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TOBACCO POLICY INFLUENCE

ON DENORMALISATION OF SMOKING

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Declaration
This work has been performed by myself and comprises the results of my own research. All sources of information have specifically been acknowledged by references. I have listed below publications from this thesis and papers presented at peer-reviewed conferences.

Publications from this research
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Brown, A.K. (2007), *Tobacco policy influence on denormalisation of smoking.* Presented at the CRUK PhD students conference, Cambridge University, UK, September 2007.

Brown, A.K. (2006), *What hope does 'denomalisation' offer?* Presented at the 13th World Conference on Tobacco or Health, Washington Convention Centre, USA, July 2006.

Brown, A.K. (2006), *Monitoring the impact on adolescents of the UK tobacco marketing ban*. Presented at the 13th World Conference on Tobacco or Health, Washington Convention Centre, USA, July 2006.

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Abstract

The social norms concept provides a fresh basis for thinking about how public health policies and campaigns impact health behaviour. Social norms offer much promise to the field of public health, nonetheless, the potential role of norms in changing health behaviour have not been fully embraced. This thesis demonstrates that one of the mechanisms by which national level policies (e.g. tobacco control) can promote health behaviour change, such as an increase in quit intentions, is by making smoking less normative and an undesirable behaviour. This study is vital as it provides a broad conceptualization of tobacco denormalisation and shows how its reasoning is able to influence normative beliefs and smoking behaviour.

A review of literature was carried out to establish the generic origins of denormalisation as well as demonstrate that this approach (i.e. social norms) has been widely adopted in schools and college settings to influence health behaviour. As a broader perspective of this thinking was imperative to address public health issues at a societal level, tobacco control was employed to investigate how individual polices influence behaviour and normative beliefs.

The research methodology used was pluralistic in nature, given that the majority of past tobacco control policy studies employed either quantitative or qualitative methods. Thus adopting both methods a richer amount of data would be obtained in order to generate an improved understanding of how public policy affects norms and smoking behaviour. To empirically examine the relationship between public policy, social norms and smoking behaviour a broad conceptualization was developed to investigate the normative pathways between national level tobacco policy effects on youth and adults' smoking behaviour.

Quantitative results from the longitudinal study, the International Tobacco Control (ITC) Scotland/UK survey, indicate that a comprehensive smoke-free law that covers, without exception, an entire nation (i.e. Scotland) has increased adult smokers' perceived social unacceptability of smoking, to some extent higher in Scotland than rest of the UK which, in turn, is associated with quit intentions at follow-up, in both countries. The examination of data from the UK Youth Tobacco Policy Study (YTPS) also demonstrated that the influence of tobacco marketing awareness on adolescents' smoking intentions is mediated by perceived norms. Prior to the enactment of the UK Tobacco Advertising and Promotion Act (TAPA), higher levels of awareness of tobacco advertising and promotion were independently associated with higher levels of perceived sibling approval which, in turn, were positively related to smoking intentions. Independent paths from perceived smoking prevalence and benefits fully mediated the effects of advertising and promotion awareness on intentions, during and after the enactment of the TAPA. Results from the qualitative study generally supported the quantitative findings and provided new insights into how adolescents' normative beliefs and smoking behaviour are influenced by tobacco control policies. The qualitative group discussion suggests that smoke-free legislation and anti-smoking ads influence perceptions of prevalence, acceptability and smoking behaviour.

A number of theoretical implications were presented, including the belief that social norms campaigns and interventions must be focal and salient in individuals' consciousness so as to effect the desired behaviour change. A theoretical framework of the various normative mechanisms should consequently be integrated into tobacco control policies and norm-based interventions to work in a synergistic manner to influence health-related behaviour. Practical implications of this conceptualization

include the view that, instead of public health interventions focusing on conventional approaches (for example, scare tactics), an appropriate strategy would be to incorporate specific information that corrects normative misperceptions and ambiguities among referent populations at individual and societal levels, with consequential normative and health behaviour change. It is recommended that future research employing tobacco industry perceptions and possibly a descriptive norm as additional normative mediators, aside from unacceptability, would be of value to examine whether smoke-free legislation influences quitting partly via changing favourable tobacco industry perceptions, social acceptability of smoking and perceived prevalence of smoking.

