors (prior to enrollment) by this group, followed by agriculture, health and physical education (Appendix D-6).

The largest group of infrequent drinkers were members of the Episcopal/Presbyterian (25.8 percent) and the Catholic (19.4 percent) churches. Sixteen percent of the infrequent drinkers claimed no religious affiliation (Appendix D-7). Prior to college nearly 40 percent attended church one or more times per week, while another third attended less than once a month and 12.9 percent did not attend church at all (Appendix D-8). After entering college church attendance decreased to an average of two to three times per month and the percentage of non-attenders increased 18.9 percent to over 30 percent of the total (Appendix D-9).

Nearly 81 percent of the infrequent drinkers' fathers and 84 percent of their mothers reportedly drank alcohol (Appendices D-10 and 11). According to the infrequent drinkers, prior to college about 65 percent of their parents let them make their own decisions about using alcohol, while about 30 percent preferred that the student not drink (Appendix D-12). After entering college the reported percentage of parents letting the student make her own decisions rose to 77 percent and the percentage of parents preferring the student not drink dropped accordingly (Appendix D-13). Before college the infrequent drinker's parents knew about some (64.5 percent) or all (19.4 percent) of their daughter's drinking experiences while only 3.2 percent knew nothing of such experiences according to the women (Appendix D-14). During the first term of college the parents' knowledge of their daughters' drinking changed markedly; 33.3 percent knew about all of the experiences, only 16.7 percent knew about some experiences, and 33.3 percent knew nothing of such experiences.

The majority (54.5 percent) of the infrequent drinkers lived in women's residence halls and were not affiliated with a sorority. The next largest group (27.3 percent) lived in coed halls and were sorority women (Appendix D-16).

Looking briefly at the infrequent drinkers' pattern of drinking, prior to college, the women drank most frequently with parents (45.2 percent) or in a mixed student group (Appendix D-17). None drank alone and less than ten percent drank with other women most frequently. In college mixed group drinking rose to include 58.6 percent of the group and "drinking with women most frequently" rose to 24 percent of the group (Appendix D-18). Not surprisingly, prior to college most of the drinking took place in the home (41.9 percent) or in the homes of friends (25.8 percent). In college over one-third drank primarily in college rooms, 31 percent drank in fraternities, and 31 percent in private homes. Interestingly, none drank primarily in a sorority (Appendices D-19 and 20). In fact, drinking in sororities was not listed as among the top three locations for drinking by 129 of the 132 participants (three heavy drinking women listed it as their second most frequent drinking location). Both prior to college and during college nearly all of the women reported drinking seldom to never on dates (Appendices D-21 and 22). In high school most reportedly drank on weekends only (45.2 percent) or on both weekends and week days (35.5 percent), while in college nearly 80 percent reported drinking predominantly on weekends (Appendices D-23 & 24).

Prior to college the infrequent drinking women preferred wine and drank wine the most frequently. In college preference was for hard

liquor and not for beer or wine, but beer was actually drunk by slightly more women than the other beverages (Appendices D-27 and 28).

When asked reasons for drinking prior to college, the reasons listed the most frequently were to celebrate something special, to enjoy the taste, and to be more sociable, while to relieve aches and pains and to forget problems were cited the least. The most important reasons remained the same when the students entered college, and to relieve aches and pains was still the least likely reason to drink. Comparing changes in reasons for drinking, drinking because the effects feel good was cited by 23.8 percent more women, and drinking to get high by 18.8 percent more. The percentage using alcohol to aid in enjoyment of food and to be more sociable decreased more than other reasons (Appendix D-31).

Almost 65 percent of the infrequent drinkers indicated knowing peer problem drinkers prior to college, with the percentages fairly evenly distributed among the "two to three," "four to five," and the "six or more" problem drinker categories (Appendix D-29). While a similar 65 percent indicated knowing problem drinkers in college, the percentages in each category were much lower such that the modal response was knowledge of only one problem drinker (Appendix D-30).

Using the modal figure for each descriptive category, the typical infrequent drinking freshman woman was 18 years old, came from a "town" sized community, and both her parents were living at home her senior year in high school. She had above a 3.50 grade point average in high school but below a 3.00 in college and was likely planning to be a science or business major. She was also most likely to be either an Episcopalian/Presbyterian or Catholic, and attend church weekly in high

school but only two to three times per month in college. From her reports, her parents were drinkers, willing to let her make her own decisions regarding alcohol use and, while likely to know about some of her drinking in high school, they were less likely to know about her college drinking. Prior to college she very likely drank at home with parents and on weekends, while in college she drank in mixed company in college rooms, fraternities, or private residences, predominantly on weekends. She drank beer more often than she preferred it as a beverage in college, and she drank the most often to celebrate, to be more sociable or to enjoy the taste of the beverage. She lived in a women's residence hall, was not affiliated with a sorority and was likely to know several students with drinking problems.

### Light Drinkers

The light drinker category in this study was defined as those drinkers who average more than the equivalent of one drink per week but less than two drinks per week. Twenty-two percent (29 women) of the sample were classified as light drinkers. Engs (1977a) reported a 41 percent figure for light drinking college women in a national survey. Nearly 80 percent of the light drinkers were 18 years old (Appendix D-1). The largest portion (34.5 percent) came from suburban settings, followed by those from small cities (Appendix D-2). Almost 70 percent came from homes with both parents present during their senior year in high school, while nearly one-quarter came from "mother only" homes (Appendix D-3).

Academically, 89.7 percent had a 3.00 or better grade point average in high school. This changed dramatically in college where only 32.3 percent of the light drinkers were above 3.00, and the percent of those with 3.50 or better averages dropped from 72.4 percent of the total to just 9.7 percent. The modal number of women were between 2.50 and 2.99 in college and 13 percent were below a 2.00 grade point average (Appendices D-4 and 5). In both cases the light drinkers did not conform to the general linear pattern of alcohol negatively affecting grades (Engs 1977a). In high school a larger percent of the sample had higher grades than expected, while in college a lower percent than expected had high grades. Business administration (44.8 percent) was by far the most popular major prior to enrollment, followed by liberal arts a distant second.

Approximately one quarter of the light drinkers were Catholic, followed by those affiliated with the Episcopal/Presbyterian churches (Appendix D-7). About one quarter of the light drinkers attended church one or more times per week in high school, while another quarter attended two or three times per month. One in ten did not attend church in high school (Appendix D-8). This changed in college to where nearly 50 percent did not attend church at all and attendance more than twice a month dropped to 29.1 percent (Appendix D-9).

Almost 80 percent of the light drinkers' fathers and 65 percent of their mothers reportedly drank alcohol (Appendices D-10 and 11). According to the light drinkers, prior to college, a large percent (48.3 percent) of the parents let their daughters make their own decisions about drinking, although 37.9 percent preferred their

daughters did not drink (Appendix D-12). Once the students entered college 65.5 percent of the parents reportedly let the women make their own alcohol decisions, while 24.1 percent still preferred that their daughters did not drink (Appendix D-13). Prior to college a majority of the parents of light drinkers reportedly knew about some or all of their daughters' drinking experiences; however, a large group (17.2 percent) by comparison with the other alcohol use groups knew nothing about their daughters' drinking history (Appendix D-14). As for college drinking experience, a majority again knew about all or some of the student's drinking, while an increasing number of the infrequent drinkers were not sure how much of their parents knew about the students' drinking experiences (Appendix D-15).

The largest percentage (35.5 percent) of light drinkers lived in women's residence halls and were not affiliated with a sorority. The next largest group (19.4 percent) lived in women's halls and did belong to a sorority (Appendix D-16).

Responding to questions related to drinking patterns, seven out of ten drank most often in mixed company prior to college. In college the percentage of drinking most frequently in mixed company rose to 82.8 percent of the light drinkers (Appendices D-17 and 18).

Prior to college nearly half of the light drinkers reported drinking most frequently in the homes of friends (48.3 percent), followed by outdoor parties and in the family home (Appendix D-19). During college nearly 35 percent drank in fraternities and another 28 percent in college rooms. Almost one quarter drank in private home settings (Appendix D-20). Drinking on precollege dates was seldom done by most,

although 20.7 percent did report drinking on about half of their dates (Appendix D-21). In college 55.2 percent of the women drank seldom on dates while 34.5 percent drank over half of the time on dates (Appendix D-22). Ninety percent of the drinking by light drinkers prior to college was predominantly on weekends, while nearly 97 percent of the drinking in college was predominantly on weekends (Appendices D-23 and 24).

Prior to college, 60 percent of the light drinkers preferred hard liquor, yet 60 percent drank beer the most frequently (Appendices D-25) and 26). In college about 80 percent preferred drinking hard liquor, and 55 percent actually drank it most frequently. Twenty-one percent more of the infrequent drinkers drank beer than preferred it the most (Appendices D-27 and 28).

The most likely precollege reasons for drinking among the light drinkers included (in order) celebrating special events, for the taste, for the good feeling effects, and to be more sociable, while to relieve aches and pains and to aid in enjoying food were the least likely reasons to drink. The same reasons were cited the most frequently after entering college, although taste replaced celebrating special events as the most popular reason to drink. Drinking to increase feelings of well being increased the most while drinking to relax decreased the most in percentage of citations by the light drinkers (Appendix D-31).

In high school over 70 percent of the light drinkers typically knew at least one student problem drinker, the modal response being knowledge of two to three problem drinkers. In college 62 percent of the light drinkers reported knowing problem drinkers and none reported



knowing more than five problem drinkers in college (Appendices D-29 and 30).

Using the modal response for each of the characteristics, the typical light drinking freshman woman was 18 years old, came from a suburban setting, and had both parents living in the home during her senior year of high school. She had over a 3.50 grade point average in high school but was likely to be one grade lower in college, and she was likely to be interested in business administration as a major. She was likely to be Catholic or Episcopalian/Presbyterian and change her church attendance from one or more times per week in high school to not attending church at all in college. She reported both her parents drank, allowed her to make her own alcohol related decisions, and knew about some or all of her drinking experiences. She typically lived in a women's residence hall, was not affiliated with a sorority, and most frequently drank in mixed company. Before college she drank in homes of friends primarily, while in college she drank primarily in fraternities. She was not likely to drink on dates and most of her drinking was on weekends. She did not necessarily drink her most preferred beverage and cited celebrations, taste, good feelings effects of alcohol and being more sociable as her reasons for drinking. It was highly likely she would know several student problem drinkers although she knew fewer in college.

### Moderate Drinkers

The moderate drinker classification is composed of those freshman women who averaged the equivalent of two to six drinks, one time

per week. Twenty-six women, or 19.7 percent of the women sampled, were classified as moderate drinkers. This percentage was well below the 27 percent figure Engs (1977a) reported on a national sample. Roughly 77 percent of this group were 18 years old, the remainder being in the 19 or older category (Appendix D-1). The highest percentage of women (26.9 percent) came from large city settings and represented the largest single group of drinkers from large cities. Equal numbers of suburban and small city women followed the large city women in the moderate drinker classification (Appendix D-2). Nearly 85 percent of the moderate drinkers came from homes where both parents were present during their senior year of high school. This was the highest percent for any of the five alcohol use group classifications (Appendix D-3).

Academically, 84.7 percent of the moderate drinkers had precollege grade point averages above 3.00, among those were 38.5 percent above 3.50 (Appendix D-4). The percentage of those with over 3.00 grade point averages lowered to 60 percent in college, with 20 percent in the range above 3.50. The moderate drinker category also reported the lowest number (five percent) of students with averages below 2.00 (Appendix D-5). Science and business were the most frequently cited majors among the moderate drinkers, followed by liberal arts and home economics (Appendix D-6).

The most frequent religious affiliations (Appendix D-7) of the moderate drinkers were Catholic (23.1 percent), no religious affiliation (19.2 percent), and Methodist (15.4 percent). Less than half (42.3 percent) of the moderate drinkers attended church more than twice a month prior to college, although only 7.7 percent reported not attending

church at all. In college only one-fourth attended church more than twice a month, while reports of never attending while in college increased nearly five times to 35 percent (Appendices D-8 and 9).

Over 88 percent of the moderate drinkers' fathers, the largest percent for any group, and 80.8 percent of the mothers were reported to be drinkers (Appendices D-10 and 11). Exactly half of the parents reportedly preferred their daughters not drink prior to college while another 42.3 percent let their daughters make their own alcohol related decisions. In college these results reversed to where 57.7 percent of the parents trusted their daughters to make their own alcohol related decisions and 30.8 percent still preferred their daughters did not drink (Appendices D-12 and 13). In contrast to all the other groups, only 26.9 percent of the parents of moderate drinkers reportedly knew about some or all of their daughters' precollege drinking experiences which was nearly 26 percent less than any other group of parents. Of significance, however, was the fact that over 30 percent of the women were not sure how much their parents knew about their drinking experiences. Forty-eight percent of the parents knew about at least some of their daughters' college drinking experiences (Appendices D-14 and 15).

Equal numbers (30 percent) of moderate drinking freshman women lived in coed residence halls and were not affiliated with a sorority or lived in women's residence halls and were affiliated with a sorority (Appendix D-16).

Prior to college and in college the moderate drinking women drank predominantly in mixed groups (Appendices D-17 and 18). The primary drinking locations prior to college were homes of friends (57.7 percent)

and outdoor parties (26.9 percent) for the moderate drinkers. In college the emphasis shifted to college rooms for 36 percent of the group, fraternities for 32 percent, and private residence for 28 percent (Appendices D-19 and 20). Over 65 percent of the women seldom or never drank on high school dates, while 60 percent drank on more than half of their dates in college (Appendices D-21 and 22). The moderate drinkers drank primarily on weekends (96.1 percent) prior to college, although only 34.6 percent drank exclusively on weekends. The 61.5 percent who drank primarily on weekends but some on weekdays was nearly 28 percent above the average for the other precollege groups (Appendix D-23). In college 92 percent drank primarily on weekends, with 52 percent drinking exclusively on weekends (Appendix D-24).

The top preference of beverage for moderate drinkers prior to college was hard liquor (61.5 percent), yet a much smaller percent (38.5 percent) drank it the most frequently. Similar preferences were voiced in college by 68 percent of the moderate drinkers and hard liquor was the most frequent beverage for 56 percent of the group (Appendices C-25 and 26).

To celebrate something special, enjoyment of taste, because the effects feel good, and to be more sociable were the top reasons the moderate drinkers gave for drinking both prior to and in college. Drinking to increase feelings of well-being and enjoyment of taste had the largest increase in citations between the two samplings and drinking because everyone else was and as an aid to enjoying food decreased the most as reasons to drink (Appendix D-31).

Responding to questions of knowledge of problem drinking among peers, 76.9 percent knew at least one problem drinker prior to college as did 53.8 percent in college. The modal response was knowledge of two to three problem drinkers prior to college and none in college. None of the women knew more than five problem drinkers in either sampling (Appendices D-29 and 30).

The typical moderate drinker was 18 years old, came from a large city and had both parents living at home during her senior year of high school. She had over a 3.00 grade point average prior to college which dropped somewhat in college, and she tended toward science or business as a college major. She was most likely to be Catholic or not church affiliated, did not attend church often prior to college and was likely not to attend church at all in college. She reported her parents drank, increasingly let her make her own alcohol related decisions, knew little of her alcohol use prior to college and had an even chance of knowing about the experiences in college. She was likely to be either in a coed hall as a nonsorority woman or in a women's hall as a sorority affiliated woman. She drank in mixed groups, at friends' houses prior to college and in college rooms or fraternities after entering college, on weekends primarily and more on dates since entering college. She did not necessarily drink her preferred beverage the most often prior to college but was more likely to in college.

She cited celebrations, taste, good feelings and to be more sociable as reasons to drink, and she knew fewer peer problem drinkers in college than before college.

### Heavy Drinkers

Heavy drinkers in this study are defined as those women who drink the equivalent of six or more drinks more than once per week. Twenty-one women, or 15.9 percent of those surveyed, qualified for this classification. Over three-fourths (76.2 percent) of the group were 18 years old and came from homes where both parents (81 percent) lived together during the student's senior year of high school (Appendices D-1 and 2). Most of the women (42.9 percent) came from small city settings, followed in numbers by women from towns and large cities (Appendix D-3).

Nearly 86 percent of the heavy drinkers had over a 3.00 high school grade point average, while over half (52.4 percent) of that group had over a 3.50 average. This pattern shifted dramatically in college where 40 percent of the heavy drinkers earned 2.00 to 2.49 grade point averages and 21.1 percent had below 2.00 averages. Just over ten percent had above a 3.50 average (Appendices D-4 and 5). The college grade distribution pattern for the heavy drinkers lends strong support to the contention (Jessor, Carmen & Grossman, 1968; Milman & Su, 1973; Engs, 1977a) that alcohol affects grades negatively. Home economics was the most often listed major by the heavy drinkers (23.8 percent), followed by liberal arts and science (Appendix D-6).

In terms of religious affiliation, 28.6 percent of the heavy drinkers were Episcopal/Presbyterian, 23.8 percent were Lutheran and 19 percent were Catholic. Less than ten percent of the heavy drinkers were not affiliated with a church (Appendix D-7). Equal numbers (28.6 percent) of heavy drinking women attended church regularly (two or more

times per month), attended once in six months, or did not attend church at all prior to college. In college regular attendance dropped to about 19 percent of the heavy drinkers and nonattendance increased to about 40 percent of the group (Appendices D-8 and 9).

About three-quarters (76.2 percent) of the heavy drinkers' fathers, which is the fourth lowest percent of the five groups, and 81 percent of the mothers were reported to be drinkers (Appendices D-10 and 11). Over half of the parents reportedly let their daughters make their own alcohol related decisions prior to college while two-thirds did the same with their daughters in college (Appendices D-12 and 13). Over half of the parents knew about at least some of their heavy drinking daughters' precollege alcohol related experiences according to the women, although 28.6 percent of the freshman women were not sure how much their parents did know about their drinking (Appendix D-14). This pattern changed in college to where 52.4 percent of the parents knew about some of their daughters' heavy drinking but none knew about all of it. Only 19 percent of the freshman women were not sure how much their parents knew about their college drinking (Appendix D-15).

The largest group (39.5 percent) of heavy drinking freshman women lived in women's residence halls and were sorority affiliated, followed by equal size groups (26.3 percent) of nonsorority affiliated women in coed halls and in women's residence halls (Appendix D-16).

The heavy drinking women drank almost exclusively (95.2 percent) with mixed groups prior to college, and did so in college although there was an increase in the number drinking with other women primarily (Appendices D-17 and 18). The favorite drinking locations of the heavy

drinkers prior to college were friends' homes (42.9 percent), outdoor parties and at public events. Favorite college drinking locations were divided evenly among college rooms and fraternities (Appendices D-19 and 20). Fifty-two percent of the heavy drinkers were likely to drink on at least half of their precollege dates and this remained the same in college (Appendices D-21 and 22). Roughly half of the heavy drinkers drank on weekends and some weekdays, while another 33 percent drank exclusively on weekends prior to college (Appendix D-23). Drinking in college was reported as on weekends exclusively by 57.1 percent of the women, with the remaining 42.9 percent drinking primarily on weekends and occasional weekdays (Appendix D-24).

