A PEER-MANAGED SELF-CONTROL PROGRAM FOR REDUCTION OF
ALCOHOL CONSUMPTION IN HIGH SCHOOL STUDENTS

by
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The term, alcoholic, will not be used in this paper due to its semantic implications. Rather, the term, problem drinker, will be utilized. The rationale is that problem drinking doesn't rely on specific intake or alcohol criteria but rather emphasizes the notion that alcohol intake causes problems in living for that particular drinker. Specifically, we will use Dr. William Miller's (1976) definition as follows:

A problem drinker is anyone who is experiencing significant life problems related to his or her use of alcohol. These life problems may include family, financial, medical, or employment difficulties which result from or are made worse by overdrinking. They may extend to social or legal difficulties such as public loss of control or an arrest for drinking while intoxicated. (p. IX)

Self-esteem will be assessed in this study (see Apparatus section).

The use of the term, drug, throughout will be generic and is to include alcohol.

It should be pointed out that there was not one study found which gave any kind of BAC data for high school students or Indians of any age. It can only be inferred from the literature that Indians are heavy consumers when drinking occurs.
ABSTRACT

A Peer-Managed Self-Control Program for Reduction of Alcohol Consumption in High School Students

by

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Three treatments designed to reduce the consumption of alcohol by native American high school students were assessed and compared. Self-referred and staff-referred clients were randomly assigned to three treatment groups: (1) alcohol education and a peer-assisted self-control procedure, (2) a peer-assisted self-control procedure, and (3) a self-monitoring only procedure. All three treatments were conducted by trained peer counselors for 14 weeks. The alcohol education and peer-assisted self-control and the peer-assisted self-control demonstrated reductions in peak blood alcohol concentration, frequency of drinking incidents, and alcohol consumption. The self-monitoring only group demonstrated changes only in frequency of drinking incidents. No significant differences were found between the three treatment programs. Alcohol knowledge was found not to differ between groups and was not found to be related to changes in any of the drinking parameters. Self-esteem changes were found to be highest for Group 2 and were found to relate to changes in all the drinking parameters. Permissive versus
abstinence attitudes were not found to differ between groups, but for all subjects higher abstinence attitude scores were found to be significantly related to decreases in peak blood alcohol concentration.
CHAPTER I

INTRODUCTION

Alcoholic beverages have been known to cultures since prehistoric time. Man from earliest times has apparently utilized ethanol, although the extent of its usage has varied considerably from culture to culture. In the United States, it is estimated that 90 million Americans drink (Miller, 1976). Despite steadily increasing research, prevention, and treatment programs, alcohol continues to be the most abused drug in the United States. An estimated 10 million Americans are problem drinkers or alcoholics, and drinking may be to blame for as many as 205,000 deaths a year.

The National Institute on Alcohol Abuse and Alcoholism said in its third special report to Congress (NIAAA, 1978) that the risk of death from disease, accident, or violence is two to six times greater for the problem drinker than for the population at large. The report estimated that drinking problems cost American society about $43 billion in 1975 in lost production, medical bills, accidents, and other expenses. According to the report, alcohol may be involved in up to one-third of all suicides, half of all murders, half of all traffic deaths, and one-fourth of all other accidental deaths. Furthermore, the report states that alcohol is now suspected to be a major factor in child abuse and marital violence as well as being implicated in such crimes as rape.

Among American Indians, the incidence of problem drinking has reached epidemic proportions. While only 7% of the adult population in the entire country manifests these conditions, the incidence among American Indians has been estimated to be as high as 20 to 50% on some
reservations according to figures released by the Secretary of the Department of Health, Education, and Welfare ("Indian Health Program 1955-1973," 1973). Alcohol abuse and problem drinking thus constitute the most significant single health problem in the American Indian community. The Indian Health Service Task Force on Alcoholism ("Alcoholism: A High Priority Problem," 1972) reported that "no other condition adversely affects so many aspects of Indian life in the United States" (p. 4).

Alcohol abuse has also been identified as a leading cause of suicide and criminality in the Indian population. Shore and Von Fumetti (1972) indicate that arrests for drunkenness alone accounted for 71% of all arrests of Indians, which suggests that alcohol constitutes a serious disruptive influence on the solidarity of the Indian community and family. This problem appears to be especially acute due to the epidemic proportions of alcohol abuse within the 15- to 34-year-old age group. Specifically, alcohol abuse has been reported to be highest among adolescents and young adults for the entire native American population. It is higher than the comparable white 15- to 34-year-old population as well as being higher than the older native American population in general ("Indian Health Program 1955-1973," 1973).

The treatment of alcohol abusers or problem drinkers has been primarily one of treating the client after he/she has become an alcoholic. That is, treatment is usually remediative. Further, the treatment of alcoholics has been dominated by what is known as the abstinence or disease model. Jellinek (1960) and Alcoholics Anonymous helped create the prevailing view that "once an alcoholic, always an alcoholic." Moderate, controlled drinking, as practiced by the vast majority of alcohol
consumers, has been viewed as being beyond the capability of the confirmed problem drinker.

Recently, behavior principles have been used successfully to train problem drinkers to drink in moderation (Lovibond & Caddy, 1970; Miller, P. M., 1976; Miller, W. R., 1978; Sobel, Sobel, & Christelman, 1972). Their efforts have represented a bona fide challenge to the prevailing abstinence model. Again, the moderation approach, while successful, also seems to be somewhat costly due to the emphasis on remediation. As part of the obvious costs in treating the problem drinker, perhaps the most costly item involved in this treatment is that of the trained therapist. This usually involves a highly trained M.D. or Ph.D. professional working on a one-to-one basis or at best in a group setting with client(s). However, many authors (Bandura, 1969; Tharp & Wetzel, 1969) in the behavioral field have persuasively argued for the efficacy of having a paraprofessional therapist do the actual treatment and for that person to be under the supervision of an M.D. or Ph.D. Specifically, Tharp and Wetzel's triadic model (1969) calls for the professional therapist (known as a consultant in this model) to work through a paraprofessional (mediator) in order to modify the client's (target) behavior. This approach has also been used successfully with peers or paraprofessionals as therapists (Azrin, 1976; Fo, 1972).

The idea of prevention efforts aimed at teenagers is not a new one. Efforts have abounded ranging from legal sanctions (e.g., prohibition of sale of alcohol to minors under the age of 21) to alcohol education programs (e.g., Connor, 1974) utilizing varying methods of persuasion. The results of these programs have, to date, generated little hard data. However, behavioral self-control training using paraprofessional
therapists with youth has yet to be tried. Therefore, it seems logical to attempt to utilize a cost-effective peer-mediated treatment strategy to effect prevention of later problem drinking in youthful populations who are at risk of becoming adult problem drinkers. Given the epidemic proportions of alcohol abuse among native Americans and its disastrous impact on their culture as well as wide-scale abuse found among native Americans in the 13- to 14-year-old age group, prevention efforts should be aimed at the teenagers. Second, cost effectiveness considerations (O'Leary, 1972) argue for the implementation of the triadic model (Tharp & Wetzel, 1969). For evidence as to whether this treatment/prevention strategy is viable, we turn now to a review of the relevant literature in this area.
CHAPTER II

REVIEW OF LITERATURE

It is critical for the reader of this review to bear in mind that the literature dealing with native American problem drinkers is scant. Empirical research by psychologists in this entire area of native American alcohol use and abuse is particularly scant. Thus, much of the review on native American problem drinking is based upon the social psychology, sociology, and anthropology literature. In the Indian culture, two aspects of alcohol abuse have received attention: (a) causes of Indian alcoholism and (b) identification and treatment of alcoholics. They have both been examined in some detail.

Theories of Native American Problem Drinking

Most North American Indian cultures did not have any long-standing histories of ethanol use before the arrival of the white European settlers (Ewing & Rouse, 1978; Swanson, Bratrude, & Brown, 1971). Ethanol was introduced by white traders who taught Indians to drink fast passing the bottle around the circle of men until it was entirely consumed. Since then, drinking behavior among Indian tribes has varied from preferred abstinence to problem drinking.

Among Indians today, alcohol abuse is considered to be a product of complex historical social and cultural circumstances. These circumstances include (a) cultural deprivation (Dozier, 1966), (b) learned social behaviors (Curley, 1967), and (c) conflicts or dissonances between Indian value systems and those of the white society (Westermeyer, 1974).
Although theories have been espoused which view Indian problem drinking as having biological roots, current evidence indicates that excessive drinking among Indians is more likely to be associated with the three factors described.

The cultural deprivation hypothesis holds that excessive drinking involving large numbers of a cultural group is related to acute conditions of poverty and is most prevalent among people who suffer from poor housing, broken homes, discrimination, segregation, lack of education, etc. (Dozier, 1966). Certainly ample evidence exists that a greater condition of deprivation exists among Indians in the United States than in any other minority group. The American Indian has now suffered through at least 125 years of such deprivations including confinement to reservations and subjection to countless other indignities including lack of self-determination.

It may well be that the poverty/deprivation hypothesis explains the general motivation needed for drinking as an escape response. Beede (1968) found among black, white, and especially native American youth that drinking behavior was correlated with socioeconomic status. The higher the socioeconomic status, the less problem drinking the subjects engaged in. Given the extensive poverty of the native Americans, this may help account for the high incidence of abusive drinking found in native American populations.

Bales (1946) proposed three ways in which cultural and social organizations can influence the rate of problem drinking: (a) the degree to which the culture operates to bring about inner tensions or acute needs for adjustment in its members, (b) the sort of attitudes toward drinking the culture espouses for its members, and (c) the degree to
which the culture provides suitable substitute means of satisfaction. Viewed in this context, problem drinking may represent the only adaptive "survival" mechanism many Indians have had.

The learned social behavior hypothesis holds that problem drinking represents behaviors which have become institutionalized through a process of learning (Curley, 1967). It is hypothesized that the Indian adolescent begins to drink in "gangs" where drinking is not only sanctioned but expected. This form of peer modeling and pressure may be a strong determinant of continued abusive drinking. Once drinking behavior is established, it seems to occupy an important role in holding the group together and in reducing anxiety and tension in adolescent Indians who have limited nonabusive drinking adult role models to copy.

What may happen is that a minority culture's values may be in strong conflict with the dominant culture's values and that a minority culture may actually condition its members to perform behaviors classified by the dominant culture as deviant. It seems clear that among all the theories regarding "Indian drinking" the common core of these theories seems to be that drinking is a negatively reinforced response which is a function of alcohol's ability to reduce or eliminate a noxious state, i.e., psychological discomfort arising from a multiplicity of sources such as boredom (Swanson et al., 1971), poverty, relative social deprivation painfully portrayed on television and the media, and social disintegration (e.g., divorce). Further, drinking is positively reinforced in the social system where group identification can be awarded on the criterion of whether or not a person drinks. Permissiveness in the native American culture also provides no clearcut sanctions against public drunkenness (Swanson et al., 1971).
Indeed, in those societies (such as Italy) which have stronger social sanctions punishing excessive drinking, lower rates of alcohol abuse exist despite a high ratio of usage of alcohol among the population (Ewing & Rouse, 1978). In contrast, certain Indian traditions place high value on personal autonomy (Curlee, 1971; Ray, 1971; both cited in Swanson et al., 1971). Children are encouraged by their parents to be self-reliant. Presently, this attitude leads to the individual right of self-determination and a permissiveness that permeates Indian culture (Swanson et al., 1971). This lack of social sanction by the members of Indian culture allows public inebriation to be tolerated. Indeed, it has even been postulated (Levy & Kunitz, 1974; Swanson et al., 1971; Wanberg, Lewis, & Foster, 1978) that Indians are often gregarious drinkers who are not as drunk as they appear. This had led many people to assume that Indians are alcohol addicts when indeed this gregarious behavior may be a way of achieving peer social reinforcement.

Leland, in her landmark book, Firewater Myths (1976), asserts that true, documented addiction to alcohol is relatively rare among native American peoples. Rather, it is the periodic, gregarious, and rowdy drinking often engaged in at "border towns" (where concealment is difficult) which has exaggerated this long-standing myth. An examination of some of the general values inherent in the Indian way of life suggests that several of them are in direct conflict with white middle-class values. The dominant cultural environment may be forcing the Indian into problem drinking by directly challenging many of his/her basic values.

In summary, learning theory can subsume all these theories with regard to drinking for Indians (as well as other lower socioeconomic
groups) by stating that it is an escape response which negatively reinforces this drinking response. Indians enjoy drinking for its reinforcing effects, and the peer group then socially reinforces the gregarious display of drunkenness. A caveat is needed here: It should not be concluded that there is not indeed a good deal of abusive drinking among native Americans. Rather, the firewater myth regarding "drunken Injuns" may have been inappropriately overstated.

**Treatment of Indian Problem Drinkers**

The severity and scope of the problem caused by alcohol abuse in the native American population has been documented in this paper. The efforts at dealing with this problem have been characterized by an historical shift from legal efforts, such as prohibition, to psychological and medical treatment approaches and prevention efforts (Robinson, 1974). A survey performed by the author on data provided by the Smithsonian Science Information Exchange indicated that the treatment efforts funded by DHEW for native Americans in the last 3 fiscal years (1976-1979) are all abstinence oriented in which sobriety is encouraged. The treatment modalities are primarily: (a) counseling, group, and one-to-one; (b) educational; (c) antabuse (disulfiram); (d) half-way houses; (e) detoxification centers; (f) community outreach and referral services; and (g) miscellaneous approaches such as recreational therapy, etc.

The populations targeted for these treatment programs are, of course, native Americans and encompass all ages from junior high school to adults as well as families. None of these programs is of the controlled drinking orientation, and all set abstinence as the primary goal of treatment.
The prevention efforts funded have been mainly education in nature aimed at changing attitudes of junior high and high school age students. The program results have not been found in the current literature. That is, there are no published outcome studies which indicate the success of these prevention efforts in terms of attitude change, increased knowledge, or reduced alcohol consumption. We can only speculate that much like the efforts aimed at Anglo-American high school students (see review in this paper) these efforts do not attempt to ascertain directly the effects of prevention efforts on the consumatory behavior of the students.

Briefly, efforts aimed at adult Indian problem drinkers have met with varying degrees of success. Ferguson (1970) reported that during a treatment program which consisted of probation, antabuse ingestion, counseling and employment, and welfare aid, arrests for Navajo clients for driving while intoxicated decreased 78%. Also, 28% of the Navajo clients remained abstinent for 24 months, while program failures and the remaining subjects either died or were institutionalized.

A program for Sioux and other tribes in Iowa indicated significant improvement for the participants in: (a) increased employment, (b) decreased work absenteeism, (c) decreased arrests for drunkenness, (d) more stable family relationships, and (e) increased self-esteem. This program dealt with referred problem drinkers, and the treatment provided was antabuse ingestion and related counseling services (Comprehensive Treatment Program for Indian Problem Drinkers, 1971). Several authors (Albaugh & Anderson, 1974; Pascarosa & Futterman, 1976) report success with selected alcohol abusing Indians through participation in the peyote ritual of the native American church. They conclude that this
experience can be very helpful for some who undergo the mescaline ex-
perience. Anecdotal reports indicate that many of these clients remain
abstinent for long periods after treatment. In short, the literature
indicates that:

1. There is little methodologically sound outcome research on
primary, secondary, or tertiary prevention or treatment efforts with
native Americans.

2. Other than the peyote ingestion treatment, there are few inno-
vative or new treatment programs for problem drinkers in the native
American population.

3. By and large, outcome results do not reflect any apparent
differences between native Americans and nonnative American populations.

4. Controlled drinking as a prevention or treatment strategy has
not been tried with this population.

Youth and Indian Youth Drinking

The incidence of drinking among non-Indian youth has been steadily
increasing. In the 1978 National Institute of Alcohol Abuse and Alco-
holism (NIAAA) report to Congress, it was reported that in addition to
the 10 million adult problem drinkers or 7% of all adults, an estimated
3.3 million youth aged 14 to 17 have drinking problems ranging from
trouble at school to car accidents caused by weekend binges. A study
done in 1974 for NIAAA (cited in Unger, 1978) indicated that 90% of high
school seniors and more than 50% of seventh graders have experimented
with alcohol. Another NIAAA study estimates that 1.3 million Americans
between the ages of 12 and 17 have a serious drinking problem (cited in
Unger, 1978).
The Center for Study of Social Behavior of the Research Triangle Institute (1975) conducted an extensive nationwide study to ascertain the extent of adolescent drinking. They sampled 13,122 junior and senior high school students in the contiguous 48 states. The following is a summary of their findings:

1. Approximately 80% of those sampled indicated they have had at least one drink, and approximately 74% have had at least two to three drinks.

