ANALYSIS OF THE REQUIREMENTS FOR
SMOKING CESSATION ACTIVITIES
IN HIGH SCHOOLS AND
COLLEGES IN THE
A.C.T.

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Declaration

I declare that this thesis reports my original work, that no part of it has been previously accepted or presented for the award of any degree or diploma by any University, and to the best of my knowledge no material previously published or written by another person is included, except where due acknowledgment is given.

John Rose
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ABSTRACT

This thesis is in two parts. The first part is a review of the literature pertinent to adolescent smoking behaviour. Factors involved in the adoption and maintenance of smoking behaviour are discussed. It then describes the types of smoking intervention programmes used with adolescents to date and highlights the lack of any widely available and effective help with smoking cessation for this age group. A methodology for predicting intentions to smoke and developing intervention programmes, based on a model by Fishbein and Ajzen (1980) is presented.

The second part of the thesis describes the development of a questionnaire. This was used to discover the demand for help with smoking cessation in adolescents. It was also used to gather data for the prediction of intention to smoke and for the development of intervention programmes, using the components of Fishbein and Ajzen's model. This questionnaire was used to survey 667 high school students from years 8 to 12 in the Australian Capital Territory.

Results from the survey indicated that 254 (38%) of adolescents had smoked in the last month. Out of these 100 (40.1 per cent) said they intended to stop smoking and 77 (29.8 per cent) said they would like help with giving up. This represents a large demand from adolescents for help with smoking cessation.

Fishbein and Ajzen's model was found to have significant predictive ability for smoking intention. Both
attitude and subjective norm components of the model contributed to its predictive power when applied to the entire sample. Both components contributed to the models predictive power when applied to non-smokers alone, however only the attitudinal component contributed significantly to the prediction of smokers' smoking intentions. This indicates that non-smokers' intentions to smoke, or not, are more likely to be influenced by social factors than smokers.

The individual contribution of components of the model were analysed. Non-smokers and smokers that wanted to give up were different on a wide range of factors. This implies a broadly based intervention programme would be most likely to help smokers give up. However, there were some areas where differences were particularly large. These areas are considered with regard to their implications for the development of specific cessation techniques.
1.1 Introduction

The tobacco plant, nicotina tobaccum, is a native of the new world and it was there that the peculiarly pleasurable consequences of inhaling tobacco smoke were first discovered. It was a well established habit with the local population when the first Europeans arrived, who subsequently introduced to the rest of the world. From it's earliest days smoking was a controversial habit (Corti, 1931), but it gained popularity and demand steadily increased (Eckholm, 1977). However, during this century some disturbing facts have come to light.

The first speculations that there was a connection between smoking and various diseases appeared in a series of reports in the Lancet during the 1920's. However, Pearl (1938) was the first to show that smokers had much higher death rates than non-smokers, particularly before the age of forty-five. Initially this report was highly criticised (Royal College of Physicians, 1977) but evidence mounted with the publication of careful epidemiological studies by Doll and Hill in the U.K. (e.g. Doll and Hill, 1952) and Wynder and others in the U.S.A. (e.g. Wynder, Bross, Cornfield and O'Donell, 1956). A clear statistical relationship between smoking and a specific disease, lung cancer, was emerging. Since then smoking has been implicated in a range of other diseases including various other forms of cancer, other respiratory diseases and coronary heart disease (Royal College of Physicians, 1977; Surgeon General, 1979).
This information has had a marked effect on the tobacco debate and public attitudes towards tobacco. In the western world consumption of cigarettes has stopped increasing (Ashton and Stepney, 1982; Hill and Gray, 1982) and is declining slowly (Surgeon General, 1981). Many adult smokers now express a desire to give up. In Britain, a 1978 National Opinion Poll survey found that 59 per cent of current smokers said that they would like to give up smoking and 70 per cent said they had actually tried to stop (Ashton and Stepney, 1982). A wide variety of techniques have been developed to help adults give up smoking, most of these are reported in a number of recent reviews (Fuller, 1982; Holroyd, 1980; Orleans, Shipley, Williams and Haac, 1981; Leventhal and Cleary, 1980; Glasgow and Bernstein, 1981; Pechacek and McAlister 1980).

There have also been significant efforts to try and stop young people adopting the smoking habit. However, tobacco use still appears to be rewarding for many young people. A recent survey in Australia (Hill and Gray, 1982) found that 35 per cent of males and 37 per cent of females between sixteen and nineteen years of age considered themselves current smokers. These figures rise to 56 per cent of males and 40 per cent of females between twenty and twenty four years of age.

This thesis is concerned with smoking in young people and first examines adoption and maintenance of smoking behaviour, then analyses the types of programmes available to help reduce smoking in young people. Unlike adult smokers, young smokers have received little attention.
Most education and intervention programmes have concentrated on preventing young non-smokers from starting to smoke. This is probably because few people have thought that young smokers would like to give up. The major arguments of this thesis are that some young smokers do want to give up and that if effective techniques could be designed to help young smokers, smoking in this age group could be considerably reduced. Participants would hopefully smoke less or give up and their example may act as encouragement for others to give up, or as a deterrent to young people thinking about taking up the habit.

The second part of this thesis is concerned with the design of a questionnaire. This questionnaire is used to assess the demand for help from young smokers to give up. It then looks at how effectively smoking behaviour can be predicted in this age group using a theory of reasoned action (Ajzen and Fishbein, 1980). Finally, by examining the components of the model used to predict future smoking behaviour it is possible to determine areas that differentiate between smokers that want to give up and other classes of smoker and non-smoker. By examining these differences suggestions can be made for the most appropriate interventions to use.

1.2 Adoption of Smoking Behaviour

Almost as many young people adopt the smoking habit as those smokers who give up or die (Ellis, Indyke and Debevoise, 1980). Recent Australian data indicates that 35.9 per cent of school children in year 10, between
fifteen and sixteen years old smoke at least one cigarette every week, (Flaherty, Trebilco and Egger, 1981).

Children become interested in smoking very early in their lives. Baric and Fisher (1979), showed that children were aware of cigarettes by the age of five and that one mother reported her baby to have recognised cigarettes by the age of 4 months. Some children smoke their first cigarette before they are five years old and surveys have shown that about one in three of those who become regular smokers have started before they are nine (Royal College Physicians, 1977).

Many factors have been shown to be associated with children's first experiences of smoking. Social pressure is often associated with early smoking behaviour (Levitt and Edwards, 1970; Hill, 1971). Peer groups play an important role. A survey conducted in the United States (Green, 1979) found that almost nine out of ten regular adolescent smokers reported that at least one of their four best friends was a regular smoker. Only one in three non-smokers had a smoker among his or her best friends. One in five non-smokers reported none of his or her best friends had ever smoked a cigarette, while only one in a hundred smokers made this claim.

Krosnick and Judd, (1982) have shown that the influence of peers on smoking patterns increases during adolescence. They demonstrated this using the constructs of parental smoking, parental attitude and peer smoking in a multiple indicator model. This is particularly important because as children grow older they perceive less
opposition from their friends to smoking. Schneider and Vanmastrigt (1974), found that adolescents' were more likely than preadolescents to say that their friends would feel good about them smoking. Some adolescents, particularly those who feel anxious and inadequate may adopt smoking to achieve social acceptance and become part of the gang (Levitt and Edwards, 1970).

Older siblings who smoke also have an important influence. Green (1979), found that boys with older siblings who smoke were more than three times as likely to smoke as boys with non-smoking older siblings, 19.8 per cent and 5.9 per cent respectively; similarly for girls the figures were 20.8 per cent compared with 9.1 per cent.

Parental smoking may also influence the behaviour of children. In families where both parents smoke, Green found 13.5 per cent of boys and 15.1 per cent of girls were regular smokers, compared to 5.6 per cent and 6.5 per cent where neither parent smokes. Parental attitudes to smoking also seem to be very important. Nolte, Smith and O'Rourke, (1983) found approximately a four fold increase in smoking behaviour with children who reported that neither of their parents would be upset by them smoking.

Duryea and Martin, (1981) have reported a distortion effect whereby young people perceive smoking to be more prevalent than it actually is. This over estimation was found to be consistent for peers, adults and teachers. For example, the average 12 to 14 year old in the survey estimated 44 per cent of their peer group smoked cigarettes regularly. The actual prevalence estimates indicated only a
4 per cent incidence. Duryea and Martin speculate that this distortion may facilitate the transition from non-smoker to smoker as potential smokers may find it easier to join an apparent majority group rather than an actual minority.

Socio-economic factors are also important. Adults in lower income and educational levels are more likely to smoke than college educated adults in higher income brackets (Capell, 1978). Studies have shown these trends to be true in children as well, even when the effects of parental smoking are held constant (Ellis, Indyke and Debevoise, 1980). Early smoking is also related to levels of academic achievement (Bewley and Bland, 1977). For example, Sunseri, Jean, Alberti, Kent, Schoenberger, Sunseri, Amuwo and Vickers, (1983) found smokers were generally not as good at reading as non-smokers. Smokers also tend not to participate so much in sport (McAlister, Perry and Maccoby 1979). Both academic achievement and success in sport may lead to non-smoking peer groups and a higher level of self esteem that may outweigh any pressures to smoke.

Smokers report greater anti-social tendencies (belligerence, psychopathic deviance, misconduct, rebellion-ness, defiance and disagreeableness) than non-smokers (Klozowski, 1979). Young non-smokers perceive smokers in a similar way, as tough, foolish, careless, easy going, lazy, more often in trouble and so on (Bland et al., 1975). However smokers do not see themselves in this way. Their self-image as a smoker, "suggests a toughness, an ability to express impulses and independence from authority, and a
state of being grown up in areas that though bad are exciting and interesting" (Leventhal and Cleary, 1980, p.384). Such inviting aspects of the image may encourage smoking, particularly in children doing less well meeting expectations of schools and parents, and of a more rebellious nature.

Other factors too may play an important part in the adoption of the smoking habit. There are personality differences between smokers and non-smokers. Eysenck's work on extroversion-introversion has had a powerful influence on defining the field (Eysenck, 1965). Smokers are generally more extroverted than non-smokers (Cattell and Krug, 1967) and this difference predates smoking behaviour (Cherry and Kiernan, 1976). Smokers have also been shown to be slightly more neurotic than non-smokers. However, differences are only small and are unable to account for more than one or two per cent of the variance between the two groups (Klozowski, 1979).

Some people may take up smoking as it is seen as offering rewards, like achieving high grades in exams and coping with difficult life circumstances (Thomas, 1960). This may be more important for achievement oriented college students who start to smoke in late adolescence or early adulthood.

The reasons for starting to smoke are very complex and probably differ considerably between individuals. The first cigarette is rarely a pleasant experience. Bewley, Bland and Harris, (1974) report 32 per cent of boys were sick and only 21 per cent said they enjoyed their first
cigarette. Indeed by the end of high school 75 per cent of young people had tried at least one cigarette but less than half of all who tried became regular smokers. Cartwright, Martin and Thompson (1959) found it took upwards of two years to become a regular smoker. That is, from smoking about one per week to twenty per day.

There is very little known about this period of gradual increase. With repeated experience the smoker develops a tolerance to the physiological effects of smoking (Russell, 1979). The smoker can then continue to smoke while remaining alert, relaxed and refreshed. This may be reinforcing by itself, but the use of smoking in other situations, for example, consolidating friendships and coping with difficult situations may also serve to reinforce the process (Ashton and Stepney, 1982). During this phase many young people appear to be unaware of the problem of addiction or dependence (Brecher, 1972). They think they can stop at any time. However, a gradual increase in the frequency of smoking and an increasing number of situations in which smoking occurs means that an individual starts to depend on smoking as part of every day life. During this period social factors responsible for the initiation of smoking seem to decline in importance, enabling explanation of maintenance in terms of psychological and pharmacological factors. Stepney, (1980) has incorporated this transition into a diagram which emphasises the importance of various factors at different stages of the smoking habit (fig. 1).
Figure 1 Factors affecting different stages in the development of smoking. Adapted from Stepney (1980).
1.3 Maintenance of Smoking Behaviour

Many models have been proposed to explain smoking behaviour, though the exact mechanism of maintenance remains unclear. This section reviews a range of mechanisms that may be operating.

Tomkins (1966, 1968) proposed that smoking is maintained by its role in managing affect. It was suggested that smoking only becomes a regular habit if it is consistently associated with (reinforced by) positive affect enhancement or with the reduction of negative affect. Dependence, or addiction, can develop by the sequential linking of emotional states. For example, a negative emotional state may initiate smoking, which reduces the negative affect. When the individual stops smoking for a period of time the negative affect returns and becomes a powerful stimulus to initiate smoking. This negative affect can be avoided by smoking. Thus smoking becomes part of a self-reinforcing system.

More recently learning conceptualizations have gained considerable popularity. Various formulations have been applied to smoking behaviour, (Lichtenstein and Danaher, 1976) although they all have certain common themes. Basically they consider smoking as a learned response, established under massed trials in diverse stimulus conditions and under partial reinforcement schedules. Smoking can be maintained by any observable environmental stimuli that elicit it and those stimuli which it produces i.e. by a combination of respondent and operant conditioning (Bernstein, 1969). The many different
stimulus conditions in which smoking can take place combined with secondary reinforcers make it difficult to specify and, if desired, control them.

Social psychological models have been put forward, generally in response to specific theoretical questions, particularly with regard to attitudes. These include a model developed by Fishbein and Ajzen (1975) which will be looked at in more detail later.

Pharmacological models have been investigated extensively. Work in this area has been designed to isolate specific chemical agents responsible for both the dependency and harmfulness of smoking, and to develop antidotes.

Nicotine is seen as the prime candidate in the development of dependence, even though its role is not yet clear. A variety of models have been advanced, including the Nicotine Fixed Affect model (Leventhal and Cleary, 1980). This model assumes nicotine consistently stimulates specific reward inducing centres.

Nicotine acts in many areas. For example, it lowers the strength of evoked cortical potentials produced by external stimuli (Hall, Rappaport, Hopkins and Griffin, 1973). However all effects disappear rapidly when nicotine is withdrawn. This model is therefore unable to account for the persistence of smoking and the difficulties experienced by many smokers who are able to give up smoking for a few days. If this model provided a comprehensive explanation, all desires to smoke would leave after all of the nicotine from smoking had left the body. This is not the case.
A new, more complex, formulation is required.

Nicotine Regulation models argue that smokers smoke to maintain a characteristic level of nicotine in the body (McMorrow and Foxx, 1983). This implies that changes in smoking behaviour will accompany either increases or decreases in nicotine availability. Some studies have shown clear evidence for both upward and downward self-regulation of nicotine. For example, Ashton, Stepney and Thompson (1979) were able to show that smokers would compensate for approximately two-thirds of the difference in standard nicotine yield when switched to either high or low yielding cigarettes, compared with their previous brand. However, other studies have provided no evidence for regulation (Moss and Price, 1982).

The inability of any of these models to fully explain smoking behaviour has led to more complex formulations. Schacter, Silverstein and Perlick (1977) proposed that smoking tends to be used to regulate nicotine in heavy smokers and emotional states in light smokers. This suggestion is inadequate as it makes an arbitrary distinction between types of smoker for which there is little experimental evidence. However, Leventhal and Cleary (1980) have suggested that emotional arousal is the key to smoking, as proposed by Tomkins, (1968). They also propose that nicotine levels are regulated in response to conditioned emotional states. Thus the importance of nicotine in smoking becomes more important with time and the number of cigarettes smoked. In light smokers, regulation of smoking will depend primarily on external
factors influencing emotional states. Heavy smokers will also smoke to regulate nicotine as reductions in nicotine level will be associated with negative emotional states and produce an internal craving to smoke.

As we learn more about the mechanisms for maintenance of smoking behaviour the complexities of this issue are becoming evident. A simple explanation of smoking behaviour now seems unlikely and a successful explanation will probably incorporate several of the above models and possibly other factors not yet considered.

1.4 Smoking Programmes for Young People

1.4(a) Prevention Programmes

Adolescents and children are exposed to the same types of smoking information as the community at large. However, adolescents have been singled out for special attention with the aim of reducing smoking in future years.

Places like schools and clubs which provide easy access to large populations of young people have been prominent in providing smoking programmes of various types. Programmes have generally been educational or preventative in nature. They have ranged from limited efforts such as poster campaigns or "one off" lectures to more intensive programmes. More intensive interventions may provide information throughout a child's school career, presentation and content being matched to individual childrens needs.
Many of the first programmes to be developed were not adequately evaluated and those that were did not produce very promising results. For example, one of the better studies (Horn, Courts, Taylor and Solomon, 1959) compared five experimental prevention approaches. These were, (1) the remote effects of smoking (concentrating on health hazards in later life). (2) The current meaning of smoking (emphasising aspects of smoking having immediate meaning to students). (3) The two sides of the smoking issue (a rather permissive approach indicating benefits of smoking as well as disadvantages). (4) Authoritative stands on smoking (a firm message to students from people in authority that they should not smoke) and (5) adult role taking (encouraging children to try to dissuade their parents from smoking). Each of the above approaches were supplemented with mass smoking education and poster campaigns. One group was left as a control and they received no special smoking education activities during the year of the study. The only approach to have any statistically significant effect on smoking behaviour, compared with the control, was that emphasising long term health hazards. This only resulted in a small reduction in recruitment to the ranks of young smokers. When this study was replicated (Creswell and Creswell, 1970) only the second group, emphasising the current meaning of smoking, significantly reduced smoking behaviour.

