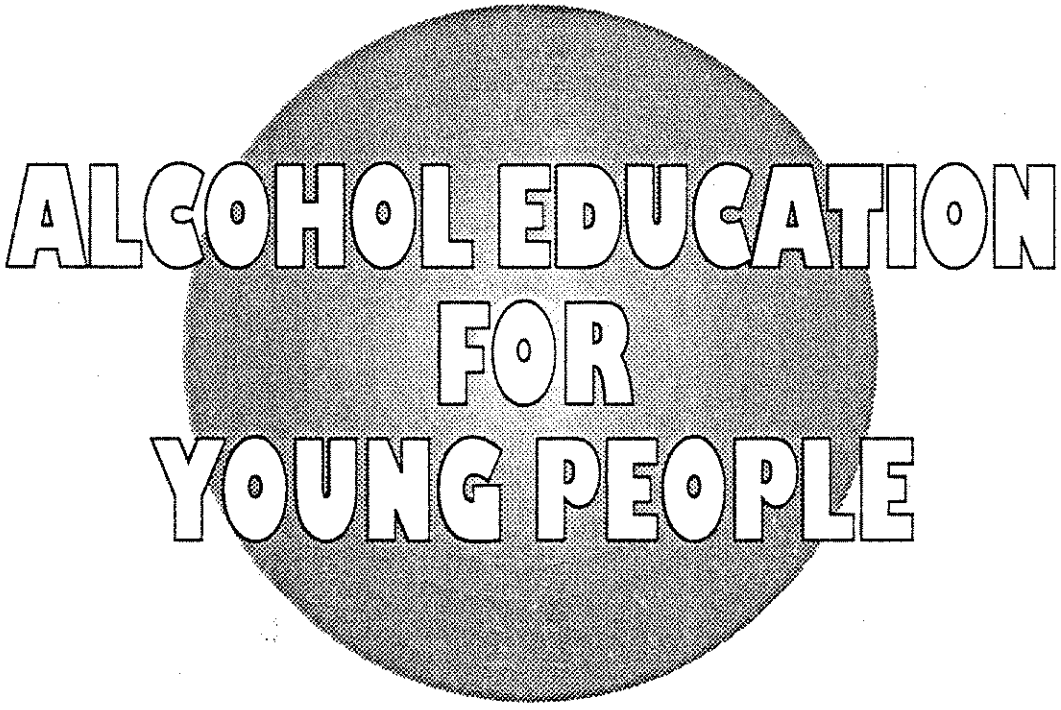

a review of the literature
1983 - 1992

Caroline Sharp

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ALCOHOL EDUCATION FOR YOUNG PEOPLE

a review of the literature 1983 - 1992

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EXECUTIVE SUMMARY

Introduction

- This report presents an overview of the literature on alcohol education for young people, published between 1983 and 1992. The review was funded by the Alcohol Education and Research Council and the Portman Group.

- The main aims of the review are to present the findings from the literature published during this ten-year period, and to identify any gaps in the literature as a guide for future research.

- Most of the literature on alcohol education programmes included in the review originated in the USA and concerned school populations. This may limit the generalizability of the report's findings.

- There have been three broad shifts in approaches to alcohol education in the past three decades. Informational programmes were common in the 1960s. These taught young people about the negative consequences to health of using alcohol. In the 1970s 'affective' approaches stressed the importance of self-esteem and the development of social skills. The approach commonly in use since the mid 1980s has focused on the influence of the media, adults and peers. This 'social influences' approach aims to make young people more aware of the pressures to use alcohol, and to develop skills to help them resist such influences.

Adolescent drinking

- Most young people in Britain drink alcohol, but only a minority drink to excess. Young women tend to drink less than young men.

- Most young people have at least tasted alcohol by the age of ten. Drinking begins at home, with parents. Drinking with friends increases as adolescents get older.

- Adolescent drinking patterns do not tend to continue into later life.

- Young people are involved in a high proportion of drink-driving fatalities and drink-related convictions.

- There may have been an increase in adolescent drinking in Britain since the 1960s, but this is probably in line with an increase in adult drinking in the same period.

Factors related to adolescent alcohol use and abuse

- Factors found to be related to alcohol use in adolescence concern: the family; the personality; the peer group; and the socio-cultural environment.

- Family factors related to higher alcohol consumption among adolescents include: alcohol and substance use by parents; parents' approval of alcohol use; lack of emotional support; and weak parental control.

- Personality factors include: low self-esteem; poor social skills; deviant behaviour; and early use of alcohol/drugs. Heavy drinkers are more likely than moderate drinkers to use alcohol to relieve psychological stress.

- Peer group factors are strongly associated with adolescent alcohol use. Heavy drinkers are likely to associate with peers who approve of drinking, use alcohol and other drugs, and exhibit deviant behaviour.

- Social class is related to alcohol use, although the pattern of relationships is complex. White adolescents drink more heavily than black or Asian youths. Religious observance is associated with lower levels of drinking.

- Studies suggest that alcohol use in adolescence may be one aspect of 'problem behaviour'. There is also evidence of a hierarchy of alcohol and drug use. This has led to the identification of alcohol and tobacco as 'gateway' substances for the use of other illegal drugs.

- Family socialization factors may be particularly important in shaping early personality and influencing the selection of the peer group.

Alcohol education in the curriculum

- In the National Curriculum for England and Wales, the misuse of alcohol and other substances is one of nine areas of health education.

- Alcohol education is considered important by teachers, but is one of the areas of health education most commonly identified as missing or inadequately covered in schools. Teachers would welcome more training on this area.

- There is a range of materials on alcohol and substance misuse available to schools. Teachers' opinions vary on the usefulness of the popular materials, suggesting that no one resource would be equally suitable for all schools.

- Constraints on budgets are affecting the purchase of materials and teachers' access to in-service training.

- Research on alcohol training programmes for teachers has found that it is easier to improve teachers' knowledge than to change attitudes or to improve skills.

- Most of the costs of implementing health education programmes are related to classroom time. However, classroom time, teacher training and materials are all important aspects of implementation, which can be related to programme success.

- Students want schools to teach them about alcohol and drugs. According to students, the most suitable and credible drug educators are: ex-addicts (particularly young people); parents; teachers; and doctors. Students do not feel that their friends are good sources of information on the subject.

Findings from evaluations of alcohol education and related areas

- In the 1980s, most of the alcohol and drug education programmes have used a 'social influences' approach.

- Work in AIDS education has endorsed the use of active learning methods and presentations by people with AIDS.

- Reviews and meta-analyses of alcohol and drug education have confirmed that it is easier to improve knowledge than to affect student attitudes. Behavioural change is the most difficult to accomplish through educational programmes.

- Alcohol education programmes have been largely ineffective in improving attitudes and affecting behaviour. Alcohol education appears to be less successful than education on smoking, marijuana and other drugs.

- Features of more successful alcohol and drug education programmes identified in previous reviews include: teacher training; peer tutors; the use of active learning methods; and, for older students, field trips to alcohol/drug treatment centres.

Review of evaluation studies published between1983 and 1992

- Twenty one studies were included in the review, most of which took place in the USA. Three of the studies involved programmes for young offenders, the rest concerned school populations. The 21 studies reported the results of 31 alcohol education initiatives or 'treatments'.

- Eighteen of the treatments were assessed for knowledge outcomes, of which ten had significant positive results ($p < .05$). Four treatments had no significant effects on knowledge, and four were reported to have 'mixed' results (e.g. different results for different measures, for the same measure in different cohorts, or changes over time).

- Attitudinal measures were included in 19 cases. Five treatments had positive results, eight showed no programme impact, and six had mixed results for attitudes.

- Alcohol-related behaviour was measured for 25 treatments, of which six had positive results. Thirteen treatments had no difference in terms of behavioural outcomes, and six had mixed results.

- An examination of the six programmes which had positive results for behaviour showed few common characteristics. Most used active learning methods, two included peer leaders, and a third featured small group work. Four of the programmes included training for programme leaders. However, several of the less successful programmes also included these elements.

- Some of the studies had particular methodological weaknesses, but in general they were judged to be of reasonable quality.

Conclusions

- Alcohol education programmes based on social influences approaches are not generally effective in impacting on adolescent alcohol use. The fact that this approach has shown more promising results for tobacco, marijuana and other drugs suggests that the relative social acceptability of alcohol use may be a strong factor which cannot be easily overcome through educational programmes.

- Despite these disappointing results, education will probably continue to be a favoured option for meeting public demand to combat alcohol misuse. Social influences approaches can provide information, without risking the negative outcomes reported for some of the earlier informational programmes.

- Teachers need access to suitable training courses and materials in order to teach about alcohol.

- In future, it is recommended that school-based alcohol education programmes include parents and form part of community-wide initiatives.

Future research needs

- There is a general lack of evaluation studies of teacher training and of educational programmes based in the UK.

- There is a need for large-scale, longitudinal studies of new approaches, which look at the impact of programmes for different groups of participants. There is also a need for qualitative studies, particularly in relation to the role of peer group influence in alcohol and substance use.

- Research into alcohol education could usefully study: new developments in alcohol education; the effectiveness of peer leaders; the impact of using former alcoholics in education programmes; parental involvement; and the work of theatre in education companies.

1. INTRODUCTION

This report gives the results of an evaluative review of the literature on alcohol education, published between 1983 and 1992. The particular focus of this review is on educational programmes and initiatives designed for young people. The review was sponsored by the Alcohol Education and Research Council and the Portman Group. It was carried out by the National Foundation for Educational Research during 1993.

The context for the review

Adolescent drinking has been a common focus for public concern, as May (1992) points out. Media coverage of outbreaks of disorder among young people (e.g. football hooliganism) has often pointed to the role of alcohol use. This has led to a public perception of a strong link between alcohol use and social indiscipline among young people. Dorn (1983) states:

> *The historically-constructed association between vagrancy, lack of capitalist work-discipline, public disturbance and drink will continue to fire moral panic over youthful drinking, and to structure the consensus of concerns within which health educators and broadcasters work.*

Education has often been seen as one of the main methods for combating alcohol misuse. To reach young people, an obvious setting for alcohol education is in the school. Educational programmes for young offenders offer an opportunity to target attention on those most at risk of committing alcohol-related crime.

Those endorsing alcohol education for young people have hoped that it will have a variety of desirable consequences, such as: persuading young people to abstain from alcohol use; delaying the age of onset of alcohol use; and enabling those who drink to do so in moderation. It is hoped that this will, in turn, decrease the number of adolescent crimes and fatalities, and ultimately decrease the proportion of adults who suffer the social and health-related consequences of excessive alcohol use. Adolescent alcohol use has also been identified as a precursor of involvement with other drugs (Kandell, 1988), which is another powerful argument for a major educational campaign to persuade young people against alcohol use.

In 1987, the report of a working party on young people and alcohol was published (Great Britain: Home Office, 1987). In a section devoted to education, the report states:

> *School education is the most important formal means by which society gives its members the information necessary to avoid all kinds of dangers. Alcoholic drink is a prevalent feature of contemporary western life; misused it is highly dangerous, and can be fatal. It is therefore clearly important that every member of society should have a clear understanding of the hazards involved in alcohol misuse, and the ways in which they can be avoided.*

However, there has been a growing realisation that alcohol education may be unable to live up to these aspirations. As the working party report acknowledges:

> *It is naive to believe that, on its own, school education can cure the alcohol problems faced by society (Great Britain: Home Office, 1987).*

This review looks in detail at the available evidence on the effectiveness of alcohol education for young people, and seeks to define more clearly what it can be expected to achieve.

Terms of reference and methods of data collection

This report summarises the main findings from the published (English language) literature on education relating to alcohol use. This was one of a number of major reviews commissioned at the same time, each relating to different aspects of alcohol treatment, prevention and control. The brief specified that studies published between 1983 and 1992 were to be included. The aims of the review were: to identify the main conclusions to be drawn from the research literature; and to identify gaps in the literature to serve as a guide for future research needs.

In response to the invitation to tender for the work, the NFER submitted a detailed outline of the proposed methods and content of the review. This suggested that a useful focus for the work would be alcohol education programmes and initiatives designed for young people. The NFER proposal was accepted and the work was jointly sponsored by the Alcohol Education and Research Council and the Portman Group.

An exhaustive search of relevant educational, social science, medical and health care databases was carried out by a member of the NFER's library staff. (A list of the key words used to search the databases is given in Appendix A.)

The databases and information sources used for this search were as follows: Register of Educational Research in the United Kingdom; British Education Index; Australian Education Index; Educational Resources Information Centre; Applied Social Sciences Index and Abstracts; PSYCLIT (the Compact Disk version of Psychological Abstracts); British Humanities Index; Health Education Authority Current Awareness Bulletin: MEDLINE; Cumulative Index to Nursing and Allied Health Literature; and Bookbank. In addition, contacts were made with various organisations with an involvement in alcohol education, such as the Teachers' Advisory Council for Alcohol and Drug Education (TACADE) and Alcohol Concern, to ask for information for the review.

These procedures generated a wealth of information on many aspects of alcohol education for young people. However, two main limitations are worthy of note: most of the research literature on educational programmes originated from the USA, and few of the studies concerned populations other than school students.

The predominance of material from the USA has been noted by Grant (1986) who located 57 evaluative studies of education programmes published between 1960 and 1980, 46 of which originated in the USA,and six in Canada. This is not surprising, given that there is a long tradition of compulsory alcohol education in US states. In 1986, the US Congress passed the Drug-Free Schools and Communities Act. This provides funding for educational programmes, and requires evaluation of programme effectiveness as a condition of the grants (Brandon, 1992). Nevertheless, the relative lack of research carried out in the United Kingdom or in other European countries, does limit the applicability of the findings from this literature review to the situation in this country.

Very few studies of educational programmes took place outside the institution of the school. A small body of literature was found which looked at programmes for young offenders, and this has been included in the review. It is possible that the inability to locate more information in this area could have been due to the selection of databases used for the literature search.

Outline of the report

The next section of the report describes the main approaches to alcohol education adopted in the past 30 years. This is followed by a section detailing findings from British studies on the prevalence and nature of alcohol use among young people. In Section 4, the report looks at the established relationships between alcohol use and characteristics of the family, the personality, the peer group, and the socio-cultural environment.

The place of alcohol education in the school curriculum is investigated next, including information on teacher training, the costs of implementing health and drug education programmes, and the views of young people about alcohol education. In order to consider approaches used in other curriculum areas, these are outlined, with particular reference to developments in the field of AIDS education.

Section 7 describes the main influences on changes in alcohol education programmes. In Section 8, summaries of the findings from previous reviews of the effectiveness of alcohol and drug education programmes are presented. The next section is devoted to a critical review of evaluation studies of alcohol education programmes published between 1983 and 1992. This is followed in Section 10, by an outline of the methodological problems faced by those working in this area, and an assessment of the quality of the studies included in the review. A final section presents the main conclusions arising from the review and highlights future research needs.

2. CHANGES IN APPROACHES TO ALCOHOL EDUCATION

There have been three broad shifts in alcohol education approaches within the past three decades (Leming, 1992). In the 1960s, the emphasis was on informational programmes, focusing on the negative effects of alcohol misuse and sometimes using 'scare tactics' to generate fear of the demon drink. A major goal of such programmes was to persuade young people to abstain from alcohol use. This 'rational' approach was founded on the belief that cognitive changes (i.e. knowledge about the deleterious effects of alcohol consumption) would in some way promote negative attitudes towards alcohol, and would therefore lead the individual to avoid alcohol use.

During the 1970s, as well as informing students about the negative consequences of drinking, programmes attempted to enhance self-concept, change individual values and develop cognitive skills. The underlying theory of these 'affective' approaches was that young people need self-esteem, sound value systems, and well-developed problem-solving and decision-making skills in order to make positive, healthy choices. There were also attempts to involve young people in 'alternative' activities (e.g. clubs, sporting and arts activities) that did not involve the consumption of alcohol.

'Social learning' techniques began to be applied to alcohol education in the early 1980s. (As this type of programme was dominant during the period of this review, the theoretical basis of their components is discussed in more detail in Section 7.) This approach saw the external pressures on adolescents to use alcohol as of major importance. In particular, students were taught 'pressure resistance' skills through role playing situations which put them under pressure to drink alcohol. Programmes also aimed to develop students' cognitive and inter-personal skills. The information component of the programmes focused more on the short-term consequences of alcohol use (e.g. experiencing alcohol-related illness, academic failure, unreliability) than on the longer-term social and health-related consequences of alcoholism. Some programmes also included elements on the norms of alcohol use among young people.

The goal of programmes changed from one of promoting abstinence alone, in a recognition that the responsible use of alcohol may be more realistic goals for young people.