Three-fourths of the heavy drinkers prior to college preferred hard liquor, but almost an equal number actually drank beer most often. In college, more (85.7 percent) of the heavy drinking women preferred hard liquor, and over half actually drank hard liquor most often (Appendices D-25 and 26).

Primary reasons for drinking prior to college for the heavy drinkers were to celebrate something special, to enjoy the taste of the alcohol, and to feel the good effect of the alcohol. Significantly, drinking to get drunk was cited as often as drinking to be more sociable prior to college. Celebrating, enjoyment of taste and the good feeling effects of alcohol were the most common reasons for drinking in college. While there were no large increases in reasons cited, there were noticeable decreases after entering college including drinking because of depression (-28.6 percent), to get drunk (-23.9 percent), to forget problems (-23.8 percent) and to increase feelings



of well-being (-14.3 percent), the latter finding exactly opposite of the responses of the other four alcohol use groups (Appendix D-31).

Prior to college most (85.7 percent) of the heavy drinkers knew of peer problem drinkers, with nearly 58 percent knowing four or more problem drinkers. In contrast, over half did not know any problem drinking peers in college (Appendices D-29 and 30).

For the current study the typical heavy drinking freshman woman, she was typically 18 years old, had both parents in the home during her senior year in high school, and came from small city settings. She entered college with over a 3.50 grade point average, but dropped about one full grade point in college, and was interested in majoring in home economics, liberal arts or science. Religiously, she was Episcopal/Presbyterian or Lutheran, was equally likely to attend church regularly or not attend church at all prior to college and was less likely to attend church in college. She reported her parents drank, let her make her own alcohol related decisions, and had an even chance of knowing something about her drinking experiences. She lived in a women's residence hall (sorority affiliated), drank in mixed company, and favored college rooms and fraternities in college as drinking locations. She might have drunk on dates, drank primarily on weekends, preferred hard liquor and would drink it most frequently after entering college. Celebrations, good feeling effects and taste were her chief reasons to drink, and, while likely to know peer problem drinkers before college, she might not have known any in college.

### Initial Differences in Knowledge of Alcohol Facts and Attitudes Toward Alcohol Use

This section of Chapter IV is divided into three parts. The first part briefly reviews the participants' general responses to statements on the Student Alcohol Questionnaire and then presents the results of the testing of Hypothesis 1, that dealing with differences in the initial knowledge scores based on level of alcohol use. The second part deals with the results of testing Hypothesis 2, that dealing with differences in the initial scores on the attitude toward alcohol use based upon level of alcohol use.

#### Initial Knowledge of Alcohol Facts

The Student Alcohol Questionnaire (Engs, 1978) was used to test the participants' knowledge of alcohol facts. The instrument consisted of 36 true-false statements. Scoring was based on one point for a correct response to each statement. The identical instrument was administered in both pretest and posttest questionnaires.

The mean knowledge scores for the overall sample and each alcohol use group is presented in Table 3. The overall mean knowledge score represents approximately 57 percent correct responses on the pretest administration and 61.1 percent on the posttest administration. These figures are slightly higher than predicted by Engs' (1978) national study of college men and women. In that study 55.7 percent correct responses were reported. The current findings for women may be significantly higher than Engs' findings because, although exact scores were not published, Engs noted that her "data appear to indicate that

there is a highly significant relationship ( $p < .0001$ ) between scores and sex with a higher percentage of male students scoring above the mean than female students" (1978, p. 191). Therefore, the current women's scores appear to be much higher than Eng's findings.

Table 3. Mean Scores of Freshman Women on the Student Alcohol Questionnaire.

Test	Total Score	Abstainers	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Heavy Drinkers
Pretest	20.6742	19.7600	20.3226	21.2069	20.9615	21.1905
Posttest	22.1591	19.9200	21.3548	23.3103	23.3077	23.0000

It is useful to present a brief review of the patterns of knowledge given by the participants, further adding to the understanding of the freshman women in relation to alcohol. A comprehensive review of response patterns, because of the complexity, will be left to later research reports.

The statements which were identified incorrectly the most frequently were the same for both test administrations. The most frequently missed statement (94.7 percent incorrect on the pretest, 93.2 percent incorrect on the posttest) dealt with the percent of alcohol in wine. This was followed in order by the consumption rate necessary to keep from being legally intoxicated (pretest 89.4 percent and posttest 91.7 percent incorrect), the caloric content of whiskey (pretest 84.8 percent and posttest 85.6 percent incorrect), the estimated percentage of Americans who misuse alcohol (pretest 83.3 percent and posttest 89.4 percent incorrect) and the approximate number of highway fatalities involving alcohol use (pretest 76.5 percent and posttest

69.7 percent incorrect). Sixteen of the 36 pretest and 14 of the posttest statements were judged incorrectly by more than 50 percent of the participants (Appendix D32). These percentages were generally above those reported by Engs (1978).

The modal correct responses were given for drinking for social acceptance, peer pressure or status; alcoholic beverages providing weight gaining calories; use of alcohol in religious ceremonies; alcohol use to escape problems; and becoming an alcoholic with beer (Appendix D-32).

Changes in knowledge information covered in specific statements did occur, with scores increasing for 26 of the statements and decreasing for only ten between the two samplings (Appendix D-32). Most notably, scores for six statements increased 12 to 18 percent, indicating increased knowledge of responsible alcohol use for relaxation and social interaction; metabolic rates of alcohol oxidation; alcohol history in the United States; the sources of alcohol in fermentation, etc.

The most notable increases on individual statements was by the moderate drinking group with increases of 20 percent or more on eight of the posttest statements (Appendix D-32), indicating somewhat of an increase in knowledge. The largest single gains were in the heavy drinkers' knowledge of the most commonly consumed alcohol beverage in the United States (34.6 percent more correct responses) and that alcohol is not classified as a stimulant (up 29.7 percent).

Differences in the initial knowledge scores for each of the alcohol use groups were analyzed in accordance with Hypothesis 1.

Hypothesis 1. There are no significant differences in knowledge of alcohol facts among the entering freshman women based on their use of alcohol.

The mean scores for each group were compared by use of the analysis of variance. The results are presented in Table 4. As the data here indicates, the analysis revealed no significant differences in the mean knowledge scores for the five alcohol use groups. Therefore, Hypothesis 1 was not rejected, and it was concluded that there were no significant differences in knowledge of alcohol facts among the entering freshman women based upon their level of alcohol use. No further analysis was conducted.

Table 4. Initial (Pretest) Scores on the Student Alcohol Questionnaire for Entering Freshman Women Grouped on the Basis of Their Level of Alcohol Use.

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Probability
Between Groups	4	40.7000	10.1750	.615	.6524
Within Groups	127	2100.2924	16.5377		
Total	131	2140.9924			

#### Initial Attitude Toward Use of Alcohol

The attitude measurement used in this study, developed by Williams, DiCicco, and Unterberger (1968), measured the student's attitude toward intemperate (excessive) use (IU) of alcohol. The entering freshman women were asked to indicate their strength of agreement with each of

42 statements, 20 of which combined to create the IU attitude score. The maximum score possible was +80, with higher scores indicating greater tolerance of intemperance or excessive drinking by themselves or others.

Hypothesis 2. There are no significant differences in attitudes toward the use of alcohol among the entering freshman women based on their level of alcohol use.

The results of testing Hypothesis 2 are presented in Table 5. The data indicate that a significant difference existed between the mean attitude scores beyond the .0001 level of significance. Therefore, Hypothesis 2 was rejected. It was concluded that there was a significant difference in attitude toward alcohol use among the entering freshman women grouped on the basis of their level of alcohol use.

Table 5. Initial (Pretest) Mean Scores on Attitude Toward Alcohol Use for Entering Freshman Women Grouped on the Basis of Their Level of Alcohol Use.

	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Probability
Between Groups	4	7668.1416	1917.0354	21.140	.0000+*
Within Groups	127	11516.8508	90.6839		
Total	131	19184.9924			

\*Significant beyond the last decimal place the computer prints out.

To locate where specific differences between the group mean attitude scores existed, the Student-Newman-Keuls procedure was employed. This procedure statistically inspects all differences between pairs

of means. The mean attitude scores for each group are presented in Table 6.

Table 6. Mean Scores on Attitude Toward Alcohol Use for Entering Freshman Women Grouped on the Basis of Their Level of Alcohol Use.

	Overall Score	Abstaining	Infrequent	Light	Moderate	Heavy
Pretest	29.6742	17.5200	24.8710	32.1724	37.9231	37.5714

Five conclusions were drawn on the basis of the Student-Newman-Keuls analysis of the pretest mean attitude scores of the alcohol use groups:

1. The mean attitude score for the abstainers was significantly different, in this case lower, than the mean attitude scores for all other alcohol use groups. It was concluded that the abstaining group was the least tolerant of use of alcohol by themselves or others.
2. The mean attitude score for the infrequent drinkers was significantly higher than the mean attitude score for the abstaining group. It was concluded that the infrequent drinking group was more tolerant of intemperate drinking by themselves or others to a significantly greater extent than the abstaining group.
3. The mean attitude score for the infrequent drinkers was significantly lower than the mean attitude scores for the light, moderate and heavy drinking groups. It was concluded that the infrequent drinking group was significantly less tolerant of intemperate use of alcohol personally and by others than the heavier drinking groups.

4. The mean attitude scores of the light, moderate and heavy drinking groups did not differ significantly from each other. It was concluded that the light, moderate and heavy drinking groups held essentially the same attitudes toward intemperate use of alcohol personally and by others. (The Least Significant Difference statistic, a less powerful technique to compare mean differences, indicated a significant difference between the mean attitude scores for the light and moderate drinking groups, the light drinkers being more conservative in their attitudes.)

5. The mean attitude scores of the light, moderate and heavy drinking groups were significantly higher than those for the abstaining and infrequent drinking groups. It was concluded that the light, moderate and heavy drinking groups' endorsed intemperate use of alcohol by themselves and others to a significantly higher degree than the abstaining and infrequent alcohol use groups.

#### Summary of Initial Differences

It was shown that overall the participants in this study could correctly identify 57 (pretest) to 62 percent (posttest) of the facts about alcohol. These knowledge scores were somewhat higher than those predicted by the same instrument in a national study (Engs, 1978). There were no significant differences among the mean knowledge scores for the entering freshman women based on their level of alcohol use. There were, however, significant differences in the mean attitude scores for the entering freshman women based on their level of alcohol use. The abstaining group was significantly less supportive than other



groups of excessive use of alcohol by oneself or others. The mean attitude score for the infrequent drinking group was significantly higher than that of the abstaining group and significantly lower than those scores for the light, heavy and moderate drinking groups. The latter three group mean attitude scores were essentially equal to each other and significantly higher than those of the abstaining and infrequent drinking groups.

#### Changes in Alcohol Use, Knowledge and Attitudes During the Initial Term of College

This section of Chapter IV covers three areas. The first section briefly describes the overall alcohol use figures for the participants of the study and then presents the results of the statistical testing of Hypothesis 3 concerning changes in alcohol use during the initial term of college for the freshman women. The second section deals with the changes in knowledge of alcohol facts by each alcohol use group and the overall sample population during the initial term of college, the questions posed in Hypothesis 4. The third section focuses on changes in attitudes toward alcohol use for the individual alcohol use groups and the entire sample population as described in Hypothesis 5.

#### Changes in Alcohol Use

The freshman women participating in this study were asked a series of questions on the pretest and posttest to determine their use of alcohol. Three questions dealt with how often each drank beer, wine

and hard liquor, and the final three dealt with how much each typically drank on an average occasion. Each response was assigned a specific value in ounces of absolute alcohol (described in more detail in Chapter III and Appendix C-1) from which an overall alcohol use figure was obtained for each individual. On the basis of this usage figure the freshman women were assigned to one of five alcohol use groups, those being abstainer, infrequent, light, moderate and heavy drinker.

Table 7 presents the distribution of the freshman women participants based on their alcohol use figures for the pretest and posttest measurements. Just over 81 percent of the women were drinkers prior to college enrollment. The most recent federal study (Noble, 1978) predicted that an average of 70 percent of entering freshman women would be drinkers. Just over 84 percent of the women were drinkers at the end of their first term of college, which was again a somewhat higher percentage than what other college women's studies have reported (Hanson, 1974; Glassco, 1975; Engs, 1977a).

Table 7. Distribution of Participating Freshman Women Based on Their Level of Alcohol Use.

	Abstainers	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Heavy Drinkers
Pretest Number	25	31	29	26	21
Percent of Total	18.9	23.5	22.0	19.7	15.9
Posttest Number	21	22	31	20	38
Percent of Total	15.9	16.7	23.5	15.2	28.8

Rough analysis of Table 7 indicates that there was change among the various groups. The most dramatic figures were the increases in heavy drinking freshman women. The increase from 21 to 38 women in that group represented an 81 percent increase in the size of that group after one term of college and nearly a 13 percent increase in that group's percentage of the total sample. Based on these figures it could be concluded that increases in heavy drinking did occur during the the first term of college for freshman women in this study.

This analysis did not "track" the participants from the pretest to the posttest groups. Table 8, however, summarizes the abstainer versus drinker classifications for the pretest and posttest measurements. While 18 participants in the study entered college as abstainers and remained so, three students became abstainers and seven started drinking.

Table 8. Crosstabulation of Entering (Pretest) Freshman Women Abstainers and Drinkers with the Freshman Women Abstainers and Drinkers at the End of Their First Term of College (Posttest).

	Alcohol Use in College		
	Drank	Abstained	
<u>Precollege Alcohol Use</u>			
Drank	104	3	
Abstained	7	18	N = 132

To determine if statistically significant changes in use of alcohol did occur during the first term of college for the freshman women sampled, Hypothesis 3 was proposed.

Hypothesis 3. There are no significant changes in the use of alcohol among the freshman women at the end of their first academic term.

The paired t-test was used to test for significant change in alcohol use. This process compared the pretest and posttest use figures for each individual in the sample population. Because the boundaries for each group were established in advance, it was not appropriate to use methods such as the ANOVA which rely on mean values for analysis of data. The results of the t-test analysis are presented in Table 9.

Table 9. Comparison of Alcohol Use by Freshman Women Upon Entering College (Pretest) and After One Term of College (Posttest).

Number of Cases	Mean	Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
132	1.9015	1.353	.118	131	-3.57	.000+*
	2.2424	1.436	.125			

\*Significant beyond the last decimal place the computer prints out.

The data presented in Table 9 indicate that the computed t-value exceeded the predicted value at the .05 level of significance. In fact, the data was significant beyond the .001 level, the smallest value the computer could print out for the t-test. Hypothesis 3, stating that no significant changes in alcohol use occurred during the first term of college for the freshman women, was rejected. It was therefore concluded that a significant change in alcohol use did occur among the freshman women, and because of the direction of the t-value it was concluded that this change was an increase in use of alcohol.

The mean values on Table 9 represent the amount of alcohol in ounces of absolute alcohol the average freshman woman participant

consumed per week. Converted to more conventional units, the entering freshman woman drank the equivalent of 4.3 bottles of beer per week on the average prior to college. At the end of one term of college this had increased to an average of over five bottles per week for the freshman woman.

### Changes in Knowledge of Alcohol Facts

Hypothesis 4. There are no significant changes in the knowledge of alcohol facts among the freshman women at the end of the first academic term.

As noted earlier in this chapter and in Chapter III, the freshman woman participants in this study were administered the Student Alcohol Questionnaire prior to enrollment in college and then at the end of one academic term. Hypothesis 4 addresses the issue of changes in knowledge of alcohol facts during the initial term of college. The highest initial knowledge scores in this study were reported by the light drinkers, followed by the heavy drinkers, the moderate drinkers, the infrequent drinkers, and, with the lowest knowledge score, the abstainers. After one term of college the light and moderate drinking groups scored the highest with virtually equal mean scores, followed by the heavy drinkers, the infrequent drinkers and the abstainers. Paired t-tests were performed for each of the alcohol use groups, comparing the pretest and posttest mean knowledge scores for changes. In addition, the pretest and posttest mean knowledge scores for the entire sample population were analyzed to determine if significant overall changes in knowledge of alcohol facts had occurred.

Table 10. Changes in Knowledge of Alcohol Facts by Abstaining Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tailed Probabilities
25	19.7600	4.166	.833	24	-.20	.841
	19.9200	5.507	1.101			

Table 10 presents the analysis for changes in knowledge of alcohol facts for the abstaining participants. As the table indicates, the calculated t-value was well below that required for the .05 level of significance. Therefore, Hypothesis 4 for the abstaining group was not rejected. It was concluded that there was no significant change in knowledge of alcohol facts among the abstaining freshman women during their first term of college.

Table 11. Changes in Knowledge of Alcohol Facts by Infrequent Drinking Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
31	20.3226	4.764	.856	30	-1.28	.209
	21.3548	4.875	.876			

Table 11 presents the analysis for changes in knowledge of alcohol facts by the infrequent drinking participants. While the calculated t-value indicates an increase in the knowledge score for the group, as Table 11 notes, this change was not significant at the .05 level of significance. Hypothesis 4 was therefore not rejected for the infrequent drinking group. It was concluded that there was no significant change in knowledge of alcohol facts by the infrequent drinking women during their first term of college.

Table 12. Changes in Knowledge of Alcohol Facts by Light Drinking Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
29	21.2069	3.549	.659	28	-3.05	.005
	23.3103	3.371	.626			

Table 12 presents the analysis for changes in knowledge of alcohol facts for the light drinking participants. As the data indicates, the computed t-value was significant at the .005 level of significance, well beyond the required .05 level. Hypothesis 4 was therefore rejected for the light drinking group. It was concluded that there had been a significant change in knowledge of alcohol facts among the light drinking freshman women. The negative t-value indicated that the change in this case represented a significant increase in knowledge of alcohol facts by the light drinking group.

Table 13. Changes in Knowledge of Alcohol Facts by the Moderate Drinking Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
26	20.9615	3.747	.735	25	-3.25	.003
	23.3077	2.797	.548			

The analysis for changes in knowledge of alcohol facts for the moderate drinking freshman women participants is presented in Table 13. The computed t-value was significant at the .003 level, well beyond the .05 level of significance established for this study. Hypothesis 4 for the moderate drinking group was therefore rejected. It was concluded that there had been a significant change, in this case a significant

increase, in knowledge of alcohol facts among the moderate drinking freshmen during their first term of college.

Table 14. Changes in Knowledge of Alcohol Facts by the Heavy Drinking Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
21	21.1905	3.868	.844	20	-2.46	.023
	23.0000	4.062	.886			

The analysis for changes in knowledge of alcohol facts for heavy drinking freshman women participants is presented in Table 14. As the data indicate, the computed t-value was significant at the .023 level, beyond the .05 level of significance established for this study. Hypothesis 4 was therefore rejected for the heavy drinking group. It was concluded that a significant change, in this case an increase in knowledge of alcohol facts, had occurred among the heavy drinking freshman women during their first term of college.

Table 15. Change in Knowledge of Alcohol Facts Among the Overall Group of Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
132	20.6742	4.043	.352	131	-4.35	.000+*
	22.1591	4.384	.382			

\*Significant beyond the last decimal place the computer prints out.

Table 15 presents the analysis of changes in knowledge of alcohol facts for the entire sample population of freshman women. The data presented in Table 15 indicate the computed t-value of -4.35 was



significant well beyond the .001 level (the computer was limited to printing out only three digits beyond the decimal point). Hypothesis 4, therefore, for the entire sample population, was rejected. It was concluded that there had been a significant overall increase in knowledge of alcohol facts among the freshman women during their first term of college.