After an extensive review of smoking education programmes conducted between 1960 and 1976, Thompson (1978) concluded that most were, "either ineffective or not
evaluated" (p.254). However, since the publication of Thompson's review there has been a considerable change in the emphasis of smoking programmes. They have become more comprehensive. They address a wide range of factors now known to be directly involved in the initiation of smoking. These are often presented using a range of methods and spread out over a period of years.

Some programmes have integrated this type of education into general health education programmes. For example, the school health curriculum project (Heit, 1978) was developed in the United States. This consists of four units for children between nine and thirteen years. Each year the children spend eight to ten weeks examining a body system, in the first year the digestive system then in subsequent years the lungs, heart and nervous system. Information about smoking is included where relevant. In Australia a co-ordinated personal health development programme has been produced (Homel, Daniels, Reid and Lawson, 1981). Programmes were developed for all ages in the school system from Kindergarden to year 12. Specific issues addressed include physical health, substance abuse and emotional health.

In contrast to general, health education approaches, other programmes have concentrated more specifically on smoking. They have attacked specific areas, or groups of areas now known to be directly relevant to smoking initiation. As social pressure, and particularly peer pressure has been shown to be important in the initiation process, many programmes have developed
techniques to counter this influence. Some programmes have enlisted peers as teachers (Perry, Killen, Slinkard and McAlister, 1980; Telch, Killen, McAlister, Perry and Maccoby, 1981; Williamson and Campbell, 1981). Generally non-smoking high school students are taken and given a training in communication, group presentation, role playing and aspects of smoking prevention. They then use these skills to teach younger children of the dangers in taking up the habit. A non-smoking peer model like this may help young people resist peer pressure to smoke.

Teaching young people to cope with the social pressures to smoke has also been a popular approach (McAlister, Perry and Maccoby, 1979; Mausner and Platt, 1971; Del Greco, 1980; Evans, Rozelle, Mittlemark, Hansen, Bane and Haris, 1978). This has taken the form of learning assertive skills to refuse cigarettes by using role plays or through video presentations.

Recent work suggests that many adolescents believe smoking to be dangerous to older people, or to those who smoke at a high rate (Banks, Bewley and Bland, 1981). Consequently some programmes have concentrated on physiological differences between young smokers and non-smokers and the physical effects of cigarette smoke inhalation (Wexler, 1978; Perry, Killen, Telch, Slinkard and Danaher, 1980). Measurements of such variables as carbon monoxide in exhaled air, pulse rate, skin temperature, motor control, lung function and saliva thiocyanate are all used. The approach seems to help some new smokers stop as well as detering current long term smokers from smoking.
The effects of advertising have received some attention. Evidence is mounting that it may affect adoption of smoking, but this is only anecdotal (Castleden, 1983). However it does seem to affect smoking patterns and brand preference, particularly through the medium of peer influence (Chapman and Fitzgerald, 1982). The power of advertising and the profit motives of advertisers have been pointed out in one Australian smoking prevention programme (Collquhoun and Cullen, 1981). The issue has also been introduced, using video presentations, in some programmes in the United States (Evans, Rozelle, Mittlemark, Hansen, Bane and Haris, 1978).

Some programmes have effectively synthesised several of these approaches (Hurd, Johnson, Pechacek, Boot, Jacobs and Leupter, 1980; Pechacek and McAlister, 1980). Results from most of these studies have been positive as they prevent some children from starting to smoke. There are problems with the evaluation of most of these studies (Lichtenstein, 1982). These include the uncontrolled use of different schools for different interventions. Furthermore often schools are not randomly assigned to particular conditions due to practical constraints. None-the-less, the consistent positive results are still encouraging.

Unfortunately prevention programmes do not stop all young people experimenting with tobacco. Many still experiment with cigarettes and reach a stage where physiological and psychological factors are maintaining their behaviour. Therefore it is not surprising that approaches stressing initiation of smoking have been relatively
ineffective with this type of person, even if they want to stop smoking.

1.4(b) Cessation Programmes

Efforts to help young people stop smoking have arisen after the realisation that existing prevention and education programmes were not very effective with young smokers. However, the idea of actually providing help for young people is still very new and reports of interventions have only been documented over the last five years.

One of the first reports (Singer, 1978) collected young smokers together in groups and subjected them to various interventions. These can be listed.

(1). The publicity approach, aimed at making individuals aware of the many issues associated with smoking. This was achieved in a passive way by reading and listening. This intervention lasted 2 weeks.

(2). The publicity and education approach, this combined (1) with smoking facts, e.g. it's relationship with specific conditions like pregnancy, peptic ulcers and fires; social, psychological and economic effects of smoking; the immediate and long term physical effects of smoking. This approach lasted 3 weeks.

(3). The publicity and group sessions approach, this combined (1) with 1 1/2 weeks of group sessions. Groups were used to provide interaction, explore smoking behaviour, promote motivation, support and mutual guidance. This lasted a total of 3 1/2 weeks.
The publicity, group sessions and education approach. This combined (1), (2) and (3) and lasted for 4 1/2 weeks.

The participants were followed up over 3 months and 46 out of the 104 who completed the programmes were non-smokers at the end of that period. Results for each group improved with increased group duration and extent of information provided. No control group was used so the significance of these results is difficult to interpret.

A similar study was reported by Greenberg and Deputat (1978). Again content concentrated on health concerns, with only limited information on how to quit. They used three experimental interventions.

(1). The scare approach, using films demonstrating the horrible consequences of cigarette smoking, an exhibition of cancerous animals and other unpleasant aspects of smoking.

(2). The fact approach, information was presented using lectures films and class visitations in an objective scientific manner.

(3). The attitude approach, which employed affective educational strategies, including the classification of personal values and then relating these values to smoking.

A control group received no smoking education, but spent a comparable period of time in a study hall. Immediately after the intervention the scare approach seemed to be the most successful with 43 percent of the group giving up. However, at five months follow up this had dropped to 20 per cent leaving the attitude approach with 29 per cent stopping smoking as the most successful group.
Both of these studies used large amounts of material direct from prevention programmes which has been tried in the past and been found to be unsuccessful. Evaluation was inadequate, particularly in Singer's (1978) work, and results are inferior when compared to data from recent adult cessation programmes (Lichtenstein, 1982). For example, Foxx and Brown (1979) had a 40 per cent success rate after eighteen months using nicotine fading and self monitoring techniques.

In recent years one of the most active anti-smoking organisations in the United States has been the American Cancer Society. This group has been particularly active in developing smoking cessation programmes and is responsible for a widely used adult programme (American Cancer Society, 1971).

A revised version for use in the school setting has been developed (American Cancer Society, 1980). It consists of nine sessions for small groups of students that want to give up. The basic session structure is as follows:

1. Pre-test and group development (pretest measures knowledge, awareness and understanding of smoking behaviours).
2. Group development and test analysis.
3. Personal motivation.
4. Personal motivation.
5. Examining the habit.
6. The quit process.
7. The physiology of smoking.
8. Maintaining non-smoking behaviour.

9. Post test of knowledge, awareness and understanding of smoking behaviour and maintenance building.

The programme has been developed since 1976, being tested in forty-five schools in the development stage. Since 1980, it has been available throughout the U.S. school system. As with the American Cancer Society's adult programme, there has been little evaluation of outcome. The only results reported to date (Mills, 1978) are for one group of seventeen students selected from a senior high school. The first young people to volunteer were given places and there was no control group. At two months follow up only four of the group confirmed that they were no longer smoking.

Other groups have been tested in the U.S.A. (Ellis et al., 1980), including one using a peer-led programme (Shute and St Pierre, 1979). Students at Pennsylvania State University were asked to help organise a smoking programme. Volunteers were given exposure to smoking and health literature. Basic physiological, psychological and sociological information was also provided. Students then used this information to urge smoking peers to sign up for a smoking cessation programme which they then organised and ran. Over fifty students indicated an interest, but only seventeen attended an initial orientation meeting. The programme was based on a learning theory conceptualization of smoking behaviour. It involved self-monitoring of smoking behaviour in order to help group members understand their smoking behaviour. Then group members used this
information to help them manipulate environmental situations in which they would have smoked in the past. Ten of the original seventeen attended all clinic sessions and five students quit smoking.

Consistent with trends in helping adult smokers to quit, two self-help books have recently been produced. These are, "The Stop Smoking Book for Teens", (Casewit, 1980) and "The Joy of Quitting" (Burton and Wohl, 1979). Both concentrate on assisting the young smoker to quit. This is a useful development, since self help manuals for adults have been shown to be an effective aid to giving up (Pederson, Baldwin and Lefcoe, 1981). Rather than providing a structured programme to be followed, as do many adult guides (e.g. Pomerlau and Pomolau, 1976; Danaher and Lichtenstein, 1977) these books for young people examine more general issues of why people smoke, the costs and benefits of smoking and what other people e.g. sports stars, doctors, musicians, think about smoking. However the content of these books loses much of its relevance outside the U.S.A. They are also difficult to obtain in Australia.

In conclusion, a range of cessation programmes for adolescents have been developed. However few have been designed specifically for young smokers. Material has been taken directly from approaches aimed at other groups. Most programmes have been conducted on a small scale and their influences on the communities in which they have been conducted has probably been small. However this has not been measured. The impact of group members is also difficult to assess as follow up, if it has been carried
out at all, has only been over relatively short periods of
time. Also, the lack of proper control groups to act as a
comparison has been a problem.

Clearly more research is required to determine the
demand for this type of approach. Developing appropriate
content for these groups should also be of high priority if
they are going to be successful. Effective comparison
between different types of group and controls is important.
Follow-up over a longer period of time, at least twelve
months, is required to establish the long term effects of
any programmes. Finally the efforts of these groups on the
institutions and communities in which they are conducted
should be measured. This could be achieved by surveying
institutions, like schools, before and after intervention.
Overall smoking rates could be recorded and the effects of
the intervention on the general population noted. This
would provide insight into possible modeling effects or
deterrent effects of the programmes on people who did not
directly participate.

1.5 Smoking, Attitudes and Planning Intervention

Programmes

The concept, "attitude" has often been associated
with cigarette smoking. Attitudes are a useful way of
conceptualising aspects of smoking behaviour, and have been
shown to have implications for intervention strategies.
Newman, Martin, Irwin, Ang and McNulty (1981) point out
some of the differences in attitudes between adolescent
smokers and non-smokers;
"Smokers may have the wrong attitude about school, physicians may indicate these people may have a bad attitude about themselves and counsellors indicate that youngsters who smoke have a poor attitude to authority figures."
p.284

However, before examining the relationship between smoking and attitudes more carefully, the question of attitude definition merits brief consideration. The hypothetical construct attitude has been defined by the properties assigned to it within a specific theoretical formulation. In the early days of attitude research these were many and varied. In 1935, Allport reviewed these definitions and attempted to construct a single comprehensive form;

"a mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence upon the individuals response to all objects and situations with which it is related."
p.810

This broad conceptualisation has endured over the years. However there have been many difficulties with attitude research, and particularly a low correspondence between attitude and actual behaviour. These difficulties have led to the formation of numerous hypotheses. For example, in the 1950's a multi-component view of attitude was adopted. This described attitudes as complex systems comprising of the person's beliefs about an object, his feelings towards the object and his action tendencies towards the object (Rosenberg and Hovland, 1960).

Descriptions of attitudes have become very complex and Scott (1968) identified at least eleven variable properties that referred to characteristics of attitudes.
Even with complex descriptions of attitude it has been difficult to explain inconsistencies between attitude and behaviour. Some theorists have proposed that attitudes are unable to account for behaviour by themselves. Ehrlich (1969) and Wicker (1969) have proposed that no matter how attitudes are assessed other variables must be taken into account either as independent contributors to the behaviour or as mediators of the attitude-behaviour relationship.

Many attitudinal studies of smoking have tended to be undermined by these theoretical complexities and inadequacies (Shor, Williams, Latta, Cannon and Shor, 1981; Banks, Bewley and Bland, 1981; Alexander, Callcott, Dobson, Hardes, Lloyd, O'Connell and Leeder, 1983). However consistent differences seem to have been established between smokers and non-smokers across studies. These differences are in many areas, and examples include smokers consider their habit less harmful to health, less dirty, less dangerous, less annoying to others and generally more desirable than non-smokers. Smokers also have less favourable attitudes to school and relate differently to friends smoking behaviour.

Besides these differences attitudes have predictive value, and indicate which non-smokers are likely to take up the habit and which are not (Downey and O'Rourke, 1976). However, attitudes do change with age, for example, Schneider and Vanmaastricht (1974) found attitudes to smoking generally became more favourable between pre-adolescence and adolescence.
Attitudes have been measured in conjunction with programmes designed to change smoking behaviour and in some cases, differences have been shown to be consistent with resulting change in smoking status (Williamson and Campbell, 1981; Lloyd, Alexander, Callcott, Dobson, Hardes, O'Connell and Leeder, 1983). However, some interventions have demonstrated attitude change without a corresponding change in behaviour (Bartlett, 1981) and incongruity can often be found between behaviour, knowledge and attitudes (Silman, 1979).

Green, (1970) has argued that the utility of attitudes and attitude change strategies are limited. A more comprehensive analysis is suggested, not only looking at internal factors like attitude but also external forces, like social support.

Fishbein's model of behavioural intention (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980) has been developed over a number of years and expands the scope of attitudinal theories by introducing a social component.

This theory restricts attitude to a person's, "amount of affect for or against some object" and draws clear distinctions between beliefs, attitudes and behaviours. It has been researched extensively and has shown to have considerable practical utility in predicting and understanding behaviour over a wide range of situations.

The theory has the ultimate goal of predicting and understanding individual behaviour. It makes the assumption that most behaviours (B) of social relevance are under voluntary control and consistent with this claim, notwith-
standing unforeseen events, a person's behaviour is consistent with a declaration of intention (I). Various factors may influence the accuracy of this prediction. Examples of these factors include the time lag between intention and behaviour; the effect of new information; the complexity of behaviour; the effects of recall and memory; the ability to carry out the behaviour; the specificity of the measured intention and the degree to which the individuals stated intention is representative of true intention (Jaccard, 1975).

All of these factors affect intention and this will then affect the person's decision to perform the behaviour. Generally a person will decide to perform the behaviour for which he or she has the strongest intention, but this does not mean it will always predict whether a person performs a behaviour.

As the theory attempts to understand human behaviour and not merely predict it, the second step in analysis requires identification of the determinants of intentions. The theory states a person's intention is the product of two determinants. One is personal in nature, that is, the individual's positive or negative evaluation of performing the behaviour and is called, attitude towards the behaviour (A_B). The second is an external measure of the person's perception of social pressures to perform or not to perform the behaviour. This is termed the subjective norm (S.N.). People generally intend to perform a behaviour when they evaluate it positively and believe important others think they should carry it out. The relative
importance of each factor depends on the intention and person under examination. In the model these differences are accounted for by empirically determined weighting factors \(w_1\) and \(w_2\). This relationship can be represented symbolically:

\[
B \sim I = \int [w_1 A_B + w_2 SN]
\]

Components of attitude \((A_B)\) and subjective norm \((SN)\) can be further broken down. An individual's attitude towards a behaviour is seen as consisting of beliefs about the behaviour in question \((b_i)\) and the evaluation of these beliefs \((e_i)\). Beliefs are an assessment of the subjective probability that performing a behaviour may lead to a particular consequence and an evaluation refers to the consequences of performing this particular behaviour. The beliefs that underlie a person's attitude are termed behavioural beliefs and the relationship between a behavioural belief and attitude towards that behaviour can be summarised:

\[
A_B = \int \left[ \sum_{i=1}^{n} b_i e_i \right]
\]

Subjective norms can also be split into two components. Again they are thought to be determined by beliefs, but in this case normative beliefs \((b_i)\), with the other component being the degree of motivation to comply \((m)\) with these beliefs. For example, a person who believes most referents with whom he or she is motivated to comply also want him or her to carry out a behaviour, will perceive social pressure to carry out the behaviour.
Again the relationship can be represented symbolically:

\[ SN = \int \left[ \sum_{j=1}^{n} b_j m_j \right] \]

This model represents a useful synthesis of various explanations of behaviour that is easily visualised over a series of defined levels. It also provides a succinct definition of the concept "attitude". It is important to note when using this model that its predictive power is greatly increased when looking at beliefs directed only towards the specific behaviour at hand and stress is placed on personal appraisals of attitude and belief (Fishbein, 1982).

Even though the model only uses a limited number of concepts to describe behaviour, Fishbein argues that these are sufficient and that other factors that may influence behaviour will first influence the components of attitude and subjective norm and thus be accounted for in the model. Several reports have verified this to some extent by comparing the predictive power of other models or by adding factors to Fishbein analysis.