As well as changes in the content of programmes, their mode of delivery has also changed. The early informational programmes were delivered primarily by class teachers and visiting speakers such as doctors, nurses and police officers. With the introduction of affective approaches, there was more emphasis on individual exercises, research and discussion among students. The social learning techniques required active participation in the form of group work, discussion and role-play. Some of these later programmes utilised trained peer group leaders to help deliver the content.

3. PREVALENCE OF ALCOHOL USE IN ADOLESCENCE

The purpose of this section is to present research evidence on the use of alcohol among British adolescents. The section will seek to provide answers to several key questions:

- What proportion of British adolescents drink alcohol, and what proportion can be said to be heavy drinkers?
- When do children start to drink, and where do they obtain alcohol?
- Do adolescent drinking patterns persist into adult life?
- Has the prevalence of drinking among adolescents increased in recent years?

A report by the Faculty of Public Health Medicine (1991) stated that the generally accepted guideline for safe drinking is as follows: low risk - less than 21 units per week (men), less than 14 units (women); increasing risk - 22 to 50 units per week (men), 15 to 35 units (women); high risk - above 50 units (men), above 35 units (women). A 'unit' of alcohol is equivalent to a half pint of ordinary strength beer, a glass of wine or a single measure of spirits.

Most of the studies which have focused on adolescent alcohol consumption have used large-scale surveys, in which respondents are asked to report their own use of alcohol. The results of such studies regarding drinking levels should be treated with caution, because it is impossible to verify the validity of the self-report data. Also, measures of alcohol use have differed from one study to the next (Sharp and Lowe, 1989). These issues are addressed in more detail in the section of the report dealing with research methodology.

Extent of adolescent alcohol use

The evidence from surveys of young people in Britain points to the consumption of alcohol as a generally accepted part of adolescent life. Sharp and Lowe (1989), in their review of the literature, state that by the age of 16 at least 94 per cent of young people in Britain have had 'a proper drink', and many had their first drink when they were much younger. May (1992) concludes that some experience of drinking is 'near universal' amongst members of the 10-14 age group. However, it seems that the majority of young people drink at moderate levels (May, 1992; Sharp and Lowe, 1989).

In his review of British studies between published 1970 and 1991, May (1992) states that the number of non drinkers varies considerably between studies, from two to 17 per cent. A minority of young people drink heavily, and 'problem' drinking is more common among men than women. For example, West *et al.* (1990) found that in a group of 270 college students, 21 per cent of females and 26 per cent of males drank more than 14 units of alcohol per week. Plant and Foster (1991), in their survey of 7,000 Scottish 14 to 16 year olds, reported that 19 per cent of males and 10 per cent of females had consumed more than 11 units of alcohol during their last drinking occasion.

Despite the fact that most adolescents do not drink to excess, the social and personal impact of intoxication among young people is considerable. Evidence presented to a Working Group on young people and alcohol (Great Britain: Home Office, 1987) found that over a quarter of the convictions and cautions for public drunkenness in England and Wales concerned people under the age of 21, with the proportion of offences highest for 18 and 19 year olds. The peak age for drinking and driving convictions was 21 years, and the highest level of fatalities for drink driving occurred among drivers in their early twenties. As May (1992) states:

> *A significant minority of young people place their personal safety and health at risk through chaotic intoxication or systematic alcohol misuse.*

Age-related patterns of alcohol use

Children typically begin to drink alcohol in late childhood or early adolescence. Sharp and Lowe (1989) suggest that most children have at least tasted alcohol by the age of ten. Research conducted among 4,882 adolescents (Great Britain: Home Office, 1987) found that 29 per cent of 13 year old males and 11 per cent of 13 year old females had an alcoholic drink at least once a week, although the proportions were lower for Scottish respondents than those living in England and Wales.

Early drinking generally takes place in the home and under parental supervision (Balding, 1989; Farrell, 1988; Great Britain: Home Office, 1987; Sharp and Lowe, 1989; May, 1986). In later adolescence, although young people continue to drink at home, purchase of alcohol from off-licences and drinking in public houses and clubs becomes more common. For example, Farrell (1988) cites survey evidence that shows 43 per cent of 15 year olds and 62 per cent of 17 year olds drink in pubs.

Research by Budd *et al.* (1985) revealed that among a sample of 10,000 11 to 16 year olds in Bristol, drinking companions changed with age. Although well over 80 per cent of the adolescents said they drank with their parents, reported instances of drinking with parents showed a slight but steady decline as the age of the respondents increased. The incidence of drinking with same sex and opposite sex friends was markedly higher for older respondents. The percentage of respondents who drank alone also increased with age, although this behaviour was more common among males than females.

For females, it seems that the amount and frequency of consumption reach broadly adult levels between the ages of 16 and 18. Males in the same age group tend to drink at above adult norms. Alcohol consumption accelerates rapidly after the 'legal' drinking age of 18, and in the 18 to 24 year old age group, the number of non-drinkers declines, whereas the number of heavy drinkers increases (May, 1992). Sharp and Lowe (1989) quote evidence from the Royal College of General Practitioners, that in the population as a whole the heaviest drinkers are found in the 18 to 24 year old age group.

Continuity of adolescent to adult drinking patterns

Data collected by the National Child Development Study, has been used to study the drinking patterns of about 17,000 young people at age 16 and 23 (Ghodsian and Power, 1987). Their findings suggested that:

Consumption in early adulthood cannot be accurately predicted from that in adolescence.

However, there were associations between the liklihood of heavier drinking at age 23 and the recency of drinking at 16, the amount drunk and the place of drinking. Those men and women who drank most, more frequently and who drank in public houses at 16, were found to be most likely to drink heavily at age 23.

Research conducted in Scotland (Bagnall, 1991) found that patterns of alcohol use established in adolescence did not tend to continue in later life. The research sampled 1,036 15 to 16 year olds in 1979/80, of whom 778 were followed up in 1988/89. The participants were categorised in relation to their reported quantity and frequency of drinking alcohol. There was no significant association between drinking status at age 15/16 and at age 24/25.

Longitudinal research conducted in the USA has also found little evidence that those who drink heavily as adolescents continue to do so in later life. For example, Donovan *et al.* (1983) researched this issue by carrying out a survey among a random sample of US high school and college students. The respondents first completed questionnaires in 1972/3. In 1979, 595 of the original sample completed a further questionnaire. The researchers were particularly interested in 'problem drinkers' (defined as those who reported getting drunk six or more times, or experiencing negative social consequences of alcohol use in three of six 'life areas'). Their results showed a tendency for non-continuity in problem drinking as the students became older. For males, around 50 per cent of the students classified as problem drinkers in the first survey remained problem drinkers six or seven years later. For females, there was less stability in drinking patterns: between 70 and 80 per cent of the female adolescent problem drinkers were classified as non-problem drinkers in later life.

Temple and Fillmore (1985) carried out similar research, but their work focused specifically on men, and took place over a 15 year period. A sample of 240 young men in Oregon took part in the research, completing a questionnaire on an annual basis from age 16 to 31. The researchers categorised respondents as: abstainers; moderate drinkers (those who drank alcohol, but seldom to the point of 'getting high'); and problem drinkers (those who regularly drank to the point of getting high).

The results showed that the proportion of heavy drinkers peaked between the ages of 21 to 24 then declined, and that alcohol involvement in adolescence was only slightly predictive of problem drinking at age 31. The authors conclude:

rather than the patterns of drinking reflecting 'conditions' persisting over time, they are more reflective of 'events' where an event is taken to mean being segmented in time and is sporadic.

They suggest that prevention efforts should focus on age-related events (e.g. drunk driving and criminal behaviour) rather than targeting efforts on adolescents in an attempt to prevent later problem drinking.

Temple and Fillmore's findings were subsequently re-analysed by Windle (1988). He suggests that their results show evidence of both continuity and discontinuity. Although

there were changes over time in the proportions of the sample in each drinking category, around half of the moderate and heavy drinkers remained identically classified over a 13 year period.

The findings of these studies suggest that adolescent drinking patterns are not necessarily continued into later life. While some adolescent heavy drinkers will continue to drink heavily as they get older, others are likely to become moderate drinkers as adults. It is possible that there is a greater discontinuity in adolescent to adult drinking for females than for males.

Prevalence of adolescent alcohol use over time

Has adolescent alcohol use in Britain increased in recent years? There seems to be some disagreement on this point. May (1992), using data from the British Market Research Bureau, suggests that drinking levels among 15 to 19 year olds have remained relatively stable since 1979, although there has been a slight downward trend in the proportions of both male non-drinkers and male daily drinkers. Sharp and Lowe (1989) present evidence of a recent rise in (excessive) alcohol use among young people, reflected in alcohol-related medical problems and criminal convictions. They conclude that there has been an increase in alcohol consumption among the young since the 1960s, but that this trend is in line with a rise in drinking among the adult population. (Research cited by Sharp and Lowe, conducted by the Royal College of General Practitioners suggests that the adult population drank twice as much in 1984 as in 1950.)

4. RELATIONSHIPS BETWEEN ADOLESCENT ALCOHOL USE AND OTHER FACTORS

There is a considerable body of research devoted to the study of adolescent alcohol use and misuse. One of the main areas of interest is the factors that are related to alcohol and substance use in adolescence. Work has centred on factors within three main domains: the family; the personality; and the peer group. There has also been research into the influence of other factors on adolescent drinking such as: gender, social and cultural background, and religion. Much of this work has been conducted by researchers from the USA.

The purpose of this section is to outline the main findings relating to each of these areas, and to look at research which has considered the relative importance of these factors in an attempt to develop a theoretical framework of drinking behaviour in adolescence.

The family

The main factors within the family which appear to be related to alcohol use in adolescence concern: the structure of the family; the presence of alcohol and substance abuse among family members; parental attitudes towards alcohol use; parental control; and emotional support from parents.

Interest in family structure has centred on the presence of one or two parents. Foxcroft and Lowe (1991) conducted a meta-analysis of studies relating to adolescent drinking behaviour and family socialization factors. They found that there was evidence of more drinking among young people from 'non-intact' families (i.e. those where one parent was absent). However, Hawkins *et al.* (1985) point out that there is disagreement on the role of family structure in drug abuse among young people. They suggest that family structure appears to be less important than attachment to parents.

The presence of alcohol and substance abuse among family members has been found to be related to drinking behaviour among young people. For example, Brook *et al.* (1986) in their study of 318 high school students, found that alcohol use was significantly related to sibling drug use, paternal drinking and maternal use of amphetamines, barbiturates and tranquillizers. Hawkins *et al.* (1985) suggest that research has shown:

> *A consistent correlation between adolescent drug abuse and parents' use of alcohol and other legal drugs.*

Similarly, Capuzzi and Lecoq (1983), in their summary of research on adolescent alcohol use, reported that parental use of hard liquor predicts adolescent use of hard liquor.

The consistency of the finding of a relationship between parental and adolescent alcohol abuse has led to speculation that there is a genetically linked predisposition towards alcohol use (Gilliss *et al.*, 1989; Hill *et al.*, 1988; Tanna *et al.*, 1988). However, as

Hawkins *et al.* (1985) point out, the evidence for a genetic link is limited to males, and could only account for a small proportion of alcohol abuse. They conclude that studies suggesting a genetic factor in male alcoholism reveal that less than 20% of the sons of alcoholics become alcoholics themselves.

Some researchers have argued that it is the impact of parental alcoholism on the family environment which is the more important factor (Hill *et al.*, 1992). In a study of 231 high school students, Havey and Dodd (1992) compared the questionnaire responses of those students who indicated that one or both of their biological parents had an alcohol abuse problem with those of students with non-alcoholic parents. They found that children of alcoholics scored higher on an anxiety scale, although their responses were within the normal range. They were also significantly more likely to have divorced parents; less likely to live with both natural parents; and more likely to report stress, physical or sexual abuse in the home.

Parental attitudes towards alcohol abuse have been found to be related to alcohol use in adolescents. For example, in their literature review, Sharp and Lowe (1989) state that parents who approve of drinking are more likely to have children who drink heavily. However, they also cite evidence of higher drinking levels among the children of parents who strongly disapprove of drinking, suggesting a relationship between extremes of parental attitudes towards alcohol and adolescent drinking.

The level of control exercised by parents has been related to adolescent drinking problems. Brook *et al.* (1986) found that parental permissiveness was related to higher levels of initiation into alcohol use among a sample of 318 high school students. Foxcroft and Lowe's meta-analysis produced evidence of a relationship between greater parental control and lower drinking levels among adolescents. There was some evidence of a curvilinear relationship, with the extremes of parental permissiveness and control both related to higher alcohol consumption in adolescents (Foxcroft and Lowe, 1991).

Finally, there is a considerable body of research linking high levels of support and nurturance within the family to lower levels of drinking among adolescents (Barnes, 1984a; Brook *et al.*, 1986; Capuzzi and Lecoq, 1983; Foxcroft and Lowe, 1991). Barnes (1984a) conducted interviews with parents and their adolescent children from 124 families living in Eire county, USA. Her results indicated that higher drinking levels were associated with deviant behaviour, which was in turn significantly related to low maternal and paternal 'nurturance' scores. The specific nurturance items which were significantly (negatively) related to deviance in adolescents included: praise or encouragement from parents; reliance on parents for advice; frequent physical signs of affection; involving their parents in decision-making and knowing what their parents expect of them.

In most studies, the findings indicate that parental support has a linear relationship with adolescent drinking behaviour (i.e. the higher the level of support experienced by adolescents, the less likely they are to be heavy drinkers). However, Foxcroft and Lowe (1991) while not disagreeing with this position, cite research into 'problem' families, suggesting that extreme cohesion within a family may be viewed as dysfunctional.

Personality and perceived functions of drinking

A number of personality traits have been found to be associated with alcohol use in adolescence. There is also evidence that drinking level is related to the perceived function of alcohol for young drinkers.

One consistent finding from a number of studies is that adolescent drinking is associated with low self-esteem, poor social skills and low expectations of (academic) achievement (Capuzzi and Lecoq, 1983; Grimes and Swisher, 1989; Kline *et al.*, 1987). Adolescents who drink alcohol are more likely to exhibit deviant behaviour themselves, and to express tolerance of deviant behaviour in others (Brook *et al.*, 1986; Bauman, 1985).

In their study of adolescents and pre-adolescents in New York, Brook and Brook (1988) measured a range of personality factors which were hypothesized to relate to alcohol use/ abuse. For the sample of 330 adolescents, the most significant relationships ($p < .001$) for alcohol use were found with the following psychological variables: deviancy; tolerance of deviancy; poor ego integration; impulsivity; rebelliousness; noncompliance (lack of persistence in completing tasks and reliability); and lack of responsibility (low degree of expressed responsibility for others). Additional factors identified by Capuzzi and Lecoq (1983) in their review of the literature were high independence and low interpersonal trust.

Hawkins *et al.* (1985) summarise a number of longitudinal studies which attempted to relate characteristics apparent in early childhood to later use of drugs. They conclude that early aggression, irritability, and withdrawal have been found to predict adolescent alcohol and drug use. Also, early use of drugs and alcohol is associated with a higher risk of substance abuse. In relation to school achievement, Hawkins *et al.* state that poor school performance is 'a common antecedent of initiation into drugs'. However, they also present evidence that children who scored high on first-grade readiness and IQ tests exhibited earlier and more frequent use of alcohol and marijuana. They suggest that social adjustment in childhood may be a more important factor than academic success in relation to drug abuse, and that early antisocial behaviour may predict both later academic underachievement and drug abuse.

Research into the functions of alcohol use for young people have found that adolescents begin drinking because they expect it to have pleasurable effects (Bauman, 1986; Kline *et al.*, 1987). Large-scale research among US high school students, conducted by Johnston and O'Malley (1986) asked questionnaire respondents who used alcohol and other drugs to complete an additional set of questions regarding their reasons for use. The most commonly-endorsed reasons for the use of alcohol were: to have a good time with friends (62%); to feel good/ get high (42%); because it tastes good (41%); to relax or relieve tension (34%); and to experiment, see what it's like (34%).

An analysis of the reasons expressed by different categories of user (experimental, occasional, heavier) showed differences in reasons given by students with higher and lower levels of alcohol involvement. Heavier alcohol users endorsed a greater number of reasons for use, apart from 'experimentation', which was mentioned less often by this group. Among heavier users, there was a substantially higher response for reasons of

alcohol use related to coping with psychological stress, such as: getting away from problems, dealing with anger and frustration; relaxation; and coping with boredom. The authors suggest this is indicative of some adolescents using alcohol and other substances as 'psychological props'.

Results from an English study (Budd *et al.*, 1985) suggested that heavier drinkers were under greater stress, with a significantly higher perceived level of conflict with parents and poorer school performance reported among this group. Heavier drinkers were also least likely to believe that their current lifestyle would affect their life-span.