#### Changes in Attitude Toward Use of Alcohol

Hypothesis 5. There are no significant changes in attitude toward the use of alcohol among the freshman women at the end of their first academic term.

As previously noted, the freshman women participants in this study were asked prior to college and at the end of their first term to respond to a series of questions to determine their attitude toward intemperate (excessive) use of alcohol by themselves and others. Hypothesis 5 was tested to determine if there had been significant changes in the freshman women's attitude toward use of alcohol during their first term of college. The pretest and posttest mean attitude scores for each alcohol use group were compared by way of the paired t-test to determine if such changes had occurred. Additionally, all of the individual pretest and posttest attitude scores were analyzed to determine if there had been significant changes in the attitude of the overall sample population of freshman women.

Table 16. Change in Attitude Toward Use of Alcohol Among the Abstaining Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
25	17.5200	8.176	1.635	24	.14	.889
	17.3600	9.565	1.913			

Table 16 presents the analysis for changes in attitudes toward use of alcohol for the abstaining participants. As the table indicates, the computed t-value was well below that required for the .05 level of significance. Therefore, Hypothesis 5 for the abstaining group was not rejected. It was concluded that there was no significant change in attitude toward alcohol use among the abstaining freshman women during their first term of college.

Table 17. Change in Attitude Toward Use of Alcohol Among Infrequent Drinking Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
31	24.8710	8.842	1.588	30	-2.17	.038
	28.8387	9.052	1.626			

Table 17 presents the analysis for changes in attitude toward use of alcohol for the infrequent drinking participants. The computed t-value of -2.17 was significant at the .038 level, beyond the established level of significance of .05 for this study. Hypothesis 5 therefore was rejected. It was concluded that a significant change in attitude toward use of alcohol had occurred among the infrequent drinking freshman women during their first term of college. Further,

by virtue of the negative t-values, it was determined that the change was toward tolerance of higher levels of alcohol use.

Table 18. Change in Attitude Toward Use of Alcohol Among The Light Drinking Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
29	32.1724	9.064	1.683	28	-2.51	.018
	36.5517	8.818	1.637			

The analysis for changes in attitude toward use of alcohol for the light drinking group of freshman women is presented in Table 18. The computed t-value was significant at the .018 level, thus meeting the required .05 level of significance for the current study. For the light drinking group, therefore, Hypothesis 5 was rejected. It was concluded that there had been a significant change in attitude toward use of alcohol among the light drinking women, in this case becoming more tolerant of intemperate use of alcohol by themselves and others.

Table 19. Change in Attitude Toward Use of Alcohol Among the Moderate Drinking Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
26	37.9231	11.740	2.302	25	.81	.426
	36.8077	12.541	2.460			

Table 19 presents the analysis for changes in attitude toward use of alcohol for the moderate drinking women. As the table indicates, no significant difference was found for the moderate drinker's data. Therefore, Hypothesis 5 was not rejected in this case. It was concluded

that no significant changes had occurred among the moderate drinking freshman women participants during their first term of college.

Table 20. Change in Attitude Toward Use of Alcohol Among the Heavy Drinking Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
21	37.5714	9.542	2.082	20	0.00	1.000
	37.5714	10.548	2.302			

The analysis for changes in attitude toward use of alcohol among the heavy drinking participants is presented in Table 20. The computed t-value of 0.00, reflecting equal pretest and posttest mean attitude scores, clearly indicates no significant change took place in this case. Hypothesis 5 for the heavy drinking group was therefore not rejected. It was concluded that no significant change in attitude toward use of alcohol had occurred among the heavy drinking freshman women during their first term of college.

Table 21. Change in Attitude Toward Use of Alcohol Among the Overall Group of Freshman Women at the End of Their First Term of College.

Number of Cases	Mean	Standard Deviation	Standard Error	Degrees of Freedom	t Value	Two-Tail Probability
132	29.6742	12.102	1.053	131	-2.26	.026
	31.3182	12.494	1.087			

The data presented in Table 21 represents the comparison of the pre- and posttest attitude scores for the entire sample population. The computed t-value of -2.26 was significant at the .026 level.

Therefore, Hypothesis 5 for the overall sample population was rejected. It was concluded that there was an overall change in the freshman women's attitude toward the use of alcohol. Further, the mean values increased between the two testings, indicating movement toward greater tolerance of alcohol use among the freshman women.

#### Summary of Changes in Use, Knowledge and Attitude Toward Alcohol

It was found that 81 to 84 percent of the participating freshman women drank prior to and during college. More of the freshman women became heavy drinkers in college while few quit drinking, and there was an overall significant increase in use of alcohol among the freshman women. The light, moderate and heavy drinking freshman women showed significant increases in knowledge of alcohol facts during their first term of college, and the overall sample population showed significant increases in knowledge of alcohol facts. The infrequent and light drinker groups showed significant changes in attitude toward use of alcohol, in both cases developing more favorable attitudes toward use of alcohol by themselves and others. A similar significant increase was found for the overall sample population.

## CHAPTER V

## DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This research was stimulated by an interest in the influence of alcohol on women as they enter the college environment. While research studies related to college women and beverage alcohol have increased in recent years, no adequate foundation has been developed to incorporate new research or to provide direction for alcohol abuse prevention programs in colleges.

The purpose of this study was to investigate entering freshman women in relation to alcohol during the first term of college, a critical period of transition for the college student. Specifically, this study focused on initial differences in knowledge of alcohol facts and attitudes toward use of alcohol among the entering freshman women. Further, this study focused on changes in use of alcohol, knowledge of alcohol facts, and attitude toward use of alcohol among freshman women during their initial term of college. Demographic characteristics of the various alcohol use groups were developed for background purposes.

The subjects of the study were freshman women entering Oregon State University fall term 1979. Participants were randomly selected prior to enrollment in college from those women participating in the Summer Orientation and Advising Program (SOAP) residential and day orientation programs, and those who did not participate in SOAP, thus making all freshman women eligible to participate in the study. Of the women who eventually enrolled as freshman at Oregon State University for

fall term 1979, 176 women, or 8.7 percent, completed the pretest instrument. Of these, 167 women completed fall term and were eligible to continue in the study and 132 (79 percent) completed the posttest instrument.

Several sources of information were combined in gathering the data used in testing the hypotheses under investigation. A Quantity-Frequency Index was used to determine the average amount of alcohol each participant consumed (Straus & Bacon, 1953). This figure was used to group the entering freshman women on the basis of their level of alcohol use (Engs, 1977a). The Student Alcohol Questionnaire was employed to determine the participants' knowledge of alcohol facts (Engs, 1977a). The instrument which assessed the participants' attitude toward the use of alcohol was developed by Williams, DiCicco, and Unterberger (1968).

The data used in this investigation were collected in two phases. Administration of the pretest was during summer 1979 to insure pretest responses were not influenced by the college environment. The pretest instrument was administered to randomly selected Summer Orientation and Advising participants during on-campus orientation visits while non-SOAP participants were mailed the pretest instrument. Posttest instruments were mailed to all eligible participants during the first full week of classes in winter term 1980.

Three types of statistical analyses were used to test the hypotheses under investigation. Analysis of variance was used to test the hypotheses dealing with initial differences in knowledge of facts about alcohol and attitude toward use of alcohol based on the entering freshman women's level of alcohol use. Findings of significance by the

analysis of variance were further analyzed with the Student-Newman-Keuls procedure to identify specific differences among individual group mean scores. The hypotheses dealing with changes in use of alcohol, knowledge of alcohol facts and attitudes toward use of alcohol were analyzed with the paired t-test, both for changes within individual alcohol use groups and changes in the total sample population. The accepted level of significance for this study was established at the .05 level.

### Discussion

It was noted earlier in this study that research on college student alcohol use, and more specifically college women's alcohol use, has been very limited. A somewhat circuitous problem exists in that no comprehensive theory on student alcohol use has been developed because the descriptive foundations on the topic are lacking. In turn, descriptive research has been hindered by a lack of theoretical framework. This study has not attempted to become involved in theory development; instead, it has attempted to contribute to the basic descriptive research foundation for college women's alcohol use, knowledge of alcohol facts, and attitude toward alcohol use. As a result of the lack of extensive research literature, parts of the current results must go unsubstantiated until replications are attempted. Causal inferences from basically descriptive results must be made with caution. With these factors in mind the following discussion of the results is offered.

#### Demographic Differences

Thirty-two demographic items for the participants in this study were collected and crosstabulated by alcohol used group. This



information was collected to provide an understanding of the composition of the alcohol use groups which were tested according to the research hypotheses under investigation. A review of this material was presented in Chapter IV. It was beyond the scope of this investigation to statistically analyze demographic data or to develop more than a brief review of literature for this demographic data. However, following the assumption that rough differences may suggest worthwhile directions for further research, a brief review of the demographic differences between the alcohol use groups is appropriate to this study.

It should be noted that the demographic findings refer to the specific group at the time of sampling, and that pretest and posttest group memberships may have changed slightly. This material is presented in the discussion section rather than the results section to emphasize that no causal conclusions are being advanced. Therefore, caution must be used when interpreting the material in this section as more than suggestions for further research.

The study first categorized the age, home town size and family situation of the alcohol use group members. Because of the narrow definitions of subjects, age differences were not meaningfully different for the various alcohol use groups. There was one noticeable result in relation to home town distribution. There were disproportionate distributions of the women by home town setting in both the abstaining and heavy drinking groups. In both cases greater percentages of the women came from small cities (44 percent of abstaining and 43 percent of the heavy drinking women). This dichotomy was not explained by the available literature.

In this study, the family situation during the senior year of high school of the participants did not vary widely. The only variance from the traditional situation of both parents being in the home was the light drinking women, of whom 25 percent lived in "mother only" homes.

Academically, the freshman women's grades paralleled earlier research findings. Ninety percent of the women entered college with above a 3.00 grade point average, with nearly 60 percent averaging over 3.50. This distribution may have been due to admission standards; however, there was a general slight decline in the percentage of high grade point averages as use of alcohol increased. As predicted (Jessor et al., 1968; Milman & Su, 1973; Engs, 1977a), a negative correlation between grade point average and use of alcohol resulted in college, with the higher alcohol use groups achieving lower grade point averages. Over 70 percent of the college abstainers achieved over 3.00 averages, while less than 25 percent of the college heavy drinkers achieved the same average. Typically, the college heavy drinkers' grades were in the 2.00 to 2.50 grade point average area and, very noticeably, over 20 percent did not achieve an average of 2.00. In addition to any health or student conduct implications, these findings indicate that heavy drinking has a definite impact on educational outcomes in the institution.

The available literature does not suggest relationships between choice of academic major and alcohol use, but the distribution of participants for each of the four lower alcohol use groups parallels the general distribution of majors at Oregon State University. However, the larger distribution of heavy drinking freshman women in home

economics was definitely in contrast to distribution among other majors. Whether this is an aberration of this sample population or typical of home economics majors warrants study for alcohol education programming and perhaps curriculum emphasis.

The distribution of participants by religious affiliation paralleled the findings of Straus and Bacon (1953), Hanson (1974) and Moos et al. (1976) which predicted that higher proportions of Catholics would be drinkers followed by the more liberal protestant church members and then members of the more conservative protestant churches. Jewish women were not represented in sufficient numbers to draw conclusions. Unexpectedly, there was also too few Mormon women represented in the study to draw conclusions. Non-church affiliated participants paralleled the general distribution among the alcohol use groups.

Crosstabulation of level of alcohol use with religious participation was similar in both precollege and college testings. Religious participation was negatively correlated with alcohol use; increased alcohol use correlated to decreased religious participation. These findings agree with those of Straus and Bacon (1953), but some doubt exists as to the actual correlation between alcohol and religious participation. This doubt was due to the general dramatic decline in religious participation for all of the sample population after entering college.

The results of this study shed some light on Straus and Bacon's (1953) and Hanson's (1974) contentions that parental influence and example are factors in college student alcohol use. High proportions of both fathers and mothers as related by the participating freshman women were drinkers as expected. Lower proportions, but still well over

half of the abstainers' parents drank. The same was true for the parents' attitude toward their daughters' use of alcohol. In all cases more parents let their daughters make their own alcohol related decisions than preferred they did not drink at all after the daughters entered college. However, in high school a much higher proportion of the abstainers' parents reportedly preferred their daughters not drink which may have been an influencing factor on the abstaining women but not on the other women.

Prior to college the lighter drinking students reported letting their parents know about drinking experiences while heavier drinkers did not inform parents as much. The exception to this was the moderate drinkers who reported that prior to college either their parents knew about few of their drinking experiences or they were unsure what their parents knew. Parents' knowledge of college drinking by their daughters was slightly less although the parents of moderate drinkers knew more about their daughters' drinking experience in college than in high school. The slight overall drop may be explained by the decrease in proximity since over 95 percent of the sample population lived on campus instead of at home.

Place of residence and living group affiliation seemed to have definite relations to alcohol use. The most significant single finding was that involving the heavy drinkers who belonged to sororities and who lived in women's residence halls. These women comprised 50 percent of the heavy drinking women and represented a disproportionate percentage of the total women's sample (11.4 percent). A comparison of women living in coed and women's halls indicated that heavier drinking

was more common in women's halls. A similar comparison of sorority and nonsorority affiliated women indicated that there were nearly twice the percentage of heavy drinking sorority women and virtually no sorority abstainers in the sample population. These findings have definite implications for residence hall administrators and sorority organizations for education and alcohol abuse prevention programs.

There were few differences in preference of drinking partners, although the results have implications for targeting alcohol abuse prevention programming. Prior to college the freshman women drank in mixed company primarily, with the exception of the infrequent drinkers who drank with parents. In college, drinking in mixed company was common for all groups and the only minor exception was the infrequent drinkers group where nearly one quarter drank primarily with other women.

Patterns of preferred location for drinking among the freshman women suggested few differences between groups. Drinking for all college alcohol use groups was concentrated in college student rooms and fraternities, each being the primary drinking locations for one third of the total sample. The one discordant result was that drinking in sororities was not listed as among the top three drinking locations by 129 of the 132 participants (three heavy drinking women listed it as their second most frequent drinking location) in spite of the fact that nearly 30 percent of the freshman women were sorority pledges. This suggests that a strong norm may exist prohibiting the use of alcohol in sorority houses. This may have been due to strong prohibitions by the national sorority organizations; however, further investigation

seems warranted into the reasons for such a prohibition and if this norm extends beyond the freshman (pledge) women.

The data on when the freshman women primarily drank showed that the students overwhelmingly drank on weekends. The 91.8 overall percent in the current study who drank primarily on weekends compares to the 80.3 percent reported by Hill and Burgen (1979). The current results indicated that as the alcohol use level increased more women reported drinking primarily on weekends and also some on weekdays. There may be merit in further exploration of this characteristic of the heavier drinking freshman women. The data regarding drinking on dates and preferred versus actually consumed beverage provided interesting but not significant results.

The freshman women's reasons for drinking were very consistent throughout both surveys. The most frequently cited reasons for drinking were to celebrate something special, for enjoyment of the taste, for the good feeling effects, and to be more sociable. The only notable variations in the response patterns were declines in several reasons given by the heavy drinker group. As noted in the previous chapter, drinking to forget problems, to get drunk and because of depression were cited by 24 to 28 percent fewer heavy drinking women after one term of college. Further study of this decline in "immature reasons" (Jung, 1977) for drinking by the heavy drinkers may suggest some of the positive influences operating on the freshman women.

While the percentages of women citing each specific reason for drinking were relatively consistent among the various groups in this study, the overall percentages of citations for individual reasons

varied widely from other studies. Eighty-one percent of the college women in the current study cited drinking to be more sociable, whereas Looney (1976) reported 57 percent of his sample and Hill and Burgen (1979) reported 46 percent of their sample drank to be more sociable. Ninety-four percent of the current sample cited taste of the beverage as a reason to drink and only 68 percent of Hill and Burgen's (1979) did the same. Sixty-four percent of the current sample drank during their first term to get high while 35 percent of Looney's (1976) sample drank to get high. These differences may be explained by methodological differences, but additional study seems warranted.

The final area of background, the women's knowledge of peer problem drinkers, produced two trends which may warrant further consideration. First, there was a general decline in the reported number of problem drinkers the freshman women knew in college, a fact somewhat in contradiction to the increasing drinking trends suggested by this study. The second unexplained trend was an almost linear decline in the number of known peer problem drinkers as the level of alcohol use increased. Whether this decline was actual or was a function of changing values may warrant exploration.

### Use of Alcohol

The initial sampling indicated that 81.1 percent of the entering freshman women could be classified as drinkers because of their use of alcohol beyond an experimental sip. This finding was somewhat higher than reported in earlier studies. Noble's (1978) report on alcohol to the U.S. Congress, which was a compilation of many research reports

through the mid-1970's, noted an average of 70 percent of precollege women were drinkers. The current findings may be unique to the institution or region, but may also be explained by Blane and Hewitt's (1977) findings. Their findings showed roughly a ten percent increase in the number of precollege women drinkers per decade; from a 50 percent average in the 1950's to a 70 percent average in the mid-1970's. The current findings may represent a continuation of that increasing trend toward drinking by precollege women.

The increase in the percentage of freshman women drinkers between pretest and posttest was not large. The increase was only three percent, although the change at the end of the freshman year or college career may be much larger. The 84 percent of women drinkers in this study was somewhat higher than Hanson's (1974) 73 percent findings, Glassco's (1974) 82 percent findings and Eng's (1977a) 75 percent findings for college women. Somewhat in perspective, Penn in 1974 reported that 90 percent of the students (versus freshman women only) at Oregon State University could be classified as alcohol users. Blane and Hewitt noted a cyclical pattern in college women's alcohol use; there were increased percentages of college women drinkers in the 1960's, declining percentages in the early 1970's and increasing numbers starting in the mid-1970's. Retrospective review of the results of this study in the future may show that these findings conform to such a pattern.

While the increase in the percentage of freshman women drinkers was slight, the test of Hypothesis 3 indicated that there was a significant increase in the use of alcohol by the sample population. The analysis of the data with the paired t-test showed significant



change between the pretest and posttest alcohol use scores beyond the .001 level of significance. The mean value of the posttest scores was larger, indicating that the change was toward increased use of alcohol.

This increase was not explained by changes in the number of abstainers versus alcohol users. The results indicated a net increase of only four drinkers during the study. Seven entering women abstainers became drinkers during their first term of college while three drinkers became abstainers.

The change must be explained by increased use of alcohol among the alcohol users themselves. The results indicated a general pattern of change among the four alcohol use groups (as indicated by numbers of women in each group). The lighter use groups generally had declined in membership or very slightly increased. The infrequent drinker group declined by nine members or 29 percent; and the moderate drinking group declined by six members or 23 percent. The light drinking group increased by two members or seven percent. However, there were dramatic increases in the heavy drinker classification. At the end of their first term the heavy alcohol use group had increased from 21 to 38 women. This represents an increase in size of 81 percent for the heavy drinker group. This group also increased its share of the total sample size by nearly 13 percent and replaced the infrequent drinker group as the modal classification. These findings indicate that there was a significant increase in heavy drinking once the freshman women entered college. The implications of such a finding suggest that this change process warrants further serious study.