2. Of all adolescents, 55% drink at least once a month. These figures indicate a definite pattern of alcohol use that is so widespread among adolescents that Dr. Morris Chafetz, former Director of NIAAA said, "It is of critical importance now to avert future problems. . . . the situation will be catastrophic if our young people do not adopt more responsible attitudes toward the taking of alcohol than today's adults" (Chafetz, 1973, p. 41). This same trend is also showing its effects in young native Americans. Alcohol abuse is highest among adolescents and young adults for the entire native American population.

Alcohol is the most frequently used drug among young native Americans. By 1983, the projection suggests that only about 6% of the then 17-year-olds will not have tried alcohol (see Figure 1).

The steepness of the curves for the younger children is of greater concern than the eventual very high level of use. By the age of 11, before these young people are even in junior high school, nearly a third have tried alcohol. Available data indicate that this early drinking is not limited to simply sampling drinks outside the family setting (Swanson et al., 1971). Some of it involves parents who share alcohol with children under 10 years of age and even children as young as 2 years
of age who are given beer in a baby bottle. A few of these youngsters drink to the point where they pass out (Swanson et al., 1971).

Despite the fact that alcohol is not only illegal, and is quite often proscribed on many of the reservations, the rate of alcohol experimentation increases extremely rapidly for these very young people. In fact, it is higher for this group than for the comparable white population. For example, in 1968, there were 1,769 arrests resulting from excessive drinking in one northern plains reservation, and 10% involved the juvenile population (Alcoholism: A High Priority Problem, 1972). A survey by the Research Triangle Institute (1975) found that the following breakdown of ethnic group of moderate drinkers (two to four drinks at least once a month or more), moderate to heavy drinkers (two to four
drinks at least once a week), or heavy drinkers (five or more drinks at least once a week) to be as follows:

<table>
<thead>
<tr>
<th>Race</th>
<th>Moderate/Heavy</th>
<th>Heavy</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish-American</td>
<td>11.8%</td>
<td>10.9%</td>
<td>22.7%</td>
</tr>
<tr>
<td>White</td>
<td>14.6%</td>
<td>10.7%</td>
<td>25.3%</td>
</tr>
<tr>
<td>Black</td>
<td>9.5%</td>
<td>5.7%</td>
<td>15.2%</td>
</tr>
<tr>
<td>American Indian</td>
<td>11.6%</td>
<td>16.5%</td>
<td>28.1%</td>
</tr>
<tr>
<td>Oriental</td>
<td>4.8%</td>
<td>13.5%</td>
<td>18.3%</td>
</tr>
</tbody>
</table>

This indicates that within these categories, native American youth have the highest combined totals and the highest percentage of students who reported themselves as heavy drinkers.

Among the 15- to 17-year age group, 50% on one central plains reservation said they drank. Of the boys, 60% were drinkers, and 40% of the girls were drinkers. This behavior started early, between the ages of 9 and 17, with the average age being 15.5 years. Of those under 17 years of age, 88% stated that most of their friends drank. Of the total sample, 31% were abstainers, and 45% drank less often than three times per week (Westermeyer, 1974). Evidence indicated that both sexes from this generation, particularly women, drank more than the previous one. In a study of high school students in a plains tribe, 84% of the boys and 76% of the girls stated that they drank (Whittaker, 1962).

Cokerham (1975, 1977) found the incidence of alcohol and polydrug usage higher for native American adolescents than a representative white population. He also found in 1975 that among seventh and eighth grade native Americans, 92% had tried alcohol, while 80% considered themselves to be drinkers. It seems clear that many native Americans ingest alcohol at a very early age (see Table 1).
Table 1

Discharge Rates (per Thousand Population) for Simple Intoxication and Cirrhosis with Alcoholism in Persons Admitted to All IHS and Contract Hospitals July 1, 1967, through June 30, 1968

<table>
<thead>
<tr>
<th>Age</th>
<th>M</th>
<th>F</th>
<th>Total</th>
<th>M</th>
<th>F</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>0.2</td>
<td>*0.0</td>
<td>0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td>2.4</td>
<td>0.9</td>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>8.3</td>
<td>2.8</td>
<td>5.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>13.7</td>
<td>5.5</td>
<td>9.5</td>
<td></td>
<td>1.4</td>
<td>2.6</td>
</tr>
<tr>
<td>35-44</td>
<td>17.2</td>
<td>7.0</td>
<td>12.1</td>
<td></td>
<td>2.9</td>
<td>3.6</td>
</tr>
<tr>
<td>45-54</td>
<td>10.0</td>
<td>3.9</td>
<td>7.1</td>
<td></td>
<td>2.4</td>
<td>2.6</td>
</tr>
<tr>
<td>55-64</td>
<td>6.3</td>
<td>1.7</td>
<td>4.1</td>
<td></td>
<td>1.8</td>
<td>1.7</td>
</tr>
<tr>
<td>65</td>
<td>2.8</td>
<td>1.0</td>
<td>2.0</td>
<td></td>
<td>0.5</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Numbers are too small for calculation of a reliable rate.
(Billings Area Indian Vital Statistics for Years 1964-1967, 1968.)

One can see from Table 1 that early drinking to intoxication is found in people as young as 0 to 14 years with a 200% to 400% increase with each successive age group.

Hypotheses on Early Drinking

Hypotheses regarding early drinking in the adolescent population are varied. They include peer group influences, drinking role models, and sensation seeking.

Peer Group Influences

The literature states that youth drink primarily because of peer influences (Jessor & Jessor, 1975; Phelps, 1975). The adolescent by approximately his/her early teens has begun to find more and more social
validation from his/her peers and less and less from parents. Consequently, many youngsters often find themselves "forced" into early experimentation with alcohol. This experimentation can be an expression of rebellion particularly in communities were abstinence is the adult norm. It can, however, be seen in nondeviant social groups as well. According to a 1974 National Highway Traffic Safety Administration (NHTSA) survey, drinking teenagers represent all levels of scholastic achievement and aspiration; 53% of them expect to go through college and beyond. They report the same range of sports and extracurricular activities as the students who are not involved in social drinking (cited in Phelps, 1975).

Essentially, this survey indicates that drinking teenagers are not some unique subgroup engaging in deviant behavior. Indeed, given the fact that the abstaining American adult is the exception and not the rule (Cisin, 1978), is it no wonder that teenagers drink to the wide extent that they do? Jessor and Jessor (1975) suggest that adolescents who engage in drinking can be best understood as performing an act of passage into adult role behavior. This is usually accomplished by way of the more gregarious and daring youngsters venturing into drinking and then encouraging and even pressuring their peers into drinking.

Social pressures amount to an informal and at times formal set of contingencies. Rewards and punishments are controlled by the prestigious group leaders of high group status and exclusion from the group can be a punishment not uncommon for a nondrinking youngster. In this regard, Braucht, Brakarsh, Follingstad, and Berry (1973) conclude, on the basis of a thorough review of the literature, that peer pressure plays an especially important role in the development of deviant
drinking patterns among adolescents. Pointing especially to work by Jessors, Collins, and Jessors (1972), which most clearly documents this social-learning model of alcohol abuse, Braucht and his colleagues summarize by noting that "peer influences on adolescent attitudes toward drinking and drinking behavior are of substantial relevance to the behavioral model of alcoholism." These observations by nonbehaviorists strongly suggest that modeling may well play an important role in the etiology of problem drinking. Peer pressure is not just a negative influence. Dr. Robert Russell of the Department of Health Education at Southern Illinois University believes that, "The potential of the peer group in exercising positive influence is often underestimated. The peer group is often responsible for moderation and responsibility in alcohol use" (Phelps, 1975, p. 5).

Role Models and Drinking

Within the group dynamics of the peer group, peer pressure has been clearly demonstrated to be a major cause of alcohol abuse in adolescents (see preceding review). Another major variable in the development of youthful drinking is that of modeling. Modeling has been demonstrated to be an important learning modality for humans (Bandura, 1969). In the acquisition of learned drinking behavior, the drinking by adult role models has been implicated as a cause of youth drinking. This modeling of parental and adult drinking behavior appears to be most powerful before puberty at which point the child begins to look more and more to his peer group for a role model. This often is the cause of much inappropriate behavior and can be the cause of alcohol abuse if the peer role model is an abuser. This is also true of media role models. Rock
stars today are viewed by teens more and more as the high status role models the teenagers want to be like. When rock stars were seen as being drug users, the youth culture began using more and more illegal drugs--so too with alcohol. That high status models engender more modeling behavior (Bandura, 1969, 1971) has become a highly respected principle in learning theory.

Caudell and Marlatt (1975) found also that it is the influence of positive reinforcement for drinking and/or exposure to drinking models which governs early drinking behavior. They hold that these social learning variables can be especially powerful where drinking is a prerequisite behavior for entry into the social peer group.

Sensation Seeking

Another theory regarding youth drinking is the sensation seeking theory (Schwarz, Burkhart, & Green, 1978). These authors' data indicate that with young adults, constricted by prohibitive learning histories, the sedative pharmacological properties of alcohol lead to the psychological experience of disinhibition. This reduction of inhibitory processes can lead to a culturally sanctioned release from social control and can lead to engaging in some hedonistic, exhibitionist behaviors normally outside the person's behavioral repertoire. The contacting of heightened sensory and physical stimulation can have strong reinforcing effects on youthful drinkers.

In summary, alcohol ingestion may be a learned behavior. It is a behavior which can be explained by learning theory. Social rewards and punishments, the escape from perceived punishment via disinhibition, and modeling are all variables operating to create a learning
environment within which teenage drinking is strengthened. Indeed, over the past 10 to 15 years, both adults and youngsters in America have become more accepting of teenage drinking (Manning & Vinton, 1978). In essence, youngsters feel that they are learning a behavior engaged in by over 90 million Americans which is not a major problem for the majority of adult Americans who drink.

The specific concern of this research is youngsters who are heavy drinkers. More specifically, our concern is with Native American teenagers, a group, as indicated by its statistics, which is a high-risk group; many members of this group have a statistically high probability of becoming chronic problem drinkers.

**Hypotheses on Early Indian Youth Drinking**

Even though Indians' drinking patterns sometimes appear similar to those stated above, there is one phenomenon peculiar to Native Americans which has been called "Indian drinking." Indian drinking consists of several males getting together in a group and passing a bottle of whiskey around the circle until the bottle is dry. The Navajo example which follows is representative of the style of "Indian drinking" often engaged in by native American teenagers. The occasion for traditional Navajo drinking could be at anytime, but the majority of this rapid drinking takes place primarily at ceremonial occasions or with kinsmen. This type of drinking occurs at the periphery of the ceremony. For example, drinking at the Enemy War Ceremony (squaw dance) occurs approximately 400 to 800 yards from where the ceremony takes place (Topper, 1974). Navajo adolescents who drink (ashiike da' adlaanii) do so as a group, and this traditional or "Indian drinking" is done in the same
fashion as the drinking of the older men (Hastoii da'adlaani). On the Navajo Reservation, the repeal of the federal prohibition brought only minor changes in this type of drinking, since the Navajos still prohibit the sale or transportation of alcoholic beverages within the confines of the Navajo Nation (Health, 1964). Thus, adolescent boys buy their liquor (typically beer) from local bootleggers and then go off from their major social event, the "Western Stomp Dance," and consume their beverage as rapidly as possible. In this state of intoxication, they are frequently arrested by reservation tribal police (Topper, 1974). Thus, we can see that some of the causes of young native Americans beginning to drink are due to an acceptance by both adults and the youngsters of this behavior as being an adult behavior into which the youngsters are being "initiated." Here we have another social pressure adding to the forces operating on the youngster, and that is the fact that friends serve as models for drinking.

Native American youth are often in desperate need for role models particularly since many reservation families are fatherless. In addition, the BIA boarding school system takes children away from their families and thus removes the family as a role model. Goldstein (1974) in his review of BIA boarding schools concluded that, "One of the primary needs of our native American students in the boarding school system and away from the reservation is for an appropriate role model." Clearly, there is a need to help young people in general and young native Americans in particular make sound decisions regarding their drinking behavior in hopes of reducing what some authors refer to as the epidemic abuse of alcohol among native American populations.
There is, however, reason to be guardedly optimistic in terms of the young native American's desire to reduce or stop his/her drinking. Streit and Nicolich (1977) in one of the most recent surveys of Montana Indian youth (6 to 16 years) reported that of those youngsters surveyed, 64% expressed a desire to quit drinking. Cokerham (1975) also found this sentiment present on the Wind River Reservation where, of the seventh and eighth graders polled, 65% reportedly were well aware of the link between alcohol and crime. Indeed, the Indian people seem well aware of the need to reduce their high incidence rate of abusive alcohol consumption. In spite of the fact that the image of the "drunken Indian" is perpetuated by the white society's media, it is the actual fact of abusive drinking by Indian people which allows the image to have any reality. It is unfortunate that the American media doesn't help the Indian peoples' effort to erradicate alcohol abuse by focusing on the high percentage of native Americans who are nondrinkers. Moss (1979) found this group's numbers to be as high and in some cases higher on some reservations than that of the abuser group.

Etiology of Early Drinking and Adult Problem Drinking

A good, clear exposition of the necessary and sufficient conditions leading to problem drinking has remained elusive over the years. This is despite concentrated research in the social, behavioral, and biological sciences during the last several decades (Tarter, 1978). Several reviews from divergent fields such as genetics (Cadoret, 1976), cultural anthropology (Bacon, 1973; Stivers, 1976), biochemistry (Walsh, 1973), psychology (Hoffman, 1976), and epidemiology (Cahalan & Cisin, 1976).
have been unsuccessful at positing the necessary and sufficient antecedent conditions of adult problem drinking.

Regardless of the multitude of theories regarding the etiology of alcoholism, one thing is agreed upon by most of the experts in the field and that is that the majority of adult problem drinkers began drinking as teenagers (Cahalan, 1969, 1973; Jessar, Graves, Hanson, & Jessar, 1968; Jessar & Jessar, 1975; Vogler, Weissback, Compton, & Martin, 1977). It does not seem that drinking as a teenager is a necessary and sufficient condition for adult problem drinking but rather that a maladaptive behavior can be learned under certain stimulus conditions. Such stimulus conditions as environmental stress, anger, and social anxiety derived from a sense of social inadequacy can set the occasion for youth drinking. Further, internal stimulus conditions or personality variables need to be considered. Jessar and Jessar (1975) instruct that personality variables such as internal-external locus of control and self-esteem\(^2\) need to be seen as setting events which can lead to adolescent drinking. Thus, if the ingestion of alcohol relieves these noxious conditions, the probability of the alcohol ingestion response occurring under similar conditions increases. Donald Phelps (1975), former Director of Prevention at NIAAA, suggested essentially this when he reported that "if a person learns that it is acceptable to use alcohol to cope with problems of adolescence, he may well return to alcohol as an 'emotional painkiller' in later life" (p. 6).

In summary, there is evidence to support a social learning view of teenagers to drink. For some, it may be the beginning of many years of problem drinking. This possibility is enhanced in a society in which early drinking has not been historically shunned. Indian cultures, of
course, vary somewhat by tribe, but in those tribes where heavy drinking is tolerated, and even subtly reinforced, a youngster can begin to abuse alcohol as a teenager and continue right on into his/her adult years (Swanson et al., 1971).

Dr. Robert A. Zucker of Michigan State University (1976) strongly recommended that primary prevention programs address the high risk populations (e.g., predelinquents, offspring of alcoholics, and native American youth). This should be done during early adolescence while behavior and attitudes are undergoing a state of flux. Dr. Zucker's research supports the inference that early abuse can often continue into adult alcoholism. His recommendations also indicate that the alcohol programs should be integrated into the schools. Further, he states that these programs should "include heavy peer involvement" and that "program involvement should begin early in the school year" (p. 12).