The peer group

A number of research studies have identified a strong relationship between peer group characteristics and adolescent consumption of alcohol. Heavier drinkers are more likely to be drink with their peers and to have a 'steady date' than moderate or light drinkers (Budd *et al.*, 1985). Young people who drink are also more likely to report that their friends approve of drinking (Kline *et al.*, 1987). Adolescent drinkers are more likely to have friends who drink, use other substances, and exhibit deviant behaviour (Brook *et al.*, 1986; Hansen *et al*, 1987). Temple and Fillmore (1985) found the single best predictor of adolescent drinking was association with 'negatively-oriented' peers. In their review of the literature on adolescent alcohol and drug use, Hawkins *et al.* (1985) state that:

> *Association with drug using peers during adolescence is among the strongest predictors of adolescent drug use.*

Gender, social and cultural factors

As noted earlier, there is a consistent finding that alcohol use and misuse is less prevalent among female adolescents than their male peers. Capuzzi and Lecoq (1983), suggest that higher drinking levels among male than female adolescents may be influenced by the association of drinking with masculinity in contemporary society, and the differential role socialization of male and female children. Adolescent drinking for females is more likely to take place within the home, and parents hold more negative attitudes towards the drinking of female than male children (Capuzzi and Lecoq, 1983; Sharp and Lowe, 1989).

It seems that alcohol abuse may fulfil different functions for female adolescent drinkers than for males. In their study of 393 high school students in Wyoming, Carman and Holmgren (1986) investigated the relationship between gender and drinking behaviour. They found that personal psychological drinking motivations (e.g. using alcohol to relieve stress, cope with personal problems or alter negative self image) were significantly correlated with drunkenness and experience of drink-related social complications for females but not for males.

Similarly, Johnston and O'Malley (1986) looked at expressed reasons for drinking given by male and female high school students. Because misuse of alcohol is more common in males than females, and reasons for involvement were found to vary with the degree

of involvement, they controlled for involvement level when making comparisons between results for male and female adolescents. Their analyses yielded a very similar pattern of reasons for use between the two groups, but for daily users of alcohol there were two significant differences between the sexes ($p < .01$): females were more likely to cite getting away from problems/troubles, and anger/frustration as reasons for drinking.

Capuzzi and Lecoq (1983), summarise findings from a number of studies on gender differences and alcohol abuse. They conclude that some personality factors are common to male and female adolescent drinkers, but that female problem drinkers are more prone to depression, self negation and distrust than their male counterparts.

Social and cultural differences in drinking patterns among adolescents are also evident in the research. The influence of social class has been of interest to a number of researchers. For example, Dorn (1983) conducted a case-study of drinking behaviour among a group of working class youths. He argues that the concept of social class is important in an understanding of drinking patterns and the meaning of alcohol use, particularly in relation to access to the labour market. However, drinking patterns are not related to social class in a straightforward manner. A survey of drinking patterns among 10,300 English 9-15 year olds (Health Education Authority, 1990) found that middle and upper class adolescents drank more frequently but less heavily than working class respondents. A similar study among adolescents in Keele (Taylor and Mardle, 1986) found that adolescents from higher social classes tended to drink more frequently, although this was more apparent for boys than girls.

Research into cultural and ethnic drinking patterns has suggested that white adolescents are heavier users of alcohol than young people from other cultural groups (Forney *et al.*, 1991).

Newcomb and Bentler (1986) studied the self-report use of alcohol and other substances among 1,634 black, Asian, Hispanic and white teenagers in Los Angeles county. They found that there was significantly higher use of beer and/or wine among white students in comparison to each of the other groups. White and Hispanic adolescents reported higher use of 'hard liquor' than either Asian or black students. The authors were particularly interested in the influence of adult and peer role models on drinking within the different groups. Overall, perceived peer use of alcohol was more strongly associated with self-use than perceived adult use. They found that white students reported knowing significantly more friends who used liquor than the other groups. The relationship between perceived peer use and self-use was least strong for black students. The authors conclude that their results indicate different vulnerability to peer and adult role modelling among members of different cultural groups.

Forney *et al.* (1991) suggest that differential drinking patterns among cultural groups may be related to different attitudes towards the social consequences of alcohol use, and to religious affiliation.

Religious observance has been found to be related to adolescent drinking. In their literature review, Capuzzi and Lecoq (1983) present evidence that greater religiosity and

church attendance predispose adolescents against drug use. They draw a distinction between religions that preach abstinence from alcohol (proscription) and those that lay down rules on how to consume alcohol (prescription). They suggest that while there may be relatively greater consumption of alcohol among members of prescriptive religions, the norms of these religions help to safeguard against alcohol abuse. Members of proscriptive religions are less likely to drink at all, but those who do so are more likely to become problem drinkers.

The relative importance of different factors in adolescent alcohol use

Although there is a fair degree of agreement about the factors linked to adolescent alcohol use, the findings reported above do not reveal the relative importance of the individual factors or how they may be related to one another. However, some researchers have investigated these questions in the search for a theoretical framework which would yield insights into causality and inform policy aimed at preventing or ameliorating the negative effects of alcohol use in adolescence. It is these studies which are the focus of this section.

Problem behaviour theory

In 1977, Jessor and Jessor published the results of their study into problem behaviour among adolescents. Their study has been highly influential, not least in the formulation of subsequent alcohol education programmes.

Their research consisted of a longitudinal study of over 400 high school and 200 college youth in the USA, followed up over four years (1969-1972). The students, aged 12/13 and 21/22 at the beginning of the study, completed 50-page questionnaires concerning their behaviour, personality and perceived environment.

The researchers were interested to test the utility of problem behaviour theory, which suggests that individuals exhibiting a variety of 'problem' behaviours (e.g. deviancy, early sexual activity, drinking and substance use) are similar to one another in their personality traits and perceptions of the environment. Thus different problematic behaviours may be conceptualised as serving similar functions for adolescents (e.g. a search for independence, adult status and approval from friends).

The findings confirmed that there was an 'interrelatedness' between different problem behaviours (the theory accounted for 50% of the variance on an index of multiple problem behaviour). Individuals exhibiting problem behaviour shared certain personality and attitudinal traits including:

> *a concern with personal autonomy, a relative lack of interest in the goals of conventional institutions (such as school and church), a jaundiced view of the larger society and a more tolerant attitude about transgression.* (Jessor and Jessor 1977, p.237)

In terms of the perceived environment, adolescents likely to engage in problem behaviour reported more friends who exhibited problem behaviours, more support for deviance among their friends, and acknowledged a greater influence of their friends, relative to their parents.

In relation to problem drinking per se, Jessor and Jessor found only limited support for the influence of personality factors, with the exception of attitudes towards deviance. They suggest that their definition of problem drinking (being drunk five or more times in the past year and/or experiencing negative consequences of alcohol use in two or more life areas in the past year) may have been too modest to distinguish those with drinking problems from moderate drinkers.

The utility of problem behaviour theory was tested by Hansen *et al.* (1987). Data collected as part of project SMART (a five-year smoking, alcohol and drug abuse prevention project implemented in Los Angeles schools) were analysed to see if substance use by adolescents could be considered as a unitary phenomenon. The research measured six constructs: smoking; alcohol use; marijuana use; friends' drug use; important adults' drug use; and measures concerning parents' reactions to drug use. Their results suggested that the social psychological processes underlying substance use had essentially the same characteristics, and this result was replicated for different ethnic/cultural groups, and for both males and females. Of the social factors, peer use of drugs had the strongest relationship with reported use. Parent drug use and the scale reflecting perceptions of parents' attitudes towards drug use had no direct influence on adolescents' use of drugs.

Stage theory of substance use

Kandel (1988) has shown that there are a number of stages in relation to drug use:

> *Regular sequences of progression from legal to illegal drugs appear among adolescents and young adults of both sexes, irrespective of the age of first initiation into drugs.*

Her research has identified four main stages: beer or wine; cigarettes or hard liquor; marijuana; and other illicit drugs. This is not to say that everyone will progress through all of the stages. Only some of those who use beer or wine will go on to use cigarettes or hard liquor, but most of those who use illicit drugs will have passed through the earlier stages of substance use. As Kandel points out, this theory conflicts with problem behaviour theory, in questioning the premise that a common set of traits may be associated with a number of different problem behaviours. Kandel's theory introduces the concept of progression through a series of stages, with transition through the stages associated with specific risk factors at each stage.

Relationships between different risk factors

Kline *et al.* (1987) looked at a range of variables hypothesized to relate to alcohol abuse in adolescence. In their study of 499 US high school students, data were collected on:

drinking level; family functioning; parental alcohol approval; peer alcohol approval; social skills; and expectation of positive consequences from alcohol use. The researchers used path analysis to test hypothesised relationships between adolescent drinking levels and the other factors. Taken together, the effects of all the measures accounted for over 50 per cent of the variance on alcohol use. Analysis of the contribution of individual measures showed significant direct effects on alcohol use by adolescents for (deficient) family functioning and peer approval of alcohol. Smaller, but still significant effects were found for parental alcohol approval, poor social skills and positive alcohol expectancy. High family conflict and poor family relationships were associated with poor social skills. There was also an association between high family conflict, parental approval of alcohol, and use of alcohol by friends. This suggests that parents may have an indirect as well as a direct influence on the drinking of adolescent children through their role in the development of social skills and in the selection and approval of their child's friends.

Brook and Brook (1988) considered the influence of family, personality and peer factors on drinking during pre-adolescence and adolescence by interviewing 510 children and their mothers at two points in time. They found that certain personality factors were related to alcohol use: unconventionality (including deviance and rebelliousness); poor control of emotions; interpersonal difficulties; and poor intrapsychic functioning. Family factors related to alcohol use were: overpermissiveness; parental alcohol use; conflict between parents and children; and low affection. There was support for the influence of peers: adolescents who drank tended to have friends who used alcohol and other drugs and who exhibited delinquent behaviour.

The authors used multiple hierarchical regression analysis to consider the relative importance of factors in the three domains on drinking behaviour. Their findings indicated that in pre-adolescence, personality factors mediate peer and parent influences on alcohol use. In adolescence, peer and personality factors mediate family factors. Peer factors apparently became more important in adolescence, but parental factors did not lose their importance. The authors suggest that:' By adolescence, family interactions have set the stage for the development of personality and peer factors that are conducive to the use of alcohol'.

The study also indicated a link between maternal alcohol use and alcohol use in children, but found that greater levels of affection and lower conflict between parents and children could be viewed as 'insulating' children from alcohol use over time.

Similar conclusions on this point were reached by Hill *et al.* (1992) who found that children of alcoholic parents are more likely than children of non-alcoholic parents to show symptoms of alcohol dependence themselves, but that there appeared to be: 'Strong protective effects of positive family relationships on the potential negative effects of a family history of alcoholism'.

Hawkins *et al.* (1985) suggest that the influence of the peer group is mediated by other factors. If the process of developing pro-social attitudes and bonds has been interrupted by such factors as uncaring/inconsistent parents, poor school performance or inconsistent teachers, then an adolescent is more likely to form friendships with peers in the same situation, and is more likely to be influenced by such peers to engage in alcohol and drug use.

The results of these studies taken together, suggest that alcohol use in adolescence may be viewed as one aspect of 'problem behaviour', which can be related to family, personality and peer group factors. Family socialization factors can be important in shaping the early personality of children, developing social skills and influencing the selection of the child's peer group. Emotionally supportive families, and those in which the parents exert a fair degree of control over their children, are associated with lower drinking levels in adolescents.

It is possible that there is a genetically-linked predisposition towards alcohol abuse, which could explain the association between parental and adolescent alcohol/drug use. However, it appears that parental drinking behaviour may be more influential in its effects on family structure, control, and support, than through children emulating the behaviour of parental role-models. There is a strong relationship between peer group 'membership' and adolescent alcohol abuse, but it is not clear how much of this association can be explained by other factors which may predispose an individual to select a particular group of friends, and to be influenced by their orientation towards alcohol use.

5. ALCOHOL EDUCATION IN THE CURRICULUM

Schools have been one of the primary forums for alcohol education programmes, particularly in the USA. In the UK however, the subject has not received such a high priority in the curriculum (Grant, 1986).

Within the National Curriculum for England and Wales, alcohol education is included in health education, one of several 'cross-curricular themes'. In 1990, the National Curriculum Council published guidance on the teaching of health education in schools (NCC, 1990). The document outlines nine components of health education which should be taught to children aged five to 16. One of these components is substance use and misuse, defined as:

> *The acquisition of knowledge, understanding and skills which enable pupils to consider the effects of substances such as tobacco, alcohol and other drugs on themselves and others and to make informed and healthy decisions about the use of such substances.*

The document suggests that schools should develop policies for the location of health education within the curriculum, and detailed curriculum guidelines for the teaching of this subject area. The report outlines the type of content which most pupils could be expected to have covered by the end of each of four 'key stages' (i.e. at the ages of seven, eleven, fourteen and sixteen). For substance use and misuse, this ranges from simple information about drugs and medicines at key stage one, to a sophisticated understanding of: the production, distribution and use of drugs; recognition of patterns of use and effects of drugs; discussion of the role of the media; and an understanding of the concepts of safe use and responsible decision-making (key stage four).

It is suggested that using 'shock tactics' and an over-reliance on imparting information are not appropriate in the teaching of health education. On the other hand, there is support for the use of active learning methods, such as research, games, activities, discussion and role play.

The document outlines six possible models for the implementation of a health education programme in schools: permeating the whole curriculum; as a separately timetabled subject; as part of a personal and social education (PSE) course; as part of a pastoral or tutorial programme; through opportunities arising in other activities; and through long-block timetabling (e.g. an activity week). Pros and cons of these approaches are outlined, and the authors conclude that a variety of approaches to implementation should be adopted within each school:

> *Teaching health education through a number of subjects and, where appropriate, through separately timetabled provision offers pupils the best opportunity to receive a broad programme of health education.*

Also in 1990, research into aspects of alcohol education was conducted by the Schools Health Education Unit, based at the University of Exeter (Balding and Bish, 1990 and

1992). The study consisted of a questionnaire survey of 48 secondary schools and telephone interviews with staff at 24 of these schools. It is important to note that these were not a random sample of schools. The researchers drew on a database of schools which had previously used an instrument designed by the Unit (the Health Related Behaviour Questionnaire). Of the 800 schools who had used this questionnaire, 166 were approached to take part in the research, of which 48 agreed.

Teachers' views on the importance of alcohol education were sought. The findings indicated that school staff saw alcohol education as valuable, although they lacked confidence in their ability to influence their pupils' drinking behaviour outside the classroom, and were unsure how to evaluate their teaching on this subject. There was also some difference of opinion on the merits of teaching about alcohol as a separate element, or as part of a more general topic on substance misuse. The most important influence on young people's drinking was perceived to be 'peer pressure' with self-esteem and the use of alcohol by parents also viewed as influential.

Most schools taught about alcohol in more than one curriculum area. The majority of the schools (42 out of 48) included alcohol education within a PSE programme. Over half (26) covered alcohol use in the science curriculum, and under half (20) included it in tutorials. The overall amount of time allocated to this area was estimated to average ten hours within a student's entire secondary school experience, but schools reported very different amounts of time devoted to this, ranging from two to 68 hours. Although teachers felt there was no single 'best age' at which to target teaching about alcohol, most time was devoted to the subject in the 13 to 15 year old age group.

In 1992, the NFER conducted research into health education for the Health Education Authority (Jamison *et al.*, 1992). The research consisted of a survey of a representative sample of 900 schools in England. Responses were received from 544 primary, secondary and special schools, of which 110 were visited for interviews with staff.

The research used the NCC document (NCC, 1990) as a basis for examining the content of health education policies and curricula. The findings revealed that not all schools had fully-developed health education policies in place. In primary schools, health education was most commonly taught within a cross-curricular approach, and/or as part of science.

In secondary schools, health education was most commonly taught through a PSE curriculum (84%) with cross-curricular work and teaching in a pastoral/tutorial programme present in over half the responding schools. Special schools had a similar pattern of provision, with health education taught in a cross-curricular approach for younger children, and through PSE, tutorials, and/or science for students of secondary age.

Findings about the place of alcohol education in the curriculum were similar to those of Balding and Bish (1990, 1992). The NFER case studies revealed that substance use and misuse was usually taught through the PSE or pastoral system, with the science curriculum being another popular location. However, alcohol abuse was one of the areas most commonly identified as missing or inadequately covered, particularly in secondary and special schools. Secondary schools which tackled the subject of alcohol abuse generally did so in year 10 (15 year olds), but it also featured in years 9 and 11 in over half of the secondary schools. In primary schools, teaching about substance use and

misuse was thought to be important, but not all schools had made a decision about the inclusion of this area in the curriculum. For primary schools which did teach about substance use and misuse, this was usually confined to older pupils, most commonly ages 10 and 11.