### Knowledge of Alcohol Facts

The initial question posed in this study considered whether significant difference in knowledge of alcohol facts existed among the various freshman women's alcohol use groups. Review of the pretest mean scores on the Student Alcohol Questionnaire indicated a rough general pattern (which was also maintained for the posttest means). The abstaining women scored the lowest on the knowledge test, followed by the infrequent drinkers. The light, moderate, and heavy drinkers, who had relatively similar mean knowledge scores, had the highest knowledge scores. At face value this pattern might suggest knowledge of alcohol facts increased with the level of use of alcohol.

However, the generally increasing pattern of knowledge scores for the entering freshman women was not significant statistically. Testing of Hypothesis 1, which asserted no significant difference existed among the alcohol use groups, resulted in an F probability of .6524, clearly indicating lack of significance. The conclusion was that the entering freshman women's knowledge of alcohol facts was essentially the same among the alcohol use groups. Since research has yet to be reported comparing knowledge of alcohol facts with level of alcohol use, comparison with other results cannot be made. Research into student knowledge of alcohol facts, as noted in the review of the literature, has instead focused primarily on overall knowledge scores, what score constitutes adequate knowledge of alcohol facts, and the differences in alcohol knowledge based upon the sex of the individual.

Hypothesis 4 addressed the question of changes in knowledge of alcohol facts among the freshman women during their first term of

college. This analysis for the total sample population, not based on alcohol use groups, was performed by comparing the individual pretest and posttest knowledge scores utilizing the paired t-test. The results showed a highly significant (beyond the .001 level of significance) change in knowledge. This change represented an increase in knowledge of alcohol facts among the sample population. The literature offers no suggestions for the reasons for this change, although arguments might be made that increased exposure to alcohol, as evidenced by the increase in use of alcohol, may have contributed to the participants' knowledge of alcohol facts.

The contention that a relationship (not necessarily causal) between frequency or level of alcohol use and increases in knowledge of alcohol facts was supported by comparisons of change in knowledge by the individual alcohol use groups. No significant changes occurred for the abstaining and infrequent alcohol use groups; however, the mean knowledge score for the infrequent drinkers increased much more than that of the abstainers (+1.02 points versus +.16 points). Significant increases in knowledge of alcohol facts were noted in the t-test of Hypothesis 4 for the light, moderate and heavy drinking groups. Those group mean knowledge scores on the pretest were already above those for the abstainers and infrequent drinkers. It could be argued that since the abstainer and infrequent drinkers had little or no direct exposure to alcohol there were few situations or reasons to increase their knowledge, whereas the heavier drinking participants had many more opportunities to increase knowledge through experience. One method to test this theory, which was beyond the scope of this study, would be to

determine the correlation between individual increases in knowledge and increases in use of alcohol.

The only point for which direct comparisons of the freshman women's knowledge of alcohol facts was possible was with a study by Engs (1978) which used the same instrument and reported the response percentages for several individual knowledge statements. While the Engs study involved both men and women from all years in college, a comparison with those may be useful in adding perspective to the current findings. In the area of myths about alcohol, Engs reported that 32 percent of the college students believed alcohol was a stimulant, while in the current study only 23.5 percent believed alcohol was a stimulant. Forty-eight percent of Engs' sample and 32 percent of the current sample believed that liquor mixed with soda pop would affect one more quickly than straight liquor; and 48 percent of the Engs sample and 14 percent of the current participants believed that coffee or a cold shower was an effective means of sobering up. In the area of the effects of alcohol on the body and facts about alcohol beverages, 81 percent of Engs' and 50 percent of the current study's participants did not know the legal definition of intoxication; 62 percent of the Engs study and 53 percent of the current study's participants did not know that proof on the bottle represented twice the percentage of alcohol in the beverage; and 60 percent of Engs' sample did not know drinking milk or eating food would slow the effects of alcohol, while 58 percent of the current sample responded incorrectly about milk and nine percent incorrectly about food. This comparison indicates that the current participants were much better informed on these facts about alcohol. However, the overall mean knowledge score

reported by Engs was only six percent lower than that in the current study. This suggests the need to perform an item analysis of the Student Alcohol Questionnaire statements to determine where gaps in the alcohol knowledge of the freshman women in the current study exist and if those differences are significant.

### Attitude Toward Use of Alcohol

The role of attitude toward alcohol and alcohol use has been recognized as important in understanding college student alcohol use. One theme in the related literature supposes that assessment of attitude toward drinking is necessary to both understand the nature of the drinking experience and to predict later drinking behavior (Orford et al., 1974). At this time research into alcohol attitudes seem plagued with problems in methodology and definitions of alcohol attitudes, and as a result no unified theory of alcohol attitudes has yet been developed. This study did not attempt to discuss theory development but, instead, concentrated on the relative differences in attitude towards alcohol use among entering freshman women as measured by one alcohol attitude instrument, and on the changes in alcohol attitude that took place during the transition period into college life. Complex review of individual and group responses to specific attitude statements was beyond the scope of this study though the possibility was left open for later studies.

Hypothesis 2 asserted that no significant difference in attitude toward alcohol use existed among entering freshman women grouped on the basis of their alcohol use. This assertion was tested by analyzing the

alcohol use group mean attitude scores utilizing the analysis of variance. Significance was found and it was concluded that there were significant differences in attitude toward alcohol use among entering freshman women grouped on the basis of their level of alcohol use.

Once a difference was indicated, the pretest mean attitude scores were analyzed utilizing the Student-Newman-Keuls procedure. The results of this analysis found that the mean attitude score for the abstainer group was significantly lower than the other four alcohol use groups. The infrequent drinkers' mean score was significantly higher than that of the abstainers, and significantly lower than those of the light, moderate and heavy drinkers. The mean attitude scores for the light, moderate and heavy drinking groups were significantly greater than those of the abstainers and infrequent drinkers, but were not significantly different from each other. A high score (or mean value) indicated tolerance of intemperate use of alcohol by oneself and others; thus results may be viewed as being on a continuum, with lower scores indicating less tolerance of intemperate drinking. In this case the abstainers were the least tolerant of intemperate use of alcohol. The infrequent drinkers were significantly more tolerant of intemperate use of alcohol but significantly less tolerant than the heavier drinking groups, who were equally tolerant of intemperate alcohol consumption. It must be kept in mind that all these scores are relative, being on a scale of zero to 80. The highest initial mean score in this study was just over 37.

One observation which may merit further study was the fact that the mean attitude scores (in both pretest and posttest situations)

paralleled the pattern for use and knowledge scoring. Knowledge of alcohol fact scores and attitude scores rose in a pattern following the increases in use represented by the alcohol use groups. The abstaining groups' scores were the lowest in each area and were generally significantly different from those of the other groups. The infrequent group was consistently the next higher scoring group and tended to stand apart from the scores of the groups above them in alcohol use. The light, moderate and heavy alcohol use groups tended to have very similar scoring and usually scored significantly higher than the former groups.

The final question under investigation was represented by Hypothesis 5. This hypothesis asserted that there was no significant change in attitude toward alcohol during the freshman women's first term of college. The paired t analysis of the attitude scores for the individual participants found that there had been a significant change. The change in this case was an increase in attitude scores, therefore indicating somewhat more tolerance (relatively speaking) of intemperate use of alcohol by oneself and others. A rough interpretation of these results might be that the freshman women had a somewhat more liberal attitude toward use of alcohol.

Paired t-tests for each alcohol use group were performed to note where changes in attitudes had occurred. There was no significant change in attitude toward alcohol use among the freshman women abstainers; in fact, that group's mean attitude score dropped slightly. The attitude toward alcohol of the infrequent drinkers increased significantly as the result of a four point increase in the posttest mean

attitude score. There was a similar significant increase for the light drinking group, indicating that the attitudes of the lighter drinking groups had been influenced after entering college. The latter two alcohol use groups, the moderate and heavy drinkers, did not significantly change their alcohol attitudes.

The pattern of significant attitude changes varied somewhat from the patterns of significance for the use and knowledge variables. The same pattern of somewhat linear change as suggested earlier may be present in the lighter use groups (the abstainers again showing no changes). A threshold effect may be in operation for the heavier use groups since their mean attitude scores are comparatively quite high. Further testing of the attitude instrument with other heavier drinking sample populations seems in order.

### Conclusions

The results of the study indicated:

1. There were no significant differences in knowledge of facts about alcohol among entering freshman women based on their level of alcohol use.
2. There were significant differences in attitude toward the use of alcohol among the entering freshman women.
  - a. The abstaining group of freshman women were significantly the least tolerant of intemperate use of alcohol by themselves and others.



- b. The infrequent drinking group of freshman women supported intemperate drinking by themselves and others to a significantly greater extent than the abstaining group.
        - c. The infrequent drinking group of freshman women was significantly less tolerant of intemperate use of alcohol by themselves and others than the light, moderate and heavy drinking freshman women.
        - d. The light, moderate and heavy drinking freshman women's attitudes toward intemperate use of alcohol were not significantly different from each other.
        - e. The light, moderate and heavy drinking groups of freshman women endorsed intemperate drinking by themselves and others to a significantly greater extent than the abstaining and infrequent drinking groups of freshman women.
3. There was a significant increase in the use of alcohol among the freshman women at the end of their first term of college.
4. There was a significant increase in knowledge of alcohol facts among the freshman women at the end of their first term of college.
  - a. There was a significant increase in knowledge of alcohol facts among the light, moderate and heavy drinking freshman women at the end of their first term of college.
  - b. There was no significant change in knowledge of alcohol facts among the abstaining and infrequent drinking freshman women.

5. There was a significant increase in tolerant attitudes toward use of alcohol among the freshman women at the end of their first term of college.
  - a. There were significant increases in favorable attitude toward intemperate use of alcohol among infrequent and light drinking freshman women at the end of their first term of college.
  - b. There were no significant changes in attitude toward intemperate use of alcohol among abstaining, moderate and heavy drinking freshman women at the end of their first term of college.

#### Recommendations

The results obtained from this study suggest several recommendations for further research.

1. As should be the case for all research, it is highly recommended that this study be replicated at other colleges and universities to determine if the findings of this study are similar to other institutions.
2. Visual analysis of the demographic data suggests that there may be indicator variables useful not only in theory development, but also to the more immediate need for problem prevention programs. These areas need more systematic exploration and may represent the key to relating alcohol use to established theories of personality.
3. The dramatic increase in heavy drinking by the freshman women in such a short period of time dictates a strong recommendation for research into this phenomenon, the consequences of such a change for the

student, and the long-term implications of this for both the student and the institution.

4. The results suggest that the freshman women who drink are learning facts about alcohol, but the question remains as to what they know and how they are learning. These questions need to be answered before effective alcohol educational programming can be developed.

5. The same need exists for exploration into college women's attitudes toward alcohol use. The results suggest that alcohol attitudes do change. If the contention is that modification of attitudes is the key to problem prevention, then this process must be understood and capitalized upon.

6. The previous four recommendations are components of a much more comprehensive recommendation. It was the intention of this study to go beyond providing research foundations in an important area and in providing practical and applicable information. It is recommended that the results of this study be reviewed in relation to development of alcohol education and abuse prevention programs. For example, the results indicate that the first term of college for freshman women is a critical period in relation to beverage alcohol and it is worth concentrating resources and effort during this time. Demographic characteristics have been identified which may be capitalized upon. Environmental keys such as type of residence hall and group affiliation suggest locations to target programming. Alcohol knowledge patterns have direct application to educational programming. And the finding that attitudes toward alcohol use changed suggests an openness necessary to education and abuse prevention programs. All of this suggests the possibility of

more informed and effective alcohol education and abuse programs for college freshman women, and perhaps all college students.

7. A major procedural recommendation is to use the instrumentation and methodology from this study for further research. Combined material from a wide variety of research was designed to collect a maximum amount of data which may be analyzed along multiple dimensions. In the age of computer analysis we are less restricted to collecting only the amount of data we can immediately analyze and can actually collect data for later research projects in one sampling.

8. A recommendation beyond the results of this particular study is that the student personnel profession must become involved in formal research in this area. Professionals have dealt with the alcohol problems of college students in American higher education since its founding. While the student personnel profession has dealt with the problems of student alcohol use and abuse for many years, there is an almost total lack of formal research by the people who deal with the situation most directly.

9. The final two recommendations are made to assist the institution of the sample population. First, only a fraction of the data collected by this study was analyzed for inclusion in this study. For example, item analysis of the knowledge of alcohol facts remains to identify what students do and do not know; analysis of individual responses on the attitude remain; "tracking" the students from their pretest alcohol use groups to the posttest groups should yield valuable information; and the whole set of data in the area of alcohol related problems the

students experienced prior to and in college remains to be analyzed.

10. The second recommendation is for the University to use this opportunity to conduct longitudinal research into college women's alcohol use, knowledge and attitudes. The strongest criticism made in the alcohol research field is that longitudinal research is almost totally lacking. This study has laid the foundation for longitudinal research by preserving the data from this study and by maintaining an accurate system of identifying the participants in the future while insuring the confidentiality of their responses. This material is available to the university for future research.

## BIBLIOGRAPHY

- Adelson, J. What generation gap. New York Times Magazine, January 18, 1970, 10-14.
- Astin, A. W. Four critical years. San Francisco: Jossey-Bass, 1977.
- Barnhart, W. University opinion poll 8C, fall 1973. University of Minnesota Office for Student Affairs Research Bulletin, 1974, 14(8).
- Beckman, L. J. Alcoholism problems and women: An overview. In M. Greenblatt & M. A. Schuckit. Alcoholism problems in women and children. New York: Grune & Stratton, 1976.
- Blane, H. T. & Hewitt, L. E. Alcohol and youth. An analysis of the literature, 1960-75. Rockville, Md.: National Institute on Alcohol Abuse and Alcoholism, 1977.
- Britt, D. W. & Campbell, E. Q. A longitudinal analysis of alcohol use, environmental conduciveness and normative structure. Journal of Studies on Alcohol, 1977, 38(9), 1640-1647.
- Brown, R. D. Student development in tomorrow's higher education: a return to the academy. Washington, D.C.: American Personnel and Guidance Association, 1972.
- Brubacher, J. S. & Rudy, W. Higher education in transition. New York: Harper & Row, 1968.
- Cahalan, D. Problem drinkers. San Francisco: Jossey-Bass, 1970.
- Cahalan, D., Cisin, I. H. & Crossley, H. M. American drinking practices: A national study of drinking behavior and attitudes. Mono-graphs of the Rutgers Center of Alcohol Studies, 1969, 6.
- Campbell, D. E. & Early, R. G. Comparison of health knowledge of young adults and their parents. Research Quarterly, 1967, 40, 676-681.
- Chickering, A. W. Education and identity. San Francisco: Jossey-Bass, 1969.
- \_\_\_\_\_. Commuting versus resident students. San Francisco: Jossey-Bass, 1974.
- Cisin, I. H. Community studies of drinking behavior. Annals of New York Academy of Science, 1963, 107, 607-612.
- Corder, B. W., Dezelsky, T. L., Toohey, J. V., & Tow, P. K. An analysis of trends in drug use behavior at five American universities. Journal of School Health, 1974, 44(7), 386-389.

- Corrigan, E. M. Women and problem drinking: Notes on beliefs and facts. Addictive Diseases, 1974, 1, 215-222.
- Demone, H. W., & Wechsler, H. Changing drinking patterns of adolescents during the last decade. In M. Greenblatt & M. A. Schuckit. Alcoholism Problems in Women and Children. New York: Grune & Stratton, 1976.
- Dennison, D., Prevet, T., & Afflick, M. Does alcohol instruction affect student drinking behavior? Health Education, 1977, 8(6), 28-30.
- Dressel, P. L., & Lehmann, I. J. The impact of higher education on student attitudes, values, and critical thinking abilities. The Educational Record, 1965, 46(3), 248-258.
- Engs, R. C., & Kirk, R. H. The health knowledge of crisis intervention workers. Research Quarterly, 1976, 47, 121-125.
- Engs, R. C. Drinking patterns and drinking problems of college students. Journal of Studies on Alcohol, 1977, 38(11), 2144-2145. (a)
- \_\_\_\_\_. Let's look before we leap: The cognitive and behavioral evaluation of a university alcohol education program. Journal of Alcohol and Drug Education, 1977, 22, 39-48. (b)
- \_\_\_\_\_. College students knowledge of alcohol and drinking in relation to some demographic variables. The Journal of the American College Health Association, 1978, 26, 189-193.
- Erikson, E. H. Insight and responsibility. New York: W. W. Norton & Co., 1964.
- Evans, G. W., Deward, T., & Blank, K. Drug knowledge and the university. Journal of Drug Education, 1975, 5, 205-216.
- Ewing, J. A. A biosocial look at drinking and alcoholism. Journal of the American College Health Association, 1977, 25, 204-208.
- Fillmore, K. M. Drinking and problem drinking in early adulthood and middle age. Quarterly Journal of Studies on Alcohol, 1974, 35, 819-840.
- \_\_\_\_\_. Relationship between specific drinking problems in early adulthood and middle age: An exploratory 20-year followup study. Journal of Studies on Alcohol, 1975, 36(7), 882-907.
- Finnell, W. S., & Jones, J. D. Marijuana, alcohol and academic performance. Journal of Drug Education, 1975, 5(1), 13-21.
- Forslund, M. A., & Gustafson, T. J. Influence of peers and parents and sex differences in drinking by high school students. Quarterly Journal of Studies on Alcohol, 1970, 31, 868-875.

- Freedman, M. B. The impact of college. New dimensions in higher education (No. 4). Washington, D.C.: U.S. Office of Education, Government Printing Office, 1960.
- \_\_\_\_\_. Personality growth in the college years. College Board Review, 1965, 56, 25-32.
- Freeman, H. R. The generation gap: Attitudes of students and of their parents. Journal of Counseling Psychology, 1972, 19, 441-447.
- Glassco, K. Drinking habits of seniors in a southern university. Journal of Alcohol and Drug Education, 1975, 21(1), 25-29.
- Globetti, G. Young people and alcohol education--abstinence or moderate drinking. Drug Forum, 1972, 1, 269-273.
- \_\_\_\_\_. Approaches to the control of alcoholic beverages in the United States. Journal of Drug Issues, 1973, 3, 260-266.
- Gonzalez, G. M. What do you mean prevention? Journal of Alcohol and Drug Education, 1978, 23(3).
- Gonzalez, G. M., & Bozelle, G. A peer facilitated experimental course on alcohol abuse: An innovative approach to prevention on the college campus. Unpublished manuscript, University of Florida, 1977.
- Graves, W. E. Patterns of college student drug use and lifestyles. In E. Josephson & E. E. Carroll (Eds.). Drug use: Epidemiological and Sociological Approaches. Washington, D.C.: Hemisphere Publishing, 1974.
- Hanson, D. J. Norm qualities and deviant drinking behavior. Unpublished doctoral dissertation, Syracuse University, 1972.
- \_\_\_\_\_. Drinking attitudes and behaviors among college students. Journal of Alcohol and Drug Education, 1974, 19, 6-14.
- \_\_\_\_\_. Trends in drinking attitudes and behaviors among college students. Journal of Alcohol and Drug Education, 1977, 22(3), 17-22.
- Hill, F. E., & Burgen, L. A. A survey of drinking behavior among college students. Journal of College Student Personnel, 1979, 20(3), 236-243.
- Hope, E. A study of some students opinions and knowledge of smoking and drinking. Journal of the American College Health Association, 1972, 20, 219-227.
- Huebner, R. B., Slaughter, R. E., Goldman, R. D., & Caddy, G. R. Attitudes toward alcohol as predictors of self-estimated alcohol consumption in college students. International Journal of the Addictions, 1976, 11(3), 377-388.