To sum up, the findings demonstrate that societal level policy measures such as smoke-free legislation and the TAPA are critical elements of a comprehensive tobacco control program that can significantly influence adult smokers' quit intentions and reduce adolescents' smoking intentions respectively, by signifying smoking to be less normative and to be socially unacceptable.

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CHAPTER 1

1.0   Introduction

This thesis seeks to explain the relationship between public health policy, social norms and health behaviour. The motivation for this study was provided by a lack of knowledge in predicting health behaviour change as a result of public policy and changes in social norms. Tobacco control is used as a case study to demonstrate how public policy might operate to influence smoking norms and behaviour, as thinking about norms in this field is relatively advanced. Evidence suggest a direct link between tobacco policy, e.g. smoking restrictions and reduced smoking prevalence, nonetheless, the processes underlying how tobacco policy influence behaviour are under-studied (Albers et al., 2004). This study employs national-level tobacco policy (e.g. smoke-free legislation) to address this drawback in the literature, that is, to what extent does policy impact behaviour through changing social norms?

Chapter one starts with the emergence of social norms of smoking from a global perspective, followed by the role of tobacco prevention campaigns in changing societal norms of smoking. The objective is to demonstrate that while such campaigns appear to change social norms of smoking among current and potential smokers; there is a scarcity of empirical studies relating specifically to the indirect effect of national-level tobacco policies on smoking behaviour. Following this, the conceptual synthesis of this thesis, an outline of the study objectives and structure of the research are addressed in the subsequent sections.

1.1   Social Norms of Smoking

Understanding the emergence of social norms of smoking and its decline in populations as a consequence of tobacco control measures that help to shape these

norms is vital, if the objective is to make non-smoking the prevailing normative behaviour, and consequently reduce prevalence (Burns et al., 2008; Cummings, 2002). A clear cognisant of the natural history of smoking norms and programs that can transform normative beliefs and affect immediate consumption and prevalence in nations is hence necessary, so that all measures can be improved upon, or altered, to reach their full potential.

The Native Americas were the first to accept smoking as the norm before being perceived by Columbus and his crew on the island of Cuba in November 1492 (Tabor, 1843, p.397). Tobacco use soon became a normal and acceptable practice during ceremonial and religious festivities, and for medicinal purposes (Wagner, 1971; Chaly, 2007). The Europeans initially heralded it as a medical marvel. In 1565, Sir John Hawkins transported tobacco to England during his return from his second voyage to Florida (Ravenholt, 1990). Tobacco use, then popularized by Sir Walter Raleigh, increasingly became socially acceptable and conveyed a symbol of friendship in gatherings such that among members of Queen Elizabeth's court: "*smoking gained in a little time, a fashionable and polite éclat… and Elizabeth herself was familiar with a tobacco pipe as with her sceptre* (Tabor, 1843, p.156)." In the States, tobacco assumed social, industrial, economic and medical acceptance after John Rolfe's successful experiment in tobacco cultivation in 1613 (Morison, 1965, p. 52). The best leaf, tobacco gained such ascendancy that it was used as money. For instance, when in 1621, a cargo of twelve young women made its way to Virginia, each one was valued at 120 pounds of tobacco (Brooks, 1952, p. 93).

Portuguese traders in the late 1500s carried tobacco to African ports and to India, the Spice Islands, Japan, and China, and by the end of the seventeenth century smoking practices was normalised and widespread in all the trading nations of the world

(Ravenholt, 1990). Besides, the invention of the industry's cigarette-making machine, the Bonsack machine in 1881, made cigarette production economical and easy, and facilitated the norms of smoking on a global dimension (Kluger, 1996; Jacobs, 2002). The swift acceptability of tobacco use however gave rise to the great tobacco controversy of global dimensions (Ravenholt, 1990), especially with its introduction in Europe. The first recorded tobacco control measure grew out of a clash between Peruvian native and Christian ritual which led to a 1586 Papal decree declaring it a sin for any priest to use tobacco before celebrating or administering communion (Slade, 1993). In one of the earliest tobacco use prevention publications, King James I of England wrote: *"Smoking is a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and in the black, stinking fume thereof nearest resembling the horrible stygian smoke of the pit that is bottomless,"* having reputedly gotten sick the first time he smoked it and being theologically opposed to Christians defiling themselves by engaging in customs like smoking, practiced by the American Indians (A Counterblaste to Tobacco, 1604). He consequently taxed heavily its importation in order to discourage the acceptance of a habit adopted from un-baptized barbarians (United Nations General Assembly, 2003). Though, this encouraged people to quit smoking, taxes were slashed down within two years as a result of diminished incoming funds to the State Treasury.