If the attitudes, knowledge, and drinking behavior of this age group can be changed, the number of people who later become problem drinkers may be substantially reduced.

Current Prevention Strategies

The need for prevention-oriented treatment has received increasing support in recent years (e.g., Zucker, 1976). The need to prevent alcohol and drug addiction in teenagers was cited by then-President Gerald Ford as one of the future challenges to the nation in protecting the health of its children. He mentioned this challenge in a 1975 proclamation designating the first Monday in October as Child Health Day (cited in Phelps, 1975).
Prevention of psychological difficulties has been elucidated by Caplan (1964). The most widely accepted definition of prevention is described by Caplan as being of three types: (a) Primary prevention attempts to prevent a disorder from happening, (b) secondary prevention identifies and treats a disorder at the earliest possible juncture so as to reduce the severity of the disorder and reverse its trend, and (c) tertiary prevention attempts to reduce and minimize the extent of the impairment experienced as a direct result of the disorder. Wagenfeld (1972) holds that secondary prevention is equivalent to the traditional concept of treatment, while tertiary prevention is synonymous with the concept of rehabilitation. It has become more common parlance to talk about secondary prevention in terms of treatment and prevention. This is especially pertinent when working with high-risk populations. In the case of native American teenagers who already drink, we are treating their drinking behavior and attempting to prevent future, grossly maladaptive drinking from occurring. In addition to being sensible and cost effective, prevention approaches possess some promise for promoting and ensuring the well-being of previously victimized populations (Barrios, 1980).

The prevention efforts aimed at legal minors in general began with religious and familial prohibitions against youngsters imbibing alcohol. Social influences such as religious and social customs, folk ways, and mores have been ubiquitous in society, but their effectiveness has been bolstered through legal sanctions (Cisin, 1978). Given the rise in adolescent drinking, it appears that the legal sanction of prohibiting drinking until the legal age has been a failure. This failure has led to efforts such as high school alcohol education programs aimed at
changing attitudes toward the proper use of alcohol as well as increasing student knowledge regarding the deleterious effects of abusive drinking.

There has been a great deal of research as well as implementation of intervention strategies in the area of youth alcohol abuse prevention aimed at changing attitudes about alcohol. The rationale has been that in some significant fashion, attitudes control behavior and since our goal in this field is to prevent abusive drinking (a behavior not an attitude), we need to change attitudes. The results of attitude change efforts as a unidimensional approach have not been very encouraging.

For this portion of the review of the literature, several dozen articles were examined. The field of drug abuse prevention in adolescents was looked at in addition to alcohol abuse in order to obtain the widest possible survey of the current drug prevention effort. The prevention efforts surveyed in this literature search can be grouped into the following classifications:

1. Drug and alcohol education programs with efforts aimed at increasing knowledge about drugs and alcohol with the intent of providing information for future sound decision making.

2. Drug and alcohol education geared toward changing knowledge and attitudes about drugs. These efforts also indicate that knowledge can be increased but that attitudes can be difficult to modify.

Both of these two general categories were often totally devoid of any follow-up data, and, more importantly, none of these studies attempted to obtain reliable baseline data on drinking behavior nor did they document the impact of the programs on consummatory behavior. Furthermore, to the present date, the great bulk of drug education programs
reported in the literature appears to lack effectiveness (Braucht et al., 1973; Nail & Gunderson, 1975; Randall & Wong, 1976; Schaps, Sanders, & Hughes, 1974; Stuart, 1974; Swisher & Horman, 1970; Weaver & Tennant, 1973). A majority of those studies using the knowledge and attitude model which were able to make significant changes in drug knowledge and attitudes, however, all relied on some form of peer leadership, peer pressure in general, and relied heavily on peer input. A number of programs funded by NIAAA have had good success with the peer model. Many studies have reported that the peer group can serve as an incubator for attitudes about alcohol use. Many researchers have used the teaching of decision-making skills successfully. However, while this approach is a viable component in a multidimensional program, it cannot stand alone in terms of changing the significant dependent variable, namely, drinking behavior. Again, little transfer from attitude and knowledge change to behavior has been seen in these programs. Albert Bandura (1970) explains that cognitive-oriented approaches may produce apparent changes in attitudes but that this often has little effect on overt actions. Festinger (1964) also found this to be the case. He found that previous research using mainly persuasive communications found changes in attitude and actions to be essentially unrelated. Without some direct, overt measure of the parameters of drinking behavior as well as some direct effort at modifying this behavior, we will have little appreciable impact on the problem of youth alcohol abuse. This becomes even more painfully true in high-risk populations such as native American youth.

What is needed in not to throw the "educational baby" out with the bath water but rather to take the advice of leading experts in the field
of addictive behaviors (drinking alcohol, tobacco ingestion, drug taking, etc.) and use a multidimensional approach (Azrin, 1976; Glad, Tyre, & Adesso, 1976; Miller & Munoz, 1976; Nathan, 1976; Sobell & Sobell, 1973). Peter Nathan, a leading expert in the field of alcohol abuse, emphasizes this position by saying, "Further, we would suggest that any unidimensional approach to a maladaptive behavior as complex as alcoholism is bound to fail" (Nathan, 1976, p. 8).

The use of alcohol education in multimodal programs has been used successfully by many treatment programs, most notably in the work of Roger Vogler and his colleagues (Vogler, Compton, & Weissback, 1975; Vogler, Weissbach, & Compton, 1977; Vogler, Weissback, Compton, & Martin, 1977). Their intent was to use the modality of information transferrance, namely a classroom/didactic experience with which most adults have had some experience. The rationale is somewhat different than that found in the education efforts used with teens to prevent or reduce alcohol use. In the Vogler package and others, the intent is to transmit information needed for treatment procedures as well as information intended to clarify common misconceptions about alcohol. The intent in the youth programs tends to be of the "scare tactic" genre attempting to sensitize the children about the dangers of alcohol. This method seems doomed because the kids see 80 million Americans drinking safely and may ask, "Why can't we drink with impunity also?"

The failure of high-fear approaches has been succinctly summarized by Globetti (1978) who observes, "This (fear approaches) grossly oversimplifies alcohol's complex properties and fails to impart constructive attitudes by which a child can make a wise decision regarding its use" (p. 168). He holds that there should be a place in a multiapproach for
imparting information. This should include information about the moderate use of alcohol in a controlled fashion as one of the options together with the standard option of abstinence (which is far too often the message to teenagers). Since these youngsters are approaching adult status very quickly, how are they supposed to go from abstinence to moderate drinking with no idea of how to drink moderately? Other leading experts have supported this view. Dr. Morris E. Chafetz, former Director of NIAAA stated, "Young people who do not choose to abstain from alcohol can be taught to drink responsibly and with relative safety" (1973, p. 17). Dr. Ira Cisin said, "Perhaps greater socialization in the direction of moderate drinking is part of the program we need for prevention of alcohol problems in the future" (1978, p. 162). Education plus self-control of drinking is an approach which incorporates responsible information transmission with self-control training and emphasizes both responsible drinking behavior and abstinence as future choices.

**Self-Control of Alcohol Ingestion as Secondary Prevention**

The treatment of problem drinkers has for the last several decades been strongly influenced by the ideology of abstinence. The disease model of problem drinking has been a cornerstone of this belief system. This model likened one drink for the problem drinker to the invading viral microbe such that the terminal state was one of loss of control over the behavior coupled with alcohol craving (Alcoholics Anonymous, 1955; Jellinek, 1960; Siegler, Osmond, & Newell, 1968). This view regards the symptoms of alcohol abuse and drinking as a function of an underlying psychological problem or personality deficit. The disease model historically represented a move away from the legal solution which
permeated American society for so long which called for the socially visible inebriate to be locked up. This decriminalization of alcohol abuse and subsequent proliferation of the disease model has until recently dominated treatment efforts. Unfortunately, this model uses only part of the classic medical model of disease. That is, prevention of this disease is not similar to that of other diseases. Early treatment is stressed in the arrest of somatically based diseases (e.g., cancer), and vaccination is considered crucial in the elimination of many diseases (e.g., smallpox). With problem drinking, the progressive nature of the disease is stressed, and the problem drinker is treated most effectively when the patient is sickest.

G. Alan Marlatt and his colleagues were able to demonstrate the inadequacy of the craving hypothesis, a central tenet of the disease model (Marlatt, Demming, & Reid, 1973). Using a mixture of quinine, oil of mint, and vodka, they were able to create a viable placebo drink paradigm in which problem drinkers were given one drop or one shot of vodka per drink and then told that they were or were not drinking alcohol. The problem drinkers did not physiologically crave alcohol after drinking alcohol when told they were not drinking alcohol.

Lloyd and Salzberg (1975), in a thorough review of controlled drinking, questioned the disease model's applicability. Further, the NIAAA-funded Rand Corporation Report, Alcoholism and Treatment (Armor, Polich, & Stambul, 1976), supports the view that so-called alcoholics can return to moderate drinking. The alternative view of alcohol abuse rests on the social learning paradigm (Bandura, 1969; Conger, 1956; Kepner, 1964; Miller, 1976; Miller & Barlow, 1973). The social learning view of excessive alcohol ingestion suggests that it is a socially acquired,
overlearned, habitual pattern of behavior maintained by reinforcement contingencies. Excessive drinking can allow the abuser to avoid or escape from noxious environmental and/or internal conditions, exhibit more varied social behaviors which he/she may be uncomfortable emitting sober, and gain social reinforcement from friends and/or family. From this explanation, the social-learning view has evolved self-control procedures for reducing excessive ingestion of alcohol. Indeed, self-control procedures have been found to be quite successful in the reduction of alcohol ingestion (Alden, 1978; Bigelow, Cohen, Liebeson, & Faillace, 1972; Lovibond, 1977; Miller, P. M., 1976; Miller, W. R., 1978, 1979; Mills, Sobel, & Schaeffer, 1971). These procedures involve many of the treatment aspects involved in behavior self-control procedures for other behaviors (Mahoney & Thoresen, 1974; Thoresen & Mahoney, 1974).

Specifically, these programs typically involve some combination of the following:

1. Training in blood alcohol concentration (BAC) discrimination.
2. Setting the BAC limits. This is often done as an absolute BAC limit and a regular BAC limit.
3. Formalizing these limits into behavior contracts. These contracts often include the limits, reinforcers, and signature of the client (and frequently that of a cohort).
4. Data collection along with some topographic parameters of the consummatory response such as frequency or quantity. This is frequently done with the aid of daily record cards.
5. Slowing-down training. It has been found that many problem drinkers drink quite fast as well as drink stronger drinks. This
component trains the client to slow down his/her rate of consumption by taking smaller sips as opposed to gulping down the drink.

6. Training in spacing drinks.
7. Assertiveness training to assist clients in refusing drinks.
8. Training in discrimination of setting events for drinking.

These setting events frequently take the form of places where control over drinking is difficult or easier. This includes those people who encourage and reinforce abusive drinking or moderate drinking as well as internal mood cues which serve as discriminative stimuli or conditioned stimuli for abusive drinking.

9. Training in identifying consequences of abusive drinking which reinforce abusive drinking either as an escape or avoidance response or simple and direct reinforcement.

Alden (1978) used the self-control procedure outlined by Miller and Munoz (1976) in a secondary prevention effort. It included essentially the procedures outlined above. The Canadian government, which has socialized medicine, funded Dr. Alden's research into the applicability of treating heavy drinkers before they became more serious alcohol abusers. Dr. Alden has demonstrated success in her program and has pointed the way for the use of self-control training as a strategy for secondary prevention of alcohol abuse.

Peer-Assisted Self-Control as Prevention

The importance of the peer group in the etiology of youth drinking is well documented (see preceding review). The shift away from parents as role models to the dominant peers makes the peer group a strong asset
for behavior change efforts. The peer can be a powerful agent of change in good or bad directions.

The use of peers as an untapped source of therapeutic help has become increasingly important in recent years as a function of increased demand for professionals, ever higher costs (O'Leary, 1972), and most importantly, because of a need for effective programs with teenagers who are often suspicious and turned off to adult therapists. Bandura (1970) commenting on the use of paraprofessionals stated:

... peers, and even formerly treated clients, served effectively under the guidance of professional personnel as models for desired psychological changes. More people would receive greater help than they do under current practices if professional personnel utilized their time and knowledge to develop efficacious treatment programs for capable resource persons to implement in natural settings under their guidance and direction. Having professionals assume mainly supervisory rather than practitioner functions in no way minimizes relationship experiences, as is commonly claimed of behavioral treatment. (p. 689)