- Jessor, R., Carman, R. S., & Grossman, P. H. Expectations of need satisfaction and drinking patterns of college students. Quarterly Journal of Studies on Alcohol, 1968, 29, 101-116.
- Jessor, R., Graves, T. D., Hanson, R. C., & Jessor, S. L. Society, personality, and deviant behavior: A study of a tri-ethnic community. New York: Holt, Rinehart & Winston, 1968.
- Johnson, S., & Garzon, S. R. Women and alcoholism: Past imperfect and future indefinite. A paper presented at the Annual Research Conference of the Association for Women in Psychology, St. Louis, Missouri, February 3-6, 1977.
- Jung, J. Drinking motives and behavior in social drinkers. Journal of Studies on Alcohol, 1977, 38(5), 944-952.
- Keniston, K. Youth and dissent. New York: Harcourt Brace Javonovitch, 1971.
- Kinder, B. N. Attitudes toward alcohol and drug abuse: II: Experimental data, mass media research and methodological considerations. International Journal of the Addictions, 1975, 10(6), 1035-1054.
- Kirsch, A. D., Newcomb, C. H., & Cisin, I. H. An experimental study of sensitivity of survey techniques in measuring drinking practices (Social Research Project, Report No. 1). Washington, D.C.: George Washington University, 1965.
- Knefelkamp, L., Widick, C., & Parker, C. Applying new developmental findings. San Francisco: Jossey-Bass, 1978.
- Knupfer, G. Female drinking patterns. In Selected Papers Presented at the Fifteenth Annual Meeting of the North American Association of Alcoholism Programs, Washington, D.C., 1964.
- Knupfer, R.; Fink, G., Clark, W., & Goffman, A. G. California drinking practices study No. 6; Factors related to amount of drinking in an urban community. Berkeley, Cal.: State of California Department of Public Health, 1963.
- Knupfer, G., & Room, R. Age, sex and social factors as factors in amount of drinking in a metropolitan community. Social Problems, 1964, 12, 224-240.
- Kraft, D. P. College students and alcohol: The university 50 plus 12 project. Alcohol Health and Research World, 1976, Summer, 10-14.
- \_\_\_\_\_. Followup of a federal effort to encourage campus alcohol abuse prevention programs. Journal of the American College Health Association, 1977, 26, 150-153.

- Kuder, J. M., & Madson, D. L. College student use of alcoholic beverages. Journal of College Student Personnel, 1976, 17, 142-144.
- Lehmann, I. J., & Dressel, P. L. Critical thinking, attitudes and values in higher education. Department of HEW, Cooperative research report No. 590. East Lansing: Michigan State University, 1962.
- Lehmann, I. J., Sinha, B. K., & Hartnett, R. T. Changes in attitudes and values associated with college attendance. Journal of Educational Psychology, 1966, 57, 89-98.
- Leonard, E. A. Origins of personnel services in American higher education. Minneapolis, Minn.: University of Minnesota Press, 1956.
- Linsky, A. S. Religious differences in lay attitudes and knowledge on alcohol and its treatment. Journal of the Scientific Study of Religion, 1965, 5, 41-50.
- Looney, M. A. Alcohol use survey on campus: Implications for health education. Journal of the American College Health Association, 1976, 25, 109-112.
- Maddox, G. L. (Ed.). The domesticated drug: Drinking among collegians. New Haven, Conn.: College & University Press, 1970.
- Maddox, G. L., & McCall, B. C. Drinking among teenagers. New Haven, Conn.: College & University Press, 1964.
- Maxwell, M. A. Drinking behavior in the state of Washington. Quarterly Journal of Studies on Alcohol, 1952, 13, 219-239.
- Milgram, G. G. An alcohol education program for student leaders. In T. G. Goodale (Ed.). A monograph on alcohol education and alcohol abuse prevention programs at selected American colleges. Tallahassee, Fla.: University of Florida Office of Student Services, 1978.
- Miller, H. R., & Hunsaker, K. A survey of drug use at a private liberal arts university. Peoria, Ill.: Bradley University, 1970.
- Milman, D. H., & Su, W. H. Patterns of drug usage among university students: V. Heavy use of marijuana and alcohol by undergraduates. Journal of the American College Health Association, 1973, 21(3), 181-187.
- Moos, R. H., Moos, B. S., & Kulik, J. A. College-student abstainers, moderate drinkers, and heavy drinkers: A comparative analysis. Journal of Youth and Adolescence, 1976, 5, 349-360.

- Morella, C. A. The female alcoholic in history, culture, and jurisprudence. In The Alcoholism Digest Annual, 1974-1975. Rockville, Md.: Information Planning Associates, Inc., 1974.
- Morrison, S. E. Three centuries of Harvard, 1636-1936. Cambridge, Mass.: Harvard University Press, 1936.
- Mulford, H. & Miller, D. Drinking in Iowa III: A scale of definitions of alcohol related to drinking behavior. Quarterly Journal of Studies on Alcohol, 1960, 21, 26-39.
- NIAAA Information & Feature Service. Summary of the third special report to the U.S. Congress on alcohol and health from the Secretary of Health, Education and Welfare. U.S. Department of Health, Education and Welfare, 1978, No. 53, 3-7.
- Noble, E. P. (Ed.). Alcohol and health: The third special report to the U.S. Congress on alcohol and health from the Secretary of Health, Education and Welfare. Rockville, Md.: National Institute of Alcohol Abuse and Alcoholism, 1978.
- North, G. (Ed.). Alcohol education for college student personnel. Detroit: National Association of Student Personnel Administrators, Region IV East, 1977.
- Orford, J., Waller, S., & Peto, J. Drinking behavior and attitudes and their correlates among university students in England. Quarterly Journal of Studies on Alcohol, 1974, 35(4), 1316-1374.
- Panken, D. H., Gonzalez, G., & Martin, S. Alcohol use among students at the University of Florida. Unpublished manuscript, University of Florida, 1976.
- Parfrey, P. S. Factors associated with undergraduate alcohol use. British Journal of Preventive and Social Medicine, 1974, 28(4), 252-257.
- Penn, J. R. College student life-style and frequency of alcohol usage. Journal of the American College Health Association, 1974, 22, 220-222.
- Pollock, M. The drug abuse problem: Some implications for health education. Journal of the American College Health Association, 1969, 17, 403-411.
- Rand, M. E., Graf, W., & Thurbis, C. Alcohol or marijuana: A followup survey at Ithica College. Journal of the American College Health Association, 1970, 18(5), 366-367.
- Roe, B. Don't ignore alcohol! National Association of Student Personnel Administrators Journal, 1973, 11, 27-33.

- Rogers, E. Reference group influences on student drinking behavior. Quarterly Journal of Studies on Alcohol, 1958, 19, 244-254.
- Rogers, E. M. Group influences on student drinking behavior. In G. L. Maddox (Ed.). The domesticated drug: Drinking among collegians. New Haven, Conn.: College & University Press, 1970.
- Rosallini, G., & Warden, M. Drinking behavior: Patterns of use and abuse. A chart published by the Douglas County (Oregon) Council on Alcoholism, 1979.
- Sanford, N. Developmental status of the entering freshman. In The American College, New York: John Wiley and Sons, 1962, 253-282.
- \_\_\_\_\_. The American college. New York: John Wiley and Sons, 1962.
- \_\_\_\_\_. Where colleges fail. San Francisco: Jossey-Bass, 1967.
- Sanford, N., and Singer, S. Drinking and personality. In J. Katz et al. (Eds.). No time for youth--Growth and constraint in college students, student life and its problems. San Francisco: Jossey-Bass, 1968.
- Sandmaier, M. Alcohol programs for women: Issues, strategies and resources. Rockville, Md.: National Institute of Alcohol Abuse and Alcoholism, 1977.
- Schroeder, C. C. An analysis of the impact of residential setting on the development of selected dimensions of self actualization. (Doctoral dissertation, Oregon State University, 1973). Dissertation Abstracts International, 1973, 33, 4188-A. (University Microfilms No. 73-3992, 149).
- Schuckit, M. A., & Morressey, E. R. Alcoholism in women: Some clinical and social perspectives with an emphasis on possible subtypes. In M. Greenblatt & M. A. Schuckit. Alcoholism problems in women and children. New York: Grune & Stratton, 1976.
- Scroth, J. Drinking in college and alcohol education programs: A review of the literature. Journal of the Indiana University Student Personnel Association, 1979, 23-33.
- Sliepcevitch, E. M. The school health education study: A summary report. Washington, D.C.: SHES, 1964.
- Snedecore, G. W., & Cochran, W. G. Statistical methods. Ames, Io.: Iowa State University Press, 1967.
- Straus, R. Drinking in college in the perspective of social change. In G. L. Maddox (Ed.). The domesticated drug: Drinking among collegians. New Haven, Conn.: College & University Press, 1970.

- Straus, R. and Bacon, S. D. Drinking in college. New Haven, Conn.: Yale University Press, 1953.
- Strassberger, F. and Strassberger, Z. Measurement of attitudes toward alcohol and their relation to personality variables. Journal of Consulting Psychology, 1965, 29(5), 440-445.
- Trent, J. W. & Medsker, L. L. Beyond high school: A psychological study of 10,000 high school graduates. San Francisco: Jossey-Bass, 1968.
- Veevers, J. E. Drinking attitudes and drinking behavior: An exploratory study. Journal of Social Psychology, 1971, 85, 103-109.
- Walker, B. A., Jasinska, M. D., & Carnes, E. F. Adolescent alcohol abuse: A review of literature. Journal of Alcohol and Drug Education, 1978, 23(3), 51-65.
- Waterman, A., Geary, P., & Waterman, C. A longitudinal study of changes in ego identity from freshman to senior year in college. Developmental Psychology, 1974, 10, 387-392.
- Webster, H., Freedman, M. B., & Heist, P. Personality changes in college students. In N. Sanford. The American college. New York: John Wiley & Sons, 1962, 805-847.
- Weir, W. D. Alcohol and alcohol education: Attitude development and change. Journal of Alcohol Education, 1969, 15(1), 1-8.
- Williams, A., DiCicco, L., & Unterberger, H. Philosophy and evaluation of an alcohol education program. Quarterly Journal of Studies on Alcohol, 1968, 29(3), 685-702.
- Wilsnack, S. C. The impact of sex roles on women's alcohol use and abuse. In M. Greenblatt, M. A. Schuckit (Eds.). Alcoholism problems in women and children. New York: Grune & Stratton, 1976.

## APPENDIX A. PRETEST QUESTIONNAIRE

OREGON STATE UNIVERSITY

WOMEN'S RESEARCH PROJECT

We are conducting a special research project this year at Oregon State University and we would appreciate your participation very much. You have been selected at random from the entering freshmen women to represent the freshman class. The information you give us is especially important because you have not yet attended Oregon State.

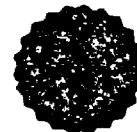
Enclosed you will find three items. First is a YELLOW CARD to be returned with your name and social security number (which is also your student number) written on it. We would like to mail you another questionnaire later in the school year and this will help us locate your address.

Second, you will find a QUESTIONNAIRE, which is the main part of the project. The first page explains the research and how we will guarantee the confidentiality of your responses. The questionnaire looks long, but those who have taken it on campus have taken about fifteen minutes to complete it. Please read the instruction sheet carefully and be sure to complete the code number on the first page.

Finally, you will find an ENVELOPE enclosed. It is pre-addressed and has postage paid, so all you have to do is enclose the completed yellow card and the questionnaire in the envelope and put it in the mail no later than FRIDAY, SEPTEMBER 14th.

Again, we appreciate your help in what we feel is an important research project and we hope to receive your questionnaire in the mail soon.

Sincerely,  
Redacted for Privacy  
Logan Hazen  
Project Coordinator



REMEMBER: Please return by Friday, September 14th.



BACKGROUND

- \_\_\_ 1. How old are you (to your nearest birthday)?
- A. 16 or younger  
B. 17  
C. 18  
D. 19 or older
- \_\_\_ 2. Which term best describes your home town?
- A. Rural or farming  
B. Town  
C. Small city  
D. Suburban  
E. Large urban city
- \_\_\_ 3. What was your high school grade point average (gpa)? [Note: please do not confuse the category letters with grades-- read the numbers carefully.]
- A. 3.50 to 4.00  
B. 3.00 to 3.49  
C. 2.50 to 2.99  
D. 2.00 to 2.49  
E. Below 2.00
- \_\_\_ 4. What school or college of OSU is your proposed major from? (If you are unsure of where your major is located, simply write it in the blank \_\_\_\_\_).
- A. Agriculture  
B. Business  
C. Education  
D. Engineering  
E. Forestry  
F. Health and P.E.  
G. Home Economics  
H. Liberal Arts  
I. Pharmacy  
J. Science  
K. Undecided
- \_\_\_ 5. From the list to the right list your religious affiliation.
- A. Roman Catholic  
B. Jewish  
C. Episcopal/Presbyterian  
D. Lutheran  
E. Methodist  
F. Baptist  
G. Latter Day Saints (Mormon)  
H. Other Protestant \_\_\_\_\_  
I. Other religion \_\_\_\_\_  
J. Non-affiliated
- \_\_\_ 6. During the last six months, how often have you attended religious services?
- A. One or more times per week  
B. Two to three times per month  
C. About every other month  
D. Once in six months  
E. Not at all
- \_\_\_ 7. Which letter best represents your family situation during your last year of high school?
- A. Both parents in home  
B. Mother only in home  
C. Father only in home  
D. Mother and stepfather  
E. Father and stepmother  
F. Other \_\_\_\_\_
- \_\_\_ 8. Does your father drink alcoholic beverages?
- A. Yes  
B. No  
C. Don't know







- \_\_\_ 49. Who do you usually drink with the most often?  
 \_\_\_ 50. Who do you drink with the second most often?  
 \_\_\_ 51. Who do you drink with the third most often?

For questions 49, 50 & 51.

- A. Female friends  
 B. Male friends  
 C. Mixed groups of friends  
 D. Parents or other relatives  
 E. Alone

- \_\_\_ 52. Where do you usually drink the most often?  
 \_\_\_ 53. Where do you drink the second most often?  
 \_\_\_ 54. Where do you drink the third most often?

For questions 52, 53 & 54.

- A. At family home  
 B. Homes of friends  
 C. College room  
 D. Fraternities  
 E. Sororities  
 F. Taverns, restaurants, bars.  
 G. Public events (dances, sports, concerts, etc.)  
 H. Outdoor parties  
 I. In automobiles  
 J. None of the above \_\_\_\_\_

- \_\_\_ 55. When on a date, how often do you drink?

- A. Always  
 B. Almost always  
 C. Over half the time  
 D. Seldom  
 E. Never

- \_\_\_ 56. How much of your drinking experiences do your parents know about?

- A. All of your experiences  
 B. Some of your experiences  
 C. Few of your experiences  
 D. None at all  
 E. Not sure how much they know

- \_\_\_ 57. How often do you usually drink beer?  
 \_\_\_ 58. How often do you usually drink wine?  
 \_\_\_ 59. How often do you usually drink hard liquor (whisky, vodka, mixed drinks, etc.)?  
 \_\_\_ 60. When you drink beer, how much do you usually drink at one time?

For questions 57, 58 & 59.

- A. 1 or more times per day  
 B. 3 or 4 times per week  
 C. 1 or 2 times per week  
 D. 1 or 2 times per month  
 E. At least once per year  
 F. Never

- \_\_\_ 61. When you drink wine, how much do you usually drink at one time?

- A. 7 or more bottles/glasses  
 B. 5 to 6 bottles/glasses  
 C. 3 to 4 bottles/glasses  
 D. 1 to 2 bottles/glasses  
 E. Less than 1 bottle/glass  
 F. None at all

- A. A bottle or more  
 B. A half bottle or about 5 glasses  
 C. 3 to 4 glasses  
 D. 1 to 2 glasses  
 E. Less than 1 glass  
 F. None at all

- \_\_\_ 62. When you drink hard liquor, how much do you usually drink at one time?  
 A. 7 or more drinks  
 B. 5 to 6 drinks  
 C. 3 to 4 drinks  
 D. 1 to 2 drinks  
 E. Less than 1 drink  
 F. None at all
- \_\_\_ 63. If given your choice, which alcoholic beverage would you prefer the most?  
 A. Beer  
 B. Wine  
 C. Hard liquor (straight/mixed)
- \_\_\_ 64. Which beverage do you usually drink the most often?  
 A. Beer  
 B. Wine  
 C. Hard liquor (straight/mixed)
- \_\_\_ 65. What time of the week do you drink the most often?  
 A. Weekends only  
 B. Weekdays only  
 C. Both equally  
 D. Both, weekends more  
 E. Both, weekdays more

Below are some common results of drinking. To the best of your recollection indicate the extent to which you have experienced any of these results. Please use the scale below.

- A. Five or more times  
 B. Four times  
 C. Three times  
 D. Two times  
 E. Once  
 F. Never

- \_\_\_ 66. I have had a hangover.
- \_\_\_ 67. I have gotten nauseated and vomited from drinking.
- \_\_\_ 69. I have driven a car after having had several drinks.
- \_\_\_ 70. I have drunk while driving.
- \_\_\_ 71. I have cut a class after having had several drinks.
- \_\_\_ 72. I have gone to class after having had several drinks.
- \_\_\_ 73. I have missed a class because of a hangover.
- \_\_\_ 74. I have been arrested for DWIL (driving while intoxicated from liquor).
- \_\_\_ 75. I have been criticized by family or friends because of drinking.
- \_\_\_ 76. I have received a lower grade as a consequence of drinking too much.
- \_\_\_ 77. I have gotten into a fight after drinking.
- \_\_\_ 78. I have thought on occasion I might have a drinking problem.
- \_\_\_ 79. I have damaged property, pulled a fire alarm, or other such actions after drinking.
- \_\_\_ 80. I have gotten into trouble with school administration because of behavior resulting from drinking too much.
- \_\_\_ 81. I have had trouble with the law because of too much drinking.
- \_\_\_ 82. I have lost a job because of drinking.
- \_\_\_ 83. I have been involved in some type of accident after drinking.

- \_\_\_ 84. I have forgotten parts of an evening while drinking, but did not pass out.
- \_\_\_ 85. I have done something after drinking which I later regretted.
- \_\_\_ 86. I have felt guilty because of my drinking.
- \_\_\_ 87. I have passed out from drinking.
- \_\_\_ 88. I have lost a friend because of drinking.

Below is a list of reasons students have given for drinking. To the best of your recollection indicate the extent to which any of these have been reasons for you to drink. Please use the scale below.