The impact of the placement of alcohol education within the curriculum on the student experience is not clear-cut. However, it is likely that its placement within a science curriculum will lead to a more factual treatment of the subject, whereas inclusion in PSE curricula and tutorials is more likely to facilitate discussion of students' attitudes towards alcohol and drug abuse (Balding and Bish, 1990, 1992; Jamison *et al.*, 1992; NCC, 1990).

From the two research studies cited above, it seems that at secondary level the subject of alcohol abuse is only rarely included in the English curriculum. Balding and Bish (1992) view the lack of involvement of English and drama teachers with regret, because:

> *there is ample scope for work within a department that would have experience and confidence in role play as a method of teaching.*

In fact, some research conducted in the USA lends support to this view. Newman *et al.*(1992) evaluated an alcohol education programme for fourteen year olds, taught by teachers of social science and English. Their results indicated that the English teachers produced significantly higher knowledge gains among their students than the social science teachers ($p<.0001$). Interviews revealed that the English teachers were more comfortable with teaching the programme, especially in relation to the use of role play techniques.

In the study by Balding and Bish (*op. cit.*), the researchers related the teachers' questionnaire responses to their data on the prevalence of drinking reported by the students who had completed the Health Related Behaviour questionnaire. They found a relationship between student drinking and the place of alcohol education in the school curriculum: schools adopting a PSE approach had fewer drinkers than those teaching about alcohol within the science curriculum. The authors suggest that this association may not be a function of the location of alcohol education per se, but could reflect the influence of the school ethos on both drinking patterns and the location of alcohol education within the curriculum.

Resources for alcohol education in schools

One of the main aims of the study by Balding and Bish (*op. cit.*) was to discover which alcohol education resources were being used by teachers, and to evaluate some of the most widely-used resources. The researchers identified about 150 resources which were available and suitable for use in schools. On average, the schools which responded to the survey had three or four publications on the subject. (Because staff in these schools had expressed an interest in the area, this may be viewed as an over-estimate of the materials held in most schools.) Teachers emphasised that they were the primary resource for students, the materials tended to be used most by less confident teachers who wanted 'starting points' or 'back up material'. Small packs of materials were favoured, and videos were seen as a useful way of promoting discussion. Hiring videos was seen as cost-effective, but caused extra administration and meant that resources were not

always available when needed. There were widely differing views about the value of individual resources, and on the benefits of using outside speakers, suggesting that no one approach would be suitable for all schools.

In the NFER study (Jamison *et al.*, 1992) half the schools visited were experiencing constraints in the implementation of their health education programme. These included limitations on the purchase of materials. Although teachers acknowledged that there were a number of good materials available for teaching health education, constraints on budgets meant that teachers could not afford to buy them, and tended to rely on photocopying materials they had developed themselves.

Both the research studies cited above revealed a limited amount of community involvement in teaching about health issues. There was also evidence that the teaching of all aspects of health education was under threat from the demands of other curriculum areas on teachers' time. For example, the NFER study revealed that although two-thirds of schools had appointed a member of staff to coordinate health education, their impact was:

severely constrained by the lack of non-contact time.

This, coupled with reductions in staffing of health support for schools (e.g. local education authority advisory staff and health education coordinator posts) led the report's authors to conclude that health education could become marginalised in future, particularly in small primary schools.

The need for in-service training

There is an expressed need for in-service training (INSET) on the subject of alcohol education. The NFER study found that secondary teachers most commonly identified 'alcohol, smoking and drugs education' as the area of health education for which they would like some training. However, budgets for in-service training were constrained, and priority tended to go to courses related to National Curriculum foundation subjects, assessment and statutory requirements. The authors state that, in the past year:

No school had devoted a significant amount of INSET time to health education.

Of the teachers who responded to the survey on alcohol education (Balding and Bish, *op. cit.*), just under half had attended some in-service training themselves, but there was a general dissatisfaction with the quality of the training they had received. Some of the teachers had received 'cascade' training, where a member of staff who had attended a training event reported back to colleagues.

Effectiveness of training on alcohol education

Research into the implementation of an alcohol education training programme for teachers and other professional groups in England (Close, 1989; Simnett, 1985) has suggested that the cascade model did not work well, because people who had attended the course lacked the confidence, skills, and experience to run training for their colleagues.

Studies of teacher training in the USA have found that training can be effective in increasing teachers' knowledge about alcohol, and to a lesser extent, in changing aspects of teachers' attitudes towards alcohol use in adolescence, and improving teaching skills (Dicicco *et al.*, 1983; Fitzpatrick, 1983; Schaps *et al.*, 1984; Tarnai *et al.*, 1987). Results from one of the studies (Dicicco *et al.*, 1983) suggested that a 20-hour training programme had an appreciable effect on teachers' knowledge and attitudes. The knowledge gains were still in evidence when the teachers were followed up three years after their participation in the training. However, attitude gains had eroded over time, although they were still more positive than the teachers' attitudes measured prior to training. The authors suggest that teachers may benefit from attending follow-up training, particularly in relation to their attitudes towards responsible use of alcohol by teenagers.

The research studies cited above have produced conflicting evidence on the relationship between teacher training for alcohol education and student outcomes, although some reviewers of alcohol education programmes have identified teacher training as a component of more successful programmes (see Section 8, which gives the findings from previous literature reviews on alcohol and drug education).

Costs of programme implementation

The cost of implementing alcohol education programmes is not well covered in the literature. Only three papers were located which touched on this issue. Their findings are discussed below.

Connell *et al.* (1985) summarised evaluation findings concerning the implementation of four school health education programmes in 20 US states. The costs of full implementation of these programmes (defined as the cost of teacher training, support materials and classroom hours required to teach 80 per cent of the programme) ranged from about $23 to $84 per student, with an average cost of $56.

The authors distinguished between two types of costs associated with the programmes: adoption costs (teacher training and support materials) and implementation costs (classroom instruction time, including teachers' salaries and schools' fixed costs). Implementation costs were found to represent about 92% of the total costs for the four programmes. Although such a small proportion of the costs was related to adoption of the programmes, the authors suggest that constraints on school budgets may affect this area in particular. Teacher training and the purchase of materials can represent a large outlay, which may lead individual schools to reject expenditure on these items.

The study found a varied pattern of programme effectiveness, which was linked to the degree of programme implementation and the priorities of programme developers and classroom teachers. These factors were both related to the allocation of resources to the programme within schools. The authors state:

> *Where available resources (either classroom time or program support materials) were not sufficient to provide a complete program, the percentage of the program taught was reduced and, in turn, overall effectiveness of that program was diminished.*

Both adoption and implementation were found to be important elements in programme effectiveness. Teacher training was found to be positively related to programme implementation (coverage of programme activities and fidelity to programme materials) which was clearly related to higher gains for student knowledge, attitudes and self-reported behaviour. Implementation was particularly important in promoting positive results on affective and behavioural measures. The authors suggest that teacher commitment towards a particular programme is a key factor in implementation, and that this is influenced by training and the availability of materials.

The number of hours devoted to the programme was also related to student outcomes. The authors calculated the effect size for each programme (the difference between the means of the experimental and control groups, divided by their standard deviation). Three categories of effect size were defined: small effects (between .25 and .49 standard deviations); medium (.5 to .79 standard deviations); and large effects (defined as an effect size of greater than .8 standard deviations).

Large effects were found for general health-related knowledge for programmes taking up more than 50 hours of class time, although large effects on areas of knowledge specific to each programme were found after about 20 hours. For attitudes, there were no large or medium effects for the programmes, but small effects were apparent after 40 hours. No large effects were found for health-related behaviour, but medium effect sizes were achieved after 30 hours. Effects for all three domains generally reached stable levels at about 50 classroom hours. However, the practical difficulties of devoting this amount of time to any one curriculum area are acknowledged. The authors state:

> *Many teachers that provided extensive health instruction noted the difficulty of making such an amount of time available.*

Tricker and Davis (1987, 1988) looked at the costs of implementing two drug and alcohol education programmes in three Oregon school districts. The *Here's Looking at You* (HLAY) programme cost one district $4,426 per school in adoption costs. Teachers from 11 schools were provided with materials (shared among teachers) and training. The costs included purchase of materials, fees for guest speakers, substitute teachers to cover teachers' classes during training, and a (part-time) district coordinator's salary. Implementation of this 20-hour programme in the classroom cost approximately $45 per teacher per hour.

The authors found that constraints in expenditure on materials had affected programme implementation. In one district, each set of HLAY materials had to be shared among seven teachers, and in another district, one set was shared between five teachers. In some cases this meant that two or more schools had to share materials. There were resulting practical problems, including: limited time for each teacher to study and use the materials; mislocation of materials, with consequent loss of continuity in teaching; and organisational problems in moving heavy sets of materials between schools. Interviews with 44 teachers revealed that the maximum sharing ratio was felt to be three teachers per set of materials. The authors conclude that expenditure on HLAY materials in these two districts was too low to ensure efficient teaching of the curriculum, and that more attention should be given to improving the implementation of drug education programmes in future.

What students want

Several studies have focused on the perceptions of students about drug and alcohol education. Researchers have investigated who they would like to deliver the education, wether students think schools should provide education on this subject, and what they would like to find out. Most of the studies described in this section took place in the USA.

Credibility of different alcohol educators and counsellors

A survey of 816 secondary school students in the UK (Eiser and Eiser, 1988) found that students rated 'the most suitable person to tell one about drugs' in the following order of increasing suitability: teacher; policeman; parent; nurse; doctor; ex-drug addict.

Mayton *et al.* (1990) conducted interviews with 223 junior and senior high school students in Idaho. The aim of the study was to discover students' perceptions of the credibility of different drug 'educators'. The study arose from previous work by the authors among teachers, parents and community leaders. The research had revealed that these adults felt that they were not credible sources of information about drugs in the eyes of adolescents, and thought that young people preferred to listen to the views of their peers instead.

The subsequent research did not confirm these perceptions: 84 per cent of the adolescents interviewed agreed with the statement 'What your parents say about drugs can be trusted because they are well-informed', and 79 per cent agreed with a similar statement about teachers. As far as other students were concerned, only 24 per cent of the sample felt they could be trusted on this subject. Although few of the students had obtained information about drugs from adults other than parents or teachers, between 80 and 90 per cent of interviewees said they would listen to people such as: doctors and nurses; police officers; school counsellors; former addicts; clergy; and sports celebrities. (TV and movie celebrities, political figures and rock musicians were not felt to be credible sources of information about drugs.)

A similar study was conducted by Glassford *et al.* (1991) among 3,889 students in Wisconsin. Students were given a list of 11 types of people and asked who they would chose as a drug educator. The findings were similar to those of Mayton *et al.* (outlined above). Parents, teachers and doctors were all ranked higher than same-age students as drug educators, although trained drug counsellors, same-age former addicts and adult former addicts were the top three choices. When asked who they would chose as a counsellor on alcohol and other drug abuse, the person preferred by the highest proportion of respondents (23%) was a professional alcohol and drug abuse counsellor. Twenty per cent chose a same-age former drug abuser. These choices were fairly consistent across grade level and for male and female respondents.

However, a small-scale study using a 'focus group' technique, (Beck *et al.*, 1987) found some support for the use of peer opinion leaders as teachers in anti-drinking and driving programmes. Students indicated that:

> *If students, rather than authority figures, led awareness programs, they would be more effective.*

In a small-scale study of black adolescents in the US (Moncher *et al.*, 1989) perceptions of the use of computers in drug and alcohol education were explored. While there was a general preference for the use of computers in education, on the specific subject of information or counselling on alcohol/drugs the majority of the 26 students said they would prefer a human to a computer. The responses indicated that students felt computers would be inappropriate because they were unable to understand and relate to human problems.

Curriculum content

Research has revealed that students do want to receive education about alcohol and other drugs in school (Eiser and Eiser, 1988; Glassford *et al.*, 1991). Studies seeking student views have focused on various aspects of educational programmes. For example, Glassford *et al.* (ibid) found that students favoured two formats of alcohol education presentation: an invited speaker plus discussion or a video presentation and discussion. They also found that respondents endorsed the teaching about the effects of alcohol usage on the user. Beck *et al.* (1987) found that students would like more information on how to recognise signs of intoxication in themselves and others. Goodstadt and Willett (1989) suggest that adolescents would welcome a :

> *more balanced consideration of drugs, including the social functions of drugs, and the positive and negative aspects of their use.*

6. RELATED EDUCATIONAL INITIATIVES

Curriculum approaches used in alcohol education have been strongly influenced by those used in other areas of substance abuse, particularly in smoking education (Leming, 1992). As well as programmes focusing specifically on alcohol, alcohol education has often formed part of a broader substance abuse programme. Reasons for this include: categorisation of alcohol as a drug (like marijuana or cocaine); commonality in the correlates of adolescent alcohol abuse and other 'problem' behaviours; and practical concerns (e.g. limited curriculum time) that make broad-based programmes on substance abuse more attractive to schools than single-issue approaches (see Braucht and Braucht, 1984). Results from evaluations of drug/substance abuse programmes are given in a separate section of this report.

However, although there are similarities between alcohol and other drugs, one major difference lies in the social acceptability and prevalence of alcohol use. In this sense, alcohol education may have more in common with programmes focusing on the prevention of HIV/AIDS, since a major concern of both is to promote socially responsible behaviour rather than presenting abstinence as the only option. The purpose of this section is to see if any of the approaches developed for HIV/AIDS education could hold useful messages for alcohol education programmes.

Approaches to HIV/AIDS education

Recommended approaches to HIV/AIDS education have tended to feature active learning methods, such as discussion, simulations, role playand dramatic presentations (Guy *et al.*, 1992; Leming, 1992; Stears and Clift, 1990). The use of people with AIDS as presenters and the inclusion of peer learning techniques, such as cooperative group work and peer tutors, have also been widely endorsed (Dorman *et al.*, 1989; Gillies, 1988; Guy *et al.*, 1992; Redman, 1987).

Due to the recent development of HIV/AIDS education programmes, very few have been the subject of evaluation studies. The results of three evaluation studies are given below.

Brown *et al.* (1989) studied the impact of a two-session AIDS education programme on a sample of 12- and 15-year-old students in Rhode Island, USA. The programme included film presentations and class discussion. The results of tests administered before and three weeks after the sessions indicated significant increases in knowledge, tolerance towards people with AIDS, and likelihood of engaging in safer behaviours (e.g. using condoms during intercourse).

DiClemente *et al.* (1989) studied a school-based programme in San Francisco. They found significant increases in knowledge, tolerance of a classmate with AIDS and less fear of AIDS in the treatment group, when compared to a control. Results of a study by Miller and Downer (1988) were similar. They found improvements in AIDS-related knowledge and tolerance in a treatment group (compared with a control) two months after a brief educational programme.

The impact of role play techniques and of training delivered by a person with AIDS was assessed in a study of 734 US high school students (Smith and Katner, 1992). AIDS information was presented through a lecture (which all students attended) followed by either i) a question and answer session with the lecturer, ii) a presentation by a young person with AIDS, or iii) a role play exercise. Pre-test information indicated no significant differences between the three groups of students. The presentation by the person with AIDS was rated as significantly more worthwhile, more interesting and less embarrassing than the others, whereas the role play was rated as the most fun. Significant differences in attitudes were noted five weeks after the programme: students who had taken part in the role play or presentation had more positive attitudes towards people with AIDS than those taking part in the question and answer session. Significant changes to minimise 'risk' behaviour were reported by participants in the role play group.

7. INFLUENCES ON ALCOHOL EDUCATION PROGRAMMES

The shifts in alcohol education 'paradigms' within the past three decades have been influenced by a variety of factors. First, research into the effectiveness of the early, informational approaches indicated that they were of limited value (Goodstadt, 1980; Hanson, 1982; Kinder *et. al.*, 1980; Schaps *et al*, 1981, Staulcup *et al.*, 1979). Although the programmes were generally effective in increasing knowledge about alcohol, they did not consistently demonstrate the expected effects on attitudes and knowledge. Indeed, some studies suggested that informational programmes may even increase students' interest in and use of alcohol and other substances.

These disappointing results were placed in the context of developments in the theory of health-related behaviour. Fishbein and Ajzen (1975) developed the theory of reasoned action which questioned the premise that behaviour is primarily determined by decisions based on knowledge, and pointed to the importance of beliefs in shaping attitudes and impacting on behaviour.