Beck and Davis (1980) looked at smoking behaviour using this model and also at emotional arousal. They found knowledge of emotional arousal did not improve the predictive ability of the model. A comparison of a model developed by Triandis (1977) has also been made. This included several features not found in Fishbein's model including, (a) a role construct that measures the appropriateness of behaviour for a person in a particular position in the social system, (b) a moral norm and (c) the
self concept. Fishbein's model was shown to be better at predicting behavioural intention than Trandis's model (Brindberg, 1979). Comparison with another model which includes general, or distal, variables (Jessor and Jessor, 1977) showed that these only added a small amount to the explained variance in the behavioural intentions to the Fishbein model (Chassin, Corty, Presson, Olshawsky, Bensenberg and Sherman, 1981).

The model has also been specifically applied to smoking behaviour. Some authors have used it as a tool to predict future smoking behaviour (Beck and Davis, 1980; Chassin et al., 1981; Fishbein, 1982). Others have extended its use as a tool in the development of health education programmes (Newman, Martin and Irwin, 1982).

Before continuing it should be noted that the Fishbein model has not been without its critics. There is direct evidence that other factors can influence behavioural intentions directly. Sherman, Presson, Bensenberg, Chassin, Corty and Olshavsky (1982) found that ability to predict behavioural intention improved under levels of greater direct experience. Others have questioned the nature of the interaction between basic factors in the model. For example, attitudes can directly influence behaviour and intentions can be directly influenced by factors other than attitudes and subjective norms (Bentler and Speckart, 1979, 1981; Bagozzi, 1981). When considering the impact of the various constituents of the model in designing intervention programmes it is important to bear in mind these possible deficiencies and the contributions
other factors are going to make towards the elements of the model.

Eventhough there are some problems with Fishbein's model, it would seem to be a useful choice for assessing differences between young smokers that want to give up and other groups of smokers and non-smokers and employing this information in the development of intervention programmes.

1.6 Young Smokers in Australia

It is estimated that 70 to 80 per cent of young Australians smoke cigarettes while still at school (Hardes, et al., 1979; N.H.&M.R.C., 1979). Even though many of these stop after initial experimentation, recent data indicates that between 35 and 40 per cent of year 10 students smoke at least one cigarette every week (Flaherty, Trebilco and Egger, 1981). These numbers soon increase after the young people have left school, such that 56 per cent of males and 40 per cent of females between the ages of 20 and 24 years old consider themselves regular smokers.

Consistent with trends in the rest of the world, programmes have been developed to reduce smoking by young Australians (Lloyd, Alexander, Callcott, Dobson, Hardes, O'Connell and Leeder, 1983; Colquhoun and Cullen, 1981; Fisher, Codde and Armstrong, 1982; Homel et al., 1981). However, all of these programmes have concentrated on preventing non-smokers take up the habit and most have only been available to children less than fourteen years old. Very little has been done to reduce smoking in older adolescents, particularly those who have been smoking for
some time. There is clearly a need for the development of intervention programmes with this age group.

Unfortunately very little is known about the characteristics of this age group. More data is required on the exact number of young people that smoke, how much they are smoking and how long they have been smoking. In addition these data need to be broken down further into an analysis of how many young smokers actually want to stop smoking. If a large number want to stop smoking this would make providing assistance for them considerably easier. It then would also be important to find out how many would like help with stopping smoking. Again, if a large number were to actually seek help this would facilitate the development of any intervention programme.

Finally, as there is a lack of any basic research in this area, it would be crucial to determine some of the differences between these various groups of non-smokers and smokers, those who wish to stop, those who want help etc. When this has been done it becomes theoretically possible to focus on the differences that have the most important implications for the design of intervention programmes. Fishbein and Ajzen's (1975) model provides an ideal framework for the development of such an approach for a number of reasons. First it emphasises attitudes, already known to be useful in discriminating between smokers and non-smokers (eg. Banks et al., 1981). Secondly it has been shown to have predictive power for determining adolescents intentions to smoke in Australia (Newman et al., 1982).
Finally it has been shown to be a useful method for developing intervention programmes (Newman et al., 1982).
Method

2.1 Selection of Subjects

The first step in the project involved the selection of a population for study. The obvious sources of subjects were high schools and colleges, as school attendance is compulsory until sixteen years old, and a large proportion of adolescents continue education in colleges until they are eighteen.

As the focus of this project was smoking cessation, and would probably appeal only to adolescents who have been smoking some time, it was decided only to survey the older students. High school students from years eight to ten and all college students in years eleven and twelve were selected.

In order to gain access to schools and colleges, it was necessary to approach the A.C.T. schools authority, to whom a brief research proposal (Appendix A) was submitted. This proposal outlined the rationale of the survey, the practical aspects of data collection and some of the potential uses of this data.

The proposal was accepted and the authority suggested a list of high schools and colleges that might be interested in participating in the research. Initially, three high schools and three colleges were approached. Each was sent a letter (Appendix B) and a copy of the report was sent to the schools authority. This was followed by a telephone call and a personal visit either by Dr Byrne and myself or by myself. During the visit it was possible to
elaborate on why the survey was important and organise some of the practical aspects of the intervention. All schools agreed to participate in the project, except one. This school was undergoing an extensive review, which was causing considerable disruption to the curriculum and they felt they would like to minimise further disturbances. An alternative school was chosen and they agreed to participate.

High schools included in the study were, Ginninderra, Holder and Lyneham, colleges were, Phillip, Stirling and Copland.

2.2 Categories of Smoking Status used in the Study

Defining who smokes and who does not can be a difficult process. This is particularly so with adolescents who may be adopting the habit and only smoking small numbers of cigarettes. Some surveys have allowed smokers to define their smoking status. For example, Green, (1979) classifies smokers as to whether they consider themselves regular smokers, occasional smokers, ex-smokers or non-smokers. Other studies use a similar type of classification (Chassin et al., 1981; N.H.&M.R.C., 1979). However recent work has tended to use more specific definitions. This has been assisted in Australia by the development of a standardised questionnaire for surveys of drug use (Drew et al., 1981). The questionnaire asks for particular information on how many days in the last week or four weeks the subject has smoked. With this information it is possible to classify smokers and non-smokers on the basis
of recent smoking behaviour. For example, Hardes et al. (1981) classify smokers as 'recent' (smoked in the last four weeks) and 'regular' (smoke every day). Other studies (Flaherty et al., 1980) classify young smokers on the basis of whether they have smoked in the last week. In this study data has been collected on whether subjects have smoked in the last four weeks, last week or on a daily basis. It is therefore possible to compare results from this study with recent Australian work. Questions that relate to giving up smoking were directed at young people who had smoked in the last four weeks. This period was chosen because it was found in the first two phases of the project that if an individual had smoked in the last month they were very likely to consider themselves a smoker. Even though having smoked in the last four weeks is taken as the definition of a smoker in this study the numbers of individuals smoking every day or in the last week are also recorded.

The project was conducted in three phases, each school was involved in every phase.

2.3 Phase 1

This phase was designed to elicit items for an attitudinal questionnaire and to test the suitability of a short questionnaire, requiring history of smoking, age, sex, grade and potential demand for smoking cessation groups. The instructions, some examples and some of the questions were taken from a questionnaire which was developed to standardise surveys of drug use within Australia (Drew, Jones, Hill, Graves, Egger and Nolan,
1981). Other questions (numbers 9 to 13) were developed for the specific needs of this survey. The questionnaire allowed subject to remain anonymous as did all subsequent questionnaires in the project. The questionnaire is listed in Appendix C.

Some studies recommend a physiological measure to verify self report of adolescents smoking behaviour (Evans, Hansen and Mittlemark, 1977; Luepker, Pechacek, Murray, Anderson-Johnson, Hurd and Jacobs, 1981). However, if confidentiality is stressed self report of smoking by adolescents can be very accurate (Williams, Eng, Botvin, Hillard Wynder, 1979; Bauman, Koch and Bryan, 1982). As this was going to be a relatively large survey with older adolescents, who are not generally as inhibited about revealing their smoking habits as younger children, the accuracy that would be obtained from self report was considered sufficient.

The questionnaire was administered to a small group of subjects in each of the schools. It was always administered by the author and verbal instructions closely followed those outlined in Appendix C. Questions and difficulties were dealt with as they arose. Questionnaires were not collected until everyone had finished.

The second part of the session was designed to elicit items for an attitude questionnaire. The method is outlined by Fishbein, (1981) and Irwin, (1983). This was also kept to a standardised format. Subjects were asked to write down the answers to the following questions on strips
of different coloured card (to facilitate the
identification of which question they were answering):-

(1) What do you see as the advantages of giving up/or
not smoking?

(2) What do you see as the disadvantages of giving up/
or not smoking?

(3) Is there anything else you associate with giving
up smoking?

Subjects were asked to write down three sentences for each
of questions one and two and use question three to add to
either of those lists. The questions were designed to
provide a set of belief statements with regard to smoking.
Answers were collected and results were discussed with the
subjects. The procedure was then repeated with the
following questions:

(1) Are there any people who approve of you giving up/or
not smoking?

(2) Are there any people who would disapprove of you
giving up/or not smoking?

(3) Are there any groups that come to mind when you
think of giving up smoking?

The questions were designed to provide a set of
referents; other people who may be important in the
cessation or initiation process. Cards were collected and
results discussed with the subjects. Non-smokers sometimes
found difficulties with some of these questions but
everyone was generally able to contribute some ideas.

Groups were organised by teachers within schools.
All subjects who participated were volunteers and a mixture
of year groups and abilities were used from each school.
Some participated during class time, others gave up their
lunch break to help out. The procedure took approximately forty-five minutes. Group size varied from eight to sixteen. There were seventy-nine in the sample, thirty eight who had smoked in the past month and were therefore labeled "smokers". This left forty-one non-smokers, though nine of these had smoked in the past (on at least three of four days in any one week). There were forty-eight females and thirty-one males in the sample.

The statements they had written on the cards were sorted, first by colour and therefore by response to a particular question. The four main groups were, positive beliefs about smoking, negative beliefs, referents who approved of smoking and referents who disapproved. These cards were then further subdivided into categories expressing similar ideas e.g. "saving money when giving up smoking", "calming your nerves by smoking", "parents disapproving of smoking". The number of statements made regarding each category was tallied for each category of student, these being smoker, ex-smoker and non-smoker. Identification was made possible by numbering each questionnaire and asking each individual to place his or her number on the cards provided. The tables produced for each of these categories are reproduced as Appendix D. These responses give an insight into what a cross-section of adolescents think about smoking, and point to some differences between smokers and non-smokers (from the frequencies of particular responses). Fishbein, (1981) recommends using the most popular responses from an exercise like this to construct an attitude questionnaire.
However, as it was possible to develop the questionnaire over another stage most suggestions were incorporated into the questionnaire used in phase II.

2.4 Phase II

A new questionnaire (Appendix E) was developed for this phase. The first part consisted of the questionnaire used in phase 1. Changes were made in the ordering and wording of questions after feedback from subjects in phase 1. The second part of the questionnaire was developed from the literature and was previously used in a study of smoking behaviour in Canberra (Newman et al., 1981). Instructions and construction were adapted from Fishbein and Ajzen (1980).

The questionnaire was composed of seven point Likert scales and contained items designed to elicit behavioural intention, attitude and subjective norm, all with regard to smoking behaviour. Questions were constructed using wording suggested in phase 1 where possible.

The questionnaire asks for a set of behavioural beliefs e.g.:-

Smoking cigarettes causes cancer

likely extremely quite slightly neither slightly quite extremely unlikely

Outcome evaluations of these beliefs, e.g.:-

For me, getting cancer is

good extremely quite slightly neither slightly quite extremely bad
Then a set of normative beliefs, e.g.:-
Most people who are important to me think I should smoke cigarettes.

likely extremely quite slightly neither slightly quite extremely unlikely
And motivations to comply with these beliefs, e.g.:-
In general I want to do what most people who are important to me think I should do.

likely extremely quite slightly neither slightly quite extremely unlikely
Items were grouped into their various categories but their order was randomised within these categories. An equal number of positive and negative items were constructed to try and prevent any perseveration in responding.

Two other questions were also included, the first a measure of intention:-
I intend to smoke cigarettes in the future

likely extremely quite slightly neither slightly quite extremely unlikely
and the other a single question measure of attitude;-
My smoking cigarettes is/would be

good extremely quite slightly neither slightly quite extremely bad
Both of these questions had several different end points to broaden the scope of these measurements.

The questionnaire was given to a small group of students from each school in the survey. Groups varied in size from six to twenty-one, with a total sample size of eighty-six. There were forty-three males and forty-three females in the sample. Forty-six of these subjects had smoked in the last month. All children were volunteers,
selected by teachers who were asked to provide "an approximate cross section of students" from the years in the survey at that school. Administration was conducted by the author using standardised instructions but, feedback was encouraged and noted for later use in designing the questionnaire.

Results from the questionnaire were analysed using the Statistical Package for the Social Sciences (Nie et al., 1975). Descriptive results were obtained for the sample from questions in part 1. Questions in part 2 were analysed to determine the questions which best discriminated between the groups of smokers and non-smokers that were the interest of the study.

The groups of interest were: (1) non-smokers; (2) smokers who wanted to stop smoking; (3) smokers who were undecided whether to smoke or not; (4) smokers who intended to continue smoking. These categories were defined on the basis of question 9, "On how many days have you smoked in the last four weeks" and question 12, "Do you want to give up smoking", from part 1. Individuals falling into these four groups were compared against their responses to questions in part 2 (from extremely likely to extremely unlikely). They were compared using cross tabulation tables and a statistical measure of association, Kendall's tau-c. A continuum was constructed from non-smokers to smokers that intend to continue on one axis. On the other axis from extremely likely to extremely unlikely. The data in
these tables were considered to be ordinal on both axes. Some of the tables had large numbers of empty cells which makes $\chi^2$ invalid (Siegel, 1956). However, Kendall's tau-c was a statistic appropriate for the data that also provided a measure of association between variables. Kendall's tau-c moves away from zero as the number of cases that fall along one, or other of the main right or left sloping diagonals of the cross-tabulation tables increases (Garson, 1971). Kendall's tau-c was calculated for each of the questions but because of the questionnaires design it could not be used as the only criterium for discarding questions. Questions were arranged in pairs of 'behavioural beliefs and outcome evaluations', and, 'normative beliefs and motivations to comply'. It is, therefore, impossible to discard one question without its companion. Measures of Kendall's tau-c for each question of a pair were added. In this way it was possible to consider how good each pair of questions was at discriminating the groups of interest. When compared against other pairs the combined tau-c was the basis for discarding questions from the questionnaire.

The majority of questions were removed according to this procedure, but some were removed as they were similar to other pairs and produced comparable discrimination. For example, "Smoking cigarettes is bad for your health in the future" and, "Smoking cigarettes is bad for your health now" were combined into the single question, "Smoking cigarettes is bad for your health". "Smoking cigarettes stains your fingers" and "Smoking cigarettes stains your teeth", were combined to produce, "Smoking
cigarettes makes your fingers and/or teeth turn yellow". In some cases wording was changed for clarity. A list of individual and combined Kendall's tau-c values for the various items is to be found in Appendix F.

2.5 Phase III

The third and final questionnaire was produced with 52 questions in part 2, instead of 84. Only the best questions remained and the questionnaire was shorter, less repetitive and easier to administer to a large sample.

Feedback and analysis of data from part 1 led to some changes in part 1. Questions seven and eight which looked at past smoking behaviour were simplified. Question twelve was split into two parts to gain a greater discrimination of intention to smoke; before, only smokers were asked if they intended to smoke or stop, but now non-smokers were asked if they intended to remain non-smokers or not. Question fourteen was deleted as it repeated the intention question in part 2. The instructions for part 2 were shortened as many subjects had found them unnecessarily detailed.

Once more, subjects for this phase were obtained from each school in the survey. Teachers were asked to provide between forty and fifty subjects from each academic year group being studied at that school. They were asked to provide a representative sample of children in those years. In practice in some schools this meant teachers selected a cross section of children out of the whole year; in other schools they selected classes of varying ability which
would hopefully provide the range of children in that year. Some schools arranged a mass administration, while others organised several groups. Teachers were told they were not required and in most cases they left the room; in other cases they remained but did not participate.

Administration was standardised, again by the author. Students were seated and the questionnaire distributed. The standard introduction for part 1 was read to the class and they were asked to complete part 1, read the instructions to part 2 and then wait. When they had finished part 1, instructions for part 2 were read and they were asked to complete the questionnaire. Questions were answered by the investigator and confidentiality was stressed throughout.

Questionnaires were collected as soon as they were completed. Subjects were thanked for their participation and a brief explanation of the project given. Results of the survey were coded and analysed using the Statistical Package for the Social Sciences. Standardised instructions and the questionnaire used in phase III are to be found in Appendix G.
2.6 Summary

The various steps of this intervention can be described in the form of a table (table 1).