Tharp and Wetzel (1969) outlined the behavioral application of paraprofessionals in their "triadic model." According to this schema of therapeutic intervention, those individuals in the client's immediate environment who either control the client's access to reinforcers or who are central in the client's social system act as the "mediator." This person is supervised by the "consultant" who is often a mental health professional. The intervention model is thus seen as triadic:

```
Consultant  Mediator  Target
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The Triadic Model

In this model, the consultant is anyone who has the necessary skills to oversee the program, while the mediator can be almost any significant individual in the target's environment. He/she could be mother, sibling,
teacher, or peer. Thus, the consultative triad describes functional positions and not merely the people occupying those positions.

The use of peers as effective change agents has had widespread application within behavioral treatment approaches for some time. For instance, Buehler, Patterson, and Furniss (1966) had peers in a correctional institution stop reinforcing inappropriate behavior of target clients and begin reinforcing expected behaviors which facilitated and increased these correct social responses. From this early work, the use of peers as paraprofessional change agents has mushroomed. Peers have served effectively as models for change (Hartup & Coates, 1967; Sarason, 1968; Sarason & Ganzer, 1969), aides in working with withdrawn children (Strain, Shores, & Timm, 1977), and peer tutors for academically deficient students (McCarty, Griffin, Appoloni, & Shores, 1977). Contingent access to a peer tutor has served as a reinforcer with children (Robertson, DeReus, & Drabman, 1976). Peers have been used to monitor and administer behavioral programs in the classroom (Surratt, Ulrich, & Hawkins, 1969), with the emotionally disturbed (Drabman, 1973), and the retarded (Drabman & Spitalnik, 1973). They have also been used as confederates in teaching conversational skills (Wheeler & Wisloski, 1977). In alcohol and drug programs, the use of peers is not exactly like the behavioral programs mentioned heretofore. The therapeutic intervention most frequently utilized is the peer group meeting model wherein through group discussion it is hoped that attitudes and values can be shaped via peer pressure exerted through guidance of a group leader (Byrne, 1974; Capone, McLaughlin, & Smith, 1973; Dohner, 1972). Other programs have used the traditional counseling model with a peer as therapist (e.g., Samuels & Samuels, 1975).
In behaviorally based programs, peers have been utilized as aides to help the therapist. Azrin (1976) used "buddies" to help the abstinent alcoholic with such living problems as dating, car troubles, etc., and to offer encouragement to the client to help prevent relapses. Azrin suggested the "buddy" be a peer who is a former alcoholic and who is closely matched to the client in terms of age and socioeconomic status. Miller and Munoz (1976) suggest the use of a peer to help in their self-control program. They suggest that the peer provide hints, social reinforcement, and encouragement to the subject as he/she goes through the self-control program. A merger of the triadic model to the Miller and Munoz model would utilize a peer assistant who is supervised by the consultant. Thus, the peer would function as the mediator in Tharp and Wetzel nomenclature.
CHAPTER III

STATEMENT OF THE PROBLEM

The review of the relevant literature contained herein has clearly documented the scope of the alcohol-related problems within the native American population in general. Also, it has been shown that the scope of this problem is acute within the age group represented at the Intermountain Intertribal School. The specific data obtained in a needs assessment show that the incidence of students at Intermountain Indian School (mean enrollment = 750) utilizing the alcohol Care Center due to alcohol intoxication during the 1975-1976 school year was 1,309. In addition, nearly 509 students were involved one or more times with intoxicants and/or sniffing volatile substances and alcohol abuse during school hours from September, 1977, to February, 1978. It may thus be inferred that problem drinking represents a significant sociocultural problem among native American adolescents at Intermountain School.

The abuse of alcohol among the native American population is an overwhelming health and social problem which mandates action. Efforts at remediation have been undertaken, but an alternative strategy would be to direct more effort at prevention. We must prevent the problem from occurring once it is clearly perceived as a problem. Secondary prevention efforts (Caplan, 1964) require identifying a population which is beginning to engage in the maladaptive behavior and is likely to increase the rate of the behavior in the future.

Therefore, given that this is a serious problem within the target population, given that young teenage native American alcohol abusers are at risk of becoming a "statistic," given that learning theory principles
can account for the epigenesis and maintenance of alcohol abuse behavior among these youngsters, then the problem becomes how to prevent these youngsters from becoming hardened alcohol abusers or problem drinkers.

Specifically, the question to be answered by this research is: Can an educational classroom component and a peer-managed self-control component teach alternatives to alcohol abuse and promote the appropriate behaviors required for moderate drinking or abstinence?
CHAPTER IV

METHODOLOGY

Procedure

Subjects

There were 30 students enrolled in the program. These students were referred from the existing Intoxicant Education Program. These students were referred according to the following criteria:

1. Freshman or sophomore class ranging in age from 13 to 16 years.
2. At least two intoxication reports during Fall Quarter, 1979.
3. Not grossly mentally retarded. This was determined by having the counselors interview clients as well as check for obvious handicapping conditions such as Down's syndrome. If needed, a call was placed to school records.

These subjects were randomly assigned to the treatment groups (Group 1, Group 2, Group 3).

Demographic data for the clients are provided in Table 2 below.

Table 2

<table>
<thead>
<tr>
<th></th>
<th>Percent from a Reservation</th>
<th>Percent Male</th>
<th>Mean Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>91.6</td>
<td>50</td>
<td>15.9</td>
</tr>
<tr>
<td>Group 2</td>
<td>87.5</td>
<td>50</td>
<td>15.8</td>
</tr>
<tr>
<td>Group 3</td>
<td>100.0</td>
<td>60</td>
<td>17.1</td>
</tr>
<tr>
<td>Mean</td>
<td>93.0%</td>
<td>53.3%</td>
<td>16.2</td>
</tr>
</tbody>
</table>
Setting

The program was located on the campus of Intermountain Intertribal School (IMS) located in Brigham City, Utah. This high school is a Bureau of Indian Affairs (BIA) boarding school with an average enrollment of 750 students representing approximately 80 tribal groups. There is approximately an equal number of boys and girls.

These students at IMS are frequently older for their respective grade levels than their white high school counterparts. It is not at all unusual to see 16- and 17-year-old freshmen. Quite often, the parents and siblings of the IMS students have not completed high school. Frequently, the students drop out and go home to help a solo parent with younger siblings and/or an impoverished financial situation. Many of the IMS's students have many academic and emotional disabilities. All in all, this population can be characterized as a multidisadvantaged group.

Apparatus

The assessment device used to measure the self-esteem of clients was the Coopersmith Self-Esteem Inventory (Coopersmith, 1975). Concurrent validity for this scale is .80. Reliability figures are unavailable. The client simply indicates a yes or no response by marking the appropriate column (see Appendix D). The number of correct responses are added yielding a total self-esteem score. The higher the score, the higher the client's self-esteem.

The assessment device used to measure the client's knowledge of alcohol-related information was the Understanding Alcoholism and Problem Drinking Alcohol Information Test (Hamburg, Miller, & Rozynko, 1977).
The client is required to check the correct answer to all the questions on the test (see Appendix B). The total number of correct responses yields the client's alcohol knowledge score. The higher the score, the greater is the client's knowledge of alcohol-related information.

The assessment device used to measure alcohol-related attitudes was the abstinence/permissive alcohol attitude subscale of the Drinking and Alcoholism Attitude Scale (Moss, 1979). There are no validity or reliability scores for this scale. The client checks the column which best reflects his or her attitude regarding the corresponding stem (see Appendix C). The scoring is weighted for each stem on a 1 to 5 scale. The client's response is scored for each item, and this is totaled yielding a total score. This total score is then divided by the number of stems in the subscale, and a mean score is derived for each client which represents his or her abstinence/permissive attitudes toward alcohol-alcoholism. The closer the score is to a maximum of 5, the more abstinent the client's attitudes are seen as being. Conversely, the closer the client's score is to a minimum of 1, the more permissive the client's attitudes toward alcohol and alcoholism are considered.

The daily report card was used to evaluate the three major drinking parameters; namely, frequency of incidents, quantity of alcohol consumed, and peak blood alcohol concentration (the card is depicted on p. 46). The client was instructed in how to fill out the card correctly. The peer counselors picked them up from clients, and the measures derived from these cards were tallied by the respective peer counselor supervisors.

The Alco-Sensor was used to corroborate self-report scores as well as to provide another measure of the dependent variables of frequency
and peak blood alcohol concentration. This device is a hand-held blood alcohol concentration analyzer which gives a blood alcohol concentration reading if alcohol is present in the blood of the client. The device has a plastic tube which is newly inserted at the top of the device for each client into which the client breathes. This breath must be a full breath. Midway through the exhalation, the examiner presses the "READ" button. This button is held for 5 seconds at which time a visual LED display indicates the blood alcohol concentration of the client.

Purpose

The overall program attempted to assess group differences between three treatment procedures. They were:

1. Alcohol education plus peer-assisted self-control procedures.
2. Peer-assisted self-control procedures.

This comparison was performed by randomly assigning the 30 subjects (Ss) to three groups. These three groups had 10 Ss each and each received one of the three procedures outlined above. Thus, Group 1 received alcohol education plus peer-assisted self-control; Group 2 received peer-assisted self-control only; and Group 3 self-monitored their alcohol consumption. An explanation of the token economy used with the three groups follows. Following that is a detailed description of the treatment procedures for each of the three groups and a detailed description of the staff responsibilities in terms of the treatments and the remaining procedures of the program.
Token Economy

There was a small token economy which provided the superstructure for the consequating of student performance. The additional intent for using the token system was to provide incentives for remaining in the program thereby reducing the threat of subject attrition. The following activities and behaviors were targeted and consequated.

1. Attending small-group discussion meetings (Group 1).
2. Clients turning in their data at the time of the random breath test.
3. Accurate report of presence/absence of blood alcohol. This was done once weekly by peer counselors. Points were awarded if a subject's data were accurate with all our corroborative sources, namely, dorm and academic personnel, Care Center reports, and Alco-Sensor readings. Points were also awarded for submitting to the breath analysis by the peer counselor. This was to be done three times weekly.
4. Target collateral behaviors selected by the peer counselor and his/her student, e.g., class attendance, no weekly dorm demerits, etc. Those were consequated with "bonus points." Bonus points were provided to peer counselors as a flexible tool allowing him or her to immediately consequate any behavior emitted which had not been specifically targeted, e.g., a friendly and appropriate social interaction with a member of the opposite sex for a shy student.

The token system was not merged with the existing "merit system" already in place at the Intermountain School. The investigator kept a sample of backups on his unit. Specifically, this was a sample of athletic clothing which was placed in the "Store" (a large broom closet).
These items were obtained from the Sports Locker, a Brigham City sports store. The sample items were placed there in order for the clients to discriminate the backup reinforcers. The client could save his/her points for purchases at the Sports Locker. The arrangement worked out was for the Sports Locker to provide the project with gift certificates which were signed and filled out for the clients' use. The clients were encouraged to go to the Sports Locker and browse through the store. This arrangement provided the project with a real store designed to increase motivation for purchasing. This, of course, increased the motivation of the clients to earn points. In addition to the "Sports Locker" gift certificate which tended to encourage saving points and delaying reinforcement, it was arranged for subjects to use vouchers for the Campus Store, a hamburger/soda shop. The project staff made up the voucher which the print shop printed. This could be used for small purchases and allowed for a more rapid turnover of points as well as for quicker contacting of reinforcers. The ratio of the cost of the item to each point was one point = $.04 in cost. The top point earner had $44 total by the end of the program. The average earned was approximately $28. The student's points were tallied by the program secretary, and the awarding of these points was the joint responsibility of the peer counselor and the alcohol educator depending on who was working with the student at the time the points were awarded. The secretary kept a running tally and worked with the staff providing the debits and credits for each student. Long-term saving of points was allowed. This system differed for the three groups as the groups differed in terms of required activities.
Group 1

This group received the total program. They took part in both an alcohol education program, and concurrently, they received the peer-assisted self-control training. A description of both components follows.

Educational Component

The didactic section of the educational class was held during the final school hour (3:00 p.m. to 4:00 p.m.), and the discussion section was held after a 10-minute break (4:10 p.m. to 5:00 p.m.). The students met in a classroom in an IMS building.

The curriculum utilized was an augmented version of Understanding Alcohol and Problem Drinking (Hamburg, Miller, & Rozynko, 1977). The first lecture consisted of the basic physiology of alcohol absorption and its effects on the brain. This lecture covered the physiological functions involved with the absorption of alcohol and was presented in understandable terms for high school students. The inclusion of a physiology lecture in a majority of alcohol education programs reviewed by Freeman and Scott (1966) and its high interest level found by Williams, DiCocco, and Unterberger's (1968) review of a drug program instituted in a Catholic high school each lent credence to inclusion of a basic physiological lesson. The SPARKS Program (Jaffe, 1974) relied heavily on reality-oriented attitude examination in regard to attitudes that lead to drinking and peer discussion of attitudes. These were also included in the drug education program in a manner similar to their inclusion in the SPARKS Program.
Following a discussion of the attitudes that lead to drinking, a member from Group 1 who had experienced similar problems with alcohol was invited to share his/her feelings concerning his/her alcohol-related problems. Further, the importance of peer models and trainers was stressed. Westermeyer (1974) in his article, "The Drunken Indian: Myths and Realities," stated that treatment planned and staffed by Indian people appears to be more successful than non-Indian-led programs. Capone, McLaughlin, and Smith (1973); Daniels (1970); DesJarlais (1972); Freeman and Scott (1966); Jaffe (1974); and Martin and O'Rourke (1972) all support the utilization of peer interaction and peers used in the training process to accentuate the effectiveness of their respective drug education programs. Dohner (1972) suggested that to offer meaningful alternatives to alcohol abuse would be useful in helping a student with alcohol problems. He/she may then replace alcohol as his/her response of choice to stress with a more adaptive response (Westermeyer, 1974).

An effort was made to facilitate the understanding of skills such as sipping versus gulping, mixed versus straight drinks, increased interval between drinks, and an effort to tune each participant into the progressive effects of alcohol on the system in an effort for the participant to identify an appropriate stopping point for any possible future drinking.

The educational component was taught by Mrs. Janet Slowman, a native American educator. She was trained by the Alcohol Education Supervisor in the skills to efficiently teach each aspect of the education component which consisted of 10 1- 1½-hour lecture-discussion sessions. The first and last sessions were reserved for pre- and postevaluations.
of knowledge and attitudes in regard to alcohol. The remaining eight sessions were divided as follows: (a) 45- to 60-minute lecture, (b) 5-minute break, and (c) 45- to 60-minute discussion. When Byrne (1974) investigated the effectiveness of changing drug attitudes through drug education, he found group interaction to appear most promising of four modalities examined. He concluded that drug programs which were strictly factual were ineffective and that discussion following the lecture with peers proved most effective. This discussion was co-led by Dr. Strelich, Clinical Psychologist, Indian Health Services, and Janet Slowman. Conner (1974) found small-group discussion to be more effective in increasing alcohol knowledge than a lecture-only format. The eight topics of lecture and discussion included the following: (a) basic physiology; (b) attitudes that lead to drinking; (c) a discussion concerning attitudes toward alcohol and alcohol abuse was led by a peer who had experienced problems with alcohol and its effect on his/her life; (d) alternative coping strategies; (e) behavioral control strategies; (f) awareness of drinking pattern and subsequent sensations based on a discussion of recent research by Lovibond and Caddy (1970) designed to train moderate or controlled drinking; (g) legal aspects and consequences of alcohol-related crimes; and (h) the early phases of alcoholism as defined by Jellineck (1960) and a subsequent discussion with peers of their experiences.

**Peer-Assisted Self-Control**

There is currently new, yet substantial, literature indicating the feasibility of teaching problem drinkers how to control their abusive ingestion of alcohol (see Review of Literature). Further, there now
exists a good rationale for using these procedures to reduce or eliminate alcohol usage in our target population. What follows is a description of the self-control training procedures used in this program.

This treatment procedure requires the Ss (in all groups) to self-monitor their alcohol ingestion. This was done by entering required information on the card (shown below) whenever they drank.

<table>
<thead>
<tr>
<th>DATE</th>
<th>GROUP NO: A B C D E F</th>
<th>I.D. NO. 1 2 3 4 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRINK</td>
<td>TIME</td>
<td>TYPE</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
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<td>9</td>
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<td></td>