- A. Five or more times
- B. Four times
- C. Three times
- D. Two times
- E. Once
- F. Never

- \_\_\_ 39. I drink to be more sociable.
  - \_\_\_ 90. I drink because I enjoy the taste.
  - \_\_\_ 91. I drink because the effects feel good.
  - \_\_\_ 92. I drink to get high.
  - \_\_\_ 93. I drink to relax.
  - \_\_\_ 94. I drink to forget a problem.
  - \_\_\_ 95. I drink to relieve aches and pains.
  - \_\_\_ 96. I drink because it helps me enjoy food.
  - \_\_\_ 97. I drink because everyone else is drinking.
  - \_\_\_ 98. I drink because there is nothing else to do.
  - \_\_\_ 99. I drink to increase feeling of well-being.
  - \_\_\_ 100. I drink because I'm depressed.
  - \_\_\_ 101. I drink to get drunk.
  - \_\_\_ 102. I drink to celebrate something special.
- \_\_\_ 103. How many students do you know which you think  
may have drinking problems?
- A. 6 or more students
  - B. 4 to 5 students
  - C. 2 to 3 students
  - D. 1 student
  - E. No students

#### ATTITUDES ABOUT ALCOHOL

The final set of questions are statements about drinking. We would like to know how much you agree or disagree with each of these statements. Again these are your opinions we're looking for, not any "right" answers. Please read each statement carefully and do not skip any questions. So that you understand the terms that we've used, definitions are on the top of the next page.

Drinking- simply the act of taking an alcoholic beverage for other than religious purposes. The term "drinking" does not mean excessive drinking or drunkenness unless so stated.

Tight-- some loss of inhibitions, or slurred or mixed-up speech, or some slight unsteadiness in ordinary physical activity, or slight nausea.

Drunk-- marked loss of control over ordinary physical activities (e.g. staggering), or confused speech, or not knowing what's going on, or nausea, or passing out.

When responding use the following scale:

- A. Strongly agree
- B. Agree
- C. Undecided
- D. Disagree
- E. Strongly disagree

- \_\_\_ 104. It is okay to get "tight" or drunk as long as you are in your own home.
- \_\_\_ 105. Many persons can benefit from one or two drinks at a party.
- \_\_\_ 106. The use of alcohol is a custom which should be abandoned by our society.
- \_\_\_ 107. Teenagers who drink to excess do not deserve a good reputation.
- \_\_\_ 108. The use of alcohol by anyone is immoral.
- \_\_\_ 109. A person who gets "tight" or drunk is just asking for trouble.
- \_\_\_ 110. There is nothing wrong with the custom many people have of taking a drink or two to relax.
- \_\_\_ 111. A person who has never been tight or drunk is really missing a good thing.
- \_\_\_ 112. Alcohol in moderation has no real effect on a person's emotional health.
- \_\_\_ 113. Getting tight at a beach party is just harmless fun.
- \_\_\_ 114. Alcohol used in moderation can be an important contribution to social relationships.
- \_\_\_ 115. A drunk person is a sad sight.
- \_\_\_ 116. Drunkenness is excusable under many circumstances.
- \_\_\_ 117. Taking a cocktail before dinner is the first step toward alcoholism.
- \_\_\_ 118. The social drinker has less will power than the abstainer.
- \_\_\_ 119. It is possible for alcohol to be used responsibly by people.
- \_\_\_ 120. Moderate use of alcohol is not harmful to a person's physical health.
- \_\_\_ 121. Drunkenness is always undesirable.
- \_\_\_ 122. If people have fun when they get tight, there's no reason why they shouldn't drink in this manner.
- \_\_\_ 123. Drunkenness lowers the dignity of human beings.
- \_\_\_ 124. Teenagers getting tight is excusable if there's nothing else for them to do and everybody is bored.
- \_\_\_ 125. As long as a person keeps out of trouble, it's all right for him/her to drink to excess.
- \_\_\_ 126. National prohibition, even if workable, is undesirable.
- \_\_\_ 127. Getting tight or drunk is a good way to let off steam.

- \_\_\_ 128. The way people act when they are tight or drunk should be enough to convince anyone not to drink to excess.
- \_\_\_ 129. It is alright to get tight once in a while, as long as it doesn't become a habit.
- \_\_\_ 130. All high school teachers should be abstainers.
- \_\_\_ 131. There is nothing wrong with the custom of many families of having wine with meals.
- \_\_\_ 132. Everybody should get drunk at least once.
- \_\_\_ 133. People who sell alcoholic beverages are preying on the weaknesses of others.
- \_\_\_ 134. Alcoholic beverages are harmful even when used in moderation.
- \_\_\_ 135. Total abstinence is the only way of life.
- \_\_\_ 136. If people didn't get drunk, the world would be a better place.
- \_\_\_ 137. Getting drunk for kicks is part of growing up.
- \_\_\_ 138. Any kind of drinking is wrong for teenagers under any circumstances.
- \_\_\_ 139. The social use of alcohol by millions of people gives them satisfaction to which they have a right.
- \_\_\_ 140. Liquor advertising should be legally prohibited.
- \_\_\_ 141. Individuals should be allowed to decide for themselves whether they should be abstainers or drinkers.
- \_\_\_ 142. Drinking of any sort is a threat to health and well-being.
- \_\_\_ 143. Excessive drinking can cause only misery in the long run.
- \_\_\_ 144. Drunkenness is a sign of immaturity.
- \_\_\_ 145. Drinking of alcoholic beverages should be classified with the illegal use of dope.

Thank you very much for completing the questionnaire and contributing to the research we're doing. Your responses are very much appreciated. If you have any comments about the study please feel free to write them in the space below.

Form 3

## APPENDIX B. POSTTEST QUESTIONNAIRE

OREGON STATE UNIVERSITY

WOMEN'S RESEARCH PROJECT: ALCOHOL

Hello again! Last summer you participated in a research project on alcohol. You were selected to represent the freshmen women coming to Oregon State. To complete the research project we would like to ask for your help a final time.

Please answer the questions this time on the basis of your fall term experiences (versus before OSU). Please give the answers that best fit you now and do not worry if they don't match the ones you gave last summer. The questionnaire this time is a mixture of new questions and ones that were on the original questionnaire. For the benefit of computer scoring we have kept the original numbering so don't worry when we jump from #4 to #11.

Again your responses are COMPLETELY CONFIDENTIAL and will be used for research purposes only. Completing this questionnaire is of course voluntary. However, since this questionnaire will complete the research you started last summer we really encourage you to complete this questionnaire and return it.

Again, you simply enter the letter of your response on the line to the left of the question as you did last time. This is not a test, so there are no right or wrong answers. Any answer that is true for you is the right answer. We hope that you will again give us your frank and open opinions. Please read carefully and do not skip any questions.

Your participation in this project is very much appreciated and we thank you. If you would like a summary of the results when it comes out spring term please check the line at the end of the questionnaire. Again, thank you.

(Return by Wednesday, January 16th)

Sincerely,  
Redacted for Privacy  
Logan Hazen, Project Coordinator

CODE NUMBER

To ensure confidentiality and to allow us to compare your two questionnaires we are using the code system again. Please follow the directions below to develop your code number.

A	C	F	I	L	O	R	U	X
B	D	G	J	M	P	S	V	Y
	E	H	K	N	Q	T	W	Z
1	2	3	4	5	6	7	8	9

\_\_\_ From the boxes above, write the number which stands for the SECOND LETTER of your LEGAL FIRST NAME on the line to the left. (For example, for the name Judith, the second letter is "u", which is number 3).

\_\_\_ Write the number which stands for the THIRD LETTER of your LEGAL FIRST NAME.

\_\_\_ Write the number which stands for the SECOND LETTER of your LEGAL LAST NAME.

\_\_\_ Write the number which stands for the THIRD LETTER of your LEGAL LAST NAME.



BACKGROUND

- \_\_\_ 1. What was your first term OSU grade point average (G.P.A.)? [Note: Please do not confuse the category letters with grades-- read the numbers carefully.]
- \_\_\_ 2. Which letter best represents your living group situation?
- \_\_\_ 3. During fall term how often did you attend religious services?
- \_\_\_ 4. What is your parents' attitude toward your using alcohol now that you are in college?
- A. 3.50 to 4.00  
B. 3.00 to 3.49  
C. 2.50 to 2.99  
D. 2.00 to 2.49  
E. Below 2.00
- A. Coed hall, non-sorority affiliated  
B. Women's hall, non-sorority  
C. Coed hall, sorority affiliated  
D. Women's hall, sorority affiliated  
E. Cooperative  
F. Other (specify) \_\_\_\_\_
- A. One or more times per week.  
B. Two to three times per month.  
C. About every other month.  
D. Once in the term.  
E. Not at all.
- A. Insist you do not drink.  
B. Prefer you do not drink.  
C. Let you make your own decision.  
D. Encourage you to experiment.  
E. Don't know your parents' attitude.

## KNOWLEDGE OF ALCOHOL

In the following section we would like to find out what you know about alcohol. Again, please answer as you believe the answer to be. Enter your answer on the line to the left of the statement according to the scale below.

- A. True (if you feel the statement is correct)  
B. False (if you feel the statement is incorrect)  
C. Don't know (if you are not sure-- please do not guess if you do not know)
- \_\_\_ 11. Drinking milk before drinking an alcoholic beverage will slow down the absorption of alcohol into the body.
- \_\_\_ 12. Wines are made by fermented grains.
- \_\_\_ 13. Alcoholic beverages do not provide weight increasing calories.
- \_\_\_ 14. In America, drinking is usually considered an important socializing custom in business, for relaxation and for improving interpersonal relationships.
- \_\_\_ 15. Gulping alcoholic beverages is a commonly accepted drinking pattern in this country.
- \_\_\_ 16. Alcohol is usually classified as a stimulant.
- \_\_\_ 17. Alcohol is not a drug.
- \_\_\_ 18. A blood alcohol concentration of 0.1% is the legal definition of alcohol intoxication in most states in regard to driving.
- \_\_\_ 19. Approximately 10% of fatal highway accidents are alcohol related.
- \_\_\_ 20. Alcohol was used for centuries as a medicine in childbirth, sedation, and surgery.
- \_\_\_ 21. Table wines contain from 2-12% alcohol by content.

- \_\_\_ 22. It is estimated that approximately 35% of the adult Americans who drink misuse or abuse alcoholic beverages.
- \_\_\_ 23. Many people drink to escape problems, loneliness, and depression.
- \_\_\_ 24. Liquor mixed with soda pop will affect you faster than liquor drunk straight.
- \_\_\_ 25. The most commonly drunk alcoholic beverage in the United States are distilled liquors (whiskey, vodka, gin, etc.).
- \_\_\_ 26. To keep his/her blood alcohol concentration below the legally intoxicated level, a 150-pound person would have to drink less than 3 beer in an hour.
- \_\_\_ 27. A person cannot become an alcoholic by just drinking beer.
- \_\_\_ 28. To prevent getting a hangover one should sip his/her drink slowly, drink and eat at the same time, space drinks over a period of time, and don't over drink for your limit.
- \_\_\_ 29. Distilled liquors (gin, whiskey, vodka, etc.) usually contain about 15-20% alcohol by volume.
- \_\_\_ 30. Moderate consumption of alcoholic beverages is generally not harmful to the body.
- \_\_\_ 31. It takes about as many hours as the number of beers drunk to completely burn up the alcohol ingested.
- \_\_\_ 32. Many people drink for social acceptance, because of peer group pressures and to gain adult status.
- \_\_\_ 33. A blood alcohol concentration of .02% usually causes a person to be in a stupor.
- \_\_\_ 34. Liquors such as gin, scotch, and whiskies are usually distilled from mashies made from fermenting grains.
- \_\_\_ 35. "Proof" on a bottle of liquor represents half the percent of alcohol contained in the bottle.
- \_\_\_ 36. The United States lacks a national consensus on what constitutes the responsible use of alcoholic beverages.
- \_\_\_ 37. There is usually more alcoholism in a society which accepts drunken behavior than in a society which frowns on drunkenness.
- \_\_\_ 38. Beer usually contains from 2-12% alcohol by volume.
- \_\_\_ 39. Eating while drinking will have no effect on slowing down the absorption of alcohol in the body.
- \_\_\_ 40. Drinking coffee or taking a cold shower can be an effective way of sobering up.
- \_\_\_ 41. Drinking of alcoholic beverages has been common in the U.S.A. since the Puritans first settled here.
- \_\_\_ 42. Alcohol has only been used in a very few societies throughout history.
- \_\_\_ 43. Liquor taken straight will affect you faster than liquor mixed with water.
- \_\_\_ 44. Responsible drinking can result in relaxation, enhanced social interactions, and a feeling of well being.
- \_\_\_ 45. One ounce of whiskey contains about 60 calories.
- \_\_\_ 46. Wines throughout history have been commonly drunk at religious ceremonies and family gatherings.

## USE OF ALCOHOL

In this section we would like to find out about your personal use of alcohol. Again, this information is confidential so please answer openly and honestly. There are no right or wrong answers, just your true experiences. Please list your answer on the line to the left of the question number.

- \_\_\_ 47. During fall term did you drink beer, wine, or hard liquor besides just a sip?      A. Yes  
B. No

If you answered NO, please go on to question 103.

If you answered YES, please continue.

- \_\_\_ 49. Who do you usually drink with the most often?      For questions 49, 50 & 51.  
A. Female friends  
B. Male friends  
\_\_\_ 50. Who do you drink with the second most often?      C. Mixed groups of friends  
D. Parents or other relatives  
\_\_\_ 51. Who do you drink with the third most often?      E. Alone

- \_\_\_ 52. Where do you usually drink the most often?      For questions 52, 53 & 54.  
A. At family home  
B. Homes of friends  
\_\_\_ 53. Where do you drink the second most often?      C. College room  
D. Fraternities  
\_\_\_ 54. Where do you drink the third most often?      E. Sororities  
F. Taverns, restaurants, bars.  
G. Public events (dances, sports, concerts, etc.)  
H. Outdoor parties  
I. In automobiles  
J. Other (specify) \_\_\_\_\_

- \_\_\_ 55. When on a date, how often do you drink?      A. Always  
B. Almost always  
C. Over half the time  
D. Seldom  
E. Never  
\_\_\_ 56. How much of your drinking experiences do your parents know about?      A. All of your experiences  
B. Some of your experiences  
C. Few of your experiences  
D. None at all  
E. Not sure how much they know

REMEMBER, THIS IS FOR FALL TERM ONLY...

- \_\_\_ 57. How often do you usually drink beer?      For questions 57, 58 & 59.  
A. 1 or more times per day  
B. 3 or 4 times per week  
\_\_\_ 58. How often do you usually drink wine?      C. 1 or 2 times per week  
D. 1 or 2 times per month  
\_\_\_ 59. How often do you usually drink hard liquor (whisky, vodka, mixed drinks, etc.)?      E. At least once per year  
F. Never  
\_\_\_ 60. When you drink beer, how much do you usually drink at one time?      A. 7 or more bottles/glasses  
B. 5 to 6 bottles/glasses  
C. 3 to 4 bottles/glasses  
D. 1 to 2 bottles/glasses  
E. Less than 1 bottle/glass  
F. None at all

- \_\_\_ 61. When you drink wine, how much do you usually drink at one time?  
 A. A bottle or more  
 B. A half bottle or about 5 glasses  
 C. 3 to 4 glasses  
 D. 1 to 2 glasses  
 E. Less than 1 glass  
 F. None at all
- \_\_\_ 62. When you drink hard liquor, how much do you usually drink at one time?  
 A. 7 or more drinks  
 B. 5 to 6 drinks  
 C. 3 to 4 drinks  
 D. 1 to 2 drinks  
 E. Less than 1 drink  
 F. None at all
- \_\_\_ 63. If given your choice, which alcoholic beverage would you prefer the most?  
 A. Beer  
 B. Wine  
 C. Hard liquor (straight/mixed)
- \_\_\_ 64. Which beverage do you usually drink the most often?  
 A. Beer  
 B. Wine  
 C. Hard liquor (straight/mixed)
- \_\_\_ 65. What time of the week do you drink the most often?  
 A. Weekends only  
 B. Weekdays only  
 C. Both equally  
 D. Both, weekends more  
 E. Both, weekdays more

Below are some common results of drinking. To the best of your recollection indicate the extent to which you have experienced any of these results. Please use the scale below. Remember, this is for fall term.

- A. Five or more times  
 B. Four times  
 C. Three times  
 D. Two times  
 E. Once  
 F. Never
- \_\_\_ 66. I have had a hangover.
- \_\_\_ 67. I have gotten nauseated and vomited from drinking.
- \_\_\_ 69. I have driven a car after having had several drinks.
- \_\_\_ 70. I have drunk while driving.
- \_\_\_ 71. I have cut a class after having had several drinks.
- \_\_\_ 72. I have gone to class after having had several drinks.
- \_\_\_ 73. I have missed a class because of a hangover.
- \_\_\_ 74. I have been arrested for DWIL (driving while intoxicated from liquor).
- \_\_\_ 75. I have been criticized by family or friends because of drinking.
- \_\_\_ 76. I have received a lower grade as a consequence of drinking too much.
- \_\_\_ 77. I have gotten into a fight after drinking.
- \_\_\_ 78. I have thought on occasion I might have a drinking problem.
- \_\_\_ 79. I have damaged property, pulled a fire alarm, or other such actions after drinking.

- \_\_\_ 80. I have gotten into trouble with school administration because of behavior resulting from drinking too much.
- \_\_\_ 81. I have had trouble with the law because of too much drinking.
- \_\_\_ 82. I have lost a job because of drinking.
- \_\_\_ 83. I have been involved in some type of accident after drinking.
- \_\_\_ 84. I have forgotten parts of an evening while drinking, but did not pass out.
- \_\_\_ 85. I have done something after drinking which I later regretted.
- \_\_\_ 86. I have felt guilty because of my drinking.
- \_\_\_ 87. I have passed out from drinking.
- \_\_\_ 88. I have lost a friend because of drinking.

Below is a list of reasons students have given for drinking. To the best of your recollection indicate the extent to which any of these have been reasons for you to drink. Please use the scale below. This is again for fall term.

- A. Five or more times
- B. Four times
- C. Three times
- D. Two times
- E. Once
- F. Never

- \_\_\_ 89. I drink to be more sociable.
  - \_\_\_ 90. I drink because I enjoy the taste.
  - \_\_\_ 91. I drink because the effects feel good.
  - \_\_\_ 92. I drink to get high.
  - \_\_\_ 93. I drink to relax.
  - \_\_\_ 94. I drink to forget a problem.
  - \_\_\_ 95. I drink to relieve aches and pains.
  - \_\_\_ 96. I drink because it helps me enjoy food.
  - \_\_\_ 97. I drink because everyone else is drinking.
  - \_\_\_ 98. I drink because there is nothing else to do.
  - \_\_\_ 99. I drink to increase feeling of well-being.
  - \_\_\_ 100. I drink because I'm depressed.
  - \_\_\_ 101. I drink to get drunk.
  - \_\_\_ 102. I drink to celebrate something special.
- 
- \_\_\_ 103. How many students do you know which you think may have drinking problems?
    - A. 6 or more students
    - B. 4 to 5 students
    - C. 2 to 3 students
    - D. 1 student
    - E. No students

## ATTITUDES ABOUT ALCOHOL

The final set of questions are statements about drinking. We would like to know how much you agree or disagree with each of these statements. Again these are your opinions we're looking for, not any "right" answers. Please read each statement carefully and do not skip any questions. So that you understand the terms that we've used, definitions are on the top of the next page.