<table>
<thead>
<tr>
<th>TABLE 1 Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>Pilot questionnaire obtaining description of sample.</td>
<td>Pilot combined descriptive and attitude questionnaire. Select items for inclusion in final survey.</td>
</tr>
<tr>
<td><strong>Sample Size</strong></td>
<td>79</td>
<td>86</td>
</tr>
<tr>
<td><strong>Males</strong></td>
<td>31</td>
<td>43</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td><strong>Smokers (last month)</strong></td>
<td>38</td>
<td>44</td>
</tr>
<tr>
<td><strong>Non-smokers</strong></td>
<td>41</td>
<td>42</td>
</tr>
</tbody>
</table>
Results

2.7 Description of the Sample

2.7(a) General Characteristics

The final questionnaire was given to 676 young people. All subjects were informed that the survey was optional, though no-one chose not to complete it. Nine replies were withdrawn from the analysis as they contained large numbers of unanswered questions, or had not been answered seriously e.g. every question in part 2 answered extremely likely. This left a total of 667 in the final sample. Some questionnaires contained infrequent missing values which led them to be excluded from later analyses.

Out of the total sample the following numbers came from each of the schools and colleges; Copland College (107), Stirling College (86), Phillip College (69), Ginninderra High School (119), Holder High School (130) and Lyneham High School (156).

Out of the total sample there were 129 (19.4%) in year 8, 148 (22.3%) in year 9, 128 (19.2%) in year 10, 130 (19.4%) in year 11, 129 (19.4%) in year 12 and 3 (0.4%) in year 13 (retaking year 12). Ages also showed a fairly even distribution. There were 89 (13.3%) who were 13, 127 (19.0%) who were 14, 132 (19.8%) who were 15, 141 (21.1%) who were 16, 128 (19.2%) who were 17, 43 (6.4%) who were 18 and 7 (1.0%) who were over 18. The slightly lower number of 13 year olds is explained by this age spanning school years 7 and 8 and the reduced numbers of 18 year olds is
explained by this being the age young people usually leave college. Slightly more than half, 52.4% of the sample was female and 47.5% of the sample was male.

2.7(b) **Smoking Behaviour**

When questioned about smoking, 480 (72%) claimed to have smoked tobacco at some time in their lives. They claimed to have started at various ages. These are represented in table 2.

**TABLE 2: Age of first smoking cigarettes**

<table>
<thead>
<tr>
<th>Age first smoked</th>
<th>Number in sample</th>
<th>% of ever smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before age of seven</td>
<td>30</td>
<td>6.3</td>
</tr>
<tr>
<td>Seven or eight</td>
<td>38</td>
<td>8.0</td>
</tr>
<tr>
<td>Nine or ten</td>
<td>78</td>
<td>16.4</td>
</tr>
<tr>
<td>Eleven or twelve</td>
<td>165</td>
<td>34.8</td>
</tr>
<tr>
<td>Thirteen or fourteen</td>
<td>125</td>
<td>27.0</td>
</tr>
<tr>
<td>Fifteen or sixteen</td>
<td>44</td>
<td>9.3</td>
</tr>
<tr>
<td>Seventeen or eighteen</td>
<td>3</td>
<td>0.6</td>
</tr>
<tr>
<td>Totals</td>
<td>473</td>
<td>100</td>
</tr>
</tbody>
</table>

More than half the sample (N-349, 52.3%) had smoked in the last year but this number fell to 254 (38.0%) who had smoked in the last month and 214 (31.0%) who had smoked in the last week. The number of days each of these "monthly" and "weekly" smokers smoked is recorded in tables 3 and 4.
### TABLE 3 Number of days on which subjects smoked in the last month

<table>
<thead>
<tr>
<th>Number of Days on which Subjects Smoked Last Month</th>
<th>Number of Subjects</th>
<th>% of Smokers Last Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 2 days</td>
<td>43</td>
<td>16.8</td>
</tr>
<tr>
<td>3 - 5 days</td>
<td>21</td>
<td>8.3</td>
</tr>
<tr>
<td>6 - 9 days</td>
<td>15</td>
<td>5.9</td>
</tr>
<tr>
<td>10 - 19 days</td>
<td>20</td>
<td>7.9</td>
</tr>
<tr>
<td>20 days +</td>
<td>29</td>
<td>11.4</td>
</tr>
<tr>
<td>Every day</td>
<td>126</td>
<td>49.5</td>
</tr>
</tbody>
</table>

**TOTALS**

|                  | 254                | 100                     |

### TABLE 4 Number of Days on Which Subjects Smoked in the Last Week

<table>
<thead>
<tr>
<th>Number of Days on Which Subjects Smoked Last Week</th>
<th>Number of Subjects</th>
<th>% of Smokers Last Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 2 days</td>
<td>34</td>
<td>16.0</td>
</tr>
<tr>
<td>3 - 4 days</td>
<td>17</td>
<td>8.2</td>
</tr>
<tr>
<td>4 - 6 days</td>
<td>27</td>
<td>12.8</td>
</tr>
<tr>
<td>Every day</td>
<td>134</td>
<td>63</td>
</tr>
</tbody>
</table>

**TOTALS**

|                  | 212                | 100                     |

When asked about smoking rates both current smokers and ex-smokers answered this question. Results are listed in table 5. Corrected results, listing the rates of only current smokers, that is those who had smoked in the last month, are also shown.
Subjects who had smoked in the last month were asked about smoking intentions. They were given three choices. Out of a total of 249, 52 (20.9%) expressed a desire to continue smoking, 97 (39.0%) said that they were undecided about their smoking future and 100 (40.2%) said that they would like to stop. Of those who said that they would like to stop, 73 (73%) had smoked in the last week and 44 (44%) had smoked every day in the last week. Responses to a similar question among 411 non-smokers showed that 387 (94.1%) of them intended to remain non-smokers and 24 (5.9%) said they were undecided about their non-smoking future. No non-smokers thought they would definitely start in the future. The responses to these
questions were used as the basis for splitting individuals into categories of smoking status in later stages of the analysis.

Another question enquired about the need for help with smoking cessation. Some 413 (61.9%) considered themselves non-smokers (slightly lower than the definition of non-smoker used here in this study), 86 (12.9%) said they thought help might be useful, 84 (12.6%) said they did not want help and 76 (11.4%) said they were not sure if help would be useful or not. Of the subjects who thought help with smoking cessation would be useful, 77 (89%) had smoked in the last month, 70 (81%) had smoked in the last week and 49 (57%) every day in the last week.

Finally, two questions not yet discussed were designed to elicit a clearer idea of what the rate of cessation is in the general population, without intervention. Four hundred and eighty (72%) of the sample claimed to have smoked at some time in their lives, yet only 254 (38%) had smoked in the last month. This indicates about 50% of young people who try smoking do not continue to smoke. However, many of those who cease to smoke may only have smoked a "few puffs" once in their life. To get a better idea of how many "regular smokers" had given up the habit, subjects were asked if they had ever smoked at least one cigarette per week for a four week period, 268 (40.2%) said they had and of these 57 had not smoked in the last month. Subjects were also asked if they had smoked one cigarette every day for a four week period, 216 (32.4%) said they had and out of this sample 34 (15.5%) said they
had not smoked in the last month. Even though retrospective data of this kind is not very accurate and may introduce sources of bias, (Heinold et al., 1982) it does give an approximate idea of the number of young people who have smoked regularly in the past and have now given up. This measure would have value when measuring the efficacy of any potential smoking cessation programme.

2.8 Multiple Regression Analysis of Fishbein and Ajzen's Model

A score for each component of Fishbein and Ajzen's model was obtained by scoring each of the Likert scales in the final questionnaire (Appendix G) from 1 to 7. However as the questions were worded and arranged randomly any specific directional effects indicating differences between smokers and non-smokers cancelled each other out. To combat this subjects were split into various groups.

(1) Non-smokers who intended not to smoke in the future.

(2) Non-smokers who were undecided about whether to smoke or not.

(3) Smokers who wanted to give up.

(4) Smokers who were undecided about their smoking future.

(5) Smokers who intended to continue smoking.

Individuals were selected for each group depending on whether they had smoked in the last month (question 9) and then on the basis of their answer to questions 12 and 13 (what do you want to do with regard to your smoking future?). A few cases, (8) could not be classified due to
incomplete or inconsistent responding. Groups were then arranged in the order above as it was thought this best represented a range of attitude or intention to smoke from negative to positive. They were then cross-tabulated with answers to the individual questions in part 2. Responses to each item were compared using Kendall's tau-c. In each case the size of tau-c was ignored but its polarity was noted. Positive or negative results were obtained for this statistic depending on whether they tended to be on the main (or right) sloping diagonal or on the off (or left) sloping diagonal (Garson, 1971). As subjects were grouped in similar ways it was possible to reverse the scoring of some items so that Kendall's tau-c was positive in each case. Non-smokers were now consistently lower on every question than smokers. Any effects in the following calculations would therefore be maintained, rather than cancelling each other out.

The attitude component of the model was obtained by multiplying each belief ($b_i$) by the evaluation of the consequences of the belief ($e_i$) and summing for the eighteen items. The resulting score, or attitude scale was given the label, ATTSCALE. In the same manner, the subjective norm was derived by multiplying each normative belief ($b_j$) and motivation to comply ($m_j$) and summing for the seven items. This score was given the label, SNSCALE.

Cronbach's alpha (Hull and Nie, 1981) was calculated for each of these scales. This is a measure of internal reliability of the scales and compares responses
of individual items to other items. Alpha for ATTSCALE was 0.825 and for SNSCALE, 0.736. Results of this magnitude indicate a high degree of internal consistency in the way individuals answered items within each of these scales.

An alternative measure of attitude was obtained from a single question, "My smoking cigarettes is/would be, good or bad" (ATT). Also an alternative measure of subjective norm was obtained by multiplying the normative belief, "Most people who are important to me think I should smoke cigarettes", and the motivation to comply, "I want to do what most people who are important to me think I should do", (SN).

Intention was measured using the question, "I intend to smoke cigarettes in the future", on the scale extremely likely to extremely unlikely. Even though Fishbein, (1982) recommends being very specific about the length of time nominated in an intention statement, specificity has not been found to improve prediction with young smokers (Chassin et al., 1981).

Estimates of attitude and subjective norm were regressed against behavioural intention for each group. The regressions were ordinary multiple regressions, without any preset hierarchical inclusion, as in the, "Statistical Package for the Social Sciences", (Nie, et al., 1975). Four regressions were performed indicating each possible combination of attitude and subjective norm. Table 6 shows the standardised regression coefficients for each of the components, the multiple correlation (R) and the percentage of explained variance (R^2).
Using the F test of significance each regression is significant at the 1 percent level, indicating signifi-

TABLE 6 Multiple Regression Analysis Predicting Behavioural Intention from Attitude and Subjective Norm (Total sample)

<table>
<thead>
<tr>
<th>Standardised Regression Coefficients</th>
<th>Multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>Subjective Norm</td>
</tr>
<tr>
<td>ATTSCALE X SN SCALE</td>
<td>.53**</td>
</tr>
<tr>
<td>ATT X SN</td>
<td>.60**</td>
</tr>
<tr>
<td>ATT X SN SCALE</td>
<td>.55**</td>
</tr>
<tr>
<td>ATTSCALE X SN</td>
<td>.58**</td>
</tr>
</tbody>
</table>

** p < .01
* p < .05

ATTSCALE and SN SCALE are scales derived from multiple items. ATT and SN are derived from individual items.

ant predictive power of the model. Standardised regression coefficients were used to indicate the relative contribution of each of the attitude and subjective norm components. These indicated a significant contribution made by the attitude component, again at the 1 percent level, as indicated by F tests. They were also significant at the 1 percent level for subjective norm in each case except where individual items were used in the regression equation (i.e. ATT and SN). Here the contribution of the subjective norm was significant at the 5 percent level. This indicates both attitudinal and social or subjective-normative factors are important in mediating the intention to smoke, though attitudinal factors may play a slightly more important role.
Very similar results are obtained for each combination of items, indicating approximately similar predictive power for scales and items. However, the subjective norm scale seems to be slightly better at prediction than the subjective norm calculated from only two questions. Fishbein's model is able to predict behavioural intentions, accounting for between 37 per cent and 42 per cent of the variance ($R^2$).

The next step was to look at the predictive power of the model within groups of smokers and non-smokers, as defined at the beginning of this section. A regression analysis was performed on each sub-group and results are reported in table 7 for each combination of scales.

When examining subgroups' results, these are less consistent and generally less significant than when looking at the entire sample. Predictive power is reduced for non-smokers to between 13 per cent and 20 per cent of the variance, but results are still significant at the 1 per cent level (that is, for the whole equation and the contribution of attitude and subjective norm). In the group of particular interest to the study, that is smokers who want to give up, prediction of intention is still significant at the 1 per cent level, but the attitude component of the model is the only component making a significant contribution to the variance. This trend is continued in the other groups. However with smokers that intend to continue smoking and smokers undecided about their smoking future, significances of the correlation coefficients are not as large. Prediction of intention is
TABLE 7 Multiple Regression Analysis of Subgroups. Predicting Behavioural Intention from Attitude and Subjective Norm

<table>
<thead>
<tr>
<th>GROUP</th>
<th>Standardised Regression Coefficients</th>
<th>Multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attitude</td>
<td>Subjective Norm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Smokers Intending to Stop Smoking (n=536)</td>
<td>ATTSCALE x SNSCALE .28**</td>
<td>.20**</td>
</tr>
<tr>
<td></td>
<td>ATT x SN .40**</td>
<td>.15**</td>
</tr>
<tr>
<td></td>
<td>ATTSCALE x SN .29**</td>
<td>.15**</td>
</tr>
<tr>
<td></td>
<td>ATT x SNSCALE .39**</td>
<td>.17**</td>
</tr>
<tr>
<td>Non-Smokers Undecided About Future Smoking (n=23)</td>
<td>ATTSCALE x SNSCALE .20</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>ATT x SN .48*</td>
<td>.49*</td>
</tr>
<tr>
<td></td>
<td>ATTSCALE x SN .21</td>
<td>.41</td>
</tr>
<tr>
<td></td>
<td>ATT x SNSCALE .40</td>
<td>.23</td>
</tr>
<tr>
<td>Smokers Wanting to Give Up Smoking (n=95)</td>
<td>ATTSCALE x SNSCALE .39**</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>ATT x SN .33**</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>ATTSCALE x SN .40**</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td>ATT x SNSCALE .31**</td>
<td>.08</td>
</tr>
<tr>
<td>Smokers Undecided About Smoking (n=93)</td>
<td>ATTSCALE x SNSCALE .20</td>
<td>.12</td>
</tr>
<tr>
<td></td>
<td>ATT x SN .29**</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td>ATTSCALE x SN .22*</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>ATT x SNSCALE .27**</td>
<td>.12</td>
</tr>
<tr>
<td>Smokers Intending to Continue Smoking (n=95)</td>
<td>ATTSCALE x SNSCALE .38**</td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>ATT x SN .40**</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>ATTSCALE x SN .37*</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>ATT x SNSCALE .40**</td>
<td>.02</td>
</tr>
</tbody>
</table>

* * p ≤ .01
* p ≤ .05
generally only significant at the 5 per cent level. The attitude component makes a significant contribution in most cases but the subjective norm makes no significant contributions. In the final group of 23 non-smokers who were undecided about their smoking future, there were no significant effects, except where individual items were used in analysis.

The decreased ability of the questionnaire to predict smoking intention when split into subgroups may reasonably be expected since, groups become more homogeneous with regard to the various characteristics of the model. With only a limited number of responses possible to each question, it is easy to confuse individuals who differ only slightly on several different questions.

2.9 Examination of the Contributions made by the Components of Attitude and Subjective Norm

This section is designed to look more carefully at the individual contributions of aspects of Ajzen and Fishbein's model by highlighting the differences between groups. The two groups of particular interest in this study are smokers who want to give up and non-smokers who want to remain non-smokers. When designing a programme for smokers who want to give up it is important to make them more like non-smokers who intend not to smoke, with regard to the various aspects of the model.

To look at areas where these groups differed results were examined using the Kruskal-Wallis one-way analysis of variance by ranks (Siegel, 1956; Hull and Nie, 1981). Most authors use parametric statistics to analyse
this type of data. However, these statistics violate certain statistical assumptions as this data is ordinal (Hays, 1973). The Kruskal-Wallis test is a non-parametric test with a power-efficiency of 95.5 per cent when compared to the F test, the most powerful parametric test (Siegel, 1956). It therefore provides a more statistically appropriate way of analysing the data with a high degree of accuracy.

Ranks and significance were calculated for non-smokers (N=387) compared with smokers that wanted to give up (N=100), against their answers to questions 1 to 50 in part 2 of the questionnaire (Table 8).