Affective approaches were developed in the mid 1970s, which sought to develop students' personal skills, such as problem-solving and decision-making, and to enhance their self-esteem. Values clarification (Harmon *et. al.*, 1973) was seen as a way of helping young people make decisions by reflecting on the personal values of themselves and of others. This approach was applied to alcohol and substance abuse in an attempt to help young people consider the role of alcohol/substance use in relation to their own needs and values. Typically, exercises were used which aimed to help young people clarify their values, identify discrepancies between their values and their behaviour, and seek to resolve the identified discrepancies (Braught and Braught, 1984; Schlegel *et. al.*, 1984). However, as Moskowitz (1989) points out, there is little empirical evidence to support the efficacy of such affective approaches.

Social learning techniques became a popular method in the 1980s. One aspect of these programmes, 'pressure resistance training', derived from the belief that adolescents begin to smoke, drink and use drugs because they come under pressure to do so from a variety of sources, including: the mass media; adults; and young people within their peer group. Botvin and Wills (1987) credit Evans and his colleagues at the University of Houston for applying the theoretical approaches of Bandura (1977) and McGuire (1964, 1968) to the problem of adolescent smoking. Evans' methods involved showing students a film depicting the kinds of pressure to smoke they would be likely to encounter as they progressed through school. The film demonstrated specific techniques for resisting such pressures, and aimed to 'inoculate' the young people against yielding to their effects (Evans 1976; Evans *et. al.* 1978). This approach was later applied to other areas of substance abuse, and developed to include role-play, in which young people rehearsed their ability to 'say no' to pressure to drink, smoke or use drugs.

Other elements of educational programmes have been included as a result of research into substance use among young people. For example, the finding that substance misuse was correlated with low self esteem and poor cognitive and social skills, (Capuzzi and Lecoq, 1983; Jessor and Jessor, 1977) has led to the continued presence of personal and social skills training in programmes directed against substance use. Similarly, the finding that young people who smoke tend to over-estimate the prevalence of use of these substances within the population as a whole (Sherman *et al.*, 1983), has led some programme designers to include elements aimed at correcting high 'normative expectations' of substance use.

Alcohol education programmes for young offenders have included many of the same elements as school-based programmes, with the addition of behavioural modification techniques, such as drinking diaries, self-monitoring and contracts (Baldwin and Heather, 1987; McMurran, 1991).

8. FINDINGS FROM PREVIOUS REVIEWS OF PROGRAMME EFFECTIVENESS

There have been several reviews of the evidence on the effectiveness of alcohol and drug education programmes. The purpose of this section is to outline the main conclusions arising from reviews published between 1983 and 1992.

In general, commentators who have researched the area are not very encouraging regarding the effectiveness of alcohol education programmes. It is acknowledged that it is possible to increase knowledge through alcohol education, but attitudes are more difficult to change, and that few studies have been able to demonstrate a positive impact on alcohol consumption.

In addition, some studies have reported negative outcomes for alcohol-related attitudes and behaviour as a result of education programmes, and it has been found that positive outcomes cannot usually besustained over time. There have also been widespread methodological criticisms of the quality of the evaluations themselves.

One influential paper (Rundall and Bruvold, 1988) reported the results of a meta-analysis of 76 school-based smoking and alcohol use prevention programmes. The authors reviewed the results of 29 alcohol education programmes published between 1970 and 1988. They calculated the effect size for each study (the difference between the means of the experimental and control groups divided by their standard deviation). Effect sizes from studies reporting results on knowledge, attitudes, and/or behaviour were calculated for immediate effects and for results of measures collected at least three months after completion of the programme.

Their findings revealed that smoking interventions were consistently more effective than alcohol education programmes in achieving long-term knowledge, attitude and behavioural change. The overall effect sizes for alcohol knowledge were 0.65 standard deviations (for immediate results) and 0.38 (for long-term results). For alcohol-related attitudes, effect sizes were 0.13 (immediate) and -0.23 (long term). Alcohol behaviour measures showed effects of 0.34 and 0.12 respectively. These results indicate a stronger effect for knowledge than for attitudes or behaviour, and a decrease in effect size for all three measures over time. In the case of attitudes, the results indicate a negative trend: students who had received alcohol education held more pro-alcohol attitudes in the longer term than students who had not taken part in the programmes.

According to the criteria used by Connell *et al.* (1985), only three of these results can be judged to have educational significance. In relation to knowledge, the programmes can be said to have had medium effects for immediate measures, and low-level effects for knowledge gains measured at least three months after completion of the programme. Low-level effects were found for immediate behaviour measures, but there was no effect

for longer-term behaviour, or for either of the attitudinal measures (although the longer-term measure of attitudes is close to the level at which it would qualify as indicating a low-level impact).

Similar findings from other reviews have led some commentators to question wether schools are an appropriate arena for prevention programmes (Grant, 1986; May, 1991; Pickens, 1984).

Features of more effective alcohol education programmes

Some reviewers have reached more positive conclusions about certain types of programmes. For example, Grant (1986) reviewed 57 studies published between 1965 and 1980. While concluding that alcohol education was often 'a spectacularly wasteful exercise' he suggested that more successful programmes were led by specially trained teachers or peer leaders, used active learning methods and, at tertiary level, included field trips (e.g. visits to local treatment centres).

The meta-analysis by Rundall and Bruvold (1988) compared the results of programmes in which a traditional, rational model dominated, with those using 'more innovative' methods. They concluded that the innovative programmes more reliably produced desirable outcomes for behavioural measures.

Goodstadt and Caleekal-John (1984) reviewed studies of 14 alcohol education programmes for university students, and identified two features of more successful programmes. Like Grant, they suggested that the inclusion of 'field' or laboratory experiences may contribute to programme success. They also pointed to the positive influence of programme intensity (i.e. considerable input in a large amount of hours, over an extended period of time). This review obtained some of the most positive findings, with nine of 13 studies being judged as at least partially successful in obtaining positive effects for self-report behaviour. The authors concluded that such programmes:

> *Offer the promise of significant impact on college students' reported alcohol-related behavior as well as on their attitudes and knowledge.*

However, Moskowitz (1989) has suggested that Goodstadt and Caleekal-John may have been overstating the case. Moskowitz points out that several of the studies included in this review contrasted the results of students who had volunteered to take part in an alcohol programme with those of students who had not volunteered. It is possible that differences between results for treatment and control could be the result of 'selection bias', not of the programmes themselves.

Reviews of drug education programme effectiveness

Several reviews of drug education programmes have been carried out. The programmes included in these reviews focus on a variety of drugs (e.g. tobacco, marijuana, amphetamines, heroin, cocaine) and may include alcohol although not all studies report separate results for each of these substances.

In 1987, Botvin and Wills published a review of nine recently-published evaluation studies. They concluded that school-based drug abuse prevention programmes can be successful regardless of who delivers them (researchers, social workers, teachers, peers). They also suggested that a more intensive programme (i.e. frequent sessions over a short time-span) may be more effective, and that 'booster' sessions held at a later date, can help to maintain and enhance programme effect.

Tobler (1986) carried out a meta-analysis of 143 drug prevention programme evaluations. The programmes were implemented between 1972 and 1984 and were all aimed at adolescents. She included dissertations and unpublished studies in her review, as well as published material.

Tobler's findings suggested that the highest effects were reported for cigarettes, and the lowest for alcohol and 'soft' drugs. Taking the results for all drug programmes together, she calculated effect sizes for outcome measures as follows: knowledge, 0.52 standard deviations; attitudes, 0.18; drug use, 0.24.

Certain types of drug prevention programmes were found to be more effective than others. Programmes characterised as knowledge-based or those using affective approaches alone were much less effective than 'peer programs'. Tobler defined peer programs as those combining positive peer influence with specific skills training. This would include approaches using peers as teachers, helpers, or including a substantial amount of peer participation. The programmes taught students pressure resistance skills and social/life skills. Tobler concluded that:

> *peer programmes were found to show a definite superiority for the magnitude of effect size obtained on all outcome measures.*

She also found that programmes offering 'alternatives' to drug use (e.g. sporting or social activities) were more effective with 'at risk' students.

Tobler investigated the effects of programme implementation, intensity, and student age. She discovered that few papers gave information concerning the quality of implementation (did the teachers receive training, was the programme implemented fully and well), so she was unable to proceed with the analysis. There was no overall relationship between results and intensity (length in hours) or age of participants.

Tobler's work was subsequently criticised by Bangert-Drowns (1988). He suggested that Tobler had been too liberal in her criteria for the inclusion of studies, and that this had compromised the quality of her results. He also questioned her decision to exclude programmes aimed at younger or older participants, and drew attention to weaknesses in her methodology.

Bangert-Drowns' own meta-analysis included 33 evaluations of drug and alcohol programmes for elementary, secondary or college students in the USA or Canada. He drew solely on publicly-available reports (i.e. published studies and dissertations) and excluded studies focusing specifically on 'at risk' populations. The studies included in this analysis were published between 1968 and 1986.

This meta-analysis resulted in average effect sizes of 0.76 for knowledge, 0.34 for attitudes, and 0.12 for behaviour. The author states that only the knowledge and attitude effects were large enough to be reliably considered different from zero.

Bangert-Drowns found that mode of delivery was significantly related to effect size for attitudes towards substance abuse. Programmes using lectures as their only method of delivery had lower effects for attitudes than those using discussion (with or without lectures). Use of peers as instructional leaders was also related to significantly higher effect sizes for attitudes. Two factors were found to be related to behavioural effects. Year of publication was significantly related to behavioural outcomes (studies published before 1979 had an average negative effect size, whereas the results of later studies were more positive for behavioural measures). Studies whose participants had volunteered to take part were also significantly more likely to report positive behavioural outcomes for substance abuse.

Overall, the conclusions of the major literature reviews are not encouraging for those wishing to impact on alcohol use among young people. However, as Leming (1992) points out, these reviews have not generally included the results of programmes implemented in the late 1980s using newly-developed approaches to drug and alcohol education. Leming suggests that the initial results of these approaches are more encouraging, and warrant continued study.

9. CRITICAL REVIEW OF ALCOHOL EDUCATION PROGRAMME EVALUATIONS

Papers reporting the results of evaluations of alcohol education programmes published between 1983 and 1992 were examined for possible inclusion in a critical review. In order to ensure comparability and confidence in the reported results, a number of criteria were used to assess wether a paper qualified for inclusion. In accordance with the wishes of the sponsor, the criteria were intended to allow as many papers as possible to be included, while setting minimum quality standards.

Criteria for inclusion

a) Any English language paper describing an evaluative study of an educational initiative for young people concerning or including alcohol.

b) The paper must report results of statistical analyses (including tests of significance) for outcome measures related to alcohol knowledge, attitudes, and/or behaviour.

c) The evaluation design must conform to one of the following: treatment and control groups using either random allocation to condition and/or pre-test measures to assess comparability; pre- and post-treatment assessments of one or more treatment conditions.

Overview of the studies

Twenty one studies of alcohol education programmes met the criteria and were included in the review. The methodology of each of the studies was scrutinised by the author and by a senior statistician at the NFER. (Eleven papers and reports were excluded, for reasons specified in Section 10, which deals with methodology). A description of each of the studies included in the review is given in Appendix C.

(As most of the studies originate in North America, the term 'student' will be used to describe the young people who participate in these programmes. This refers to young people in elementary/primary education as well as those in secondary or higher education.)

All but one of the studies included some kind of control or 'comparison' group (the exception was Dignan *et al*, 1985), but it should be noted that the composition of the comparison group differed between studies. Some researchers compared the 'treatment' group (i.e. students receiving a specific alcohol education programme) with a group of young people who had not been exposed to any alcohol education. Some researchers contrasted a newly-developed programme with an existing one, while others included a group who received a specially-designed 'minimal intervention' programme to act as a

comparison to one or more treatment groups. In one case, a research team lost their comparison group after the first year of the study when the authorities, impressed with the new programme, insisted that it should be extended to all schools in their district.

The majority of the studies were carried out in schools, although as Table 1 shows, three were conducted with young offenders in penal institutions. Fifteen of the evaluations were carried out in the USA, three in the UK, one in Canada and one in Australia. There was also an international study (Perry , 1989; Perry *et al.*, 1989), which took place in Australia, Chile, Norway and Swaziland.

Overall, the participants in the studies ranged in age from nine to 21. (Papers giving details of student grade level have been converted into age, for the purposes of comparison.) As might be expected, the young offender programmes tended to have older participants than the school programmes. The most common ages of participants in schools' programmes were 11 and 12. The main reason given for targeting students of this age is that it represents a transition point for alcohol experimentation. By exposing children of this age to alcohol education, it was hoped to persuade them to abstain, delay onset of use or use alcohol moderately. One of the implicit assumptions of these programmes is that it should be easier to achieve these goals among young people who have not yet begun drinking than with those who have.

A variety of different approaches and delivery methods were used in the studies, although most used social learning techniques. A majority of the educational initiatives included some information on the consequences of alcohol use and pressure resistance training. Other elements included in two or more programmes were: social skills training (e.g. communication skills and assertiveness); cognitive skills (mainly decision-making and problem-solving); changing normative expectations of alcohol use; affective support (enhancing self-esteem and efficacy); and pledges (encouraging participants to make public statements that they would not drink, or that they would use alcohol responsibly). Two of the young offender programmes (Baldwin *et al.*, 1991; McMurran and Boyle, 1990) used behaviour modification techniques to help the young people recognise, monitor and modify their drinking behaviour, the third (Kooler and Bruvold, 1992) utilised a social learning curriculum similar to that used in schools.

Several studies reported the results of more than one type of alcohol education approach, or used the same approach with different delivery methods. The results of the different treatment groups were then compared with one another and, in most cases, with a comparison group. In total, the 21 studies reported the results of 31 'treatments' or alcohol education interventions.

The results of the studies were examined to establish wether there were significant differences between the treatment and control conditions (or, in the studies reporting within-group gain scores, wether there was a significant change in scores from pre- to post-test results). A reported significance level at $p < .05$ or less was accepted as an indication that the results were unlikely to have occurred by chance. Results from three types of measures were examined: alcohol-related knowledge; attitudes; and self-report behaviour. Some studies included information on behavioural intentions as well as drinking behaviour (e.g. 'I will reduce the amount I drink' or 'I will refuse to ride in a

car with a drinking driver'). These measures have been included in the category of alcohol-related behaviour.

The results of these studies are given in Table 1.

Table 1: Results from 21 studies of 31 Alcohol Education Initiatives

	Results				
	Positive	Neutral	Mixed	Not Measured	Total
Measures					
Knowledge	10	4	4	13	31
Attitudes	5	8	6	12	31
Behaviour	6	13	6	6	31

No entirely negative results were reported for any of the measures.

The table shows how many of the 31 interventions had results which were positive (i.e. in the desired direction) or were neutral (no observed impact). It was necessary to include a category for 'mixed' or inconsistent results, because some studies reported differing results for measures within the same domain, for different groups of students, or changes in results over time. These results will be discussed in more detail below. Not all studies reported results for each domain (i.e. knowledge, attitudes and behaviour).

Results for alcohol-related knowledge

Overall, 18 alcohol interventions were assessed for knowledge gains, 10 of which generated exclusively positive results. There were no purely negative results reported. The 'mixed' results were a combination of no difference and positive knowledge gains in three cases. One study (Hopkins *et al.*, 1988), showed a complex pattern of outcomes for knowledge variables which were positive for five grade levels, neutral for one, and negative for two further grades. There was no consistent pattern according to the age level of students who participated in this programme.

Results for alcohol-related attitudes

Table 1 shows that eight of the 19 initiatives which included attitudinal measures yielded neutral results. Only five interventions had exclusively positive results, and none of the evaluations reported that all attitudes towards alcohol had changed significantly for the worse following the intervention.

The six studies reporting mixed results for attitudinal measures did not follow any consistent pattern. The results of these interventions were as follows: the international study (Perry *et al.*, 1989; Perry, 1989) found that the teacher-led programme had an overall positive effect on attitudes for students who were non-drinkers, but that the results for this programme on non-drinkers did not reach significance.

Eiser *et al.* (1988) found that students who had viewed a drug and alcohol video (*Thinking Twice*) were significantly more likely than a control group to rate spirits as less addictive but saw beer as more likely to kill.

Hopkins *et al.* (1988) reported on a number of attitude scales. Their results did not follow a consistent pattern: although the outcomes for most age groups were not significantly different from the control group, the measures showed some positive and some negative changes for different age groups following the students' participation in the programme.

Dignan *et al.* (1985) reported no significant pre- to post-test change in attitudes for students in one school area, but found an erosion in alcohol-related attitudes for students from another county who had participated in the same programme. A further study (Pentz *et al.*, 1989; Mackinnon *et al.* 1991) reported positive results on some attitudinal measures, and no difference on others.