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<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This was done daily for the duration of the program (the last day of the program was April 30, 1980). If there was no consumption on a given day, the client was instructed by the peer counselor to enter NONE on the card. These cards were collected three times weekly by the peer counselors. At this time, the peer counselor performed a breath analysis by using the Alco-Sensor. This hand-held device gives a blood alcohol concentration (BAC) level reading. The peer counselor entered this information on the back of the card for that day. This served as corroborative data for the self-reports of Ss. For Groups 1 and 2 at the end of each week, the peer counselor reviewed that week’s data with his/her peer counselor supervisor, then the peer counselor met with
his/her client, and a goal for the upcoming week was established. This goal was formalized as a contract (Kanfer & Karoly, 1974) to facilitate goal attainment by our clients (see Appendix E). The goals were written in terms of the following:

1. To drink in the coming week or not.
2. Quantity of alcohol to be ingested.
3. Frequency of alcohol ingestion.
4. Peak BAC for the upcoming week.

Thus, all the weekly progress review meetings were particularly focused on review of goals and goal attainment. Client self-reinforcement was encouraged as well as social praise by the peer counselor for successful goal attainment. In addition, accuracy of self-monitored data in terms of its agreement with our corroborative sources was rewarded with points if appropriate.

All the client's behaviors described above except goal attainment were consequated with points used in the token system described earlier. This, then, completes the description of the treatment procedures for Group 1.

Group 2

This group took part in the peer-assisted self-control training only. This was identical to that outlined for Group 1 under the heading, Peer-Assisted Self-Control. Again, this is all in which they were involved. This allowed an assessment of the effects of the self-control component. There were also 10 subjects in Group 2.
Group 3

This group served as a comparison group to help assess the possible reactive effects of self-monitoring. Thus, in Group 3, the remaining 10 subjects self-monitored alcohol ingestion and recorded the data on a card. Three times weekly, they too had their cards picked up by their peer counselor; at that time, they had an Alco-Sensor breath test.

In summary, they were treated the same as all other subjects in terms of turning in cards and having a breath test. This is all they were required to do.

The remaining procedural aspects of the program are discussed next.

Peer Managers

It has been recommended (Miller & Munoz, 1976) that self-control procedures can be strengthened by getting assistance from a friend or spouse. In our program, this assistance was provided by the peer counselor. They worked with their clients in an expanded version of the triadic model (Tharp & Wetzel, 1969). This model allows for a professional to supervise paraprofessionals in the dispensing of behavior treatment procedures. It is a service delivery system.

The triadic model calls for consequeating the mediator's behavior (the mediator in this project is the peer manager). Three peer counselors were supervised by one graduate student who in turn was supervised by the project director (see Appendix H, Flow Chart--Personnel). The peer counselor was an upper-level student (junior or senior) who was at least 16 years old. The literature in this area suggests that a successful peer manager is a likable, friendly, outgoing, socially concerned
individual who can garner the respect of his/her clients (Fo, 1972; Hanze, 1976; Holler, 1977; Pyle, 1977). They were trained by the project director and the peer manager supervisors. The areas covered in their training included relevant facets of the administration and supervision of a self-control of drinking program (see preceding review) as well as the relevant concepts and procedures involved. Their training consisted initially of a 3-week training program for 1 1/2 to 2 hours per day, 4 days a week. Homework assignments were utilized. Other training procedures used were role playing, lectures, short behavioral rehearsals, and readings. This did not bring peer counselors to their terminal level of sophistication. However, the intent of the pretraining was to prepare them for the initial phase of the program. Specifically, this involved the collection of data and the administration of points for the self-monitored data. Ongoing training in the treatment aspects of the program occurred during the remainder of the program and was problem specific. Thus, six peer counselors were utilized, each of whom had one graduate student supervisor who in turn was supervised by the project director. There were no financial contingencies such as payroll being dispensed in an uncertain manner, but there was differential social reinforcement of required job tasks. Since both the peer counselors and the peer supervisors were paid by a salary, their performance was in a general sense consecuated with a paycheck.Typically, supervisory procedures such as weekly meetings and checks on required work were utilized.

Specifically, the peer counselors were responsible for five student clients. The peer counselors were instructed to attempt to form a friendly, social group with their subjects. The purpose here was to
form a new peer group for these students with the peer counselor as the dominant leader figure. It was hoped that this new group would serve as a social support group and could help each member with his/her fledgling efforts at reduced drinking. The counselor and client met weekly which served as a review of each subject's progress. During this meeting, successive approximations to successful weekly goal attainment were socially consequated. This was often performed during one of the three card pickups. Next, the peer counselor was responsible to randomly corroborate (three times weekly) their students' self-monitored drinking data. This was done with the small hand-held device known as the Alco-Sensor. These checks were minimally intrusive, and if the student subject's data card accurately reflected the presence or absence of ethanol in the blood, he/she received a predetermined number of points.

Experimental Design

The design utilized was a group comparison design. The group comparison was utilized to elucidate the relative impact of the different components of the treatment package.

Dependent Measures Analysis

Three groups were used for data analysis. Group 1 received the educational component in Winter, 1980, beginning on January 24, 1980, and ending on March 7, 1980, when Winter Quarter ended. They also received the behavioral component beginning in Winter, 1980, on January 24, 1980, and ending on April 30, 1980. Group 2 (peer-assisted self-control group) began their peer-managed behavioral component at the same time as Group 1. Group 3, the self-monitoring-only group, began at the same
time as Groups 1 and 2. In sum, all groups began and ended the program on the same dates.

The criteria for a subject's inclusion in the sample were as follows:

1. The student drinks at least 2 ounces of ethyl alcohol once per week and/or drinks to legal intoxication (blood alcohol concentration = 80% as stated by the Utah Alcohol Beverage Commission) at least three times per year.

2. For those students in the educational component, there could not be a class schedule conflict between our alcohol education class and the math or English classes.

All the subjects in Groups 1, 2, and 3 self-monitored drinking for data analysis on the following dependent measures:

1. Self-report of (a) frequency of drinking incidents, (b) quantity of alcohol consumed (x SECs), and (c) peak blood alcohol concentration. These self-monitored data were corroborated by dorm and school staff as well as peer counselors. Peer counselors were instructed to obtain breath test corroborations three times per week randomly at peak usage periods. These corroborations were analyzed for reliability of self-monitoring by obtaining a reliability coefficient for agreements and disagreements of reports of drinking. This was used for self-monitored reports and (a) the Alco-Sensor, (b) the Care Center report, and (c) demerit reports. The first three dependent measures (No. 1a, 1b, and 1c) were plotted and analyzed within groups via visual inspection. An analysis of covariance across groups as well as on measures 2 through 4 below was also done. Specifically, the data were analyzed with an ANCOVA using as covariates the first 3 weeks of self-report data
and incident reports prior to the beginning of the program. These co-
variates were determined at the end of the program when all the data
had been collected and a correlation matrix had been set up and analyzed
for covariates.

The remaining dependent measures were:

2. Alcohol incident reports.
3. Peer counselor report of seeing the subject intoxicated.
5. Self-esteem (Coopersmith Self-Esteem Test).
6. Alcohol knowledge.
7. Alcohol attitudes.

Dependent measures 5 through 7 were analyzed by an analysis of
variance between Groups 1, 2, and 3. Also, a t-test was performed on
each of the three groups to determine pre- and postdifferences within
groups on dependent measures 5 through 7. The data were also evaluated
individually. For each of the three main groups, the number of subjects
who reduced their drinking to their stated goals on the first three de-
pendent measures was provided. That is, goal reached 90% of the weeks
in treatment, 75% of the weeks, 50% of the weeks, 25% of the weeks, and
below 25% of the weeks. In addition, the percentage of subjects who
were assigned to the low, medium, or high BAC groups at the beginning
and at program termination is provided. This will provide the individu-
dual data needed to see how many of the subjects in the three main
groups improved.
CHAPTER V

RESULTS

The statistical analysis of the data for the major dependent variables of peak blood alcohol concentration (BAC), quantity (standard ethanol content--SEC--units), and frequency of drinking are presented for the three treatment groups. The secondary analyses of the relationship of alcohol knowledge, abstinence-permissive attitudes about alcohol, and self-esteem are presented next. Following this is a presentation of collateral behaviors of the target behaviors.

Effects of Treatment on Drinking Behavior

Outcome measures for Groups 1, 2, and 3 were analyzed using self-monitoring data. An analysis of covariance revealed no significant differences between groups for the dependent measures of mean quantity of alcohol consumed, mean frequency of drinking incidents, or mean peak BAC. (Blood alcohol concentrations were determined for all clients from their individualized BAC printout; see Appendix A.) This indicates that there was no differential treatment effect reflected in decreases in drinking behavior for the three groups.

Since no statistical differences between groups were obtained, within-group treatment differences were then investigated. For each of the three groups, the major dependent variables were analyzed with a t-test for correlated measures. None of these t-tests achieved statistical significance. The results of these t-tests indicate that there were no treatment effects evidenced by the interventions undertaken with each group which was robust enough to achieve a level of statistical
significance. The results of all the statistical analyses performed may be due, in part, to reduced power resulting from the small N in each cell. The decrease in N resulted from daily report cards not being turned in by the clients. Those clients whose data were missing, therefore, were deleted from the statistical analyses. It must be stressed that this was not a function of client attrition but rather of missing data points which were not turned in. Overall, 77% of all cards were turned in. This resulted in an N of 6 for Group 1, an N of 4 for Group 2, and an N of 6 for Group 3.

**Visual Data Inspection**

Statistical analysis of the data revealed no significant differences either between or within groups. As mentioned earlier, this may have been due to a reduction in the power of the statistical analysis as a function of missing daily report cards. In order to obtain some suggestive indications regarding the impact of the experimental treatment, the data were graphed to allow for a visual analysis of the results. The graphs presented (Figures 2, 3, and 4) include the data of subjects who were not computed into the statistical analyses due to some missing daily report cards. This yielded an N for each group as follows: Group 1, N = 11; Group 2, N = 8, and Group 3, N = 10. For example, if a subject was deleted from the statistical analyses because he/she had three or more missing cards for Week 13 but had a BAC of 180 on a day for which he/she had turned in a card, that score was averaged into the visual depictions of the major drinking variable of BAC. There was only one subject per group who left the program and whose data could not be figured into any of the computations. Visual inspection revealed that
Figure 2. Mean frequency of drinking incidents for clients in Groups 1, 2, and 3 from the daily report cards.

Figure 3. Mean peak blood alcohol concentration for clients in Groups 1, 2, and 3 from the daily report cards.

Figure 4. Mean quantity of alcohol consumed expressed in Standard Ethanol Content (SEC) units for clients in Groups 1, 2, and 3 from the daily report cards.
clients in Group 1 decreased their drinking behavior both in terms of weekly mean frequency of drinking as well as weekly mean peak BAC. This group's weekly mean SECs showed a decline during weeks 7 to 10 as compared with weeks 3 to 6 (mean = 2.4 SECs versus 1.2 SECs; see Figures 2 through 4).

Clients in Group 2 improved on all three measures of drinking behavior as measured by the daily drinking report card. Visual inspection revealed that these clients decreased their weekly mean peak BAC, weekly mean frequency of drinking, and weekly mean SECs (Figures 2 through 4). While it is true that the analyses of the three major variables for Groups 1 and 2 showed no significant differences within each group from the beginning of treatment to the termination of the programs, the visual analyses suggest that there may have been some treatment impact on the clients' drinking behavior.

Visual inspection of the data revealed that Group 3 showed an initial decline on all three measures during the first 10 weeks of treatment. However, this trend was reversed by the end of treatment for both mean BAC and mean SECs. Mean frequency decreased throughout treatment (see Figures 2 through 4). This is consistent with the reactivity of self-monitoring which causes some initial attenuation with a subsequent return to the initial rate. Essentially, the visual depiction of Group 3's data suggests some initial impact on the parameters of drinking behavior but that these results were transitory.

Reliability

Reliability coefficients for the self-monitored data were obtained from several different sources. The first source came from reports of
client drinking behavior obtained from the school staff in the form of an incident report filed on a client for drinking, the second source was the Care Center's report of a client drinking, and the third source was data from the Alco-Sensor. Agreements and nonagreements for both clients' and the staff's reports of drinking were computed. The formula used to compute reliability was to combine occurrence and nonoccurrence of drinking scores.

Specifically, the reliability formula used was:

\[
\frac{N_a + N_n}{(N_a + N_n) + (N_a + N_n)}
\]

The overall reliability obtained was: \( r = 91.9 \) for the incident reports, \( r = 91.6 \) for the Care Center reports, and \( r = 90.2 \) for the Alco-Sensor.

**Alcohol-Related Incident Reports**

An analysis of variance revealed no significant difference on post-measures between Groups 1, 2, and 3. Visual inspection of the frequency data revealed that the weekly mean frequency of clients being taken to the Care Center showed a decline from baseline for all clients in the program (Figure 5). Indeed, on the final week of the program, none of the clients were referred to the Care Center. A t-test for correlated measures was computed for pre- to postdifferences for all three groups. None of these t-tests were significant. It appears that the clients in the program reduced their visits to the Care Center. This is strictly suggestive and may be a chance occurrence unrelated to treatment.
Figure 5. Combined percent of clients from Groups 1, 2, and 3 who were reported as drinking by the campus Care Center (N = 31).
Peer Counselor Reports of Client Drinking

Only two clients were reported by their peer counselors to have been seen drinking—once each. Because of this problem, no data are provided for analysis. This proved to be a very poor measure of client drinking.

Alco-Sensor Report of Drinking

This measure was also not a very rich source of data. While there were times when the Alco-Sensor registered a BAC reading for one of the clients, the peer counselors were reluctant to administer the breath test. However, the results of this test indicated that the clients were often not drinking and appeared to confine their drinking to the weekend. This is precisely when the peer counselors would not do the breath test. Therefore, we confined our use of the Alco-Sensor primarily to that of being a source of corroboration of self-monitored data (see Reliability section).

Self-Esteem

Self-esteem scores were computed with the Coopersmith Self-Esteem Scale (see Appendix D) pre- and posttest for all clients. An analysis of covariance using self-esteem pretest scores as the covariate revealed a significant difference between groups: $F = 4.42, p = .02$ (see Table 3). Newman-Keuls pairwise comparisons were made between Groups 1, 2, and 3 to ascertain which groups' differences produced the significant effect. As may be seen from Table 3, the results indicated a significant difference between Groups 2 and 3 ($p < .05$) as well as Groups 1 and 2 ($p < .1$). It seems that Group 2 showed the greatest increase in
Table 3
Summary of Analysis of Covariance for Self-Esteem Scores Using Self-Esteem Pretest Scores as the Covariate

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F Value</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (selfpre)</td>
<td>724.884</td>
<td>1</td>
<td>724.884</td>
<td>24.935</td>
<td>NS</td>
</tr>
<tr>
<td>Group</td>
<td>257.450</td>
<td>2</td>
<td>128.725</td>
<td>4.428</td>
<td>p .02</td>
</tr>
<tr>
<td>Explained</td>
<td>982.334</td>
<td>3</td>
<td>327.445</td>
<td>11.264</td>
<td>p .02</td>
</tr>
<tr>
<td>Residual</td>
<td>668.629</td>
<td>23</td>
<td>29.071</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,650.963</td>
<td>26</td>
<td>63.499</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

self-esteem with Group 1 showing some increase on this variable. This indicates that the interaction and involvement of the clients with the program resulted in increases in the clients' self-esteem. A partial correlation controlling for initial differences between group scores on the self-esteem pretest produced a strong relationship between self-esteem scores and the major dependent variable of both peak BAC, \( r = -.44, p = .06 \); and mean frequency by cards, \( r = .47, p = .06 \). Thus, it appears that not only was self-esteem increased but that these increases were correlated with reduction of drinking on the aforementioned parameters. These results are summarized in Table 4.

Alcohol Knowledge

Alcohol knowledge scores were computed utilizing the Understanding Alcohol Test (see Appendix B) pre- and posttests for all clients. An analysis of covariance using knowledge pretest scores as the covariate
Table 4

Partial Correlations (Controlling for Initial Differences)
Between Major Dependent Variables and Self-Esteem
Alcohol Attitudes, and Alcohol Knowledge

<table>
<thead>
<tr>
<th></th>
<th>Post Mean SECs by Cards</th>
<th>Post Frequency of Incident Reports</th>
<th>Post Mean BAC</th>
<th>Post Mean Frequency by Cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem post scores</td>
<td>-0.2411</td>
<td>0.2226</td>
<td>-0.4448</td>
<td>-0.4677</td>
</tr>
<tr>
<td></td>
<td>( p = 0.225 )</td>
<td>( p = 0.243 )</td>
<td>( p = 0.074 )</td>
<td>( p = 0.063 )</td>
</tr>
<tr>
<td>Alcohol knowledge post scores</td>
<td>-0.0355</td>
<td>0.2590</td>
<td>-0.2017</td>
<td>-0.0414</td>
</tr>
<tr>
<td></td>
<td>( p = 0.456 )</td>
<td>( p = 0.208 )</td>
<td>( p = 0.265 )</td>