Drinking- simply the act of taking an alcoholic beverage for other than religious purposes. The term "drinking" does not mean excessive drinking or drunkenness unless so stated.

Tight-- some loss of inhibitions, or slurred or mixed-up speech, or some slight unsteadiness in ordinary physical activity, or slight nausea.

Drunk-- marked loss of control over ordinary physical activities (e.g. staggering), or confused speech, or not knowing what's going on, or nausea, or passing out.

When responding use the following scale:

- A. Strongly agree
- B. Agree
- C. Undecided
- D. Disagree
- E. Strongly disagree

- \_\_\_ 104. It is okay to get "tight" or drunk as long as you are in your own home.
- \_\_\_ 105. Many persons can benefit from one or two drinks at a party.
- \_\_\_ 106. The use of alcohol is a custom which should be abandoned by our society.
- \_\_\_ 107. Teenagers who drink to excess do not deserve a good reputation.
- \_\_\_ 108. The use of alcohol by anyone is immoral.
- \_\_\_ 109. A person who gets "tight" or drunk is just asking for trouble.
- \_\_\_ 110. There is nothing wrong with the custom many people have of taking a drink or two to relax.
- \_\_\_ 111. A person who has never been tight or drunk is really missing a good thing.
- \_\_\_ 112. Alcohol in moderation has no real effect on a person's emotional health.
- \_\_\_ 113. Getting tight at a beach party is just harmless fun.
- \_\_\_ 114. Alcohol used in moderation can be an important contribution to social relationships.
- \_\_\_ 115. A drunk person is a sad sight.
- \_\_\_ 116. Drunkenness is excusable under many circumstances.
- \_\_\_ 117. Taking a cocktail before dinner is the first step toward alcoholism.
- \_\_\_ 118. The social drinker has less will power than the abstainer.
- \_\_\_ 119. It is possible for alcohol to be used responsibly by people.
- \_\_\_ 120. Moderate use of alcohol is not harmful to a person's physical health.
- \_\_\_ 121. Drunkenness is always undesirable.
- \_\_\_ 122. If people have fun when they get tight, there's no reason why they shouldn't drink in this manner.
- \_\_\_ 123. Drunkenness lowers the dignity of human beings.
- \_\_\_ 124. Teenagers getting tight is excusable if there's nothing else for them to do and everybody is bored.

- 125. As long as a person keeps out of trouble, it's all right for him/her to drink to excess.
- 126. National prohibition, even if workable, is undesirable.
- 127. Getting tight or drunk is a good way to let off steam.
- 128. The way people act when they are tight or drunk should be enough to convince anyone not to drink to excess.
- 129. It is alright to get tight once in a while, as long as it doesn't become a habit.
- 130. All high school teachers should be abstainers.
- 131. There is nothing wrong with the custom of many families of having wine with meals.
- 132. Everybody should get drunk at least once.
- 133. People who sell alcoholic beverages are preying on the weaknesses of others.
- 134. Alcoholic beverages are harmful even when used in moderation.
- 135. Total abstinence is the only way of life.
- 136. If people didn't get drunk, the world would be a better place.
- 137. Getting drunk for kicks is part of growing up.
- 138. Any kind of drinking is wrong for teenagers under any circumstances.
- 139. The social use of alcohol by millions of people gives them satisfaction to which they have a right.
- 140. Liquor advertising should be legally prohibited.
- 141. Individuals should be allowed to decide for themselves whether they should be abstainers or drinkers.
- 142. Drinking of any sort is a threat to health and well-being.
- 143. Excessive drinking can cause only misery in the long run.
- 144. Drunkenness is a sign of immaturity.
- 145. Drinking of alcoholic beverages should be classified with the illegal use of dope.

Thank you very much for completing the questionnaire and contributing to the research we're doing. Your responses are very much appreciated. If you have any comments about the study please feel free to write them in the space below.

Check here if you would like to receive a summary of the results of this project.

RETURN QUESTIONNAIRE BY WEDNESDAY, JANUARY 16th.

## APPENDIX C-1. SCORING FOR THE QUANTITY-FREQUENCY INDEX (USE MEASURE)\*

Assumptions for scoring on Questions 57, 58, and 59 (in weekly units).

- A. 1 or more time per day = 7 times per week average.
- B. 3 or 4 times per week = 3.5 times per week average.
- C. 1 or 2 times per week = 1.5 times per week average.
- D. 1 or 2 times per month = 0.25 times per week average.
- E. At least once per year = 0 times per week average.
- F. Never = 0 times per week average.

Assumptions for scoring on Question 60 (Beer usage).

In the State of Oregon beer may not exceed 4.0% alcohol by volume. The OLCC estimates that the average content is 3.7% alcohol by volume. Assuming an average beverage size to be 12 ounces of beer, each serving will contain .444 ounces of alcohol (per bottle or glass).

- A. 7 or more bottles/glasses = 3.11 ounces of alcohol.
- B. 5 to 6 bottles/glasses = 2.44 ounces of alcohol (5.5 bottles/glasses average).
- C. 3 to 4 bottles/glasses = 1.55 ounces of alcohol (3.5 bottles/glasses average).
- D. 1 or 2 bottles/glasses = 0.67 ounces of alcohol (1.5 bottles/glasses average).
- E. Less than 1 bottle/glass = 0.22 ounces of alcohol (0.5 bottles/glasses average).
- F. None at all = 0.00 ounces of alcohol.

Assumptions for scoring on Question 61 (Wine usage).

In the State of Oregon table wine may not exceed 14% alcohol by volume and dessert wine may not exceed 21% alcohol by volume. Calculations are based on an average serving size of 4 ounces with 15% alcohol by volume average, resulting in 0.6 ounces of alcohol per serving.

- A. A bottle or more = 6 ounces of alcohol (10 glasses).
- B. 1/2 bottle or about 5 glasses = 3 ounces of alcohol.
- C. 3 to 4 glasses = 2.1 ounces of alcohol (3.5 glasses).
- D. 1 to 2 glasses = 0.9 ounces of alcohol (1.5 glasses).
- E. Less than 1 glass = 0.3 ounces of alcohol (0.5 glass).
- F. None at all = 0.00 ounces of alcohol.

Assumptions for scoring Question 62 (Hard liquor).

Hard liquor averages 80 to 100 proof, thus averages 45% alcohol by volume. The average serving size contains 1-1/2 ounces of liquor, or 0.675 ounces of alcohol.



- A. 7 or more drinks = 4.73 ounces of alcohol (7 drinks average).
- B. 5 to 6 drinks = 3.71 ounces of alcohol (5.5 drinks average).
- C. 3 to 4 drinks = 2.36 ounces of alcohol (3.5 drinks average).
- D. 1 to 2 drinks = 1.01 ounces of alcohol (1.5 drinks average).
- E. Less than 1 drink = 0.34 ounces of alcohol (0.5 drinks average).
- F. None at all = 0.00 ounces of alcohol.

\*See Appendices A and B, the pretest and posttest questionnaire, for the specific questions used in the study.

APPENDIX C-2. SCORING FOR THE STUDENT ALCOHOL QUESTIONNAIRE  
(KNOWLEDGE MEASURED)\*

(Scoring for Questions 11-46)

<u>TRUE</u>	<u>FALSE</u>
11, 14, 18, 19, 20, 23, 28, 30, 31, 32, 34, 36, 37, 38, 41, 43, 44, 46.	12, 13, 15, 16, 17, 21, 22, 24, 25, 26, 27, 29, 33, 35, 39, 40, 42, 45.

Scoring 1 point for correct response  
0 points for incorrect response

Overall total is the subject's knowledge score.

\*See Appendices A and B, the pretest and posttest questionnaire, for the specific questions used in the study.

APPENDIX C-3. SCORING FOR MEASURE OF ATTITUDE TOWARD USE OF ALCOHOL  
(Scoring for Questions 104-145)\*

Intemperate Use (I.U.)

Favorable	104, 111, 113, 116, 122, 124, 125, 127, 129, 132, 137.	A. 4 Strongly agree B. 3 Agree C. 2 Uncertain D. 1 Disagree E. 0 Strongly disagree
Unfavorable	107, 109, 115, 121, 123, 128, 136, 143, 144.	A. 0 Strongly agree B. 1 Agree C. 2 Uncertain D. 3 Disagree E. 4 Strongly disagree

Temperate Use (T.U.)

Favorable	105, 110, 112, 114, 119, 120, 126, 131, 139, 141.	A. 4 Strongly agree B. 3 Agree C. 2 Uncertain D. 1 Disagree E. 0 Strongly disagree
Unfavorable	106, 108, 117, 118, 130, 133, 134, 135, 138, 140, 142, 145.	A. 0 Strongly agree B. 1 Agree C. 2 Uncertain D. 3 Disagree E. 4 Strongly disagree

\*See Appendices A and B, the pretest and posttest questionnaire, for the specific questions used in the study.

APPENDIX D. DEMOGRAPHIC CHARACTERISTICS OF THE  
ALCOHOL USE GROUPS



Appendix D-3. Crosstabulation of Family Home Situation in High School with Precollege Alcohol Use Group.

COUNT ROW TOTAL	COUNT COL TOTAL	PRECOLLEGE ALCOHOL USE GROUP						TOTAL
		ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY		
Both Parents in Home	9	5	1	1	2	1	10	39
Mother Only in Home	1	2	2	2	3	2	11	49
Father Only in Home	2		1				1	51
Mother and Stepfather	3	4	5	1	2		12	53
Father and Stepmother	4	1					1	54
Other	5			3	5		8	59
COLUMN TOTAL		12	10	5	12	3	42	200

Appendix D-4. Crosstabulation of High School Grade Point Average with Precollege Alcohol Use Group.

GRADE POINT AVERAGE	ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY	TOTAL
3.50-4.00	1	1	1	1	1	5
3.00-3.49	1	1	1	1	1	5
2.50-2.99	2	2	2	2	2	10
No Response	5	5	5	5	5	25
COLUMN TOTAL	9	11	11	11	11	53

Appendix D-5. Crosstabulation of College Grade Point Average with College Alcohol Use Group.

GRADE POINT AVERAGE	ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY	TOTAL
3.50-4.00	1	1	1	1	1	5
3.00-3.49	1	1	1	1	1	5
2.50-2.99	2	2	2	2	2	10
2.00-2.49	3	3	3	3	3	15
Below 2.00	4	4	4	4	4	20
COLUMN TOTAL	11	11	11	11	11	55

Appendix D-6, Crosstabulation of Precollege Choice of Major with Precollege Alcohol Use Group.

COLLEGE MAJOR	COUNT	ALCOHOL USE GROUP					TOTAL
		ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY	
Agriculture	1	0	0	0	0	0	0
Business	2	0	0	0	0	0	0
Education	2	0	0	0	0	0	0
Engineering	3	0	0	0	0	0	0
Forestry	4	0	0	0	0	0	0
Health & P.E.	5	0	0	0	0	0	0
Home Economics	5	0	0	0	0	0	0
Liberal Arts	7	0	0	0	0	0	0
Pharmacy	3	0	0	0	0	0	0
Science	9	0	0	0	0	0	0
Undecided	11	0	0	0	0	0	0
<b>COLUMN TOTAL</b>		18	22	22	22	22	106



Appendix D-7. Crosstabulation of Religious Preference with Precollege Alcohol Use Group.

	COUNT TOTAL	ALCOHOL USE GROUP					COUNT TOTAL
		ABSTAIN	MODERATE	HEAVY	MODERATE	HEAVY	
Catholic	2	1	1	0	0	0	2
Jewish	1	0	0	0	0	1	1
Episcopal/ Presbyterian	2	1	1	0	0	0	2
Lutheran	3	1	1	0	0	1	3
Methodist	4	1	1	0	0	2	4
Baptist	5	2	1	0	0	2	5
Latter Day Saints (Mormon)	5	0	0	0	0	5	5
Other Protestant	7	2	2	0	0	3	7
Other Religion	3	1	1	0	0	1	3
Non-affiliated	3	1	1	0	0	1	3
COLUMN TOTAL		3	3	0	0	3	9

Appendix D-8. Crosstabulation of High School Church Attendance with Precollege Alcohol Use Group.

COUNT ROW TOT	PCT ROW TOT	LAST IN	INFREQ	LIGHT	MODERATE	HEAVY	TOTAL
More Than Once per Week	0	2	3	2	1	2	10
Two to Three Times per Month	1	2	3	2	1	2	10
Every Other Month	2	2	3	2	1	2	10
Once in Six Months	3	2	3	2	1	2	10
Not at All	4	2	3	2	1	2	10
COLUMN TOTAL		10	10	10	10	10	50

Appendix D-9. Crosstabulation of College Church Attendance with College Alcohol Use Group.

COUNT ROW TOT	PCT ROW TOT	LAST IN	INFREQ	LIGHT	MODERATE	HEAVY	TOTAL
More Than Once per Week	0	2	3	2	1	2	10
Two to Three Times per Month	1	2	3	2	1	2	10
Every Other Month	2	2	3	2	1	2	10
Once in Six Months	3	2	3	2	1	2	10
Not at All	4	2	3	2	1	2	10
COLUMN TOTAL		10	10	10	10	10	50

Appendix D-10. Crosstabulation of Father's Use of Alcohol with Precollege Alcohol Use Group.

	COUNT ROW TOT	PCT ROW TOT	FATHER'S USE OF ALCOHOL					ROW TOTAL
			ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY	
Drinks	23	77.3	13	2	2	2	2	23
Abstains	4	12.7	3	1	0	0	0	4
Don't Know	2	6.0	0	2	0	0	0	2
COLUMN TOTAL			13	3	2	2	2	22

Appendix D-11. Crosstabulation of Mother's Use of Alcohol with Precollege Alcohol Use Group.

	COUNT ROW TOT	PCT ROW TOT	MOTHER'S USE OF ALCOHOL					ROW TOTAL
			ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY	
Drinks	23	73.3	13	2	1	2	2	23
Abstains	4	12.3	3	1	0	0	0	4
COLUMN TOTAL			13	3	2	2	2	22

Appendix 0-12. Crosstabulation of Parent's Attitude Toward Precollege Drinking with Precollege Alcohol Use Group.

COUNT COL TOT	COUNT ROW TOT		ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY	TOTAL
			0	1	2	3	4	
0	0	Insist Do Not Drink	0	0	2	0	0	2
1	1	Prefer Do Not Drink	1	0	0	0	0	1
2	2	Let Make Own Decision	0	0	0	0	0	0
4	4	Don't Know	0	0	0	0	0	0
		COLUMN TOTAL	1	0	2	0	0	3

Appendix 0-13. Crosstabulation of Parent's Attitude Toward College Drinking with College Alcohol Use Group.

COUNT COL TOT	COUNT ROW TOT		ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY	TOTAL
			0	1	2	3	4	
0	0	Insist Do Not Drink	0	0	0	0	0	0
1	1	Prefer Do Not Drink	1	0	0	0	0	1
2	2	Let Make Own Decisions	0	0	0	0	0	0
6	6	Don't Know	0	0	0	0	0	0
		COLUMN TOTAL	1	0	0	0	0	1

Appendix D-14. Crosstabulation of Parent's Knowledge of Precollege Drinking with Precollege Alcohol Use Group.

	COUNT		PRECOLLEGE ALCOHOL USE GROUP				ROW TOTAL
	ROW TOTAL	PCT	INFREQ	LIGHT	MODERATE	HEAVY	
All Experiences	3	100.0	1	2	2	2	7
Some Experiences	1	100.0	2	1	1	0	4
Few Experiences	2	100.0	1	1	1	0	3
None of Experiences	3	100.0	1	1	1	0	3
Not Sure	1	100.0	1	1	1	0	3
COLUMN TOTAL			2	2	2	2	8

Appendix D-15. Crosstabulation of Parent's Knowledge of College Drinking with College Alcohol Use Group.

Parent's Knowledge	Column 0	College Alcohol Use Group				Row Total
		INFREQUENT	LIGHT	MODERATE	HEAVY	
All Experiences	3	17	2	2	0	21
Some Experiences	1	27	2	2	0	31
Few Experiences	2	22	2	2	0	26
None of Experiences	3	5	3	2	0	10
Not Sure	4	5	3	3	0	11
COLUMN TOTAL	13	26	26	22	2	76

\* Column 0 represents Pretest abstainers who became drinkers on the Posttest measure.

Appendix D-16. Crosstabulation of Campus Living Group and Affiliation with College Alcohol Use Group.

	COUNT	COLLEGE ALCOHOL USE GROUP					TOTAL	PERCENT
		1. SUSTAIN	2. INFREQUENT	3. LIGHT	4. MODERATE	5. HEAVY		
Coed hall, nonsorority	5	0	2	2	1	0	5	20.0%
Women's hall, nonsorority	1	0	1	0	0	0	1	100.0%
Coed hall, sorority	2	0	1	1	0	0	2	100.0%
Women's hall, sorority	3	0	1	2	0	0	3	100.0%
Cooperative	4	0	0	3	1	0	4	100.0%
Other	3	0	1	2	0	0	3	100.0%
COLUMN TOTAL		0	5	8	2	0	15	100.0%

Appendix D-17. Crosstabulation of Primary Drinking Partners in High School with Precollege Alcohol Use Group.

	COUNT COL PCT TOT PCT	PRIMARY DRINKING PARTNERS				ROW TOTAL
		INFREQ	LIGHT	MODERATE	HEAVY	
Female Friends	0	1 100.0	2 100.0	3 100.0	4 100.0	10 100.0
Male Friends	1	0	0	5 100.0	0	5 100.0
Mixed Groups of Friends	2	1 50.0	2 100.0	7 100.0	2 100.0	12 100.0
Parents or Relatives	3	0	1 100.0	5 100.0	0	6 100.0
COLUMN TOTAL		2	2	25	2	31

Appendix D-18. Crosstabulation of Primary Drinking Partners in College with College Alcohol Use Group.

	COUNT COL PCT TOT PCT	PRIMARY DRINKING PARTNERS				ROW TOTAL
		INFREQ	LIGHT	MODERATE	HEAVY	
Female Friends	0	0	2 100.0	1 50.0	1 50.0	4 100.0
Male Friends	1	1 100.0	2 100.0	1 50.0	2 100.0	6 100.0
Mixed Groups of Friends	2	0	2 100.0	2 100.0	2 100.0	6 100.0
Parents or Relatives	3	0	2 100.0	1 50.0	0	3 100.0
Alone	4	0	0	0	0	0 0.0
COLUMN TOTAL		1	6	6	5	18

\* Column 0 represents Pretest abstainers who became drinkers on the Posttest measure.



Appendix D-19. Crosstabulation of Primary Drinking Location in High School with Precollege Alcohol Use Group.

COUNT LOCATIONS	TOTAL	PRECOLLEGE ALCOHOL USE GROUP				TOTAL
		INFREQ	LIGHT	MODERATE	HEAVY	
At Family Home	6	7	2	0	0	9
Homes of Friends	1	7	3	2	0	12
College Room	2	0	0	0	0	0
Fraternities	3	0	0	0	0	0
Taverns, Bars, Restaurants	5	7	2	0	0	9
Public Events	6	1	1	0	0	2
Outdoor Parties	7	1	0	0	0	1
Automobiles	3	0	0	0	0	0
Other	3	6	0	0	0	6
No Response	10	1	0	0	0	1
COLUMN TOTAL		29	27	24	2	82

Appendix D-20. Crosstabulation of Primary Drinking Location in College with College Alcohol Use Group.