Finally, in a study contrasting three approaches with a control group (Schlegel *et al.*, 1984) one of the programmes (information plus values clarification) showed no immediate impact on any of the attitudinal measures, but six months later there was a negative change in this group when compared with the control group for one scale (attitudes towards drinking liquor to feel the effects). Schlegel *et al.* found that overall, student attitudes became more pro-alcohol between the pre-test and post-test administered six months later, although the students taking part in the three programmes differed in the relative amount of attitude change they experienced.

It is interesting to note that for 13 interventions there was no reported assessment of knowledge gains, and 12 treatments were not assessed for attitudes. This could suggest a trend for researchers working in the past decade to be more interested in behaviour than knowledge or attitudes, as an indicator of programme success.

Results for self-report behaviour related to alcohol

As can be seen in the table, the majority of the studies reported measures for behaviour and/or behavioural intentions (25 out of the 31 interventions). In general, alcohol consumption measures were used to discover wether students had ever tasted alcohol and, if so, the frequency and level of their consumption. Some researchers used standardised alcohol consumption scales designed for the age-group to categorise students by their reported frequency and level of drinking. A few studies of programmes with a drink-driving component also utilised self-report information on drinking and driving, and riding with a drinking driver. The three studies of young offenders (Baldwin *et al.*, 1991; Kooler and Bruvold, 1992; McMurran and Boyle, 1990) used the re-offending behaviour of the participants as an outcome measure.

The majority of the interventions were reported to have neutral results for alcohol-related behaviour. Six interventions had positive behavioural outcomes (these will be examined in more detail in a later section). Six of the 25 reported programme results for behavioural measures were mixed. Of these, four interventions were reported to have had a mixture of neutral and positive results, and in two cases, (Duryea and Okwumabua,

1988; Schlegel *et al.*, 1984) mixed neutral and negative behavioural outcomes were reported. Details of these mixed results are given below.

Three alcohol interventions were reported to have different results for different measures. For example, Wragg (1986) reported no differences in overall use of alcohol between treatment and control groups after three years, but the treatment group did indicate significantly lower alcohol consumption on two individual items (number of times alcohol had been used in the previous four weeks, and experiencing negative effects from alcohol).

Newman *et al.* (1992) found no significant differences in relation to alcohol use, but control group members increased their frequency of riding with a drinking driver significantly more than participants in an alcohol and drink driving programme.

Duryea and Okwumabua (1988) reported a negative impact of an alcohol education programme on frequency of drinking to excess. However, there was no difference between treatment and control group participants on frequency of drinking and frequency of riding with a drunk driver.

In one study, results from two programmes differed according to the age-group of the participants. Baer *et al.* (1988) reported that two treatment programmes had no apparent influence on either use or non-use measures among 12 and 13 year old students when compared to a control group two years later. However, a 16 year old sample showed significantly less alcohol use in both treatment groups after one year.

Schlegel *et al.* (1984) again reported changes in results over time, for one of the three treatment groups. For this 'decision-making' group, there was no significant difference in alcohol consumption immediately following the programme, but there was a significant increase in new drinkers in this group when compared with the control group six months later.

Results for different sub-groups

Some of the studies have included information for different sub-groups within the study sample. Characteristics of samples, such as the proportions of young people who are male, and from different social class and cultural backgrounds, are described in some of the papers. There is also interest, particularly in the more recent studies, in the proportions of students who have experience of drinking alcohol, as measured at the beginning of the study. These measures have been used in three main ways: to check for equivalence between treatment and control conditions; to monitor the effect of attrition on sub-groups hypothesised to be more or less at risk of alcohol use; and to look for differential effects of the same programme on different groups of young people. It is data arising from the third type of analysis which will form the basis of this section.

Results from studies which have looked at programme effects in relation to drinking status have not been entirely consistent. However, in most cases education programmes appear to have had a greater effect on non-drinkers than on drinkers. For example, Perry *et al.* (1989) reported positive results for a peer-led programme on the subsequent drinking patterns of both drinkers and non-drinkers, but the results of this programme

were more significant for students who had been non-drinkers at baseline. Ellickson and Bell (1990a, 1990b) found initially positive results on drinking behaviour for a peer-led programme among non-users of alcohol, whereas there were no significant differences for alcohol 'experimenters' or 'users' when compared to a control group. However, subsequent follow up measures collected at 12 and 15 months failed to find behavioural differences for any of these groups.

In contrast, Dielman *et al.* (1989) reported that drinkers who had been exposed to an alcohol education programme reported significantly lower levels of alcohol use than drinkers in a control group. There were no programme-related differences for students categorised as abstainers on the basis of their pre-test responses.

Findings reported by Baer *et al.* (1988) suggest that differential experiences of adult and peer drinking behaviour may cause young people to react differently to the same programme. The measures used in this evaluation included items on peer and parental alcohol use, perceived approval of alcohol use, and perceptions of the prevalence of alcohol use among young people of their own age. The findings suggested that for the twelve-year-old students, those scoring high on peer and parent alcohol 'modelling' scales who had been exposed to a 'pressure resistance' programme had a significantly lower level of alcohol use at the post-test stage (two years after the programme). In contrast, students with low peer and parental modelling scores responded significantly better to a programme emphasizing decision-making and values clarification.

The results of these studies, taken together, suggest that students with different characteristics (gender, drinking behaviour, presence of peer and parent models of alcohol use) may react differently to the same programme.

The influence of implementation

Two studies investigated the effects of programme implementation on student outcomes, with mixed results. Pentz *et al.* (1990) found that implementation (defined as the amount of time students were exposed to the programme) was significantly related to positive behavioural outcomes for alcohol use.

Hopkins *et al.* (1988) included measures of the number of class periods devoted to the programme, emphasis by the teacher on different aspects of the programme, and teacher commitment (a group of particularly 'committed' teachers was recruited to teach the programme, and their results contrasted with those of 'ordinary' teachers). None of these measures was found to be related to programme effects. The authors conclude that, in the case of this programme, the effects of the curriculum were so slight that they were not affected by teacher implementation.

Different effects for different substances

As noted above, some of the programmes included in this review were designed to impact on drugs such as tobacco and marijuana, as well as on alcohol use. The results of these studies suggest that it is easier to affect attitudes and behaviour in relation to tobacco and marijuana, than it is to affect alcohol outcomes. Programmes showing

significant results for tobacco and marijuana failed to have any significant impact on alcohol-related behaviour (Botvin *et al.*, 1984; Ellickson and Bell, 1990a, 1990b; Gersick *et al.*, 1988; Hansen *et al.*, 1986; Pentz *et al.*, 1989; Wragg, 1986).

Successful programmes

As the primary aim of alcohol education is to have an impact on alcohol behaviour, the studies which were successful in this regard will be examined in more detail in this section.

There were six alcohol education interventions which reported entirely positive results for alcohol behaviour, four of which also had positive results for attitudes.

Young offender programmes

Baldwin *et al.* (1991) in their study of 27 male young offenders, aged between 16 and 21 reported positive results for an alcohol education programme. The 14 young men who had received a 12-hour behavioural programme on alcohol had committed significantly fewer offences against the person and 'rules and regulations' offences than seven members of a matched control group, when followed up about 14 months later. There were also positive results on self-report alcohol use measures (number of units of alcohol per week, number of units per drinking session) showing lower levels of alcohol consumption for the treatment group, in comparison to the control. All these results were significant at the level of $p<.05$. However, the authors of the report state that although the alcohol use results were encouraging for the treatment group, these young men were continuing to drink at well above recommended 'safe' levels. The small number of participants in the study, and the relatively high attrition rate for control group members in particular, restrict the generalisability of this study, as the authors themselves point out.

Kooler and Bruvold (1992) studied a sample of juveniles convicted of driving under the influence of alcohol in California. A total of 104 young people, aged from 15 to 19 had taken part in an 18 hour education programme following their conviction. The programme focused on drinking and driving, and used techniques common to many school-based approaches (enhancement of self-concept, development of decision-making skills, and pressure resistance skills). The programme was taught by police officers, and utilised group discussion and role play.

The self-report alcohol consumption rates of these young people were collected before and after the programme. The participants reported a decline in alcohol consumption following the programme ($p <.05$), as well as a positive change in attitude scores ($p <.001$). The authors also studied the reconviction rates of programme participants, and compared them with a sample of about 500 other young people convicted of the same offence during the same period of time, who had not participated in the programme. This analysis showed significantly lower reconviction rates among programme participants ($p <.01$). An analysis of gender, age, racial group, and seriousness of offence found these factors did not explain the difference in reconviction rates.

School-based programmes

Schlegel *et al.* (1984) set out to study the effects of different approaches to alcohol education on over 300 students in Canada. The classes of students were randomly assigned to a control group or to one of three treatment conditions. The first condition consisted of a facts-based curriculum of five sessions on the biological and social consequences of alcohol and alcoholism. The second, a facts plus values clarification curriculum, centred on identifying the rewards students gained from different activities and the reasons people have for drinking. Students were encouraged to find alternative ways of finding rewards that did not have the negative consequences of alcohol use. This programme was taught in addition to the fact-based sessions, and took seven and a half sessions.

The third treatment group added a decision-making component to the 'facts plus values-clarification' programme. In this condition, students completed a balance sheet, recording positive and negative consequences of heavy drinking, moderate drinking and non-drinking behaviours. Students were then asked to identify realistic goals for themselves regarding drinking behaviour, and to complete self-contracts recording their goals. This programme lasted a total of nine class sessions.

All three programmes were delivered by the class teachers, who received pre-programme training and weekly contact with researchers during implementation. The programmes were largely teacher-directed, with the 'facts' element employing discovery learning techniques whereby the students carried out their own research. The authors hypothesised that the students who had experienced the first programme would increase their alcohol-related knowledge. They expected the values-clarification element to improve attitudes, and the decision-making component to impact on alcohol-related behaviour.

The outcome of this study was not as the authors had predicted: in terms of alcohol consumption, the results favoured the students who had received only the factual element. On a quantity-frequency scale of alcohol use, the facts only group had the lowest intake of alcohol ($p < .001$) at a post-test immediately following the programme. None of the other groups differed significantly from one another. After six months, the consumption level of the facts group remained fairly stable, whereas the other groups all increased their consumption of alcohol. The authors suggest that the values clarification and decision-making exercises may have had the unintended consequence of enabling students to take the view that alcohol use (at moderate levels) was a reasonable decision, and may therefore have led to earlier onset of drinking in these groups. They also suggest that the facts-based curriculum may have influenced students against drinking, without presenting moderate use of alcohol as an attractive option.

In an international study sponsored by the World Health Organisation (Perry *et al*, 1989; Perry, 1989) a specially designed alcohol education programme was delivered by either teachers or same-age peers. The study took place in 25 schools in four countries, and included over 2,500 students aged between 11-16 (although most were aged 13-15). Participating schools in each country were randomly allocated to teacher, peer or control conditions. The programme consisted of five 40-minute sessions on: the social and physical consequences of alcohol use; correction of normative expectations; pressure resistance skills; and optional pledges by the students not to drink until they were older.

Both teachers and peer leaders received training. About five peer leaders per class were selected from volunteers or teacher nominees. The peer leaders were responsible for delivering about 70 per cent of the programme in the peer condition. Similar social learning techniques were used in both conditions, including discussion and role play, but the peer-led programme had group discussion, whereas the teacher-led programme used class discussion.

A post-test was conducted one month after completion of the programme. The sample was divided into drinkers and non-drinkers (as defined by a pre-test alcohol use measure) and separate analyses were carried out for these two groups. When results for the four countries are taken together, the peer-led programme participants had significantly lower scores for alcohol use among both drinkers and non-drinkers than participants in either the control group or the teacher-led condition. The teacher-led group did not differ significantly from the control on this measure.

Positive results were also recorded for alcohol-related attitudes. A series of items assessed the students' attitudes towards non-drinkers. For students who were non-drinkers, participants in both programmes had more positive attitudes, compared with the control. For drinkers, only the peer-led programme participants' scores were significantly more positive than the control ($p < .05$).

It should be noted that not all countries reported significantly positive results on these measures for the peer-led programme, but there were no negative results from this treatment, and in no case did the teacher-led group perform significantly better than the peer-led group.

Pentz *et al.* (1989) and Mackinnon *et al.* (1991) reported the results of students who had taken part in the Midwestern Prevention Programme (MPP). As well as the school-focused education component, this community initiative included elements aimed at parents, health policy, community organisation, and included mass media coverage.

The school evaluation study included over 5,000 students from 42 schools in two US states. Half of the schools took part in the 10-session drug use prevention programme, aimed at students aged 11 and 12. The programme used a variety of approaches, including: the correction of normative expectations; pressure resistance techniques; assertiveness training; problem solving; and public statements of commitment to avoid drug use. Social learning techniques were used, including role play, discussion and group feedback. The students interviewed family members to discover family drug use rules and suggestions for counteracting social pressure to use drugs. The curriculum was taught by class teachers who had received a two-day training programme, and also utilised peer group leaders.

At the post-test stage, one year later, the treatment group had a lower proportion of students who reported drinking alcohol in the past month, compared with the control group ($p < .05$). There was also a significant difference in favour of the treatment group on intention to drink alcohol in the next two months ($p < .01$). In terms of attitudes towards alcohol, there were a mixture of positive and neutral results. The students who had participated in the programme were less likely to believe in the positive effects of alcohol use ($p < .01$) and thought it would be easier to talk to friends about a school or

drug problem ($p < .05$). However, there were no statistically significant effects on other measures of student attitudes: beliefs about the negative consequences of alcohol use; beliefs about external influences on drug use; perceived ability to resist pressure to use drugs and alcohol; or perceived peer norms of drug/alcohol use.

Wodarski (1987, 1988) studied a population of over 1,300 students from five school systems in Georgia, USA. (Unfortunately neither paper gives details of the age of the students included in the study.) Classes were randomly assigned to one of two treatments or a control condition. One of the treatment groups was given a 'traditional' alcohol education programme, lasting a week. The other took part in a programme on alcohol and drink driving, using a *Teams-Games-Tournaments* (TGT) method of delivery. This involved dividing classes into heterogenous eight-member teams on the basis of an initial test of alcohol knowledge. The students received information from their class teacher and participated in discussions and other activities. They also took part in 'tournaments' at which individuals competed to earn points for their alcohol-related knowledge. The programme aimed to develop knowledge, social skills, pressure resistance skills and problem-solving. It took place during 20 daily sessions of 50 minutes. The teachers received a four-hour training workshop to enable them to deliver the programme.

The results of post-test instruments administered following the programmes showed a lower level of alcohol consumption for the TGT group, which was significantly different from either the 'traditional' programme or the control ($p < .05$). This result was maintained at a follow-up assessment, one year later. In terms of attitudes to drinking and driving, the TGT group results showed a positive change which differed from either of the other two conditions ($p < .05$), and which was maintained after a year.

Effectiveness of alcohol education programmes: an overview

The results of the studies included in this review are somewhat difficult to summarise, given the inconclusive nature of some of the results, and findings which point in apparently contradictory directions. Nevertheless, some broad conclusions can be drawn from this exercise.

First, most of the interventions described in these papers used methods in based on a social influences approach, and none reported exclusively negative results for knowledge, attitudes or behaviour. The only study describing a values clarification approach (Schlegel *et al.*, 1984) found that it compared unfavourably to an exclusively knowledge-based curriculum.

The lack of negative findings represents a departure from some of the research into facts-based programmes, which indicated that such initiatives could increase interest and experimentation with alcohol. It is possible, as Bangert-Drowns (1988) has speculated, that a reluctance of journal editors to publish negative results could explain the absence of negative findings for more recent studies. However, it is impossible to know wether such a suppression has occurred. Taken on face value, it seems that alcohol education programmes based on the social influences approach are unlikely to have the undesirable effect of fostering undesirable attitudes or promoting greater drinking.

An analysis of the results for measures of knowledge, attitudes and behaviour has reinforced the finding from previous reviews and meta-analyses, that gains in knowledge are easier to secure than positive attitudinal or behavioural outcomes. Based on a significance level of $p < .05$ or better, over half of the 18 interventions which measured alcohol-related knowledge were reported to have a positive impact, but only five (of 19) interventions reported exclusively positive results for attitudes and six (of 25) had exclusively positive outcomes for behaviour. The comparative difficulty of obtaining positive outcomes for alcohol, compared with other substances, also receives confirmation from six of the studies included in this review.