<td>( p = 0.449 )</td>
</tr>
<tr>
<td>Alcohol attitude post scores</td>
<td>-0.4455</td>
<td>0.0370</td>
<td>-0.5287*</td>
<td>-0.3827</td>
</tr>
<tr>
<td></td>
<td>( p = 0.073 )</td>
<td>( p = 0.455 )</td>
<td>( p = 0.039 )</td>
<td>( p = 0.110 )</td>
</tr>
</tbody>
</table>

*significant

revealed no significant differences between groups. A partial correlation controlling for initial differences between group scores on the knowledge pretest did not produce significant relationship between knowledge scores and the major dependent variables of SECs, peak BAC, or frequency of drinking as measured by daily report cards and alcohol-related incident reports. These results suggest that alcohol knowledge did not change in the desired direction and that this lack of change was unrelated with changes in drinking behavior. These results are also summarized in Table 4.

Attitudes Toward Alcohol

Attitudes toward alcohol usage were measured with the Drinking Attitude and Alcoholism Scale developed for native American populations. Specifically, the Abstinence/Permissiveness Subscale of the Drinking and
Alcoholism Attitude Scale was used (see Appendix C) pre- and posttests for all clients. An analysis of covariance using attitude pretest scores as the covariate revealed no significant differences between groups. A partial correlation controlling for initial differences between group scores on the attitude scale produced a significant correlation with peak BAC for the last month of the program, \( r = 0.52, p = .03 \). A negative but nonsignificant relationship was found between SECS for the last 3 weeks of the program and abstinent attitudes, \( r = -0.44, p = .07 \). Therefore, it seems that as alcohol attitudes become more abstinent oriented, alcohol consumption tends to decrease. These results are also summarized in Table 4.

**Improvement Ratings**

The individual improvement data are presented as the number of clients from Groups 1 and 2 who met their contracted weekly self-goals. These goals were either reduced drinking goals expressed in the three dependent measures of drinking or a nondrinking goal. These data are grouped by the frequency of clients whose contracts were successfully upheld and are presented in Table 5. These results indicate that

<table>
<thead>
<tr>
<th>Table 5</th>
<th>Summary of Client Contracts Met in Self-Control Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-25%</td>
</tr>
<tr>
<td>Frequency</td>
<td>3</td>
</tr>
<tr>
<td>Percent</td>
<td>17.6</td>
</tr>
<tr>
<td>Mean = 2.7</td>
<td>Median = 2.8</td>
</tr>
</tbody>
</table>
approximately 30% of the clients were able to meet the conditions of their self-control contract 75 to 100% of the time, while 60% of the clients were able to meet the conditions of their contracts more than 50% of the time. These results show that clients were able to meet the stipulations of their contracts. It is presumed that self-control was exhibited more often than not. For a program which had this as a prime goal, these results are encouraging.

Clients were also assigned to one of three BAC levels. The low BAC group consisted of those clients whose average BAC was 80 mg% or less, medium BAC clients ranged from 81 mg% to 150 mg%, and those in the high BAC category had 151 mg%. Table 6 summarizes the percentage of clients assigned to their respective categories for Groups 1, 2, and 3. These results indicate that Group 1 clients showed an increase in both the low and high drinking categories from the beginning of treatment to the final 4 weeks of treatment. Group 2's clients showed an increase in the percentage of clients in both the low and medium drinking categories by the final month of the program. Finally, Group 3 showed an increase in only the low category. Group 2's BAC results are encouraging in that

<table>
<thead>
<tr>
<th></th>
<th>Weeks 1-4</th>
<th></th>
<th>Weeks 11-14</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Group 1</td>
<td>66.6%</td>
<td>22.2%</td>
<td>11.1%</td>
<td>77.7%</td>
</tr>
<tr>
<td>Group 2</td>
<td>55.5%</td>
<td>11.1%</td>
<td>33.3%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Group 3</td>
<td>77.7%</td>
<td>22.2%</td>
<td>0.0%</td>
<td>85.7%</td>
</tr>
</tbody>
</table>
there was a shift in the percentage of clients in the medium and high BAC categories during the earlier phase of the program to the low and medium categories by the final months of treatment.

Collateral Behaviors

In addition to measuring the three parameters of clients' drinking, collateral behaviors were traced and measured. The following behaviors were selected as possibly being related to improvement in drinking behavior: (a) grade point average, (b) school merits, (c) school demerits, and (d) school truancy. Correlation between these collateral behaviors and the dependent variables are presented in Table 7. These correlations indicate that merits earned and demerits fined are strongly related to quantity of drinking and frequency of alcohol incident reports. They also indicate that school truancy is significantly related to frequency of client-reported drinking.

Table 7

Summary of Pearson Product Moment Correlations Between the Dependent Variables and Collateral Variables

<table>
<thead>
<tr>
<th></th>
<th>Dependent Variables</th>
<th>SECs by Cards</th>
<th>Frequency of Incident Reports</th>
<th>BAC for Month 3</th>
<th>Frequency by Cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>-.21</td>
<td>-.02</td>
<td>.04</td>
<td>-.09</td>
<td></td>
</tr>
<tr>
<td>Merits</td>
<td>.33</td>
<td>.28</td>
<td>.07</td>
<td>.11</td>
<td></td>
</tr>
<tr>
<td>Demerits</td>
<td>.64*</td>
<td>.39*</td>
<td>.10</td>
<td>.55*</td>
<td>p = .06</td>
</tr>
<tr>
<td></td>
<td>p = .006</td>
<td>p = .01</td>
<td>p = .01</td>
<td>p = .02</td>
<td></td>
</tr>
<tr>
<td>Truancy</td>
<td>.23</td>
<td>.23</td>
<td>.008</td>
<td>.31</td>
<td></td>
</tr>
</tbody>
</table>

*significant
Consumer Evaluation

A consumer evaluation form was administered to all clients as part of the overall program evaluation. The scores of this test indicate very good consumer satisfaction with the program. The overall score for all clients indicates a mean score of 5.76 out of a maximum mean score of 7.0 (see Table 8 and Appendix F). When asked if this program

Table 8*

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.6</td>
</tr>
<tr>
<td>2</td>
<td>5.5</td>
</tr>
<tr>
<td>3</td>
<td>6.12</td>
</tr>
<tr>
<td>4</td>
<td>4.76</td>
</tr>
<tr>
<td>5</td>
<td>5.87</td>
</tr>
</tbody>
</table>

Total = 5.77

*The actual questions for the consumer evaluation are available in Appendix F.

should be continued next year at Intermountain School, only one client said no. This is 96.6% in the affirmative. It appears from this as well as anecdotal reports from all staff members queried that the clients were quite satisfied.
The major dependent variables in this study were the parameters of drinking behavior; namely, frequency of drinking, peak blood alcohol concentration, and quantity of alcohol consumed. Specifically, this research attempted to assess the effects of a treatment package consisting of alcohol education and a peer-assisted self-control procedure on these three parameters. Further, the relationships between permissive versus abstinence attitudes toward alcohol, alcohol knowledge, and self-esteem and these three parameters of drinking were assessed. Lastly, collateral behaviors of the target behaviors were also investigated. They included truancy, grade point average, school demerits, and school merits.

**Drinking Behavior**

The parameters of drinking behavior were measured for all subjects. The three parameters were frequency of drinking incidents, quantity of alcohol consumed (SECs), and peak blood alcohol concentration (BAC). In order to parcel out treatment effects, three groups were used. Group 1 received the entire treatment package, Group 2 received just the peer-assisted self-control procedure, and Group 3 acted as a minimal treatment group by only self-monitoring their daily drinking behavior. These parameters will be discussed one at a time.

**Frequency of Drinking**

The overall frequency of drinking incidents as reported by the
Intermountain School Care Center for the month of November 15, 1979, to December 15, 1979, just prior to the start of the Christmas break indicates that the mean incidence rate for all subjects was .76 with a median of .71, a mode of 1.0, and a range of 0 to 3 incidents per week. This indicates that frequency of drinking for the average student in the study was not especially high. While most clients probably did drink more than indicated by the Care Center, frequency was not especially a problem as compared with the parameters of quantity consumed and the peak BAC. In addition, these data are not especially different from the national figures. The data for all 13,122 juniors and seniors polled by the Research Triangle Institute (1975) found that 55% of all adolescents drink at least once a month. In combining the scores for our clients who were reported by the Care Center to be infrequent drinkers, 86.7% had a combined weekly frequency of one drinking incident or none at all. This finding indicates that our clients were far from a group of regular daily drinkers. Further, since they were a group which did not drink frequently but which drank heavily when they did drink, a training program was utilized which seemed best suited to their needs. This was done because self-control training (i.e., Miller & Munoz, 1976) focuses primarily on techniques to reduce peak BAC levels. The results of the intervention for the variable of frequency are guardedly encouraging.

Statistical analyses of the parameter of frequency of drinking showed no significant difference between groups nor any within-group differences between pretesting and posttest scores. The data for weeks 3 to 6 compiled from the daily cards show mean frequencies to be Group 1 = .39, Group 2 = .93, and Group 3 = .19 (Figure 2). By the final 4 weeks
of the program, all groups had decreased their drinking as follows:
Group 1 = .28, Group 2 = .12, and Group 3 = .16. This is a modestly
favorable reduction given that high school is a time when many students
are drinking frequently. The results of the Care Center frequency data
are also guardedly encouraging. By the last week of the program, none
of our clients had been taken to the Care Center (Figure 5).

These data indicate that we were able to effect a small reduction
in the frequency of drinking incidents for many of the clients in all
groups, which is of clinical significance. The visual depiction of the
frequency of drinking incidents indicates that Group 2 showed the most
reduction in frequency of incidence by cards.

**Peak Blood Alcohol Concentration**

The traditional Indian drinking pattern is more often one of peri-
odic heavy drinking. It is in this state of deep inebriation that many
of the vehicle accidents and deaths from homicide and suicide occur
(Shore & Von Fumetti, 1972). That is why in this secondary prevention
(Caplan, 1964) program, most of the emphasis was placed on this drinking
parameter. The self-control of drinking pioneered by Lovibond and Caddy
(1970) seemed to be the best approach for this group because of its re-
liance on techniques for reduction of peak BAC. The data obtained are
modestly encouraging. There were no statistical differences found on
this parameter either. However, it is encouraging to be able to report
that our clients averaged a peak BAC of 82.9 mg% for all clients for
weeks 3 to 6 as obtained from the daily report cards. The range of the
three-group BAC means for weeks 3 to 6 was 3.14 mg% to 149.4 mg%.
Groups 1 and 3 were both under the state of Utah's legal limit of


intoxication—80 mg%. Only Group 2 averaged a BAC over 80 mg% for weeks 3 to 6 with a mean BAC of 149.4 mg%. The importance of these findings is that although treatment efforts do contaminate these data during weeks 3 to 6, they do indicate that these students are by and large not the "drunken Indians" so often popularized in the media. The visual depiction of the BAC data indicates that Group 2 had a downward trend in the weekly data shown in Figure 3. This indicates that Group 2 made the most clinically significant decreases. In addition, the individual BAC data depicted in Table 6 support this conclusion. By the final month of the program, Group 2 had 0% of its clients in the heavy drinking category—a decrease from the 33% seen in the first month of the program.

In sum, the program was moderately successful in reducing peak BACs for Groups 1 and 2 with Group 3 showing little change. Visual inspection of the data indicates that Group 2 did best across time in reducing their peak BAC. Group 1 appears to have made reductions during weeks 7 to 10 as compared to weeks 3 to 6. However, Figure 3 indicates that this gain was not held during the weeks of 11 to 14. Yet, even though the trend appears to be upward, the BAC level did not return to the level seen during weeks 3 to 6.

**Quantity of Consumption**

Quantity of alcohol consumed was measured in standard ethanol content units (SECs). This parameter is a crucial variable for a secondary prevention program because peak BAC is related to SECs. Also, alcohol toxicity is a direct function of the quantity of alcohol consumed.

The analysis of covariance revealed no significant differences between treatments. Visual depictions of the data for this parameter
indicate a decelerating trend for Group 2. Both Groups 1 and 3 show a decline through the middle of the program with both groups beginning to rise at the end, and both groups were actually above the level seen in the early part of the program (Figure 4).

The overall mean SEC for all clients during week 1 of treatment was 5.0 SECs. Since the clients mostly all drank once but rarely twice per weekend, this averages to approximately 5 SECs per client per occasion (standard deviation = 17.35 SECs and median = .25 SECs). The average had dropped to 1.7 per client per week over the last week of treatment (standard deviation = 3.9 SECs and median = .27 SECs).

Summary Analysis of Drinking Parameters

Since the differences between groups are not statistically significant and are based on visual inspection of the graphed data, only tentative, suggestive conclusions can be entertained.

The data provided by the client daily report cards provide essentially three major conclusions. First, it seems that an education and discussion class did not provide any major additional impact in terms of a reduction in the drinking behavior of Group 1. The only measure on which Group 1 did best was on frequency for the last 4 weeks as measured by staff incident reports. These data would imply that these clients cared enough about their public perception to avoid being caught drinking by the school staff. They may have become more surreptitious in their drinking. This is not entirely bad, since it may indicate a desire to avoid their peer counselor's negative reaction to a report of their drinking. The peer counselors' approval may have become progressively more important. Group 2 did well in terms of the frequency measure of drinking incidents. This group started higher on all
drinking parameters than the other two groups (Figures 2 through 4) and had a better outcome than Group 1 which had the more intensive intervention. These findings are supported by Miller's most recent research (1979). He compared three therapies, Behavioral Self-Control Training, Multimodal therapy where the clients chose three therapies from a "menu" of 10 therapies which were administered along with Behavioral Self-Control Training, and a bibliotherapy where the clients were given a copy of *How to Control Your Drinking* (Miller & Munoz, 1976). Miller found that the more minimal the treatment provided, the better the group performed in terms of reducing their alcohol consumption. However, Alden's (1978) research does not follow this trend. Comparing basic counselor-assisted Behavioral Self-Control Training with an enriched package which augmented the basic group's program with progressive relaxation and assertiveness training, she found the enriched group did better than the basic group on mean SECs and mean BAC. Finally, Vogler et al. (1975; 1977) found no differences between alcohol education and alternatives training, BAC discrimination training, and aversive conditioning for overconsumption with all groups showing pre- and postimprovements. This literature still has found no clear group differences from which to draw any firm conclusions except that being in some form of treatment appears to help clients reduce their drinking. This finding was not found in this research. That is, not all groups improved as a function of participating in the program. Visual inspection shows that Group 2 started off the program as the group of biggest drinkers, and they showed the most improvement. Further, they showed a consistent downward trend on all three parameters of drinking which never positively accelerated near the end of the program as did Groups 1 and 3 on
several of the drinking parameters. Also, this improvement in the drinking behavior of Group 2 was borne out by the analysis of the parameter of BAC seen in the percentage of clients found in the low (0 to 80 mg%), medium (81 to 150 mg%), and high (151+ mg%) as depicted in Table 6. Group 2 is seen to have shown the most impressive degree of shift in the percentage of clients in each category from the beginning to the end of treatment. Therefore, it is tentatively concluded that the components of a self-control package resulted in positive treatment effects seen primarily in Group 2 as well as Group 1. It also seems that the addition of an educational class to this package has a limited and transitory impact. Finally, the hypothesis that Group 2 did well, due to the nonspecific impact of their particular peer counselors, cannot be dismissed at this juncture.

Self-Esteem, Alcohol Knowledge, and Attitudes

There have been a great deal of teenage prevention efforts geared toward educating clients about the dangers of alcohol as well as efforts to change attitudes toward abstinence (see Review of Literature). Knowledge scores had the least degree of relationship with the four outcome measures. These data, in conjunction with the group outcome comparisons, suggest that knowledge and classes designed to improve such knowledge still require more research to determine their value in a secondary prevention program for adolescents. The self-esteem scores did show significant differences between groups as demonstrated by the ANCOVA results. The Newman-Keuls multiple comparisons test indicated that Group 2 had the greatest degree of self-esteem improvement. This is also the group which showed the greatest decrease in reduction of
frequency, peak BAC, and quantity consumed. The correlations between the dependent variables of drinking and self-esteem indicate that students who improve on reducing the parameter of alcohol drinking feel better about themselves as measured by the Coopersmith Self-Esteem Inventory (Table 4). This does not indicate, however, that these are causally related but rather that they are correlated. Empirical research is needed to see if these changes in self-esteem are indeed caused by the reduced drinking.

The correlations between abstinent attitudes are rather strongly correlated with the three parameters of drinking as measured by daily report cards (Table 4). This relationship is also not causal, but this degree of relationship indicates that efforts at changing attitudes are not totally worthless. It seems that these abstinence attitude changes are a function of reduced drinking behavior, but empirical research will be needed to test this hypothesis to determine if there is indeed a causal relationship.

Collateral Behaviors

The collateral behaviors of drinking behavior measured were grade point average (GPA), school merits and demerits, and frequency of truancy. The results of the Pearson Product-Moment Correlation indicate some weak degree of relationship between merits and demerits, and truancy but not GPA. This result indicates that a student's GPA and, by inference, his or her school work efforts do not covary in any meaningful way with drinking behavior. It is arguable then that a student can drink once a weekend even to intoxication and not have it affect his/her school work. Further, any improvement in school work may not begin to
show any reductions in that student's drinking. It may be possible that an isolated student may drink because he or she is failing in school, but these correlations do not argue for anticipating that reduced drinking will impact on school work or conversely that improvement in school performance will impact on drinking rates. It should be noted that the direction of relation is at least in the right direction, albeit a weak relationship (Table 7).