There are several important things to note about table 8. First, if one looks at the mean ranks achieved for each group it is possible to discern which way a group was answering any particular question. A low number indicates that this group was tending to rank a particular question lower than the other group. This means that they considered a statement "good" rather than "bad" for the first eighteen questions and "likely" rather than "unlikely" for the remaining questions. It is also apparent that a large number of questions are capable of distinguishing between non-smokers and smokers who want to give up. In the first section of outcome evaluations (questions 1 to 18) these differences are not so marked, only three questions gain significance. The questions indicated non-smokers considered it "good" to have better lungs, to be able to breathe more easily and to enjoy good health. Smokers, by contrast, considered it "good" to have something to calm their nerves.
TABLE 8 Differences Between Non-Smokers and Smokers That Intend to Give up on Items Used to Derive Attitudes and Subjective Norms

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean Ranks</th>
<th>(H) Corrected Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Smokers</td>
<td>Smokers that want to give up</td>
</tr>
<tr>
<td>1. For me, having better lungs and being able to breath easily is,</td>
<td>239.09</td>
<td>260.73 6.303**</td>
</tr>
<tr>
<td>2. For me, having something to calm my nerves is,</td>
<td>250.06</td>
<td>191.02 15.116***</td>
</tr>
<tr>
<td>3. For me, tasting nice things is,</td>
<td>246.19</td>
<td>232.99 0.995</td>
</tr>
<tr>
<td>4. For me, getting on with friends is,</td>
<td>243.43</td>
<td>246.19 0.056</td>
</tr>
<tr>
<td>5. For me, gaining weight is,</td>
<td>240.21</td>
<td>256.19 1.143</td>
</tr>
<tr>
<td>6. For me, unnecessary expenses are,</td>
<td>241.50</td>
<td>248.77 0.288</td>
</tr>
<tr>
<td>7. For me, looking tough is,</td>
<td>241.35</td>
<td>251.78 0.288</td>
</tr>
<tr>
<td>8. For me, looking sophisticated and smart is,</td>
<td>238.41</td>
<td>258.21 1.736</td>
</tr>
<tr>
<td>9. For me, having bad breath is,</td>
<td>242.24</td>
<td>248.38 0.242</td>
</tr>
<tr>
<td>10. For me, smelling unpleasant is,</td>
<td>243.91</td>
<td>239.50 0.145</td>
</tr>
<tr>
<td>11. For me, being unfit is,</td>
<td>241.40</td>
<td>246.71 0.152</td>
</tr>
<tr>
<td>12. For me, habits are</td>
<td>240.19</td>
<td>246.65 0.182</td>
</tr>
<tr>
<td>13. For me, to upset others is</td>
<td>241.11</td>
<td>250.27 0.364</td>
</tr>
<tr>
<td>14. For me, having good health is,</td>
<td>238.35</td>
<td>263.36 4.804*</td>
</tr>
<tr>
<td>15. For me, enjoyable things are</td>
<td>246.95</td>
<td>225.39 3.724</td>
</tr>
<tr>
<td>16. For me, having yellow teeth and/or fingers is,</td>
<td>245.58</td>
<td>230.66 1.682</td>
</tr>
<tr>
<td>17. For me, getting heart disease is,</td>
<td>245.43</td>
<td>233.54 2.494</td>
</tr>
<tr>
<td>18. For me, being able to relax is,</td>
<td>248.88</td>
<td>217.99 5.017*</td>
</tr>
<tr>
<td>19. Smoking cigarettes makes you smell unpleasant</td>
<td>231.76</td>
<td>281.21 12.126***</td>
</tr>
<tr>
<td>Question</td>
<td>Mean Ranks</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>Non-Smokers</td>
<td>Smokers that want to give up</td>
</tr>
<tr>
<td>20. Smoking cigarettes causes heart disease</td>
<td>240.05</td>
<td>252.02</td>
</tr>
<tr>
<td>21. Smoking cigarettes helps you relax</td>
<td>261.93</td>
<td>170.11</td>
</tr>
<tr>
<td>22. Smoking cigarettes helps you lose weight</td>
<td>258.20</td>
<td>186.75</td>
</tr>
<tr>
<td>23. Smoking cigarettes makes you look sophisticated and smart</td>
<td>254.68</td>
<td>200.35</td>
</tr>
<tr>
<td>24. Smoking cigarettes causes problems with your lungs and makes it difficult to breathe</td>
<td>237.07</td>
<td>263.63</td>
</tr>
<tr>
<td>25. Smoking cigarettes is enjoyable</td>
<td>271.37</td>
<td>133.78</td>
</tr>
<tr>
<td>26. Smoking cigarettes makes you look tough</td>
<td>243.76</td>
<td>240.05</td>
</tr>
<tr>
<td>27. Smoking cigarettes helps you get along with friends</td>
<td>252.49</td>
<td>201.30</td>
</tr>
<tr>
<td>28. Smoking cigarettes gives you bad breath</td>
<td>232.05</td>
<td>282.63</td>
</tr>
<tr>
<td>29. Smoking cigarettes in the presence of others is upsetting to them</td>
<td>228.18</td>
<td>297.49</td>
</tr>
<tr>
<td>30. Smoking cigarettes helps calm nerves</td>
<td>259.32</td>
<td>174.83</td>
</tr>
<tr>
<td>31. Smoking cigarettes makes your fingers and/or teeth turn yellow</td>
<td>232.87</td>
<td>279.46</td>
</tr>
<tr>
<td>32. Smoking cigarettes is an unnecessary expense</td>
<td>233.38</td>
<td>280.04</td>
</tr>
<tr>
<td>33. Smoking cigarettes is bad for your health</td>
<td>232.38</td>
<td>283.90</td>
</tr>
<tr>
<td>34. Smoking cigarettes is habit forming</td>
<td>240.11</td>
<td>254.14</td>
</tr>
</tbody>
</table>
TABLE 8 (contd)

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean Ranks</th>
<th></th>
<th>(H) Corrected Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Smokers</td>
<td>Smokers</td>
<td></td>
</tr>
<tr>
<td>35. Smoking cigarettes makes you unfit</td>
<td>240.08</td>
<td>254.25</td>
<td>.958</td>
</tr>
<tr>
<td>36. Smoking cigarettes tastes nice</td>
<td>263.61</td>
<td>159.23</td>
<td>50.779***</td>
</tr>
<tr>
<td>37. Cigarette companies think I should smoke cigarettes</td>
<td>244.04</td>
<td>231.79</td>
<td>.675</td>
</tr>
<tr>
<td>38. My brothers and sisters think I should smoke cigarettes</td>
<td>251.74</td>
<td>207.00</td>
<td>14.096***</td>
</tr>
<tr>
<td>39. Most people who are important to me think I should smoke cigarettes</td>
<td>249.96</td>
<td>211.12</td>
<td>11.327**</td>
</tr>
<tr>
<td>40. My Mother thinks I should smoke cigarettes</td>
<td>247.63</td>
<td>219.87</td>
<td>10.503**</td>
</tr>
<tr>
<td>41. My friends think I should smoke cigarettes</td>
<td>259.01</td>
<td>181.34</td>
<td>32.143***</td>
</tr>
<tr>
<td>42. My Father thinks I should smoke cigarettes</td>
<td>249.00</td>
<td>219.88</td>
<td>12.313***</td>
</tr>
<tr>
<td>43. My best friend thinks I should smoke cigarettes</td>
<td>257.13</td>
<td>188.61</td>
<td>33.765***</td>
</tr>
<tr>
<td>44. In general, I want to do what my friends think I should do</td>
<td>241.30</td>
<td>244.72</td>
<td>.050</td>
</tr>
<tr>
<td>45. In general, I want to do what cigarette companies think I should do</td>
<td>246.81</td>
<td>225.94</td>
<td>4.184*</td>
</tr>
<tr>
<td>46. In general, I want to do what my best friend thinks I should do</td>
<td>240.94</td>
<td>248.49</td>
<td>0.245</td>
</tr>
<tr>
<td>47. In general, I want to do what my brother and sisters think I should do</td>
<td>248.07</td>
<td>216.10</td>
<td>4.432*</td>
</tr>
<tr>
<td>48. In general, I want to do what my mother thinks I should do</td>
<td>239.01</td>
<td>258.38</td>
<td>1.573</td>
</tr>
</tbody>
</table>
TABLE 8 (contd)

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean Ranks</th>
<th>(H) Corrected Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Smokers</td>
<td>Smokers who want to give up</td>
</tr>
<tr>
<td>49. In general, I want to do what most people who are important to me think I should do</td>
<td>244.79</td>
<td>233.72</td>
</tr>
<tr>
<td>50. In general, I want to do what my father thinks I should do</td>
<td>235.64</td>
<td>266.35</td>
</tr>
</tbody>
</table>

Significances  * = p < .05  
                ** = p < .01  
                *** = p < .001

A completely different picture emerges when looking at the next section of behavioural beliefs with regard to smoking. Out of 18 questions 12 indicate significant differences between smoker's who want to stop and non-smokers, at least at the 5% level. These include, non-smokers considering it more likely that smoking makes you smell unpleasant, gives you bad breath, makes your fingers and/or teeth turn yellow, is an unnecessary expense, is bad for your health and is upsetting to others. Smokers, on the other hand were more likely to consider that smoking helps you relax, helps you loose weight, makes you look sophisticated and smart, is enjoyable, helps you get along with friends, helps to calm nerves and tastes nice. This large number of differences in the direction indicated is not surprising, since the questions specifically address the behaviour that differentiates the groups (i.e. smoking).
The next set of questions which relate to normative beliefs, also show a large number of significant differences. Smokers consider it more likely that a range of people think they should smoke. These include, people who are important to them, siblings, friends, parents and their best friend. This emphasises the importance of perceived social pressure and social facilitation of smoking behaviour.

The final set of questions (44-50), the motivations to comply show fewer differences. Non-smokers think it more likely they would want to do what their father thinks they should do. Smokers are generally more likely to want to do what their siblings and cigarette companies want them to do. It seems then, that smokers who want to give up and non-smokers differ on a wide range of factors. This points to the development of broadly based intervention programmes. However, before making specific recommendations for the development of intervention programmes it is possible to go on to an analysis which provides greater specificity in eliciting factors that contribute the greatest differences between smokers that want to give up and non-smokers.

To do this, components of the Fishbein model were calculated, as in the regression. That is, attitude scores were calculated by multiplying each belief about smoking \( (b_i) \) by the evaluation of the consequences of that belief \( (e_i) \) to make eighteen scores. Then subjective norms were calculated by multiplying each normative belief \( (b_j) \) by the corresponding motivation to comply \( (m_j) \), so making seven items. The Kruskal-Wallis one-way analysis of
variance was then used to compare non-smokers and smokers that wanted to give up on each of these composite factors. Results are listed in table 9.

These results can be analysed in the same way as results to individual questions. However, as they are composite variables, it is only relative differences between groups that are of interest here. The most significant differences recorded are at the 0.1 per cent level. As these indicate the areas most likely to be useful when designing intervention programmes, it is these that will be highlighted here.

The attitudinal factors that best differentiate between groups are in the following areas, (1) relaxation, (2) calming nerves, (3) health, (4) heart disease, (5) enjoyment and (6) taste. When looking at subjective-norm factors only two are significant at the 0.1 per cent level. These relate to friends in general and best friend in particular. As can be seen from table 8 there are other significant effects and these can also be listed. At the 1% level, (1) getting on with friends, (2) smelling unpleasant, (3) upsetting others, (4) yellow teeth and/or fingers. At the 5% level, (1) better lungs and breathing easier, (2) bad breath, (3) Father, (4) Mother. The effects of all of these factors need to be kept in mind when considering the development of intervention programmes.
TABLE 9 Differences in attitudes and subjective norms of non-smokers and Smokers who want to give up

<table>
<thead>
<tr>
<th>Smoking Attitudes (B_i x e_i)</th>
<th>Mean Non-Smoker</th>
<th>Ranks Smokers wanting to give up (H)</th>
<th>Corrected Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Better lungs and breathing easier</td>
<td>234.90</td>
<td>269.91</td>
<td>5.888*</td>
</tr>
<tr>
<td>2. Calming nerves</td>
<td>217.41</td>
<td>308.60</td>
<td>34.457***</td>
</tr>
<tr>
<td>3. Tasting nice</td>
<td>223.72</td>
<td>310.29</td>
<td>32.151***</td>
</tr>
<tr>
<td>4. Getting on with friends</td>
<td>232.14</td>
<td>280.25</td>
<td>10.044**</td>
</tr>
<tr>
<td>5. Gaining weight</td>
<td>229.83</td>
<td>293.69</td>
<td>16.648***</td>
</tr>
<tr>
<td>6. Unnecessary expenses</td>
<td>236.80</td>
<td>261.92</td>
<td>2.677</td>
</tr>
<tr>
<td>7. Looking tough</td>
<td>242.44</td>
<td>245.16</td>
<td>0.31</td>
</tr>
<tr>
<td>8. Sophisticated and smart</td>
<td>238.63</td>
<td>254.91</td>
<td>1.102</td>
</tr>
<tr>
<td>9. Bad breath</td>
<td>235.86</td>
<td>268.00</td>
<td>4.818*</td>
</tr>
<tr>
<td>10. Smelling unpleasant</td>
<td>232.41</td>
<td>276.22</td>
<td>8.867**</td>
</tr>
<tr>
<td>11. Being unfit</td>
<td>241.14</td>
<td>245.30</td>
<td>0.076</td>
</tr>
<tr>
<td>12. Habit</td>
<td>241.21</td>
<td>240.16</td>
<td>0.005</td>
</tr>
<tr>
<td>13. Upsetting others</td>
<td>233.34</td>
<td>275.15</td>
<td>7.203**</td>
</tr>
<tr>
<td>14. Good health</td>
<td>232.49</td>
<td>280.94</td>
<td>13.249***</td>
</tr>
<tr>
<td>15. Enjoyable things</td>
<td>212.72</td>
<td>351.45</td>
<td>81.974***</td>
</tr>
<tr>
<td>16. Yellow teeth and/or fingers</td>
<td>233.04</td>
<td>276.31</td>
<td>8.454**</td>
</tr>
<tr>
<td>17. Heart disease</td>
<td>223.52</td>
<td>316.31</td>
<td>36.239***</td>
</tr>
<tr>
<td>18. Relaxation</td>
<td>222.77</td>
<td>313.04</td>
<td>33.757***</td>
</tr>
</tbody>
</table>

Smoking Subjective Norms (NBxMC)

<table>
<thead>
<tr>
<th></th>
<th>Mean Non-Smoker</th>
<th>Ranks Smokers</th>
<th>Corrected Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. Cigarette companies</td>
<td>239.11</td>
<td>245.78</td>
<td>0.197</td>
</tr>
<tr>
<td>20. Siblings</td>
<td>236.51</td>
<td>253.41</td>
<td>0.271</td>
</tr>
<tr>
<td>21. Most important people</td>
<td>236.14</td>
<td>257.28</td>
<td>1.859</td>
</tr>
<tr>
<td>22. Mother</td>
<td>233.89</td>
<td>268.80</td>
<td>5.078*</td>
</tr>
<tr>
<td>23. Friends</td>
<td>226.28</td>
<td>300.37</td>
<td>22.622***</td>
</tr>
<tr>
<td>24. Father</td>
<td>234.35</td>
<td>271.28</td>
<td>5.820*</td>
</tr>
<tr>
<td>25. Best friend</td>
<td>227.98</td>
<td>295.69</td>
<td>19.248***</td>
</tr>
</tbody>
</table>

* = p < .05          ** = p < .01          *** = p < .001
Discussion

2.10 Characteristics of the Sample

The sample provided approximately the same numbers of subjects from each of the years under investigation. The distribution of males and females was about equal. These facts, taken with the nature of the selection process for subjects, indicate that the sample is representational of young people in this age group in Canberra.

Smoking rates were similar to those in recent Australian surveys. These provide figures of 35.9 per cent of year 10 students smoking at least one cigarette in the last week in New South Wales (Flaherty, 1981) and 39.1 per cent of year 10 students smoking at least once in the past week in Victoria (Report of the inter departmental working party on the drug problem in Victoria, 1980). When results for year 10 were examined in this study 38 per cent of subjects claimed to have smoked at least once in the past week. In the Victorian study, 31 per cent of the entire sample (years 7 to 12) claimed to have smoked in the last week. This agrees with the 31 per cent obtained in the present study for years 8 to 12.

The large number of young people who claimed to have smoked at some time in their lives (72 per cent) is also a feature of other surveys. Hardes et al., (1979) found 74 per cent of boys and 55 per cent of girls in years 5 and 6 in the Hunter region of New South Wales had tried tobacco. Only 10 per cent of boys and 6 per cent of girls smoked every day. Data from the United States supports
these findings. Johnston, Bachman and O'Malley (1979) found that 75 per cent of high school seniors (17 to 19 years of age) had smoked at some time in their lives. At the time of the survey only 22.8 per cent smoked regularly and 16.2 per cent smoked occasionally. In the same survey 9 per cent described themselves as ex-regular smokers. This compares well with the estimate of 8.5 per cent obtained in this survey for subjects who had at some time in their lives smoked at least one cigarette per week, for at least four weeks, but were not current smokers.

Questions about future smoking intentions are not new to surveys. However, this survey has been the first to ask clearly defined groups of young smokers whether or not they intend to smoke in the future. No non-smokers said they would definitely take up smoking in the future although 5.9 per cent said they were undecided. The group could be considered "at risk" for starting to smoke and as such might be examined more closely with a view to improving traditional prevention programmes.