It might have been expected that more of the studies would have reported entirely positive gains for alcohol-related knowledge, given that students exposed to a programme including factual information on alcohol use could be expected to know more about the subject than students who had not participated in such a programme. However, in these studies, researchers commonly compared the results of the treatment group with a group of students who had received a 'traditional' alcohol or health education programme, whose knowledge could therefore be expected to be equivalent to the treatment group.

Many of the interventions under investigation had been developed to contrast with more traditional, knowledge-based programmes. They therefore devoted proportionally less time to factual information, and more to the development of positive attitudes and skills. This may also have contributed to the relatively high proportion of interventions showing no significant differences for knowledge measures.

It is possible that studies using more than one measure in any of the three domains (knowledge, attitudes, behaviour) have been rather harshly judged in this analysis. By including a range of impact measures, it is more likely that a mixture of results will ensue. As can be seen from Table 2, six studies reported mixed results for attitudes and six reported mixed results for behaviour. In the majority of cases, these results were a mixture of neutral and positive outcomes. However, it is difficult to see any consistent patterns in these data: similar measures used in different studies have yielded different results. The position is further complicated by differences between studies in the timing of post-tests measures.

An analysis of the characteristics of 'more successful' programmes would seem to give some support to the inclusion of active learning methods, to the use of peer leaders and to teacher (and peer leader) training. However, although these components featured in some of the programmes which demonstrated effects on alcohol consumption, they were also present in programmes which were unable to show any such effects. As Ellickson and Bell (1990a, 1990b) point out, it may be that the extra cost of using trained peer leaders cannot be justified in terms of enhanced programme outcomes. There are aspects of the use of peer leaders in alcohol and drug prevention programmes which could benefit from continued research.

An examination of programme length did not yield any association between the length of programmes and their success in behavioural terms.

10. METHODOLOGICAL CONCERNS

It is common practice for reviewers of the evaluation studies on drug and alcohol education programmes to raise concerns about evaluation methods. This section will outline the major methodological criticisms, and consider the quality of the studies published between 1983 and 1992, included in this review.

Most of the criticism of evaluation studies has focused on issues related to study design; measures of programme effectiveness; methods of analysis; and reporting of the data. Researchers responsible for conducting reviews of drug and alcohol education programmes in the late 1970s and early 1980s, were particularly disparaging about the general quality of the studies (Kinder *et al.*, 1980; Schaps *et al.*, 1981; Staulcup *et al.*, 1979). Some studies were so badly flawed that the results were judged to be meaningless or of very little value.

Study design

One of the main criticisms of earlier evaluation studies has been the absence of control or comparison groups (Battjes and Bell, 1987; Botvin and Wills, 1987; Goodstadt and Caleekal-John, 1984). While comparisons in pre- and post-test data can be indicative of change within a study group, without a comparison group it is difficult to determine wether any such changes can be related to the influence of an educational programme, or are the result of other factors.

In studies which do feature a comparison group, concern has been expressed about the assignment of students to treatment or control conditions. Researchers have generally used the school as the unit for the purposes of assignment. This decision has been influenced by the practical difficulty of delivering a programme to some students or classes within a school but not others. Also it has been suggested that if treatment and control samples are drawn from within the same school, some of the students who receive the programme are likely to discuss it with other students and thus 'contaminate' the control group.

However, use of the school as the unit for assignment raises other problems. Unless very large samples are used, it is difficult to establish equivalence between schools in different conditions. Even the use of random assignment to condition (as recommended by Botvin and Wills, 1987) will not solve the problem in samples of a small number of schools. Biglan and Ary (1987) suggest the preferred method would entail matching schools on a number of variables prior to a random assignment of schools to condition from the matched sets.

Some reviewers have been critical of sample selection. For example, Braucht and Braucht (1984) have suggested that some studies are conducted on samples too small to produce meaningful results, while Battjes and Bell (1987) have highlighted a general tendency for researchers to select white, middle-class populations for study.

There has also been a general demand for longitudinal studies. As noted above, many of the alcohol and drug education programmes are implemented before the age of onset of most alcohol and drug use, in an attempt to dissuade students from adopting these behaviours in adolescence. Without using post-test measures collected when the students have reached adolescence, it is difficult to judge programme effects. Also, the use of measures collected at several points in time is helpful in suggesting when any immediate programme effects begin to decline (Battjes and Bell, 1987).

Measures

Criticisms of research measures have focused on: the reliance on measures of knowledge and attitudes rather than behaviour; the validity of self-report data; and the reliability, validity, and comparability of measures used by different researchers (Bangert-Drowns, 1988; Battjes and Bell, 1987; Botvin and Wills, 1987; Braucht and Braucht, 1984).

Other researchers have called for the inclusion of mediating variables, which would measure if the programme was having an impact on variables hypothesised to mediate desirable programme effects (Pickens, 1984; Moskowitz, 1989). For example, it is suggested that programmes designed to enhance student self-esteem as a means of reducing vulnerability to drug use should include measures of programme impact on student self-esteem, as well as assessing drug use. In addition, Moskowitz (1989) has suggested that researchers should measure the impact of implementation variables on programme success.

The reliance on self-report data as a measure of alcohol consumption is a matter of practical necessity for most researchers, but it raises methodological concerns. The key question here is: can such information be judged to be a valid measure of actual consumption? It is suggested that some students (e.g. younger children, low level users) may deny their use of alcohol and other illicit drugs, some students may claim higher rates of use than is actually the case, and 'heavy' users may be unreliable informants (see Botvin and Wills, 1987; May, 1992; Sharp and Lowe, 1989). It is also possible that students involved in an educational programme designed to reduce substance use may be more inclined (than students who have not been involved in a 'special programme') to under-report their actual use at the post-test stage, thus threatening the validity of treatment and control comparisons (Battjes and Bell, 1987).

Attempts to validate self-report data using biochemical samples have been documented for tobacco use (Biglan and Ary, 1987). These studies have had varying results, and have been open to criticism of that certain biochemical tests may not be sensitive enough to assess tobacco smoking at low levels. Campanelli *et al.* (1987) investigated the effect of a 'bogus pipeline' procedure on self-report alcohol use. Two groups of students were asked to give information on their drinking. Students in one group were told that their answers would be checked by testing a saliva sample, although it is not in fact possible to detect alcohol use in this way (the 'bogus pipeline'). The results showed that the use of this procedure did not lead to increased reports of alcohol use. The authors suggest that if responses are treated as confidential, self-report data are a valid measure of actual alcohol use.

Analysis

In terms of analysis, debate has centred on the appropriate unit of analysis; the use of suitable statistical techniques; the need to control for differences in treatment and comparison groups; and the need to analyse programme impact for different sub-samples.

Most researchers have used the student as the unit of analysis, as this gives the largest sample size. However, it is suggested that the unit of analysis should be the same as the unit of allocation to condition (Battjes and Bell, 1987; Botvin and Wills, 1987). In research where allocation to condition is made on a school basis, but analysis is carried out at the pupil level, results could be influenced by class and school effects. In this case:

> *Appropriate precautions must be taken to assess possible threats to the validity of the research* (Battjes and Bell, 1987).

In the period since most of these studies were carried out, a new method of analysis has been developed to address this problem. The technique 'multilevel modelling' takes account of the hierarchical nature of data (e.g. pupil, class, school). It enables statisticians to conduct analysis at the individual student level (thus utilising all of the data), but makes allowances for a potential underestimation of standard errors due to class and school effects (Goldstein, 1987; Raudenbush and Willms, 1991).

In those cases where random allocation to condition is not possible, researchers need to establish that treatment and control groups are initially equivalent, and to use statistical techniques to control for any differences which may affect results. Comparisons need to be made of the composition of groups at the post-test stage, to see if attrition has affected the comparability of the groups (Braucht and Braucht, 1984; Battjes and Bell, 1987; Botvin and Wills, 1987; Mackinnon *et al.*, 1988; Moskowitz, 1989).

Some commentators have endorsed the analysis of results from different sub-groups, to check for 'interaction effects' (Braucht and Braucht, 1984; Battjes and Bell, 1987; Mackinnon *et al.*, 1988). As Braucht and Braucht point out, it is possible that different kinds of young people will react differently to any given type of educational strategy or programme. For example, a programme judged to have 'no impact' may in fact have had a negative effect on some students and a positive effect on others. Suggestions for criteria for the analysis of within-group differences include: age; gender; cultural/ethnic background; socio-economic status; level of substance use at pre-test; and psychosocial variables hypothesised to relate to substance use in adolescence (such as aspects of problem behaviour).

Reporting

Some criticism has been levelled at researchers for reporting percentage changes (e.g. a 50 per cent reduction in smoking in the treatment group), rather than using tests of statistical significance, because the magnitude of differences between groups can be misrepresented by if percentage changes are used (Battjes and Bell, *ibid*).

Moskowitz (1989) criticises some researchers for selective and inaccurate reporting, and for weak interpretation of the results. In his view, evaluation reports should include details of the programme goals and content, study design, sample size and characteristics, measures, analysis, results and discussion. He goes on to say :

We need to create a system that encourages researchers to be critical about their own research and not just others', to report flaws in their research and to discuss plausible alternative hypotheses.

Quality of recent research

Eleven of the studies initially selected for inclusion in this review were rejected, for the following reasons. In five cases, results for alcohol were not distinguished from those for other substances included in the programmes. One study was rejected because the design included neither a control group nor pre-test data. Two studies suffered from problems with statistical analyses: in one case there were no tests of statistical significance and in another, the statistical analyses were so poor that the conclusions could not be relied upon. One study had such high initial drop-out rates and subsequent attrition that the validity of the study was threatened, as the authors themselves pointed out. Two studies gave no information on the educational programme, one of which also omitted details of sample size, basis of allocation to condition, and attrition. Several of these studies also suffered from lack of clarity in reporting, which made it difficult to interpret the results.

The 21 evaluation studies which were included in the review satisfy some of the criteria detailed above. In terms of study design, all but one used a comparison group, but not all of these studies gave details of the method of assignment to treatment or control conditions, and few checked the equivalence of treatment and comparison groups on the basis of pre-test data. However, it is encouraging to note the presence of longitudinal research, enabling study populations to be followed up over a number of years.

Although most studies gave information about the age-groups or grade level of the participants, and proportions of male and females, several studies omitted information about other sample characteristics, such as socio-economic status and ethnic composition. The school studies that did provide this information tended to be of predominantly white, middle-class populations, which restricts the generalizability of the findings to other groups.

Information about the reliability and validity of the measures used was the exception rather than the rule. A variety of measures have been used, making it difficult to compare results across studies. The definition of 'a drinker' and 'a heavy drinker' is not consistent. Some studies have measured only one aspect of alcohol consumption, while others have measured the area more fully, including the measures of quantity, frequency and experience of negative consequences of use.

With the exception of the young offender research, these studies have relied on self-report measures of behaviour, but not all researchers have drawn attention to the potential limitations of self-report data. Some researchers have attempted to increase the validity

of these measures by excluding inconsistent responses and/or taking saliva samples. While the inclusion of checking procedures is to be welcomed, the use of a 'bogus pipeline' procedure (where biological samples are obtained, and students are told that these will be used to check up on their self-report information) raises ethical concerns, because the intention is to mislead the participants (the use of alcohol cannot be assessed by this procedure).

Only about half of the studies gave information on attrition rates, and analyses of possible attrition effects: a particularly important consideration for longitudinal studies. Most did not include measures of programme effects on mediating variables, and programme implementation was assessed in very few. Data analysis tended to be adequate, although some of the analyses were rather basic. Some evaluators did not use the most appropriate tests given the type of data and the hypothesis under consideration, but these problems were not of a serious nature: the likely effect in these cases would be of an under, rather than over-estimation of the programme effects. Most studies used the pupil as the unit of analysis, but not all looked at the potential influence of class and school effects.

Reporting was of variable quality. In most cases, the description of programme goals and content was adequate. However, some papers could have improved the clarity of the description with regard to evaluation design, procedures, measures, analyses and results. The possibility of different effects on different sub-groups was investigated in only a minority of cases. The fact that such effects have been demonstrated to exist would seem to support the inclusion of such analyses in future evaluations, particularly in relation to the comparison of programme effects on drinkers and non-drinkers.

Overall, the quality of the 21 evaluations included in this review was sound enough to be fairly confident of the results. While some of the criticisms outlined above could be addressed fairly easily, others would require substantial investment of time and resourcing. Of the studies included in this review, those by Dielman *et al.* (1986, 1989) and Ellickson and Bell (1990a, 1990b) appear to be particularly well-designed and reported.

11. CONCLUSIONS

The information presented in this review has revealed several clear findings concerning the nature of adolescent alcohol abuse and the effectiveness of educational programmes which attempt to combat it.

First, it is apparent that alcohol use is a common feature of adolescence. Few young people drink to excess, but adolescent alcohol misuse does have serious consequences, not least in terms of drink-related crimes and fatalities. Patterns of adolescent drinking do not seem to be maintained into adult life. These findings would suggest that prevention efforts aimed at young people should take account of the normative presence of low-level alcohol use. There should be a focus on the drink-related problems which typify adolescent (as opposed to adult) alcohol abuse.

These principles are in fact recognised in many of the recent alcohol education programmes, which accept 'responsible use' of alcohol as a realistic goal, and concentrate on the immediate personal and social consequences of excessive alcohol consumption.

It is apparent from a review of evaluation studies published within the last decade, that on the whole, alcohol education programmes are not demonstrably effective in terms of student attitudes or behaviour. There are three main possible reasons which could account for this.

First, it is possible that the evaluation studies may have been so poor that positive programme outcomes have been overlooked. This is unlikely to be the cause of the lack of positive results in the case of the studies reviewed here. Although many of the studies did suffer from methodological weaknesses, these were not so severe that positive results are likely to have gone undetected.

Second, the approaches used to educate students about alcohol may have been inappropriate. The relative lack of programme success has led to a re-examination of the approaches commonly in use and their underlying theoretical bases. One of the main features of social influences approaches is that they aim to 'inoculate' young people against external pressures to use alcohol, cigarettes, and other drugs. The assumption is that as young people move into adolescence, they will come under pressure to use these substances, particularly from members of their peer group. By making them aware of this danger, and helping them to develop 'refusal skills' it is hoped that educational programmes can reduce adolescent alcohol use.

Research studies have shown a correlation between an individual's alcohol use, and the prevalence of drinking among his or her peers. Yet the nature of peer group influence on alcohol use is far from clear. Do certain adolescents seek out friends who drink alcohol? (In other words, does vulnerability to alcohol abuse contribute to peer group formation, or do peers initiate new members of the group into alcohol use, or both?) Also, having

learnt the skills to refuse offers of alcohol, will young people be motivated to using those skills in real life situations? These questions have important implications for the efficacy of pressure resistance training in relation to alcohol education.

Third, it may be the case that alcohol education, however well formulated, is fighting a losing battle against social norms which support alcohol use. (An interesting case-study of growing community opposition to an alcohol programme which began to challenge social conventions, is given by Flanigan, 1987.) If social attitudes are a major factor, this could explain why some educational approaches have been successful in reducing the use of less acceptable substances, such as tobacco, marijuana, and 'hard' drugs, but similar approaches have not succeeded in the case of alcohol (Mackinnon *et al*, 1988; Moskowitz, 1989; Wallack and Corbett, 1987).

In the light of the social acceptance of alcohol use and its prevalence in adolescence, together with the knowledge that low-level alcohol consumption does not have demonstrably harmful effects (and may even be beneficial), many programmes have accepted the goal of moderate and responsible use. However, this is an ambiguous concept, as Weisheit (1983) and May (1991) point out. Definitions of moderate drinking vary, and are generally based on adult levels. Also, can any use of alcohol by adolescents be accepted as responsible if it involves flouting the law on the purchase and consumption of alcohol by minors?

Given the disappointing results of alcohol education programmes to date, should time and money be continue to be expended on them? The answer depends on more than purely educational considerations. Despite the social acceptance of moderate alcohol use, the problems caused by excessive drinking by young people must not be underestimated. Public concern will probably keep alcohol education on the public agenda, not least because educational programmes are one of the most politically acceptable means of being seen to 'do something' about alcohol abuse, without directly challenging the freedom of the market for the promotion of alcohol products (May, 1991; Weisheit, 1983).

A future for alcohol education

It has been argued that alcohol education programmes are unlikely to succeed, unless the social context becomes less supportive of alcohol use. Therefore, community-wide programmes have been suggested, including mass media campaigns and community group involvement as well as school-based programmes (Mauss *et al.*, 1988; May, 1991; Wallack and Corbett, 1987).