DRINKING LOCATION	COUNT	PCT PRETEST	PCT POSTTEST	ALCOHOL USE GROUP				TOTAL	
				INFREQ	LIGHT	MODERATE	HEAVY		
At Family Home	9	0	0	0	0	0	0	7.0	
Homes of Friends	4	0	0	0	0	0	0	2.0	
College Room	2	0	0	0	0	0	0	3.0	
Fraternities	3	0	0	0	0	0	0	3.0	
Taverns, Bars, Restaurants	5	0	0	0	0	0	0	1.0	
Public Events	0	0	0	0	0	0	0	0	
Outdoor Parties	7	0	0	0	0	0	0	0	
Automobiles	3	0	0	0	0	0	0	0	
Other	9	0	0	0	0	0	0	2.7	
<b>COLUMN TOTAL</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>29</b>	<b>23</b>	<b>22</b>	<b>19</b>	<b>100</b>

\* Column 0 represents Pretest abstainers who became drinkers on the Posttest measure.

Appendix D-21. Crosstabulation of Frequency of Drinking on High School Dates with Precollege Alcohol Use Group.

COUNT	PRECOLLEGE ALCOHOL USE GROUP	FREQUENCY OF DRINKING ON HIGH SCHOOL DATES				TOTAL
		INFREQUENT	LIGHT	MODERATE	HEAVY	
Always	1	0	0	5	5	10
Almost Always	1	0	0	5	5	10
Over Half the Time	2	3	2	2	2	20
Seldom	3	2	2	2	2	17
Never	1	7	1	1	0	10
No Response	5	0	0	0	0	5
COLUMN TOTAL		10	5	10	10	35

Appendix D-22. Crosstabulation of Frequency of Drinking on College Dates with College Alcohol Use Group.

	COUNT		0	1	2	3	4	5	TOTAL	
	COL	PCT								
	TOT	PCT	INFREQ	LIGHT	MODERATE	HEAVY				
Always	3			9	9				1	2
Almost Always									4	3
Over Half the Time	2			3	3				2	3
Seldom	3			2	2				1	3
Never	4			1	1				1	2
No Response	5			1						1
COLUMN TOTAL	5		26	23	22	7	2		10	3

\* Column 0 represents Pretest abstainers who became drinkers on the Posttest measure.



Appendix D-24. Crosstabulation of Primary Time of the Week for Drinking in College with College Alcohol Use Group.

	COUNT	FREQUENCY				TOTAL
		INFREQ	LIGHT	MODERATE	HEAVY	
Weekends Only	3	8.7	7.2	5.0	1.0	21.9
Weekdays Only	1	0.0	0.0	0.0	0.0	0.0
Both Weekends and Weekdays	2	3.3	5.4	5.0	0.0	13.7
Both, Weekends More	3	1.0	2.0	4.0	0.0	7.0
Both, Weekdays More	6	1.0	0.0	1.0	0.0	2.0
No Response	5	0.0	0.0	0.0	0.0	0.0
COLUMN TOTAL		5.5	2.9	2.7	2.0	13.1

\* Column 0 represents Pretest abstainers who became drinkers on the Posttest measure.

Appendix D-25. Crosstabulation of Preferred Alcoholic Beverage in High School with College Alcohol Use Group.

	BEER	WINE	HARD LIQUOR	TOTAL
BEER	10	2	2	14
WINE	2	10	1	13
HARD LIQUOR	2	1	10	13
TOTAL	14	13	13	40

Appendix D-26. Crosstabulation of Most Frequently Consumed Alcoholic Beverage in High School with Precollege Alcohol Use Group.

	BEER	WINE	HARD LIQUOR	TOTAL
BEER	10	2	2	14
WINE	2	10	1	13
HARD LIQUOR	2	1	10	13
TOTAL	14	13	13	40

Appendix D-27. Crosstabulation of Preferred Alcoholic Beverage in College with College Alcohol Use Group.

BEVERAGE	C0	C1	C2	C3	C4	C5	ALCOHOL USE GROUP				ROW TOTAL
							INFREQ	LIGHT	MODERATE	HEAVY	
Beer	0	1	2	2	2	2	2	2	2	2	12.7
Wine	1	1	1	1	1	1	1	1	1	1	9.2
Hard Liquor	2	1	1	1	1	1	1	1	1	1	7.9
COLUMN TOTAL	3	3	4	4	4	4	4	4	4	4	26.4

\* Column 0 represents Pretest abstainers who became drinkers on the Posttest measure.

Appendix D-28. Crosstabulation of Most Frequently Consumed Beverage in College with College Alcohol Use Group.

BEVERAGE	C0	C1	C2	C3	C4	C5	ALCOHOL USE GROUP				ROW TOTAL
							INFREQ	LIGHT	MODERATE	HEAVY	
Beer	0	1	2	2	2	2	2	2	2	2	12.7
Wine	1	1	1	1	1	1	1	1	1	1	9.2
Hard Liquor	2	1	1	1	1	1	1	1	1	1	7.9
COLUMN TOTAL	3	3	4	4	4	4	4	4	4	4	26.4

\* Column 0 represents Pretest abstainers who became drinkers on the Posttest measure.



Appendix D-29. Crosstabulation of Number of Peer Problem Drinkers Known in High School with Precollege Alcohol Use Group.

	COUNT	PRECOLLEGE ALCOHOL USE GROUP					ROW TOTAL
		ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY	
	ROW COL TOT PCT	0	1	2	3	4	
Six or More	0	10.7 13.9	2.0 2.6	1.0 1.3	1.0 1.3	0.0 0.0	15.7 20.5
Four to Five	1	1.0 1.3	2.0 2.6	1.0 1.3	1.0 1.3	0.0 0.0	5.0 6.6
Two to Three	2	1.0 1.3	1.0 1.3	1.0 1.3	1.0 1.3	1.0 1.3	5.0 6.6
One	3	0.0 0.0	1.0 1.3	1.0 1.3	1.0 1.3	1.0 1.3	4.0 5.3
None	4	2.7 3.5	3.0 3.9	1.0 1.3	2.0 2.6	1.0 1.3	9.7 12.7
No Response	5	1.0 1.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	1.0 1.3
COLUMN TOTAL		13.9	3.0	2.0	2.0	1.0	13.9

Appendix D-30. Crosstabulation of Number of Peer Problem Drinkers Known in College with College Alcohol Use Group.

	COUNT	COLLEGE ALCOHOL USE GROUP					ROW TOTAL
		ABSTAIN	INFREQ	LIGHT	MODERATE	HEAVY	
Six or More	1	0	2	0	0	0	2
Four to Five	1	0	0	0	0	1	1
Two to Three	2	0	1	0	0	1	2
One	3	0	2	0	0	1	3
None	4	0	0	0	0	4	4
No Response	5	1	0	0	0	0	1
COLUMN TOTAL		1	2	0	0	5	8

Appendix D-31. Reasons for Drinking Cited by Freshman Women Grouped on the Basis Of Alcohol Use Group (Percentage of Group Citing Reason).

Reason		Total	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Heavy Drinkers
To Be More Sociable	Pretest	82.3	77.4	89.7	84.6	81.0
	Posttest	80.9	72.4	82.8	92.0	76.2
	Change	-1.4	-5.0	-6.9	+7.4	-4.8
Enjoyment of Taste	Pretest	88.8	80.6	96.6	88.5	90.5
	Posttest	91.8	89.7	96.6	100.0	90.5
	Change	+3.0	+9.1	0.0	+11.5	0.0
The Effects Feel Good	Pretest	79.4	45.2	93.1	96.2	90.5
	Posttest	82.7	69.0	93.1	96.0	85.7
	Change	+3.3	+23.3	0.0	-0.2	-4.8
To Get High	Pretest	55.1	22.6	65.5	73.1	66.7
	Posttest	59.1	41.1	62.1	80.0	71.4
	Change	+4.0	+18.5	-3.4	+6.9	+4.7
To Relax	Pretest	63.6	41.9	69.0	76.9	71.4
	Posttest	60.9	48.3	58.6	84.0	66.7
	Change	-2.7	+6.4	-10.4	+7.1	-4.7
To Forget a Problem	Pretest	29.9	9.7	27.6	38.5	52.4
	Posttest	29.1	17.2	31.0	31.0	28.6
	Change	-0.8	+7.5	+3.4	-7.5	-23.8
To Relieve Aches and Pains	Pretest	7.5	3.2	10.3	11.5	4.8
	Posttest	5.5	3.4	10.3	8.0	0.0
	Change	-2.0	+0.2	0.0	-3.5	-4.8
To Help Enjoy Food	Pretest	21.5	19.4	17.2	30.3	19.0
	Posttest	14.5	13.8	13.8	16.0	19.0
	Change	-7.3	-5.6	-3.4	-14.8	0.0
Because Everyone Else is Drinking	Pretest	68.2	61.3	75.9	76.9	57.1
	Posttest	61.8	62.1	69.0	60.0	47.6
	Change	-6.4	+0.8	-6.9	-16.9	-9.5
Nothing Else to Do	Pretest	31.8	16.1	34.5	34.6	47.6
	Posttest	29.1	17.2	27.6	36.0	47.6
	Change	-2.7	+1.1	-6.9	+1.4	0.0

## Appendix D-31. - Continued.

Reason		Total	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Heavy Drinkers
To Increase Feeling of Well-Being	Pretest	33.6	12.9	31.0	46.2	52.4
	Posttest	40.9	27.6	44.8	64.0	38.1
	Change	+7.3	+14.7	+13.8	+17.8	-14.3
Because of Depression	Pretest	36.4	16.1	41.4	46.2	47.6
	Posttest	29.1	13.8	41.4	48.0	19.0
	Change	-7.3	-2.3	0.0	+1.8	-28.6
To Get Drunk	Pretest	56.1	22.6	62.1	69.2	81.0
	Posttest	52.7	34.5	65.5	68.0	57.1
	Change	-3.4	+11.9	+3.4	-1.2	-23.9
To Celebrate Some- thing Special	Pretest	94.4	83.9	100.0	100.0	95.2
	Posttest	91.8	89.7	93.1	100.0	90.5
	Change	-2.6	+5.8	-6.9	0.0	-4.7

Appendix O-32. Percentage of Incorrect Responses on the Student Alcohol Questionnaire by Freshman Women Grouped in Alcohol Use Groups. (Numbers correspond to Questions 11-46 on the Pretest Questionnaire, Appendix A).

Number		Total	Abstainers	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Heavy Drinkers
11	Pretest	70.5	68.0	64.5	65.5	80.8	76.2
	Posttest	58.3	66.7	50.0	61.3	50.0	60.5
	Change	-12.2	-1.3	-14.5	-4.2	-20.8	-15.7
12	Pretest	34.1	36.0	27.6	37.9	38.5	38.1
	Posttest	31.8	42.9	18.2	35.5	45.0	23.7
	Change	-2.3	+6.9	-9.4	-2.4	+6.5	-14.4
13	Pretest	3.8	4.0	6.5	3.4	3.8	0.0
	Posttest	1.5	9.5	0.0	0.0	0.0	0.0
	Change	-2.3	+5.5	-6.5	-3.4	-3.8	0.0
14	Pretest	12.1	8.0	19.4	17.2	77.7	4.8
	Posttest	12.1	19.0	13.6	6.5	15.0	10.5
	Change	0.0	+11.0	-5.8	-10.7	+7.3	+5.7
15	Pretest	40.2	40.0	35.5	41.4	38.5	47.6
	Posttest	44.3	47.6	52.4	41.9	35.0	44.7
	Change	+4.1	+7.6	+16.9	+0.5	-3.5	-2.9
16	Pretest	30.3	24.0	32.3	31.0	23.1	42.9
	Posttest	23.5	19.0	22.7	38.7	25.0	13.2
	Change	-6.8	-5.0	-9.6	+7.7	+1.9	-29.7
17	Pretest	12.1	12.0	12.9	13.8	11.5	9.5
	Posttest	7.6	14.3	13.6	6.5	0.0	5.3
	Change	-4.5	+2.3	+0.7	-7.3	-11.5	-4.2
18	Pretest	51.5	44.0	45.2	58.6	65.4	42.9
	Posttest	50.0	47.6	63.6	38.7	40.0	57.9
	Change	-1.5	+3.6	+18.4	-19.9	-25.4	+15.0
19	Pretest	76.5	84.0	83.9	69.0	80.3	61.9
	Posttest	69.7	76.2	81.8	67.7	70.0	60.5
	Change	-6.8	-7.8	-2.1	-1.3	-10.8	-1.4
20	Pretest	28.8	16.0	29.0	31.0	34.6	33.3
	Posttest	18.9	14.3	13.6	25.8	20.0	18.4
	Change	-9.9	-1.7	-15.4	-5.2	-14.6	-14.9
21	Pretest	94.7	92.0	96.8	96.6	92.3	95.2
	Posttest	93.2	90.5	90.9	93.5	95.0	94.7
	Change	-1.5	-1.5	-5.9	-3.1	+2.7	-0.5

Appendix D-32. Continued.

Number		Total	Abstainers	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Heavy Drinkers
22	Pretest	83.3	84.0	80.6	75.9	92.3	85.7
	Posttest	89.4	90.5	90.9	90.3	85.0	89.5
	Change	+6.1	+6.5	+10.3	+14.4	-7.3	+3.8
23	Pretest	5.3	4.0	3.2	3.4	3.8	14.3
	Posttest	4.5	0.0	9.1	6.5	0.0	5.3
	Change	-0.8	-4.0	+5.9	+3.1	-3.8	-9.0
24	Pretest	39.4	52.0	48.4	37.9	26.9	28.6
	Posttest	31.8	61.9	22.7	32.2	25.0	23.7
	Change	-7.6	+9.9	-25.7	-5.7	-1.9	-4.9
25	Pretest	67.4	68.0	64.5	65.5	69.2	71.4
	Posttest	55.3	76.2	54.5	61.3	60.0	36.8
	Change	-12.1	+8.2	-10.0	-4.2	-9.2	-34.6
26	Pretest	89.4	88.0	96.8	89.7	88.5	81.0
	Posttest	91.7	95.2	90.9	90.3	95.0	89.5
	Change	+2.3	+7.2	-5.9	+0.6	+6.5	+8.5
27	Pretest	6.8	12.0	6.5	3.4	11.5	0.0
	Posttest	5.3	9.5	9.1	3.2	0.0	5.3
	Change	-1.5	-2.5	+2.6	-0.2	-11.5	+5.3
28	Pretest	19.7	24.0	19.4	24.1	11.5	19.0
	Posttest	12.9	23.8	22.7	3.2	5.0	13.2
	Change	-6.8	-0.2	+3.3	-20.9	-6.5	-5.8
29	Pretest	55.3	68.0	58.1	41.4	57.7	52.4
	Posttest	48.5	76.2	45.5	51.6	30.0	42.1
	Change	-6.8	+8.2	-12.6	+10.2	-27.7	-10.3
30	Pretest	50.8	64.0	64.5	41.4	34.6	47.6
	Posttest	51.5	61.9	63.6	58.1	45.0	36.8
	Change	+0.7	-2.1	-0.9	+16.7	+10.4	-10.8
31	Pretest	73.5	80.0	74.2	79.3	76.9	52.4
	Posttest	56.8	66.7	45.5	67.7	55.0	50.0
	Change	-16.7	-13.3	-28.7	-11.6	-21.9	-2.4
32	Pretest	0.8	0.0	0.0	0.0	0.0	4.8
	Posttest	1.5	0.0	4.5	0.0	0.0	2.6
	Change	+0.7	0.0	+4.5	0.0	0.0	-2.2
33	Pretest	74.2	64.0	64.5	82.8	73.1	90.5
	Posttest	68.2	76.2	59.1	71.0	60.0	71.1
	Change	-6.0	-12.2	-5.4	-11.8	-13.1	-19.4

Appendix D-32. Continued.

Number		Total	Abstainers	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Heavy Drinkers
34	Pretest	43.2	40.0	45.2	51.7	42.3	33.3
	Posttest	28.8	28.6	18.2	38.7	20.0	31.6
	Change	-14.4	-11.4	-27.0	-13.0	-22.3	-1.7
35	Pretest	54.5	60.0	58.1	51.7	50.0	52.0
	Posttest	53.0	76.2	59.1	51.6	45.0	42.1
	Change	-1.5	+16.2	+1.0	-0.1	-5.0	-9.9
36	Pretest	59.1	64.0	61.3	58.6	50.0	61.9
	Posttest	58.3	61.9	59.1	58.1	55.0	57.9
	Change	-0.8	-2.1	-2.2	-0.5	+5.0	-4.0
37	Pretest	50.8	56.0	48.4	55.2	50.0	42.9
	Posttest	56.8	66.7	63.6	61.3	45.0	50.0
	Change	+6.0	+10.7	+15.2	+6.1	-5.0	+7.1
38	Pretest	42.4	72.0	51.6	27.6	30.8	28.6
	Posttest	37.9	61.9	36.4	38.7	30.0	28.9
	Change	-4.5	-10.1	-15.2	+11.1	-0.8	+0.3
39	Pretest	17.4	24.0	16.1	10.3	23.1	14.3
	Posttest	9.1	28.6	4.5	12.9	0.0	2.6
	Change	-8.3	+4.6	-11.6	+2.6	-23.1	-11.7
40	Pretest	18.9	12.0	22.6	13.8	23.1	23.8
	Posttest	14.4	9.5	0.0	25.8	15.0	15.8
	Change	-4.5	-2.5	-22.6	+12.0	-8.1	-8.0
41	Pretest	51.5	56.0	41.9	48.3	53.8	61.9
	Posttest	37.1	52.4	36.4	25.8	25.0	44.7
	Change	-14.4	-3.6	-5.5	-22.5	-28.8	-17.2
42	Pretest	15.9	16.0	16.1	6.9	23.1	19.0
	Posttest	17.4	28.6	18.2	19.4	10.0	13.2
	Change	+1.5	+12.6	+2.1	+12.5	-13.1	-5.8
43	Pretest	29.5	32.0	41.9	17.2	23.1	33.3
	Posttest	32.6	47.6	36.4	41.9	20.0	21.1
	Change	+3.1	+15.6	-5.5	+24.7	-3.1	-12.2
44	Pretest	40.2	56.0	45.2	34.5	26.9	38.1
	Posttest	22.7	33.1	45.5	16.1	5.0	18.4
	Change	-17.5	-22.9	+0.3	-18.4	-21.9	-19.7

## Appendix 0-32. Continued.

Number		Total	Abstainers	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Heavy Drinkers
45	Pretest	84.8	92.0	87.1	89.7	80.8	71.4
	Posttest	85.6	90.5	81.8	96.8	75.0	81.6
	Change	+0.8	-1.5	-5.3	+7.1	-5.8	+10.2
46	Pretest	3.8	8.0	3.2	3.4	3.8	0.0
	Posttest	1.5	0.0	0.0	3.2	0.0	2.6
	Change	-2.3	-8.0	-3.2	-0.2	-3.8	+2.6