Current smokers provided a set of interesting responses when asked about future smoking. Only 20.9 per cent of current smokers said they definitely intended to smoke, 39.0 per cent were undecided while 40.1 per cent wanted to give up. The last two groups represent a sizeable majority of smokers and would be potential targets for smoking cessation programmes. Large numbers (12.9 per cent of the entire sample) expressed a desire for help with giving up smoking. Another 11.4 per cent were not sure if help would be useful.
The demand for help represents a large population which has received little attention in the past. It provides an excellent opportunity for the development of intervention strategies to help eliminate smoking and subsequent health problems. Such a demand needs to be filled with appropriately designed intervention strategies.

2.11 Implications of the Regression Analysis

Intention to smoke was predicted with considerable accuracy from a knowledge of respondent's attitudes and subjective norms ($r=0.64$). This agrees well with the best estimate to date using this type of analysis on high school students intentions to smoke ($r=0.63$) (Sherman et al., 1982). This correlation provides considerably greater predictive ability than another study comparing data from Australia, New Zealand and the United States ($r=.52$, for the Australian Data) (Newman et al., 1981).

For the whole sample it is clear that attitudes and subjective norms contribute significantly to the prediction. However the attitudinal component is the more important of the two, and this finding agrees with research on young smokers in the United States (Sherman et al., 1982; Chassin et al., 1981). Unfortunately these results are not consistent with the previous Australian data reported by Newman et al. (1981) where the contribution of the subjective norm was not found to be significant. They also found the subjective norm component was not significant when predicting intentions to smoke in New Zealand and the United States. There may be various reasons
for these differences. For example, unlike the questionnaire in the present study, the questionnaire used in Newman et al.'s study was constructed from the literature and did not go through a development phase. The study of Newman et al. used the same questionnaire for children from different countries. The current questionnaire was designed for children from a very distinct geographical area. Both of these factors may contribute to the greater predictive ability and contribution of the subjective norm component in the present study.

The results of the present study suggest that both attitudes and subjective norms are important when predicting the intention to smoke of young Australians. However, a replication of the current study in Australia would be desirable.

In the present study when the total sample was split into various groups, the predictive power of the model was reduced. However its predictive power remained significant for the majority of regressions performed on these subgroups. This agrees with other studies (Fishbein, 1982; Chassin et al., 1981).

A new result was found when the significance of the individual components of the model were analysed within the subgroup. For non-smokers who do not intend to smoke in the future both attitudes and subjective norms made a significant contribution to predicting smoking intentions. When examining the results from smokers, no matter whether they intend to continue smoking, give up or were undecided about their smoking future, only the attitude component of
the model made a significant contribution to the prediction of smoking intention. This indicates that non-smoker's smoking intentions are more influenced by social factors than those of smokers. This supports the hypothesis that social factors are important for the initiation of smoking behaviour but soon decline in importance, when smoking becomes an established habit. Smoking behaviour is then maintained by factors from within the individual (Ashton and Stepney, 1982). This has important implications for intervention. It suggests that programmes designed to help young people give up smoking should have a much greater emphasis on internal or attitudinal factors, rather than social factors. However, it would be more useful to use techniques emphasising social factors in programmes aimed at preventing non-smokers adopting the smoking habit.

In this study, Fishbein's model at best only accounts for 43 per cent of the variance in prediction of behavioural intention. This figure compares favourably to other studies using this model, but there is clearly a large amount of unexplained variance. It therefore appears that other factors should be taken into account when considering the smoking behaviour of young people. For example, other studies have shown the contribution which greater direct experience can have on predicting behaviour (Sherman et al., 1982). Greater direct experience is certainly an important factor when distinguishing between smokers, who may have considerable direct experience of smoking and non-smokers, who do not.
Another possible influential factor in the prediction of smoking behaviour is the physiological effects of substances like nicotine in cigarette smoke (Ashton and Stepney, 1982). The relationship between attitudes, subjective norms and intention might be influenced by the effects of the substances on smokers. Furthermore, the amount of any such effect would depend on how much an individual had smoked in the past.

Other models have been proposed. Green, Kreuter and Partridge (1980) present a model which includes items used by Fishbein. Additionally, the model of Green et al., incorporates an assessment of the factors that enable non-smoking. However, Fishbein suggests such enabling factors are accounted for by his model (Ajzen and Fishbein, 1980). Others consider that this might not be the case (Newman et al., 1981).

2.12 Differences in the Determinants of Attitude and Subjective norm

The large number of differences that were found between non-smokers and smokers that wanted to give up is not surprising since smokers and non-smokers have previously been shown to differ over a wide range of factors (e.g., Banks et al., 1981; Shor et al., 1981). The large number of differences indicates that attempts to change smokers that want to stop into non-smokers should concentrate on changing many of these factors. Therefore any intervention would need to address a wide range of
factors, particularly those shown to have discriminating ability in this questionnaire.

This result agrees with what is known about adult smoking cessation techniques. Many of the most successful programmes used to assist adults who are giving up smoking have involved several components, addressing different aspects of smoking behaviour and presented as a package (Elliot and Denny, 1978; Nelson, 1977).

The analysis does provide a number of indications as to the areas where work could most profitably be concentrated. First, the regression indicates that when predicting intention to smoke, only attitudes make a significant contribution to Fishbein's model for smokers that want to give up. Thus when attempting to change the smoking behaviour of such people the model indicates that attitude factors are going to have the largest influence. When attitudes are analysed individually items concerned with enjoyment, taste, health, heart disease, relaxation, calming nerves and weight demonstrate the largest differences between non-smokers and smokers who want to give up.

There are various techniques that could be used to influence these attitudes of smokers that want to give up. Since more smokers than non-smokers generally enjoy cigarettes and think cigarettes taste better, techniques aimed at making smoking less enjoyable could be employed. Aversion techniques have been used successfully with adults. These include rapid smoking (Danaher, 1977) where subjects are forced to smoke on cue so that it becomes an
unpleasant experience. However, since medical problems are a possibility with this technique (Lichtenstein and Danaher, 1976), alternatives such as covert sensitization (Lichstein and Sallis, 1981) and focused smoking (Hackett and Horan, 1978) have been suggested. These techniques concentrate on imagining the unpleasant effects of inhaling cigarette smoke.

Some of the most successful multi-component programmes used to help adults stop smoking have involved at least one aversion technique (Lichtenstein, 1982). However, such techniques have not been used with young people. The results suggest that if aversion was to be used relatively early in a young person's smoking experience they may have a profound influence on their future smoking behaviour.

The results appear to show that smokers who want to give up are less aware of health problems associated with smoking. However they may also be less likely to recognise the potential dangers. Here, health education would probably be a useful technique with young smokers, as it has already been shown to be partially effective (Greenberg and Deputat, 1978). Such efficacy may be increased by using it in association with other techniques including demonstrations of immediate physiological and health effects. Again, these have been shown to have a proven utility with a young population (Wexler, 1978) and may be useful in highlighting issues of relaxation.

The attitudes of "relaxation" and "calming nerves" discriminate non-smokers from smokers wanting to give up.
Smokers perceive smoking to be relaxing and a useful tool for calming themselves. However, despite this subjective impression, physiologically smoking is by no means a relaxing habit since it increases pulse rate and blood pressure and decreases peripheral circulation and body temperature. These facts could be demonstrated by measures of immediate physiological effects. Similarly alternative forms of relaxation could be introduced. These have been a feature of many adult smoking cessation programmes (A.C.S., 1971). Such programmes have provided a tape or written instructions for relaxation techniques (e.g. progressive relaxation) (King, 1980). When subjects have sufficient practice with this technique it is possible for them to apply it in stressful situations where they would otherwise smoke.

"Weight" is the final attitude that best discriminates between non-smokers and smokers that want to give up. Most smokers expect to gain weight when they give up smoking. Many consider this to be undesirable. To counter this attitude it could be pointed out that many individuals do not gain weight when they give up, while help with weight control could be provided for those who need it.

Other attitudinal factors differentiate between smokers that want to give up and non-smokers. These can be listed.

1). Non-smokers are more likely to think smoking gives you bad breath.

2). Non-smokers are more likely to think smoking makes you smell unpleasant.
3). Non-smokers are more likely to think smoking will stain fingers and teeth.

4). Smokers who want to give up consider that smoking is less likely to upset others.

5). Smokers who want to give up are more likely to say smoking helps you get on with friends.

6). Smokers who want to give up are less likely to value having better lungs and breathing easier and to consider that smoking does less damage to the lungs.

These remaining attitudes can be split into three approximate groups. The first three refer to personal hygiene, the second two relate to other people and the final one refers to health and fitness. All of these factors might be important when designing an intervention programme.

The results indicate that subjective norms are not as important as attitudinal factors for smokers who want to give up. However, social factors do help to distinguish non-smokers from smokers who want to give up. Accordingly the results emphasise the importance of friends (particularly an individual's best friend). Thus, concentrating on the smoking behaviour of friends may be important to treatment. The efficacy of programmes may be enhanced if groups of smoking friends were involved in smoking interventions. Adult cessation programmes often involve small groups (Elliot and Denny, 1978) and some use a "buddy system" (A.C.S., 1971). This is a system by which group members are split into pairs to provide emotional support for each other during the cessation process.

Finally, the results indicate a difference between non-smokers and smokers that want to give up with parental
attitude. This shows the influence of parents on smoking behaviour, even with older children may be important.

This analysis provides an indication of some of the important areas for intervention with young smokers who want to give up. However, the data should also be interpreted with caution. Many of the criticisms raised in the last section apply here. The attitudes and subjective norms examined are derived from Fishbein and Ajzen's, (1975) model which can explain only 43 per cent of the variance. This analysis can therefore be considered to be only a guide in the design of intervention programmes. Other factors need to be considered and incorporated in programmes, if appropriate.

2.13 Summary

In summary, this thesis has answered a number of questions concerning adolescent smoking. First, there are a considerable number of young smokers who intend to give up smoking, some of whom would like help. Second, Fishbeins model of behavioural intention seems to be a useful tool for predicting adolescents intentions to smoke and for examining the components of the model, attitudes and subjective norms. Finally, various attitudes have been shown to be particularly good at discriminating non-smokers and smokers that want to give up. These attitudes are concerned with enjoyment, taste, health, heart disease, relaxation, calming nerves and weight. The implications of these findings has been discussed with regard to possible intervention strategies.
References


Beck, K.H. and Davis, C.M. Predicting smoking intentions and behaviours from attitudes normative beliefs and emotional arousal, Social Behaviour and Personality, 1980, 8, 185-192.


Jaccard, J.J. A theoretical analysis of selected factors important to health education strategies, Health Education Monographs, 1975, 3(2), 152-167.


RESEARCH PROPOSAL

Analysis of the requirements for smoking cessation activities in high schools and colleges in the A.C.T.


The first clear association between cigarette smoking and reduced life expectancy was only made forty five years ago, but since that time smoking has been linked with many specific diseases e.g. cancer of the lung, oral cavity, larynx, pharynx, oesophagus and bladder, coronary heart disease, bronchitis and emphysema. Smoking is now known to be the major cause of premature death and disability in many countries, and has been shown to account for 8-10% of annual health care costs in the U.S.A. This demonstration of risk combined with other factors e.g. changing social attitudes, economic considerations has led to a need for effective techniques to help people stop smoking and prevent them starting. In response numerous prevention (Green 1979, Evans 1979, Thompson 1978) and cessation programmes (Pechacek and McAlister, 1980, Lichtenstein and Brown 1980, Glasgow and Bernstein 1981) have been devised, with many programmes aimed at influencing children and adolescents through the school system.

School based programmes have been very varied in format, ranging from poster campaigns and single lectures to more sophisticated programmes providing information over a number of years, presentation and content being matched to the age of the child and factors relevant to particular groups (Homel et al. 1981).
Most of these programmes are aimed at educating young people about the risks associated with tobacco, social factors surrounding initiation into the habit and other factors that will help change attitudes and prevent initiation of smoking behaviour, or convince them early in their experimentation with smoking that smoking is not a desirable habit. Indeed it is in these areas that the programmes are most effective, but unfortunately many children still start to smoke regularly.

Some of the most recent data for Australia indicate that by the age of twelve 19.4% of school children are regular smokers, increasing to 45.5% at the age of sixteen. (N.H.&M.R.C. 1979) Though these figures are probably lower now it still represents a large number of children with which smoking prevention programmes are largely ineffective.

It is possible to speculate about the reasons for this lack of efficacy, first it has been estimated that it only takes two years to pass between initial experimentation and becoming a regular smoker. This is important because social factors, so important for initiation and early maintenance of the smoking habit, decline to be replaced by pharmacological and psychological factors (Pechacek and McAlister 1980, Ashton and Stepney 1982) at about this time for most smokers. So, perhaps it is not surprising that prevention programmes do not work for this group because they are already "hooked" and require a different type of approach.

This realisation has led to some work on helping young people quit smoking. So far most of this work has been conducted in the United States and is reviewed by Ellis et al. (1980). The major programmes include American Cancer Society cessation clinics (A.C.S. 1980) and a programme designed by the Boys Club of America and the American Cancer Society. Both programmes are adapted versions of adult cessation programmes. There has been little evaluation of these groups in the literature, with the only study reported to date (Mills 1978) using poor methodology
and achieving unspectacular results (5/17 abstinent at two months follow up).

Within the A.C.T. there has been considerable interest in smoking cessation in schools as "Quits" (Canberra's adult smoking cessation service) has had numerous requests from schools and individual children for help with smoking cessation. In response a smoking cessation course has been developed as a team effort between Quits, the A.C.T. Cancer Society and the Alcohol and Drug Dependence Unit of the C.T.H.C. This group course has been run in several A.C.T. schools but requires evaluation.

So far smoking cessation activities with school children in the A.C.T. has been reactive, there is obviously a demand for a service but the size of the demand remains unknown. As does the most appropriate format for any proposed intervention, as this is a largely unexplored area of research. There is clearly a need for assessment of demand and an assessment of the factors and issues relevant to youths smoking regularly, but wanting to quit.

In order to do this some type of survey within the school system is required. This survey will need to gather data on behaviours, attitudes, beliefs and intentions of a cross section of the school community with regard to smoking cessation. One possible way of doing this that would give a reasonably complete overview of the situation is using the Fishbein model of Behavioural Intention. (Fishbein and Ajzen 1975, Ajzen and Fishbein 1980). This model has already been used to predict adolescents' intentions to smoke cigarettes (Chasin et al. 1981) and to measure attitudes and plan prevention programmes (Newman et al. 1981, Newman et al. 1982). The format also seems appropriate to planning interventions like designing smoking cessation programmes. So the procedures listed here are familiar to school situations but are being used to provide a comprehensive plan of action in new area.
Data to be collected

A summary of the data required can be made.

(1) Measure of cigarette smoking behaviour, including:
   (a) Amount and frequency of smoking.
   (b) Number of smokers that intend to (or would like to) give up.
   (c) Number of ex-smokers i.e. number of subjects that once met the criteria of regular smoker, but no longer smoke.

(2) Demand for smoking cessation groups.

(3) Determine differences over a range of attitudes and beliefs between various subgroups of the general population.

These can be summarised,

<table>
<thead>
<tr>
<th></th>
<th>Non Smokers</th>
<th>Smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intend not to smoke</td>
<td></td>
<td>Intend to smoke</td>
</tr>
<tr>
<td></td>
<td>Need help</td>
<td>Intend not to smoke Do not need help</td>
</tr>
</tbody>
</table>

Differences between these groups can be used to generate hypotheses regarding differences between them and the most appropriate way to design interventions.

Population to be studied

It seems likely that smoking cessation services will only be required by adolescents in the older age groups within the school system. I therefore propose to work with grades 8-12 inclusive. Looking at these age groups will mean looking at both high schools and colleges. Initially I will need access to three high schools and three colleges, preferably paired and chosen to give a representative sub-sample of the Canberra population with catchment areas in low, medium and high socio-economic areas. It will not be necessary to work with all individuals in the populations under study but rather a randomised sub-sample selected according to the procedures outlined below.
Procedures

Stage 1: Elicit items for the Questionnaire

This involves entering each school or college under study to interview a small sub-sample of the population under study, 10-20 pupils from each school, from all age groups and abilities. They will be involved in a structured group discussion with a representative from the A.N.U. The discussion will take a maximum of one hour and an appropriate venue required e.g. unused classroom. Initially the subjects will be given a brief questionnaire requiring information on smoking history, age, sex, grade and school. The questionnaire will be anonymous, as all of the following questionnaires in this study. After the data has been collected each participant will be given a series of cards upon which they will be asked to provide answers to the following questions:

(1) What do you see the advantages of giving up smoking?
(2) What do you see the disadvantages of giving up smoking?
(3) Is there anything else you associate with giving up smoking?

The answers provide a set of belief statements regarding giving up smoking. Results are discussed and matched according to similarities of answer. Then the procedure is repeated with the questions,

(1) Are there any people you know who approve of quitting smoking?
(2) Are there any people you know who disapprove of quitting smoking?
(3) Are there any groups of people who come to mind when you think of quitting smoking?

The answers provide a set of referents, other people who may be important in the quitting process, again discussion of the results follows.