The importance of the family in relation to alcohol/substance abuse has been demonstrated, and targeting programmes on parents has been endorsed by several writers (Barnes, 1984a; Gilliss *et al.*, 1989; Great Britain: Home Office, 1987; Mauss *et al.*, 1988; Oei and Fea, 1987; Plant *et al.*, 1990). Suggestions here include offering training in parenting skills, supporting self-help groups for parents of children with drinking problems, and involving parents in school-based programmes. However, the it may be particularly

difficult to reach the parents of children most 'at risk' of alcohol and drug abuse (Klitzner *et al.*, 1990). More research is needed to identify the most effective means of working with this target group.

Alcohol education must be realistic in its goals (Bagnall and Plant, 1987; 1988). As Barnes (1984b) argues, schools and other institutions have a responsibility to inform, as well as to shape the attitudes and behaviour of young people. It seems that social influences approaches at least offer a means of informing young people about alcohol, with little risk that they will be stimulated to use alcohol by exposure to the programme. It would also seem important for alcohol education programmes should stress the least socially acceptable consequences of alcohol misuse, such as drinking and driving, alcohol-related violence and crime.

It is apparent that teachers require training for teaching this area. Teacher training has been highlighted as a component of more successful programmes, although it cannot be regarded as sufficient for programme success. Research carried out in this country (Jamison *et al.*, 1992) found that the area of health education most commonly identified as a training need in secondary schools was alcohol, smoking and drug education. Yet the same research highlighted the difficulties faced by teachers in obtaining the funding and support to attend training courses. Ellickson and Robyn (1987) suggest that training serves two main purposes: to familiarise teachers with the content of a programme, and to help them adopt a non-judgemental and faciliative style.

The evidence from studies of students' views on alcohol education would suggest that former alcoholics, particularly if they are of a similar age-group to the participants, would be viewed as highly credible informants (Eiser and Eiser, 1988; Glassford *et al.*, 1991; Mayton *et al.*, 1990). This is further supported by student reactions to a session on AIDS education delivered by a young person with AIDS (Smith and Katner, 1992). However, Ellickson and Robyn (1987) sound a note of caution on the use of this strategy in relation to drugs education:

> *Having former addicts describe their experiences can give a double message - 'drugs are bad for you but you can try them and stop without suffering irreversible consequences'.*

It would be useful to research this further: are there ways of using ex-alcoholics in alcohol education programmes which do not convey the 'double message' described by Ellickson and Robyn?

The use of peer leaders in alcohol and substance use prevention programmes is an interesting area of work. Research to date has focused on the use of same-age and older peers, and has resulted in recommendations concerning the recruitment, training, deployment and support of peer leaders (Barnes, 1984b; Ellickson and Robyn, 1987; Fitz-Gibbon, 1988; Mitchell, 1990, 1991; Perry and Sieving, 1992). It is suggested that trained peer leaders are perceived as particularly credible informants on alcohol and drug issues, and that their involvement can be beneficial for themselves as well as for their classmates. Some evaluation studies have indicated that peer leaders may be more

effective than teachers in delivering the same programme (Botvin *et al.*, 1984; Perry *et al.*, 1989). The costs and benefits of using peer leaders is an area which deserves continued research.

One important conclusion from the research to date is that different groups of students react differently to the same programme. Therefore it is recommended that alcohol education programmes should be more explicit in specifying their aims and target audiences (Bagnall and Plant, 1987, 1988; Gorman, 1992; Mackinnon *et al.*, 1988; Thompson *et al.*, 1984).

Gorman (1992) has developed this argument, by suggesting that 'theory-based screening strategies' should be adopted to identify young people at most risk of alcohol abuse. Young people could be screened on the basis of biological, social, or temperament traits known to be associated with vulnerability to alcohol abuse. They could then be selected for a programme that is tailored to their needs.

While this argument does have its attractions, it is difficult to see how it could operate effectively within heterogenous school populations without stigmatising those identified for intervention. However, the principles of specificity and targeting are important ones. Perhaps a diagnostic process could be developed for use by classroom teachers in identifying the risk factors present within the students, and appropriate teaching strategies could be suggested, taking account of the composition of the class. There is also an argument for continuing research into which types of approaches work best with which groups of young people. This would entail studies of specific populations (e.g. young offenders, students from different cultural and ethnic groups) as well as analyses of sub-groups within more heterogenous samples.

Future research needs

There are some obvious gaps in the research literature. First, most of the studies of alcohol education and teacher training programmes have been conducted in the USA. There is a need for similar work to be carried out in this country. Existing materials and training courses should be the subject of well-designed, large scale and longitudinal evaluations. Theatre-in-education companies have been involved in the area of alcohol and drugs education, yet there appears to be little evaluation of the efficacy of this approach.

Second, many of the studies have used large-scale surveys, which enable associations between factors to be identified. While such research is valuable, and should continue to receive support, there is a need for more research using qualitative methods in order to interpret the meaning of these relationships. Studies using observation and interviews as well as programme outcome measures collected by questionnaires and assessment instruments would help to illuminate the reactions of the participants. Qualitative studies, like those of Dorn (1983) would also be particularly helpful in a consideration of the selection and influence of the peer group on adolescent drinking behaviour.

Third, there is a need to keep developing and evaluating new types of educational approaches. A great deal has been learned about the value of different types of programmes, but there is still more to discover about the best combination of content and delivery. New approaches are being developed in other areas, such as AIDS education, which could be usefully evaluated for their utility in the area of alcohol misuse.

In summary, this literature review has found that alcohol education programmes do not have much impact on student attitudes or behaviour. One of the main reasons for this is the social acceptability of alcohol use in Western society. It is suggested that attention should move away from the individual consumer to the social setting for alcohol use. Prevention strategies should be multidimensional, and aim to impact at the community level. Those wishing to include alcohol education in their teaching should be realistic in their goals, and should use approaches tailored to the needs of the young people in their care. There is a need for continued research in order to inform policy and practice regarding the role of alcohol education for young people.

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APPENDIX

Appendix A

Keywords used to search databases for this review

The following key words were used in various combinations:

Adolescents/Adolescence

Youth/Young Persons

Young Offenders

Education

Counselling

Alcohol Drinking

Alcoholism

Alcohol Abuse

Smoking

Drugs

Acquired Immune Deficiency Syndrome

Drinking Patterns

Costs/Cost Effectiveness

Teacher Education

Appendix B

Refereed Journals

ADDICTIVE BEHAVIORS

ADVANCES IN ALCOHOL AND SUBSTANCE ABUSE

ALCOHOL AND ALCOHOLISM

ALCOHOLISM: CLINICAL AND EXPERIMENTAL RESEARCH

BRITISH JOURNAL OF ADDICTION

COMPUTERS IN HUMAN BEHAVIOR

DRUG AND ALCOHOL DEPENDENCE

DRUGS & SOCIETY

EDUCATIONAL LEADERSHIP

EDUCATIONAL MANAGEMENT AND ADMINISTRATION

HEALTH EDUCATION QUARTERLY

HEALTH EDUCATION RESEARCH

HEALTH PSYCHOLOGY

INTERNATIONAL JOURNAL OF THE ADDICTIONS

JOURNAL OF ADOLESCENT HEALTH CARE

JOURNAL OF APPLIED SOCIAL PSYCHOLOGY

JOURNAL OF BEHAVIORAL MEDICINE

JOURNAL OF BEHAVIOR THERAPY AND EXPERIMENTAL PSYCHIATRY

JOURNAL OF CONSULTING AND CLINICAL PSYCHOLOGY

JOURNAL OF DRUG ISSUES

THE JOURNAL OF GENETIC PSYCHOLOGY

JOURNAL OF PEDIATRIC PSYCHOLOGY

JOURNAL OF PSYCHOLOGY

JOURNAL OF SEX RESEARCH

JOURNAL OF YOUTH AND ADOLESCENCE

PREVENTIVE MEDICINE

PSYCHOLOGICAL REPORTS

Appendix C

Description of Studies included in Evaluative Review

A: Young offender programmes

Reference	Sample	Programme Approach	Delivered by	Length	Follow up	Comments
Baldwin *et al.*, 1991.	27 male young offenders aged 17-21. Forfar, Scotland.	Information and behavioural modification skills.	Teacher/programme leader	6 sessions (12 hrs)	14 mths	Small initial sample and attrition limit findings.
Kooler and Bruvold, 1992.	Over 600 15-19 year olds convicted of *Driving under the Influence* from 1983-88, California, USA.	Drinking and Driving programme (SI)*. Included discussion and role play.	Police Officers	3 sessions (18 hrs)	Subsequent convictions 1983-1988	Knowledge and attitudes assessed by gain scores.
McMurran and Boyle, 1990.	45 male young offenders aged 15-21, England.	Alcohol Ed. Programme. Behavioural self-help manual. 2 treatments: A - individual use of manual; B - group use of manual.	No information	No information	15 mths	Small sample and lack of detail in reporting limit interpretation of findings.

B: School-based programmes

Baer *et al.*, 1988.	1,037 12-13 yr olds and 1,461 16 yr olds from 6 schools in Houston, USA.	Alcohol Ed. Programme. 2 treatments: A - pressure resist, affective and social skills; B - cognitive skills. Both included info and self expression. Active student participation.	Researchers and social workers	22 sessions (length of sessions not given)	1 yr (and 2 yrs for younger cohort)	Mainly white, middle class sample. No control for school effects. 40% attrition for 2 yr follow up.
Botvin *et al.*, 1984.	1,311 12 yr olds from 10 schools in New York, USA.	Substance Ed. Programme (LST). 2 treatments: A - delivered by older peers; B - delivered by teachers. Both had same (SI) programme. Included discussion and role play.	Trained older peers or teachers	20 sessions	4 mths	Mainly white, middle class sample. Collected saliva samples (bogus pipeline).
Collins and Cellucci, 1991.	52 15-16 yr olds from one school in S. Carolina, USA.	Alcohol Ed. Programme. 2 treatments: A - programme; B - programme plus video announcements. Informational programme with some role play.	Researcher	3 sessions (3 hrs) plus video announcements for treatment B	1 mth	Majority black population, middle class. Small sample.

* SI = Social Influences

B: School-based programmes (continued)

Reference	Sample	Programme Approach	Delivered by	Length	Follow up	Comments
Dielman *et al.*, 1986, 1989.	5,635 10-11 yr olds from 49 schools in Michigan, USA.	Alcohol Ed. Programme (AMPS). SI approach including role play. (Similar to TAPP - see Hansen *et al.*, 1986).	Trained teachers or project staff	4 sessions (3 hrs) plus 2 hrs 15 mins 'booster' sessions for some	2, 14 and 26 mths	Good design and analysis.
Dignan *et al.*, 1985.	Approx. 2,300 12 yr olds from 2 school systems in N. Carolina, USA.	Smoking and Alcohol Ed. Programme. No details given of approach. Lectures, discussion, role play and film.	Health Educators employed by the school districts	5-8 sessions (5-8 hrs)	1-2 mths	No control group. Lack of detail on programme approach and selection of treatment classes.
Duryea *et al.*, 1984a), 1984b); Duryea and Okwumbua, 1988.	155 14 yr olds from one school in Nebraska, USA.	Alcohol and Drink Driving Ed. Programme. SI approach, using discussion, role play and film.	Trained teachers	6 sessions (6 hrs)	1 wk, 6 mths, 3 yrs	Only one school involved. High attrition (46% at 6 mths).
Eiser *et al.*, 1988.	518 14 yr olds from 7 schools in Bristol, Birmingham and Somerset, UK.	Drug education videos, one of which focussed on alcohol (*Thinking Twice*).	Video	One session	Immediate	No follow up.
Ellickson and Bell, 1990a), 1990b).	6,527 13 yr olds from 30 schools in Oregon and California, USA.	Alcohol, cigarette and marijuana Ed. Programme (Project ALERT). 2 treatments: A - taught by adult health educator; B - taught by older peers and teachers. SI approach, group work and role play.	Health educators or older peers and teachers	8 sessions in Grade 7, plus 3 'booster' sessions in Grade 8	3 mths after 1st sessions, then 12 and 15 mths after 'booster' sessions	Large-scale and well executed study. 40% attrition but possible attrition effects studied. Diverse SES and demographic sample. Saliva samples collected.
Gersick *et al.*, 1988; Snow *et al.*, 1992.	1,372 11 yr olds from 20 schools in 2 New England towns, USA.	Drug and Alcohol Ed. Programme. SI approach.	No information	12 sessions (8 hrs)	1 and 2 yrs	Analysis took account of hierarchical nature of data.
Hansen *et al.*, 1986.	2,928 11-12 yr olds from schools in Los Angeles, USA (2 cohorts).	Tobacco and Alcohol Ed. Programme (TAPP). SI approach. Included discussion and role play.	Trained teachers assisted by peer leaders	15 sessions (12.5 hrs)	5 post tests up to 3 yrs after programme	No information on number of schools. Chosen analyses may have led to underestimation of effects. Possible attrition problems.
Hansen *et al.*, 1988.	7189-11 yr olds from 14 schools in Los Angeles, USA.	Alcohol Ed. Programme (AAPT). 2 treatments: A - pressure resistance; B - normative expectations. Both included information and activity-based work.	Teachers assisted by peer leaders	No information	Timing of post test is not given	Sample was 75% white. Minimal reporting makes quality of the study difficult to assess. Analyses not very sophisticated.

B: School-based programmes (continued)

Reference	Sample	Programme Approach	Delivered by	Length	Follow up	Comments
Hopkins *et al.*, 1988.	6,808 9-17 yr olds from schools in: Seattle; Washington; and Portland, USA.	Alcohol Ed. Programme (HLAY). Approach included both affective (self esteem, decision-making) and SI aspects.	Trained teachers	15 sessions per year up to secondary Grade level	3 yrs	Sample was 75% white. Analyses not very sophisticated.
Newman *et al.*, 1992.	Approx. 7,000 14 yr olds from 9 schools in Nebraska, USA (2 cohorts).	Drinking and Driving Ed. Programme. SI approach including video and role play.	Trained teachers (social science and English)	5 x 20 min videos plus discussion and group work	4 mths and 1 yr (for one cohort)	Lack of detail re selection of schools. Instrument used had low reliability. Lack of detail in reporting makes it difficult to assess quality of study.
Pentz *et al.*, 1989, 1990; Mackinnon *et al.*, 1991.	5,008 11-12 yr olds from 42 schools in Kansas, Missouri and Kansas, Kansas, USA.	Drug and Alcohol Ed. Programme (MPP). SI approach with homework component. Part of a community-wide initiative.	Trained teachers	10 sessions (drugs and alcohol) plus 10 homework assignments	1 yr	77% white, mostly middle class sample. Non-random allocation of schools to condition. Unit of analysis varies. Detailed descriptions of programme and study.
Perry, 1989; Perry *et al.*, 1990.	2,536 11-18 yr olds (mostly 13-15) from 25 schools in: Australia, Chile, Norway and Swaziland.	Alcohol Ed. Programme (WHO study). 2 treatments: A - delivered by teachers; B - delivered by peers. SI approach including discussion and role play.	Trained teachers or trained peer leaders	1 mth	5 sessions (4 hrs 10 mins)	Middle and lower class schools represented. Well described and executed international study. Lack of longer follow up limits findings.
Schlegel *et al.*, 1984.	312 13 yr olds from 3 schools in Canada.	Alcohol Ed. Programme. 3 treatments: A - information only; B - info plus values clarification; C - info, values clarification and decision-making.	Trained health education teachers	Immediate and at 6 mths	A: 5 sessions; B: 7.5 sessions; C: 9 sessions (session length not given)	50% middle class, 34% lower class sample. Small number of schools involved.
Wodarski, 1987, 1988.	1,365 (no age given) from 5 school systems in Georgia, USA.	Alcohol and Drink Driving Ed. Programme. 2 treatments: A - SI approach using 'Teams-Games-Tournaments' method. Group competition and role play; B - 'traditional' alcohol education.	Trained teachers	1 yr	20 sessions (16 hrs 40 mins)	Lack of detail makes study quality difficult to evaluate. Analyses seem unsophisticated.
Wragg, 1986.	63 11-12 yr olds from 2 classes in one school, Australia.	Drug and Alcohol Ed. Programme. SI approach including group work, role play and drama work.	Teacher and school counsellor	3 yrs 6 mths	8 sessions (8 hrs - drugs and alcohol)	Small sample (51 at follow up). Lack of clarity concerning measures used.

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ALCOHOL EDUCATION FOR YOUNG PEOPLE

This report reviews the literature on alcohol education for young people published between 1983 to 1992. The report presents an overview of the area, describing developments in education programmes in recent years.

The context for education programmes is established by a description of adolescent drinking patterns, and an account of the factors found to be associated with young people's alcohol use and abuse.

A feature of the report is a critical review of results from evaluation studies which have attempted to measure the impact of alcohol education programmes. A concluding section looks at the relative merits of different approaches, and pinpoints future research needs.

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