The merits earned decreased as drinking scores decreased. It may be that the student had found a competing source of reinforcement from the program. Whereas in the past, these students may have worked to earn merits, they now found a new source of reinforcement both monetary and social. The degree of relationship found is not particularly strong, however, and only small changes in merits earned can reasonably be expected. Demerits decreased along with these students' decrease in drinking. Indeed, these results indicate a significant relationship between decreased demerits and decreases in SECs, frequency of incident reports, and frequency by cards (Table 7). This result argues for the student getting less demerits as being both a direct result of decreased drinking as well as the "spin-off" effect of not getting rowdily drunk and getting a large number of demerits due to drunken behavior. This finding indicates that there is a real advantage to a student who decreases his/her drinking.

Truancy was found to be positively related to only frequency of drinking by cards. As is the case with GPA, it is a weak collateral and does not seem to be a behavior which one would expect to covary very strongly with reduced drinking. In a few isolated cases, one may see
the occasional isolated student who skips school to drink reduce his/her truancy as he/she reduces his/her drinking, but as a rule this shouldn't be expected of all students.

Contracts

The percentage of students in Groups 1 and 2 who met their contracts is presented in Table 5. It appears that a majority of students met the conditions of their self-contracts (Appendix E). While it is true that the intent of the program was to reduce drinking parameters, self-contracture was also a central feature. These data indicate that the students learned the skills needed to meet their goals, and if at some future time they were to become involved with alcohol, they have demonstrated an ability to set goals and meet them.

Conclusions

Overall, the program was able to work with a difficult group in an effort that was designed to try to teach native American high school students to not abuse alcoholic beverages. While none of the statistical analyses reached significance, it appears from visual inspection of Figures 2 through 4 and Table 6 that Group 2 did best on all measures in terms of reduced drinking for all parameters. This trend held true across all phases of the program. It can be concluded that they did the best in terms of program gains as well as increases in knowledge, attitude, and self-esteem scores. The relationship between alcohol knowledge and outcome appears to be weak at best, while attitudes and self-esteem seem to be related to changes in outcome measures. These data are not causal but rather relational and therefore only suggestive at this point. In terms of collateral behaviors, only merits and
Demerits were strongly related to reductions in the drinking parameters targeted. GPA and truancy were moderately related to one or two parameters, but they were not strong enough to make any strong inferences. Last, the self-contracts were often met by the majority of students in Groups 1 and 2. This indicates a good degree of self-control as measured by setting and meeting one's goals.

Future Research

Perhaps the most pressing research needed in the future would be to do systematic replication with a larger sample. The difficulty of making direct statements from these data is a function of the reduced power of the statistics used. The missing data for some clients reduced the N to a low point which made statistical significance elusive.

In terms of replication, the suggested N should be increased to 30 per group. A larger grant would be needed to run such a program. In order to increase the N which could be used for the statistics, missing cases need to be reduced. This can be accomplished by increasing the percent of cards turned in. We used a token system successfully in terms of overall student compliance. The mean number of tokens earned was 565.13. At $.04 per token, this amounts to $22.60 per student. In this study, five points per daily report card were paid, which in the future should be increased to at least 10. At the same time, a few points could be shaved off other less troublesome categories such as student/counselor meetings. The intent would be to increase the number of complete data files on each client thus keeping the N high and improving the power of the statistics.
Should solid results be obtained in the replication effort, then research into the necessary and sufficient components would be in order. Questions which need to be addressed are:

1. Does self-monitoring alone work or does this need to be peer assisted?
2. What is the relative efficacy of contracts?
3. Is feedback needed, and if so, how often is it needed?
4. What exactly is the causal relationship between abstinent attitudes and reduced drinking?
5. What is the relationship between self-esteem and reduced drinking?
6. Are there other covariates or collateral behaviors which covary more robustly with the target behaviors? That is, what is the program's "spin-off"?
CHAPTER VII

RESEARCH LIMITATIONS

In this research, there were unforeseen situations which circumscribed both the internal and external validity of the study. What follows is a description of those problem areas which are limitations of this research study.

Number of Subjects

The total number of subjects used in the original assignment to groups was 30: 10 in each of the three experimental groups. The attrition was very low. In fact, we were able to replace any of the clients who left the program. There were only three clients or subjects who left and needed to be replaced. The overall percentage of daily cards turned in was 77%. However, due to the fact that some of the clients had incomplete daily card data, they were not figured into the analyses of the daily card data. Specifically, these data were: frequency of drinking incidents by cards, peak BAC by cards, and quantity (SEC) of alcohol consumed as measured by the cards. The N for each group on these measures was: Group 1, N = 6; Group 2, N = 4; and Group 3, N = 6. On the frequency by the Care Center reports, client self-esteem, alcohol knowledge, alcohol attitudes, and the collateral behaviors, the N was: Group 1, N = 11; Group 2, N = 8; and Group 3, N = 10. The N of 11 in Group 1 was due to an additional client who volunteered during Week 2 of the program. The N, therefore, for the crucial drinking parameters was reduced, and we were unable to show group differences of statistical significance on these measures.
The educational component was designed to teach the subjects the important facts about alcohol, its use and abuse, and alcohol's effects on human behavior and physiology. The class was limited in its effectiveness in two dimensions. The first was the problem of classroom management. The students were occasionally disruptive, and it became difficult at times to teach the curriculum. While there were never any serious problems with the students, valuable time was wasted getting control of the occasionally disruptive student. This decreased the amount of learning that took place. The second shortcoming of the educational component was the fact that the standarized curriculum used was not native American specific. The course content could have been more directly relevant to native Americans. However, it should be pointed out that the classroom instructor for the educational class was a Navajo special educator who used a great deal of native American information in her presentations. She also elicited discussions about factual materials she presented in terms of life on the various reservations to which the students were affiliated. These strategies helped, but it must be said that a native American specific curriculum would have helped increase the knowledge gained by the students, thereby allowing better conclusions about the value of the educational component in the overall treatment package.

Initial Group Differences

The students used in the study were referred clients who were then randomly assigned to the three experimental groups. Therefore, equalization of individual differences was assumed to have been performed by
the random assignment procedure. Despite this procedure, the three experimental groups were not initially equal on the dependent variables. This was adjusted for statistically by the use of the analysis of covariance statistic. The lack of group equivalence did cause a problem in the visual interpretation of the data. The data would have been more readily interpreted for group differences had there not been these initial differences.

**Alco-Sensor**

The Alco-Sensor was not utilized to its fullest potential because of the reluctance on the part of the peer counselors to do the breath tests at peak drinking times such as the weekend. The counselors confined their checks to the weekday afternoon and evenings, and consequently the Alco-Sensors rarely had any readings of blood alcohol. This limited the use of the Alco-Sensor's data as reliability but not as a dependent measure.
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## Appendix A

**Blood Alcohol Concentration as a Function of Drinks Consumed and Time Taken to Consume**

**Female: 146 lbs.**

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Appendix B

Understanding Alcoholism and Problem Drinking

Alcohol Information Test

Name __________________________ Date __________________________

True or False

___ 1. A shot (1 ounce) of 86 proof liquor contains more alcohol than a 12-ounce bottle of beer.

___ 2. If you drink regularly, your liver begins to process alcohol much more rapidly so that you are better able to "hold your liquor."

___ 3. The kind of alcohol contained in beer is less dangerous than the kind of alcohol found in whiskey and wine.

___ 4. Body size has little or nothing to do with how much liquor you can hold.

___ 5. A little less than 3% of all adult Americans are problem drinkers.

___ 6. Alcohol cannot produce a true physiological addiction in the same sense that narcotics and barbiturates can.

___ 7. In order to reach the legal limit for drunk driving (blood alcohol of 100 mg%), the average man (weighing 160 pounds) would have to drink nine or 10 beers within 2 hours.

___ 8. Having food in the stomach prevents some alcohol from being absorbed into the bloodstream.

___ 9. If the average drinker consumes a six-pack of beer in 1 hour, it takes about 2 more hours for his or her body to completely metabolize (get rid of) the alcohol.

___10. The average life span of an alcoholic is about 5 years shorter than the life span of a moderate drinker.

___11. A person who is just over the legal limit for drunk driving (100 mg%) is about twice as likely to be responsible for a fatal automobile accident as a sober driver would be.

___12. Alcohol can help you to sleep more soundly.
13. There are a few things that a person can do to help speed up the metabolism of alcohol (help get it out of the system). These include drinking coffee, exercising, and taking a cold shower.

14. The physiological withdrawal reaction ("cold turkey") from heroin is more dangerous than is the withdrawal from alcohol.

15. In a heavy drinker, damage to the liver shows up long before brain damage appears.

Multiple Choice

For each of the items below, select the one best answer and mark your choice on the answer sheet.

1. How many adults in the United States drink alcoholic beverages?
   a. one-half
   b. one-third
   c. two-thirds
   d. three-fourths

2. The average age at which a person takes his/her first drink is:
   a. 13-14 years.
   b. 15-17 years.
   c. 18-19 years.
   d. 20-21 years.

3. In the United States, alcohol consumption is:
   a. generally unacceptable.
   b. acceptable on religious, ceremonial, and dining occasions.
   c. acceptable only for minorities and the poor.
   d. unacceptable by the youth culture.

4. Of all persons who drink, what percentage become alcoholics or problem drinkers?
   a. 1%
   b. 5%
   c. 10%
   d. 20%
5. About how many people experience alcohol before high school graduation?
   a. very few  
   b. about one-third  
   c. about one-half  
   d. nearly all  

6. Of all highway fatalities, what percentage involve alcohol?
   a. 25%  
   b. 50%  
   c. 75%  
   d. 90%  

7. The problem drinker does extensive damage to:
   a. himself/herself.  
   b. family and others.  
   c. society in general.  
   d. all of the above.  

8. The percentage of alcohol in distilled liquor is calculated by:
   a. multiplying the "proof" printed on the label by two.  
   b. Dividing the "proof" printed on the label by two.  
   c. Dividing the "proof" printed on the label by the number of ounces.  
   d. Dividing the "proof" printed on the label by three.  

9. Which of the following beverages contains the highest percentage of alcohol per ounce?
   a. wine  
   b. beer  
   c. 86 proof whiskey  
   d. 92 proof whiskey  

10. Which of the following types of alcohol is found in alcoholic beverages and liquors?
    a. ethanol  
    b. methanol  
    c. isopropyl  
    d. all of the above  

11. Poisonous types of alcohol can be purified by:
    a. boiling.  
    b. mixing with nonpoisonous alcohol.
c. straining through bread.
   d. none of the above.

12. Which of the following contain extremely dangerous forms of alcohol?
   a. wood alcohol
   b. antifreeze
   c. rubbing alcohol
   d. all of the above

13. Which of the following contain ethanol alcohol?
   a. beer
   b. wood alcohol
   c. antifreeze
   d. none of the above

14. The rate of absorption of alcohol (time it takes to get drunk) is affected by:
   a. body weight
   b. drinking speed
   c. food in the stomach
   d. all of the above

15. What is the food value of pure alcohol?
   a. about equal to one milkshake or one egg
   b. no value except 200 calories per ounce
   c. high in vitamin A and protein
   d. none of the above

16. A 12-ounce bottle of beer is about equal in alcohol content to:
   a. 4-ounce glass of wine.
   b. 1-ounce glass of distilled liquor.
   c. both of the above.
   d. All contain different kinds of alcohol and cannot be compared.

17. Which of the following processes to produce alcohol results in the highest alcohol content?
   a. distillation
   b. fermentation
   c. brewing
   d. solarization
18. One may get the same effect as alcohol by:
   a. adding aspirin to coke.
   b. using after-shave and mixer.
   c. mixing No-Doz and 7-up.
   d. none of the above.

19. The body's natural way to filter out 90% of the alcohol you drink from your bloodstream is through the:
   a. lungs.
   b. liver.
   c. brain and nervous system.
   d. stomach and small intestine.

20. Alcohol is directly absorbed into the bloodstream through the:
   a. lungs.
   b. liver.
   c. brain and nervous system.
   d. stomach and small intestine.

21. Which of the following methods will reduce the intoxicating effects of alcohol?
   a. strong coffee
   b. time
   c. exercise
   d. all of the above

22. As alcohol level in the blood increases, the feeling of drunkenness is a result of the alcohol's action on the:
   a. lungs.
   b. liver.
   c. brain and nervous system.
   d. stomach and small intestine.

23. Alcohol is classified as a:
   a. stimulant.
   b. depressant.
   c. inducer.
   d. hallucinogen.

24. Alcohol acts on the body as a:
   a. stimulant.
   b. depressant.
Understanding Alcoholism
Page 6

c. inducer.
d. hallucinogen.

25. It is possible to estimate the amount of alcohol in a person’s blood by considering:
   a. body weight.
   b. alcohol content of drinks.
   c. time between drinks.
   d. all of the above.

26. The effect of taking barbiturates or “downers” with alcohol is:
   a. increasing the effects of alcohol slightly.
   b. decreasing the effects of alcohol slightly.
   c. increasing the effects of alcohol unpredictably.
   d. decreasing the effects of alcohol unpredictably.

27. What is the percentage of alcohol (hundredths of 1%) in the blood that is considered legally drunk in the state of ________?
   a. .01
   b. .08
   c. .10
   d. .15

28. Which of the following will slow down the absorption of alcohol into the bloodstream?
   a. strong coffee
   b. food in the stomach
   c. both of the above
   d. neither of the above

29. If a person has a blood alcohol level of approximately .15 (of 1%), which of the following effects is most likely to occur?
   a. Relaxation, slight or unnoticeable impairment of movement and vision.
   b. Movement and vision seriously impaired.
   c. Unconsciousness; breathing may stop.
   d. Body temperature drops.

30. If a person has a blood alcohol level of approximately .45 (of 1%), which of the following effects is most likely to occur?
   a. Relaxation; slight or unnoticeable impairment of movement and vision.
   b. Movement and vision seriously impaired.
c. Unconsciousness; breathing may stop.
d. Body temperature drops.

31. A value judgment enables a person to choose between:
   a. several possible beliefs.
   b. several possible courses of action.
   c. desirable and undesirable consequences.
   d. all of the above.

32. One young person places great importance on getting high with alcohol in spite of a possible hangover, parental disapproval, and the law. Another young person rarely uses alcohol to get high in spite of pressure from friends to drink and easy access to alcohol. What is the most likely explanation for their different behaviors?
   a. They go to different schools.
   b. They have different friends.
   c. They have different values about alcohol.
   d. They have different levels of intelligence.

33. Why is alcohol used in some food recipes?
   a. It produces a stimulating effect.
   b. It adds flavor.
   c. It kills bacteria.
   d. All of the above.

34. Why are alcoholic beverages served at many social gatherings?
   a. It is a tradition.
   b. It is a way of offering and accepting friendship.
   c. It helps people "loosen up."
   d. All of the above.

35. If a person is anxious, depressed, or feeling bad, alcohol will probably:
   a. give temporary relief.
   b. get rid of the bad feelings.
   c. give the person a more accurate view of the problem.
   d. cause a "nervous breakdown."

36. How is the life span of alcoholics affected by excessive drinking?
   a. It is lengthened slightly.
   b. It is shortened slightly.
   c. It is shortened considerably.
   d. It is not affected.
37. In what way does alcohol affect the liver?
   a. It causes fatty deposits and scar tissue in the liver.
   b. It causes elongation of the liver.
   c. It helps flush the liver of impurities.
   d. All of the above.

38. With increasing amounts of regular alcohol consumption over a period of time, a person's tolerance to alcohol:
   a. remains the same.
   b. increases.
   c. decreases.
   d. none of the above.

39. What is the effect of alcohol on sexual behavior?
   a. It increases desire and helps performance.
   b. It increases desire and decreases performance.
   c. It decreases desire and helps performance.
   d. It has no effect.

40. The probability that a heavy drinker will die of cancer, cirrhosis of the liver, heart attack, automobile accidents, and suicide is:
   a. slightly higher than for light drinkers.
   b. much higher than for light drinkers.
   c. about the same as for light drinkers.
   d. slightly lower than for light drinkers.

41. A higher tolerance to alcohol (or other drugs) means:
   a. it takes more alcohol to get high.
   b. it takes more alcohol to kill.
   c. it takes less alcohol to get high.
   d. you don't mind if your friends drink.

42. A person can control his/her drinking by:
   a. slowing down the number of drinks.
   b. alternating alcoholic and nonalcoholic drinks.
   c. refusing drinks.
   d. all of the above.

43. A person's drinking rate is very likely influenced by:
   a. places where one drinks.
   b. people with whom one drinks.
   c. certain situations when one drinks.
   d. all of the above.
44. How can a person's dependence on alcohol be effectively decreased?
   a. Try to ignore the problem.
   b. Try to find alternatives to achieve the same purpose.
   c. Try to hide drinking from other people.
   d. All of the above.

45. What is the main difference between a problem drinker and an alcoholic?
   a. Loss of control over drinking.
   b. Age.
   c. Beer and wine versus hard liquor.
   d. Middle class versus skid row bum.

46. Alcohol abuse is more common in certain:
   a. cultures.
   b. age categories.
   c. income levels.
   d. occupations.

47. What is the safest way to judge your driving ability after you have been drinking?
   a. Take a "walk the line" test.
   b. Take a test run a short distance in the car.
   c. Calculate your blood alcohol level.
   d. See if you can read a book held 3 feet away.

48. You are at a party, and a drinker is getting ready to drive home. What should you do?
   a. Ask him/her to call you when he/she reaches home safely.
   b. Persuade her/him not to drive.
   c. Caution her/him to drive safely.
   d. Ask her/him to have a cup of coffee before leaving.

49. You notice one of your friends has been missing school a lot, has been drinking for several days, and forgets things that happened while drinking. How would you size up the situation?
   a. He/she is on a binge.
   b. He/she hasn't learned yet how to hold his/her liquor.
   c. He/she shows the early signs of problem drinking.
   d. He/she is an alcoholic.
Drinking and Alcoholism Attitude Scale

What follows are 40 statements about how people feel toward drinking and alcoholism. Please read each statement carefully, and then place a check mark \( \checkmark \) or an \( \times \) under the heading which best describes how you feel about the statement. For example, if you strongly agree with the statement, then check the first column under the heading, "Strongly agree."

This is not a test. There are no right or wrong answers, so just answer what you honestly feel.

Remember, please be sure to check the appropriate column, because it is sometimes easy to forget which column is the one you mean.

CHECK ONE ANSWER ONLY.

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<td>4. In most cases, once a person starts drinking, he/she will continue until it becomes a problem.</td>
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<td>5. Parents should teach teenagers that they shouldn't drink.</td>
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<td>6. Once a friend or relative of mine starts drinking too much, there's not much I can do about it.</td>
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<td>8. If a person drinks, it's okay as long as he/she does it in a responsible manner.</td>
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<td>9. People who drink to excess are not the guilty ones—it is the people who make and sell liquor who are at fault.</td>
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<tr>
<td>10. If parents drink, they should never drink in front of their children.</td>
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<tr>
<td>11. It may be wrong of me, but in all honesty, I feel more annoyed or upset by an alcoholic than I feel sympathetic.</td>
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<tr>
<td>12. Grade schools should include alcohol education.</td>
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<tr>
<td>13. Most alcoholism counselors in Indian alcoholism programs are doing a good job.</td>
<td></td>
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</tr>
</tbody>
</table>
CHECK ONE ANSWER ONLY

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. There would be less drinking among the Indian people if more jobs were available to them.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15. Schools should emphasize that people shouldn't drink at all.</td>
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<tr>
<td>16. Most alcoholics do not actually need treatment because they can sober up by themselves if they want to.</td>
<td></td>
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<tr>
<td>17. More money should be spent in educating people about alcoholism.</td>
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<tr>
<td>18. The alcoholic has only himself/herself to blame for becoming an alcoholic.</td>
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<tr>
<td>19. If an Indian is an alcoholic, it doesn't help if he/she talks to counselors.</td>
<td></td>
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</tr>
<tr>
<td>20. Teenagers should be allowed to have a drink in the home occasionally.</td>
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<tr>
<td>21. Public education concerning alcoholism is probably not worth the effort it requires.</td>
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</tr>
</tbody>
</table>
ATTITUDE SCALE

Page 4

CHECK ONE ANSWER ONLY.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. If people must drink, I feel they could be taught to drink responsibly instead of drinking too much.</td>
<td></td>
<td></td>
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<tr>
<td>23. Alcoholics should be persuaded to apply for treatment.</td>
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<tr>
<td>24. White people discriminate against hiring Indian people for work because they say Indian people drink too much.</td>
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<tr>
<td>25. It's all right if people drink whenever they want to.</td>
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<tr>
<td>26. Much success has been made in the treatment or helping of alcoholics.</td>
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<tr>
<td>27. The &quot;drunken Indian&quot; image is completely the white man's fault.</td>
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<tr>
<td>28. Alcohol beverages should not be sold on Indian reservations or in Indian communities.</td>
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<tr>
<td>29. No one has the right to tell another how he/she should drink.</td>
<td></td>
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</tr>
</tbody>
</table>
Attitude Scale
Page 5

CHECK ONE ANSWER ONLY.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

30. Excessive drinking and alcoholism are not really my responsibility. They should be handled by those who are trained to deal with them.

PLEASE CHECK WHETHER YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS.

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Don't Know</th>
</tr>
</thead>
</table>

31. There is a difference between alcohol abusers and alcoholics.

32. With treatment, most alcoholics can learn to drink sensibly and socially again.

33. An alcoholic is a person who cannot leave alcohol alone, even for a day.

34. Even after years of heavy drinking, alcohol does very little damage, if any, to the brain.

35. Alcohol is a stimulant which "livens you up."

36. Alcoholism is a sickness or a disease from which recovery is possible.

37. If a person has two or three drinks, it relaxes him/her and he/she can handle things better.

38. If a bottle of liquor is 100 proof, it means it contains 25% alcohol.

39. Methyl alcohol is the kind of alcohol which is used in liquor.
40. It is only a matter of time before social drinkers will become addicted to alcohol.

Agree  Disagree  Don't Know

41. How interested are you in the subjects of problem drinking and alcoholism?

   a. very disinterested
   b. somewhat disinterested
   c. don't care one way or another
   d. somewhat interested
   e. very interested
Appendix D

Coopersmith Self-Esteem Inventory

Please mark each statement in the following way:

If the statement describes how you usually feel, put a check (✓) in the column, "Like Me."

If the statement does not describe how you usually feel, put a check (✗) in the column, "Unlike Me."

There are no right or wrong answers.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Like Me</th>
<th>Unlike Me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I spend a lot of time daydreaming.</td>
<td></td>
<td></td>
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<tr>
<td>2. I'm pretty sure of myself.</td>
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<tr>
<td>3. I often wish I were someone else.</td>
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<tr>
<td>4. I'm easy to like.</td>
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<tr>
<td>5. My parents and I have a lot of fun together.</td>
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<tr>
<td>6. I never worry about anything.</td>
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<tr>
<td>7. I find it very hard to talk in front of the class.</td>
<td></td>
<td></td>
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<tr>
<td>8. I wish I were younger.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. There are lots of things about myself I'd change if I could.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I can make up my mind without too much trouble.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I'm a lot of fun to be with.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I get upset easily at home.</td>
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<td></td>
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<tr>
<td>13. I always do the right thing.</td>
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<tr>
<td>14. I'm proud of my school work.</td>
<td></td>
<td></td>
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<tr>
<td>15. Someone always has to tell me what to do.</td>
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<tr>
<td>16. It takes me a long time to get used to anything new.</td>
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<tr>
<td>17. I'm often sorry for the things I do.</td>
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<tr>
<td></td>
<td>Like Me</td>
<td>Unlike Me</td>
</tr>
<tr>
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<tr>
<td>18.</td>
<td>I'm popular with kids my own age.</td>
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<tr>
<td>19.</td>
<td>My parents usually consider my feelings.</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>I'm never unhappy.</td>
<td></td>
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<tr>
<td>21.</td>
<td>I'm doing the best work that I can.</td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>I give in very easily.</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>I can usually take care of myself.</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>I'm pretty happy.</td>
<td></td>
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<tr>
<td>25.</td>
<td>I would rather play with children younger than I am.</td>
<td></td>
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<tr>
<td>26.</td>
<td>My parents expect too much of me.</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>I like everyone I know.</td>
<td></td>
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<tr>
<td>28.</td>
<td>I like to be called on in class.</td>
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</tr>
<tr>
<td>29.</td>
<td>I understand myself.</td>
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<tr>
<td>30.</td>
<td>It's pretty tough to be me.</td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>Things are all mixed up in my life.</td>
<td></td>
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<tr>
<td>32.</td>
<td>Kids usually follow my ideas.</td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>No one pays much attention to me at home.</td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>I never get scolded.</td>
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<tr>
<td>35.</td>
<td>I'm not doing as well in school as I'd like to.</td>
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<tr>
<td>36.</td>
<td>I can make up my mind and stick to it.</td>
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</tr>
<tr>
<td>37.</td>
<td>I really don't like being a boy--girl.</td>
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<tr>
<td>38.</td>
<td>I have a low opinion of myself.</td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>I don't like to be with other people.</td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>There are many times when I'd like to leave home.</td>
<td></td>
</tr>
</tbody>
</table>
41. I'm never shy.  
42. I often feel upset in school.  
43. I often feel ashamed of myself.  
44. I'm not as nice looking as most people.  
45. If I have something to say, I usually say it.  
46. Kids pick on me very often.  
47. My parents understand me.  
48. I always tell the truth.  
49. My teacher makes me feel I'm not good enough.  
50. I don't care what happens to me.  
51. I'm a failure.  
52. I get upset easily when I'm scolded.  
53. Most people are better liked than I am.  
54. I usually feel as if my parents are pushing me.  
55. I always know what to say to people.  
56. I often get discouraged in school.  
57. Things usually don't bother me.  
58. I can't be depended on.
Appendix E

Subject Self-Contract

Self-Contract for the Week of ____________

Last week, I drank ___________________________(amount). I drank _______ times, and my peak BAC was __________________ (from my personal chart). My goal for this week is to drink/not drink (circle one). If I drink, I will drink _______ times and will not drink more than _____________(amount), and my peak BAC will no go over ______%.

Signed __________________________

Witness __________________________

Date __________________________
Appendix F

Peer Counseling Program Consumer Evaluation Form

Please use the following scale to express your feelings about the peer counseling program you have been participating in:

1. Completely dissatisfied
2. Dissatisfied
3. Somewhat dissatisfied
4. Neither satisfied nor dissatisfied
5. Somewhat satisfied
6. Satisfied
7. Completely satisfied
8. NA (not applicable) (don't know)

1. How would you rate the quality of the educational component? __ __
2. How would you rate the quality of the peer counseling component (your peer counselor's ability)? __ __
3. How satisfied are you with the point system used in the Peer Counseling Program? __ __
4. How satisfied are you that the Peer Counseling Program helped you learn to control your drinking? __ __
5. How would you rate the overall program? __ __
6. How does this program compare with other counseling programs on campus?

7. Would you like to see this program continued next year?

8. What did you like best about the program?

9. What did you like least about the program?

10. How would you like to see this program changed if it continued next year?
February 19, 1980

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Mr. John Smith
5555 Main Street
New York, NY 10016

Dear Mr. Smith:

During the remainder of this school year, we will be conducting an Alcohol Abuse Prevention Program. We hope to be able to teach a group of students about the problems involving the abuse of alcohol. It is our hope that this will help the students to be able to make responsible decisions regarding alcohol use.

Your child, James, has been selected to participate in this Program. There will be no risks to the children, and you may withdraw James from the Program at any time. You are free to consult with me about the project and to obtain results as they are available. Please sign this letter in the area below if you consent to your child's participation, and return this letter as soon as possible in the enclosed envelope. In order not to seriously delay the implementation of the Program for your child, we will initiate James' program after 14 days of mailing this form to you if this form is not signed and returned to our office at that time.

Please feel free to contact me if you have any questions at (801) 723-7702.

Sincerely yours,

Richard Carpenter, M.S.
Project Director

Date: ______________________

Student's Name: James Smith

Parent's Signature of Consent: ______________________

Student's Signature of Consent: ______________________
Appendix H

Flow Chart--Personnel

INTERMOUNTAIN
SCHOOL BOARD

PROGRAM DIRECTOR

BEHAVIORAL
COMPONENT

PEER COUNSELOR
SUPERVISORS

PEER COUNSELORS

STUDENTS

EXECUTIVE DIRECTOR

EDUCATIONAL
COMPONENT

EDUCATION
SUPERVISOR

ALCOHOL EDUCATOR
VITA

Name: Richard A. Carpenter
Address: 50 East 300 South
          Providence, UT 84332
Telephone: (801) 752-8344

PERSONAL INFORMATION

Marital Status: Married
Birthdate: October 25, 1946
Height: 6'2"
Weight: 180 pounds
Children: 1

EDUCATION

Utah State University, Logan, Utah

Ph.D. Analysis of Behavior. Projected date of completing degree require-
ments: August, 1980. Program is a research/applied program in
the analysis of behavior which covers the entire spectrum of
learning theory.

18 credit hours of supervised counseling experience in many dif-
ferent settings. 12 credit hours of individual diagnostic test-
ing and personality assessment. Certifiable as school
psychologist. Ran parent effectiveness guidance groups at Head
Start program, Millville, Utah.

Discovery: The Gestalt and Humanistic Institute of Tampa Bay

Completed the 2-year Advanced Therapy Training for Professionals program.
Certificate of completion awarded June, 1977. Supervised instruction and
practicum primarily focused on Gestalt techniques and related principles.

University of South Florida, Tampa, Florida

M.A. 37 graduate hours in Speech Pathology as well as 110 ASHA-
supervised clinical practicum hours. Not completed.


PUBLICATIONS

Self-administered desensitization in a psychiatric hospital: A metho-
dology and some problems. Paper presented at a meeting of the
An assessment procedure for predicting the effectiveness of time out for self-stimulatory behavior. Paper presented at a meeting of the Association for Behavior Analysis, June 19, 1979, and at a meeting of the Association for Advancement of Behavior Therapy, December 14, 1979.

WORK EXPERIENCE

September, 1977, to present
Currenty employed as a graduate research assistant with Dr. Glendon Casto, Exceptional Child Center, Utah State University. Concurrently, I am a Ph.D. candidate in Psychology at Utah State University.

November, 1974, to August, 1977
Treatment Counselor II (appointment: Acting Staff Psychologist), Children's Services Center, Tampa, Florida. Responsibilities were as follows:

1. Therapy--individual, family, and group therapy. Also, I ran individual behavior modification programs.

2. Token economy--codesigner of original token economy.

3. Treatment Team Leader--I had a 19-student case-load and was responsible for ongoing assessment and formulation of treatment plan for each student. The treatment team was composed of two teachers and two child care workers.

4. Member of Diagnostic Team--I performed intake interviews with family, child, and referral agent. Also, I did psychological testing on the child (WISC, WRAT, DAP, Bender-Gestalt) and made referral for LD workup if necessary. I then presented case to our admissions committee.

5. Teacher Consultant--We had a 13-member teaching staff (emotionally disturbed certified), and I was a consultant for teachers on behavioral intervention plans and procedures.

6. Appointed Acting Staff Psychologist--March, 1977, to July, 1977. Supervision of nine-member counseling staff. This was done concurrently with performance of other duties as Counselor II.

1973 to 1974
Full year as research assistant under Dr. Richard Powers, Utah State University.

January, 1973, to May, 1973
Occupational Guidance Counselor for Logan City Schools in pilot project for Occupational Guidance Director, Dr. Peterson, Logan, Utah.
Psychiatric Aide, Massachusetts Mental Health Center, Boston, Massachusetts. Job responsibilities were varied including therapy (one-to-one), custodial, occupational, and recreational. An inservice training program was an integral part of my job.

Milieu worker, Memorial Hospital, Tampa, Florida. Head milieu worker with co-hiring responsibilities as well as contributory responsibilities in family, Gestalt, and group therapies.

TEACHING EXPERIENCE

1974, two quarters
Teaching Assistant, Educational Psychology, Utah State University.

Winter, 1979
Teaching Assistant, History and Systems, Psychology 704, Utah State University.

Winter and Summer, 1978 to 1979
Teaching Assistant, Individual Intelligence Testing, Psychology 631, Utah State University.

SPEECHES

Invited panel member, graduate school for prospective students: A how-to discussion. Utah State University, November, 1978.


RESEARCH AND TRAINING GRANTS

<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
<th>Amount</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>Principal Investigator--Native American Peer Alcohol Abuse Prevention Program</td>
<td>$59,608</td>
<td>Approved</td>
</tr>
<tr>
<td>1978</td>
<td>Coprincipal Investigator--Program of Research and Development in Affective Development</td>
<td>$105,135</td>
<td>Approved</td>
</tr>
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</table>

AWARDS

Internship at Children's Unit, Florida Mental Health Institute, Tampa, Florida. Autistic population. June to July, 1976.