The items produced are used in the production of a diagnostic questionnaire (Fishbein 1981, Ajzen and Fishbein, 1980). The questionnaire will probably be similar in content and structure to that presented as Appendix A.
Stage 2: Increasing discrimination of questionnaire

If necessary the questionnaire produced in this way will be presented to another sub-sample of the school population, randomly selected with characteristics as in Stage 1, with similar numbers required.

Again a room or quiet area will be required and about forty five minutes needed for instructions and administration of the questionnaire.

Results from this procedure will be analysed and items that prove to be good at differentiating between various groups will be selected to compile the final questionnaire.

Stage 3: Data Collection

The questionnaire used here will simply be a shortened version of that used in Stage 2. This will be the most important phase and require larger numbers of pupils. A sub-sample of each year group from each school under study. Sampling can be done by class group, if they represent a reasonable cross section of that year group. Numbers sampled will depend on availability, size of classes etc., but around 30-40 students per year group from each school/college will be required.

Total time required will probably not exceed thirty minutes per group. Again it will not be necessary for teachers to be involved as administration will be by a representative of the A.N.U. Ideally this procedure could be conducted with minimum disturbance to the normal daily routine.

Stage 4: Analysis and Recommendations

Data gathered from the study will be analysed with a view to:

(1) Determining a need for smoking services within A.C.T. high schools and colleges, particularly with regard to cessation.

(2) Identifying the most important areas, factors and groups to target work on.

(3) Developing effective cessation strategies based on the data.
References


Dear Principal,

I am about to commence a programme of research as part of a degree leading to the qualification of Master of Clinical Psychology.

My chosen topic for research is smoking cessation in adolescents, a topic of concern in modern society due to the health risks now known to be associated with smoking. I hope to survey the need for smoking cessation groups within colleges and to look at the attitudes of young smokers in order to design effective strategies to help them stop smoking.

This will involve entering colleges, talking to a small sample of students about smoking and later administering a relatively short questionnaire to a larger sample. The A.C.T. Schools Authority research and evaluation division have approved this project and I enclose a copy of the proposal submitted to them to give you a better idea of what the project involves.

I will be phoning you within the next few days to discuss this proposal and possibly arrange a time for you to meet my supervisor, Dr. D. Byrne, and myself.

I hope you will find this project of interest, and will be willing to assist us.

Yours faithfully,

J.L. Rose
Postgraduate Student.

Dr. D.G. Byrne,
Reader in Clinical Psychology.
VERBAL INSTRUCTIONS FOR SUBJECTS IN PHASE 1

(a) "Good Morning/Afternoon. My name is John Rose and I am a member of the Psychology department at the Australian National University. I am conducting research into cigarette smoking in schools and colleges in the A.C.T.

I have been interested in smoking for some time and have been in touch with Quits, Canberra's adult smoking cessation service. Over the past months they have had requests from schools and young people for help with giving up smoking.

This is the first phase of a research project in order to devise the best way to help them give up smoking. It doesn't matter if you don't smoke because I need a range of ideas from all types of young people, smokers, non-smokers, people who want to give up and people who don't.

The first thing I would like you to do is fill in a questionnaire. This will be anonymous and completely confidential. It will not be seen by anyone else in the school. I'll take away the results and combine them with results from other schools. Only then will I show them to anyone here, so it will be impossible to tell what individual answers were."

- Give out questionnaire.

"Here is the questionnaire, read the instructions."

Pause.
"Answer each question as truthfully as you can. Try and answer each question, but if you can't answer it truthfully, miss it out. Each question only needs one answer. If you have any problems please ask me and I will help."

Give time to complete Questionnaire.
Collect questionnaire when completed.

(b) Give out three yellow cards.
"I want you to give me some ideas about what young people think about smoking. First could you tell me what you see as the advantages of giving up smoking, or not smoking. Write a sentence on each card which tells me in your own words about the good things involved in giving up smoking."

Collect cards, give out three blue cards.

"Now on these cards could you tell me about the advantages of smoking or disadvantages of not smoking. Again try to write a sentence on each card."

Collect cards, give out four white cards.

"Now I would like you to tell me about people who would have an opinion about smoking."
Who would approve of you giving up smoking?

Who would disapprove of you giving up smoking?

Are there any other groups who come to mind when thinking about smoking?

Again, try and write a sentence with the name of the person and how they might influence you.

Now when you've finished give the cards to me."

Collect cards.

"How did you find that?

Is there anything you would like to tell me about or ask me?

Thank you very much for your help."

These are basic instructions only, and questions to the administrator were encouraged throughout.
INSTRUCTIONS

This is not a test, and there are no right or wrong answers, but we do ask that you try to answer each question as truthfully as you can. Remember that your answers cannot be traced back to you. If you don't know the answer to a question or if you feel you can't answer it truthfully then miss that question out and go onto the next one. However we would like you to answer every question if you can.

For most of the questions there is a choice of answers and you pick the one that's true for you and put a tick in the brackets next to it.

For example, if you've ever had an ice cream you would answer the question "A" below by ticking 'Yes'.

A. Have you ever eaten ice cream?    Yes ( )    No ( )

B. On how many days did you eat ice cream in the last few weeks?

None  ......................... ( )
On 1 - 2 days  ( )
On 3 - 5 days  ( )
On 6 - 9 days  ( )
On 10 - 19 days  ( )
On 20 or more days  ( )
Every day.

C. How many ice creams have you eaten in the whole of the last week?

Tick one only:

None  ......................... ( )
1 - 2  ( )
3 - 6  ( )
7 - 13  ( )
14 - 27  ( )
28 or more  ( )
1. What year level are you in?
   Year 7 ( )
   Year 8 ( )
   Year 9 ( )
   Year 10 ( )
   Year 11 ( )
   Year 12 ( )

2. What age did you turn last Birthday?
   10 ( )
   11 ( )
   12 ( )
   13 ( )
   14 ( )
   15 ( )
   16 ( )
   17 ( )
   18 ( )
   Over 18 ( )

3. What Sex are you?
   Male ( )
   Female ( )

4. Have you ever smoked tobacco?
   Yes ( )
   No ( )

5. How old were you when you first smoked tobacco?
   Never smoked tobacco
   Under age 7 ( )
   7 or 8 years old ( )
   9 or 10 years old ( )
   11 or 12 years old ( )
   13 or 14 years old ( )
   15 or 16 years old ( )
   17 or 18 years old ( )
   Over age 18 ( )
6. Have you smoked tobacco **in the last twelve months**?

   Yes ( )
   No ( )

7. On how many days have you smoked tobacco **in the last four weeks**?

   None ........................................... ( )
   On 1 - 2 days ( )
   On 3 - 5 days ( )
   On 6 - 9 days ( )
   On 10 - 19 days ( )
   On 20 or more days ( )
   Every day ( )

8. On how many days have you smoked tobacco **in the last week**?

   None ........................................... ( )
   On 1 - 2 days ( )
   On 3 - 4 days ( )
   On 5 - 6 days ( )
   Every day ( )

9. On a day when you smoke cigarettes, how many would you usually smoke?

   Never smoke cigarettes ( )
   A few puffs ( )
   1 - 3 cigarettes ( )
   4 - 7 cigarettes ( )
   8 - 12 cigarettes ( )
   13 - 17 cigarettes ( )
   18 - 22 cigarettes ( )
   23 - 27 cigarettes ( )
   Over 27 (write in number) ( )

10. What is the largest number of days on which you have smoked tobacco in one week?

    None ........................................... ( )
    On 1 - 2 days ( )
    On 3 - 4 days ( )
    On 5 - 6 days ( )
    Every day ( )
11. How many cigarettes would you have smoked, on average, per day, in that week?

Never smoked cigarettes ( )
1 - 3 cigarettes ( )
4 - 7 cigarettes ( )
8 - 12 cigarettes ( )
13 - 17 cigarettes ( )
23 - 27 cigarettes ( )
Over 27 (write in number) ( )

12. Do you want to give up smoking?

Don't smoke ( )
Yes ( )
No ( )
Undecided ( )

13. Do you think help with stopping smoking might be useful for you?

Don't smoke ( )
Yes ( )
No ( )
Not sure ( )
APPENDIX D

FREQUENCY OF RESPONSES SUGGESTED IN VARIOUS CATEGORIES FROM PHASE 1
<table>
<thead>
<tr>
<th>Advantages of Giving up/or not Smoking</th>
<th>Smokers N=38</th>
<th>Ex-reg Smoker N=9</th>
<th>Non-Smokers N=32</th>
<th>Totals N=79</th>
<th>(Largest Number of Replies=1)</th>
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<tbody>
<tr>
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<td>Lung cancer</td>
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<td>7</td>
<td>17</td>
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<td>2</td>
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<td>Better lungs/ chest disease</td>
<td>6</td>
<td>7</td>
<td>13</td>
<td>13</td>
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<tr>
<td>Better breath</td>
<td>8</td>
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<td>1</td>
<td>8</td>
<td>6=</td>
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<tr>
<td>Looks bad</td>
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<td>Bad taste</td>
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</tr>
<tr>
<td>Stains fingers/ teeth</td>
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<td>1</td>
<td>1</td>
<td>4</td>
<td>10=</td>
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<tr>
<td>Addictive/stupid habit</td>
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<td>1</td>
<td>4</td>
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<td>6</td>
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<td>Cleaner environment</td>
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<td>Feel better inside</td>
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<td>Heart problems</td>
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<td>Ex-Reg Smoker N=9</td>
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<td>-------------</td>
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<td>Nothing to calm nerves</td>
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<td>Smokers N=38</td>
<td>Ex-Reg Smoker N=9</td>
<td>Non-Smokers N=32</td>
<td>Totals N=79</td>
<td>(Largest Number of Replies=1)</td>
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<td>Cousin</td>
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<td>Grandfather</td>
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<td>Uncle</td>
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<td>Smoke shop/ cig companies</td>
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<td>Aunt</td>
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<td>Cousin</td>
<td></td>
<td></td>
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</table>
"Good Morning/Afternoon. My name is John Rose and I am a member of the Psychology department at the A.N.U. I am conducting research into cigarette smoking in the A.C.T. I have been interested in smoking for some time and have been in touch with Quits, Canberra's adult cessation service. Over the past few months they have had requests from schools and individual young people for help with their attempts to give up smoking.

What I am doing here is the second phase in a research project in order to devise the best way to help them give up smoking. This is a trial questionnaire and I'm giving it to you, a small group before I try it on a larger group.

It doesn't matter if you don't smoke because I need a range of ideas from all types of young people both smokers and non smokers, people who want to give up and those that don't.

Your answers to the questionnaire will be completely confidential and anonymous. You don't write your name on the questionnaire and there is no way that the answers can be traced back to you. Not even the overall results for this school will be reported separately. The published reports will show summaries obtained by combining your answers with answers from secondary students in other schools in the survey.
The questionnaire is in two parts. The first part contains questions about tobacco smoking. This means cigarettes, cigars or pipes.

Give out questionnaire.

"On the first two pages there are some instructions on how to fill out the first part of part of the questionnaire. Please read the questionnaire carefully and then try the examples".

Allow time for reading instructions and completing the examples, then go through the examples and ask if any questions. Draw particular attention to the differences in the questions and the differences that will occur in the questions.

"Now turn to the questionnaire and complete it in your own time. Remember to answer every question and ask that you be as careful and honest as you can. If while filling in the questionnaire you come across a question you don't understand please put up your hand and I will come over. Stop when you get to part 2."

Wait for them to finish part 1.
Part 2

"The questions in this section are quite different. They ask for information on how you think about certain things relating to smoking. Look at the instructions."

Pause, give them a chance to read.

"In this case there are some differences to the first part. As you can see you mark the questions with a cross and have a range of alternative answers from extremely likely or good through quite likely or good and slightly likely/good. Then an indifferent response, neither, through slightly unlikely/bad, quite unlikely or bad to extremely likely or bad.

Sometimes there are slightly different alternatives so remember not only to read the question carefully, but also to read the end points on the scale."

Go through some instructions - give examples.

"There are a lot of questions in this section, but it should be reasonably easy for you to do them quite quickly as the first answer you think of is probably the best.

One final point remember the three points made at the end of the instructions, (1) ________, (2) ________, (3) ________. If you have any questions please ask."
Remember I want feedback from you to know if this is a good questionnaire before I give it to other people."

When finished,

"Could you please check through your questionnaire to see that you haven't missed any pages."
PART I

INSTRUCTIONS

This is not a test, and there are no right or wrong answers, but we do ask that you try to answer each question as truthfully as you can. Remember that your answers cannot be traced back to you. If you don't know the answer to a question or if you feel you can't answer it truthfully then miss that question out and go onto the next one. However we would like you to answer every question if you can.

For the first set of questions there is a choice of answers and you pick the one that's true for you and put a tick in the brackets next to it.

For example, if you've ever had an ice cream you would answer the question "A" below by ticking 'Yes'.

A. Have you ever eaten ice cream? Yes ( )
   No ( )

B. On how many days did you eat ice cream in the last four weeks?

   None ........................................ ( )
   On 1 - 2 days ( )
   On 3 - 5 days ( )
   On 6 - 9 days ( )
   On 10 - 19 days ( )
   On 20 or more days ( )
   Every day ( )

C. How many ice creams have you eaten in the whole of the last week?

   Tick one only:

   None ........................................ ( )
   1 - 2 ( )
   3 - 6 ( )
   7 - 13 ( )
   14 - 27 ( )
   28 or more ( )
1. What year level are you in?
   Year 7 ( )
   Year 8 ( )
   Year 9 ( )
   Year 10 ( )
   Year 11 ( )
   Year 12 ( )

2. What age did you turn last Birthday?
   10 ( )
   11 ( )
   12 ( )
   13 ( )
   14 ( )
   15 ( )
   16 ( )
   17 ( )
   18 ( )
   Over 18 ( )

3. What Sex are you?
   Male ( )
   Female ( )

4. Have you ever smoked tobacco?
   Yes ( )
   No ( )

5. How old were you when you first smoked tobacco?
   Never smoked tobacco ( )
   Under age 7 ( )
   7 or 8 years old ( )
   9 or 10 years old ( )
   11 or 12 years old ( )
   13 or 14 years old ( )
   15 or 16 years old ( )
   17 or 18 years old ( )
   Over age 13 ( )
6. Have you smoked tobacco in the last twelve months?

Yes ( )
No ( )

7. What is the largest number of days on which you have smoked tobacco in any one week?

None ..................... ( )
On 1 - 2 days ( )
On 3 - 4 days ( )
On 5 - 6 days ( )
Every day ( )

8. How many cigarettes would you have smoked, on average, per day, in that week?

Never smoked cigarettes ( )
1 - 3 cigarettes ( )
4 - 7 cigarettes ( )
8 - 12 cigarettes ( )
13 - 17 cigarettes ( )
23 - 27 cigarettes ( )
Over 27 (write in number) ( )

9. On how many days have you smoked tobacco in the last four weeks?

None ..................... ( )
On 1 - 2 days ( )
On 3 - 5 days ( )
On 6 - 9 days ( )
On 10 - 19 days ( )
On 20 or more days ( )
Every day ( )

10. On how many days have you smoked tobacco in the last week?

None ..................... ( )
On 1 - 2 days ( )
On 3 - 4 days ( )
On 5 - 6 days ( )
Every day ( )
3.

11. On a day when you smoke cigarettes now, how many would you usually smoke?

Never smoke cigarettes ( )
A few puffs ( )
1 - 3 cigarettes ( )
4 - 7 cigarettes ( )
8 - 12 cigarettes ( )
13 - 17 cigarettes ( )
18 - 22 cigarettes ( )
23 - 27 cigarettes ( )
Over 27 (write in number) ( )

12. Do you want to give up smoking?

Don't smoke ( )
Yes ( )
No ( )
Undecided ( )

13. Do you think help with stopping smoking might be useful for you?

Don't smoke ( )
Yes ( )
No ( )
Not sure ( )

14. Do you intend to smoke in the future?

Yes ( )
No ( )
I intend to smoke cigarettes in the future

My smoking cigarettes is/would be

For me, having better lungs and being able to breathe easily is

For me, getting cancer is

For me, having physical side effects when giving up cigarettes is

For me, having something to calm my nerves is

For me tasting nice things is
For me, getting on with friends is

extremely quite slightly neither slightly quite extremely

For me, gaining weight is


For me, unnecessary expenses are

For me, looking tough is

For me, looking sophisticated and smart is

For me, making new friends is
extremely quite slightly neither slightly quite extremely

For me, getting into trouble is

For me, having mental side effects when giving up cigarettes is

For me, having bad breath is

For me, having control over my life is
For me, smelling unpleasant is 

extremely quite slightly neither slightly quite extremely bad

For me, being unfit is 

extremely quite slightly neither slightly quite extremely bad

For me, habits are 

extremely quite slightly neither slightly quite extremely bad

For me, being addicted is 

extremely quite slightly neither slightly quite extremely bad

For me, to upset others is 

extremely quite slightly neither slightly quite extremely bad

For me, having good health in the future is 

extremely quite slightly neither slightly quite extremely bad

For me, having something to do with my hands is 

extremely quite slightly neither slightly quite extremely bad

For me, enjoying things are 

extremely quite slightly neither slightly quite extremely bad

For me, having something to do, to fill in time is 

extremely quite slightly neither slightly quite extremely bad
For me, looking older is


For me, having stains on my teeth is


For me, getting heart disease is


For me, having good health now is


For me, being able to relax is


Smoking cigarettes causes cancer


Smoking cigarettes produces physical side effects when you give up

ily i : : : : : : unlikely

Smoking cigarettes makes you smell unpleasant

ily i : : : : : : unlikely

Smoking cigarettes does not cause heart disease

ily i : : : : : : unlikely

Smoking cigarettes helps you relax

ily i : : : : : : unlikely

Smoking cigarettes is/would be bad for my health now

ily i : : : : : : unlikely
Smoking cigarettes helps you lose weight
likely extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes makes you look sophisticated and smart
likely extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes causes problems with your lungs and makes it difficult to breathe
likely extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes is enjoyable
likely extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes makes you look tough
likely extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes helps you get along with friends
likely extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes is a difficult thing to control
likely extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes gives you bad breath
likely extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes gives you something to do with your hands
likely extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes in the presence of others is upsetting to them
likely extremely quite slightly neither slightly quite extremely unlikely
Smoking cigarettes helps to calm nerves

unlikely  extremely  quite  slightly  neither  slightly  quite  extremely

Smoking cigarettes produces mental side effects when you give up

unlikely

Smoking cigarettes stains your teeth

unlikely

Smoking cigarettes is an unnecessary expense

unlikely

Smoking cigarettes gets you into trouble

unlikely

Smoking cigarettes stains your fingers

unlikely

Smoking cigarettes is not an addiction

unlikely

Smoking cigarettes gives you something to do, to fill in time

unlikely

Smoking cigarettes is bad for your health in the future

unlikely

Smoking cigarettes is habit forming

unlikely
Smoking cigarettes makes you unfit

Extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes helps you make new friends

Extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes tastes nice

Extremely quite slightly neither slightly quite extremely unlikely

Smoking cigarettes means looking older

Extremely quite slightly neither slightly quite extremely unlikely

My teachers think I should smoke cigarettes

Extremely quite slightly neither slightly quite extremely unlikely

Cigarette Companies think I should smoke cigarettes

Extremely quite slightly neither slightly quite extremely unlikely

Most government officials think I should smoke cigarettes

Extremely quite slightly neither slightly quite extremely unlikely

My brothers and sisters think I should smoke cigarettes

Extremely quite slightly neither slightly quite extremely unlikely

My doctor thinks I should smoke cigarettes

Extremely quite slightly neither slightly quite extremely unlikely

Most people who are important to me think I should smoke cigarettes

Extremely quite slightly neither slightly quite extremely unlikely
My Mother thinks I should smoke cigarettes

Extremely: Unlikely
Quite: Unlikely
Slightly: Unlikely
Neither: Unlikely
Slightly: Unlikely
Quite: Unlikely
Extremely: Unlikely

I think I should smoke cigarettes

Extremely: Unlikely
Quite: Unlikely
Slightly: Unlikely
Neither: Unlikely
Slightly: Unlikely
Quite: Unlikely
Extremely: Unlikely

My friends think I should smoke cigarettes

Extremely: Unlikely
Quite: Unlikely
Slightly: Unlikely
Neither: Unlikely
Slightly: Unlikely
Quite: Unlikely
Extremely: Unlikely

My Father thinks I should smoke cigarettes

Extremely: Unlikely
Quite: Unlikely
Slightly: Unlikely
Neither: Unlikely
Slightly: Unlikely
Quite: Unlikely
Extremely: Unlikely

My best friend thinks I should smoke cigarettes

Extremely: Unlikely
Quite: Unlikely
Slightly: Unlikely
Neither: Unlikely
Slightly: Unlikely
Quite: Unlikely
Extremely: Unlikely

In general, I want to do what my friends think I should do

Extremely: Unlikely
Quite: Unlikely
Slightly: Unlikely
Neither: Unlikely
Slightly: Unlikely
Quite: Unlikely
Extremely: Unlikely

In general, I want to do what my doctor thinks I should do

Extremely: Unlikely
Quite: Unlikely
Slightly: Unlikely
Neither: Unlikely
Slightly: Unlikely
Quite: Unlikely
Extremely: Unlikely

In general, I want to do what the cigarette companies think I should do

Extremely: Unlikely
Quite: Unlikely
Slightly: Unlikely
Neither: Unlikely
Slightly: Unlikely
Quite: Unlikely
Extremely: Unlikely

In general, I want to do what my best friend thinks I should do

Extremely: Unlikely
Quite: Unlikely
Slightly: Unlikely
Neither: Unlikely
Slightly: Unlikely
Quite: Unlikely
Extremely: Unlikely
In general, I want to do what my brothers and sisters think I should do 

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In general, I want to do what my teachers think I should do 

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In general, I want to do what my mother thinks I should do 

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In general, I want to do what most people who are important to me think I should do 

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In general, I want to do what I think I should do 

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In general, I want to do what my father thinks I should do 

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In general, I want to do what most government officials think I should do 

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### APPENDIX F

**INDIVIDUAL AND COMBINED TAU-C VALUES FOR QUESTIONS FROM PHASE II OF QUESTIONNAIRE DEVELOPMENT**

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* = pairs of questions removed from the analysis.
+ = pair combined with another pair.
APPENDIX G

VERBAL INSTRUCTIONS FOR PHASE 3

"Good Morning/Afternoon. My name is John Rose and I am conducting a survey in secondary schools and colleges in the A.C.T. I am from the Psychology department at the A.N.U. and want to find out more about tobacco smoking in your age group.

This is not a test. It's a questionnaire and it has two parts. The first part asks you how much you smoke now, or have smoked in the past. When the questions ask about tobacco smoking, it means smoking either cigarettes, cigars or pipes.

Your answers will be completely confidential and anonymous, don't write your name on the questionnaire and there is no way your answers can be traced back to you. Not even overall results for this school/college will be reported separately. The published reports will show summaries obtained by combining your answers with answers from other schools in the survey.

On the first page of the booklet there are some instructions on how to fill out the questionnaire and some examples. Please read the instructions carefully and try out the examples."

Pause.
Go through examples. See if any problems. Point out differences between questions - e.g. be careful. Last four weeks v.s any four weeks.

"Turn to page 3.

Please note you only need to answer one of question 12 or 13 depending on whether you have smoked in the last month. Answer every other question and try and be as careful and honest as you can.

If while you are filling in the questionnaire you come across a question you do not understand please put your hand up and I will come over. When you get to part 2 read the instructions but wait for me to tell you a bit about it before you start."

Wait till most have finished part 1 then say,

"If you read the instructions in this part you will see the task you are required to do is quite different. I want you to give me an idea of what you think about certain things. The questions have no correct answers I just want to know what you think about the questions. Read the instructions and try the example."

Pause, then point out the way to fill the questions in. Then say,
"Please make sure you read the final five items."
Then read them out,

"(1) Place your marks in the middle of spaces.
(2) Answer all items (this is very important).
(3) Never put one mark on a single scale but,
(4) When at the end of the questionnaire and there are several alternative end points e.g. good-bad, true-false put one cross between each of these end points, even though there is only one question.
(5) When the words extremely, quite, slightly and neither don't appear it means just the same as if they did."

"Are there any questions?"

When questions are dealt with.

"Very well please go ahead and finish the question­naire as quickly as you can, often the first answer that comes into your mind will be the best, and you don't need to talk to others about how you think. And thats what I want to know. Each of your individual opinions."

On completion of questionnaire,

"Please check through to see that you haven't missed out any pages. Sometimes the pages can stick together. Then give the questionnaire to me."

When all questionnaires are handed in, answer any questions and tell them the rationale behind the project and thank them for their participation.
PART I

INSTRUCTIONS

This is not a test, and there are no right or wrong answers, but we do ask that you try to answer each question as truthfully as you can. Remember that your answers cannot be traced back to you. If you don't know the answer to a question or if you feel you can't answer it truthfully then miss that question out and go onto the next one. However we would like you to answer every question if you can.

For the first set of questions there is a choice of answers and you pick the one that's true for you and put a tick in the brackets next to it.

For example, if you've ever had an ice cream you would answer the question "A" below by ticking 'Yes'.

A. Have you ever eaten ice cream?  
   Yes ( )  
   No ( )

B. On how many days did you eat ice cream in the last four weeks?  
   None ........................................... ( )  
   On 1 - 2 days ................................ ( )  
   On 3 - 5 days ................................ ( )  
   On 6 - 9 days ................................ ( )  
   On 10 - 19 days ................................... ( )  
   On 20 or more days ............................... ( )  
   Every day ......................................... ( )

C. How many ice creams have you eaten in the whole of the last week?  
   Tick one only:  
   None ........................................... ( )  
   1 - 2 .......................................... ( )  
   3 - 6 .......................................... ( )  
   7 - 13 .......................................... ( )  
   14 - 27 ......................................... ( )  
   28 or more ...................................... ( )
1. What year level are you in?
   Year 7 ( )
   Year 8 ( )
   Year 9 ( )
   Year 10 ( )
   Year 11 ( )
   Year 12 ( )

2. What age did you turn last Birthday?
   10 ( )
   11 ( )
   12 ( )
   13 ( )
   14 ( )
   15 ( )
   16 ( )
   17 ( )
   18 ( )
   Over 18 ( )

3. What Sex are you?
   Male ( )
   Female ( )

4. Have you ever smoked tobacco?
   Yes ( )
   No ( )

5. How old were you when you first smoked tobacco?
   Never smoked tobacco ( )
   Under age 7 ( )
   7 or 8 years old ( )
   9 or 10 years old ( )
   11 or 12 years old ( )
   13 or 14 years old ( )
   15 or 16 years old ( )
   17 or 18 years old ( )
   Over age 18 ( )
6. Have you smoked tobacco in the last twelve months? 
   Yes ( )
   No ( )

7. Have you ever smoked on a regular basis, including now, at least one cigarette every week over a four week period? 
   Yes ( )
   No ( )

8. Have you ever smoked on a regular basis, including now, at least one cigarette every day over a four week period? 
   Yes ( )
   No ( )

9. On how many days have you smoked tobacco in the last four weeks? 
   None ......................... ( )
   On 1 - 2 days ( )
   On 3 - 5 days ( )
   On 6 - 9 days ( )
   On 10 - 19 days ( )
   On 20 or more days ( )
   Every day ( )

10. On how many days have you smoked tobacco in the last week? 
    None ......................... ( )
    On 1 - 2 days ( )
    On 3 - 4 days ( )
    On 5 - 6 days ( )
    Every day ( )

11. On a day when you smoke cigarettes now, how many would you usually smoke? 
    Never smoke cigarettes ( )
    A few puffs ( )
    1 - 3 cigarettes ( )
    4 - 7 cigarettes ( )
    8 - 12 cigarettes ( )
    13 - 17 cigarettes ( )
    18 - 22 cigarettes ( )
    23 - 27 cigarettes ( )
    Over 27 (write in number) ( )
12. If you have **not smoked** in the last **four weeks**, do you want to,
   
   Remain a nonsmoker ( )
   
   Smoke ( )
   
   Undecided ( )

13. If you have **smoked** in the last **four weeks**, do you want to
   
   Remain a smoker ( )
   
   Stop smoking/give up ( )
   
   Undecided ( )

14. Do you think help with stopping smoking might be useful **for you**?
   
   Don't smoke/Don't smoke anymore ( )
   
   Yes ( )
   
   No ( )
   
   Not sure ( )
PART II

INSTRUCTIONS

The questions in this section ask you to respond to a statement on a sever point scale which looks like this:


At the end of the scale there are two words with opposite meanings. Select the space on the scale which best represents your feelings and mark the space with an X.

For example, if you were asked to rate "The weather in Canberra" on such a scale, and you thought the weather in Canberra was extremely good, you would place your mark as follows:

The weather in Canberra is


extremely quite slightly neither slightly quite extremely bad

You may think the weather in Canberra is neither good nor bad then you would place your mark as follows:


extremely quite slightly neither slightly quite extremely bad

What do you think the answer is?

The weather in Canberra is


extremely quite slightly neither slightly quite extremely bad

Other end points occur on scales. These should be interpreted the same way. For example likely-unlikely occur on some. If you were asked to rate "the weather in Canberra is col in January" on such a scale, and you thought it was quite unlikely that the weather in Canberra is cold in January, you would answer as follows:


extremely quite slightly neither slightly quite extremely unlikely

In making your ratings please note the following points:

(1) Place your marks in the middle of spaces, not on the boundaries


this not this

(2) Be sure to try and answer all items.

(3) Never put more than one mark on a single scale.

(4) When a question has more than one scale put one mark on each scale.

(5) When the words: extremely, quite, slightly, neither, do not appear under lines, it means just the same as if they did.
1. For me, having better lungs and being able to breathe easily is
   extremely quite slightly neither slightly quite extremely

2. For me, having something to calm my nerves is

3. For me tasting nice things is

4. For me, getting on with friends is

5. For me, gaining weight is

6. For me, unnecessary expenses are

7. For me, looking tough is

8. For me, looking sophisticated and smart is

9. For me, having bad breath is

10. For me, smelling unpleasant is

11. For me, being unfit is

12. For me, habits are
13. For me, to upset others is
   extremely quite slightly neither slightly quite extremely

14. For me, having good health is

15. For me, enjoyable things are

16. For me, having yellow teeth and/or fingers is

17. For me, getting heart disease is

18. For me, being able to relax is

19. Smoking cigarettes makes you smell unpleasant
   extremely quite slightly neither slightly quite extremely likely

20. Smoking cigarettes causes heart disease

21. Smoking cigarettes helps you relax

22. Smoking cigarettes helps you lose weight

23. Smoking cigarettes makes you look sophisticated and smart
24. Smoking cigarettes causes problems with your lungs and makes it difficult to breathe
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

extremely quite slightly neither slightly quite extremely likely

25. Smoking cigarettes is enjoyable
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

likely

26. Smoking cigarettes makes you look tough
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

likely

27. Smoking cigarettes helps you get along with friends
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

likely

28. Smoking cigarettes gives you bad breath
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

extremely quite slightly neither slightly quite extremely likely

29. Smoking cigarettes in the presence of others is upsetting to them
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

likely

30. Smoking cigarettes helps to calm nerves
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

likely

31. Smoking cigarettes makes your fingers and/or teeth turn yellow
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

likely

32. Smoking cigarettes is an unnecessary expense
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

likely

33. Smoking cigarettes is bad for your health
likely ______ : ____ : _____ : _____ : _____ : _____ : ______ un-

likely
34. Smoking cigarettes is habit forming

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-

35. Smoking cigarettes makes you unfit

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-

36. Smoking cigarettes tastes nice

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-

37. Cigarette Companies think I should smoke cigarettes

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-

38. My brothers and sisters think I should smoke cigarettes

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-

39. Most people who are important to me think I should smoke cigarettes

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-

40. My Mother thinks I should smoke cigarettes

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-

41. My friends think I should smoke cigarettes

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-

42. My Father thinks I should smoke cigarettes

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-

43. My best friend thinks I should smoke cigarettes

likely _______ : ______ : _______ : _______ : _______ : _______ : _______ : _______ un-


44. In general, I want to do what my friends think I should do    [ ] 6:
likely _______ : _______ : _______ : _______ : _______ : _______ : _______ unlikely
extremely quite slightly neither slightly quite extremely likely

45. In general, I want to do what the cigarette companies think I should do    [ ] 6:
likely _______ : _______ : _______ : _______ : _______ : _______ : _______ unlikely
extremely quite slightly neither slightly quite extremely likely

46. In general, I want to do what my best friend thinks I should do    [ ] 6:
likely _______ : _______ : _______ : _______ : _______ : _______ : _______ unlikely
extremely quite slightly neither slightly quite extremely likely

47. In general, I want to do what my brothers and sisters think I should do    [ ] 6:
likely _______ : _______ : _______ : _______ : _______ : _______ : _______ unlikely
extremely quite slightly neither slightly quite extremely likely

48. In general, I want to do what my Mother thinks I should do    [ ] 6:
likely _______ : _______ : _______ : _______ : _______ : _______ : _______ unlikely
extremely quite slightly neither slightly quite extremely likely

49. In general, I want to do what most people who are important to me think I should do    [ ] 6:
likely _______ : _______ : _______ : _______ : _______ : _______ : _______ unlikely
extremely quite slightly neither slightly quite extremely likely

50. In general, I want to do what my Father thinks I should do    [ ] 6:
likely _______ : _______ : _______ : _______ : _______ : _______ : _______ unlikely
extremely quite slightly neither slightly quite extremely likely

51. I intend to smoke cigarettes in the future    [ ] 6:
likely _______ : _______ : _______ : _______ : _______ : _______ : _______ unlikely
extremely quite slightly neither slightly quite extremely likely
true _______ : _______ : _______ : _______ : _______ : _______ : _______ false [ ]
probable _______ : _______ : _______ : _______ : _______ : _______ : _______ improbable [ ]
52. My smoking cigarettes is/would be [ ] 7: 