Tobacco campaigns to discourage smoking norms in China were stricter as those caught selling tobacco were executed whilst the Czar of Russia exiled tobacco users to Siberia (Kluger, 1996). During the 17th century, public smoking was banned as a policy measure to reduce social norms of smoking in several of the northern colonies. In 1638, the Plymouth colony passed a law forbidding smoking in the streets and, in 1798, Boston banned the carrying of a lighted pipe or cigar in public. Beginning

around 1850, a number of anti-tobacco groups were formed (US Department of Health and Human Services: USDHHS, 2000), including the American Anti-Tobacco Society in 1849, American Health and Temperance Association (1878), Anti-Cigarette League (1899), Non-Smokers Protective League (1911), and the Department of Narcotics of the Women's Christian Temperance Union (WCTU; 1883). The WCTU was a force behind the tobacco control movement in Canada and the U.S (Cummings, 2002), that helped to transform social norms of smoking with consequential reductions in smoking prevalence.

The tobacco industry, in anticipation of declining smoking norms and a corresponding decrease in tobacco markets, challenged tobacco control movements by vigorously competing against each other and spent tens of millions annually in advertising to promote their brands (Kluger, 1996). For decades, the industry's objective has been to imbue the product with a sufficiently attractive image, making smoking a socially desirable behaviour. Images of health, athletic performance, wealth, and social standing have been associated with smoking which has helped fuel a continual increase in the acceptability of its use (King et al., 2000; Luke et al., 2000; Pollay, 1995), despite efforts to reduce this habit. Tobacco control measures that can make non-smoking the normative behaviour by changing social norms of smoking and restraining the industry's marketing activities is essential, as over the years the industry has subtly marketed its products, denied tobacco related diseases and undermined tobacco control policies domestically (Ling and Glantz, 2002), regionally (Ashraf, 2002; Neuman et al., 2002) and globally (Weissman, 1998).

1.2   Evidence for Tobacco Control and Non-Smoking Norms

As the tobacco industry contend to sustain tobacco markets via social acceptability of smoking (Alamar and Glantz, 2006), empirical evidence of the health consequences of smoking was imperative to support enactment of tobacco control policies that can alter smoking norms and behaviours. Initial scientific effort dates to 1665, when Samuel Pepys witnessed a Royal Society experiment in which a cat when fed a drop of distilled oil of tobacco quickly expired. Efforts to enact tobacco control policies and interventions to reduce smoking possibly through making non-smoking the normative behaviour resulted in early notice of a tobacco-cancer relationship in patients. In 1791, cases in which use of snuff caused nasal cancers were reported by the London physician John Hill. Isaac Adler, in 1912 published a book on lung cancer that implicated smoking. In 1928, the adverse health effects of smoking were reported in the New England Journal of Medicine whilst a scientific American report in 1933 tentatively linked cigarette tars to lung cancer (Pearl, 1938).

The classic studies of Raymond Pearl during the 1930s clearly delineated the extraordinary impact of smoking on longevity, as life span after age 30 years for white men was reduced by about 10 years in heavy smokers compared with non-smokers (see figure 1.1; Pearl, 1938). Longevity was also lower for moderate smokers. In a related study, longevity among smokers who quit at age 35 exceeded that of continuing smokers by 6.9 to 8.5 years for men and 6.1 to 7.7 years for women (Taylor et al., 2002), whereas smokers who quit at younger ages realized greater life expectancies. Yates et al.'s (2008) study of exceptional longevity in men as well showed that smoking was associated with increased risk of mortality before age 90 years, with hazard ratio of 2.10. However, as media depictions of such disquieting findings could potentially transform smoking norms and create non-smoking

behaviours, Pearl's findings surprisingly received limited media coverage because newspapers for instance did not want to offend tobacco advertisers (Seldes, 1942).

Figure 1.1
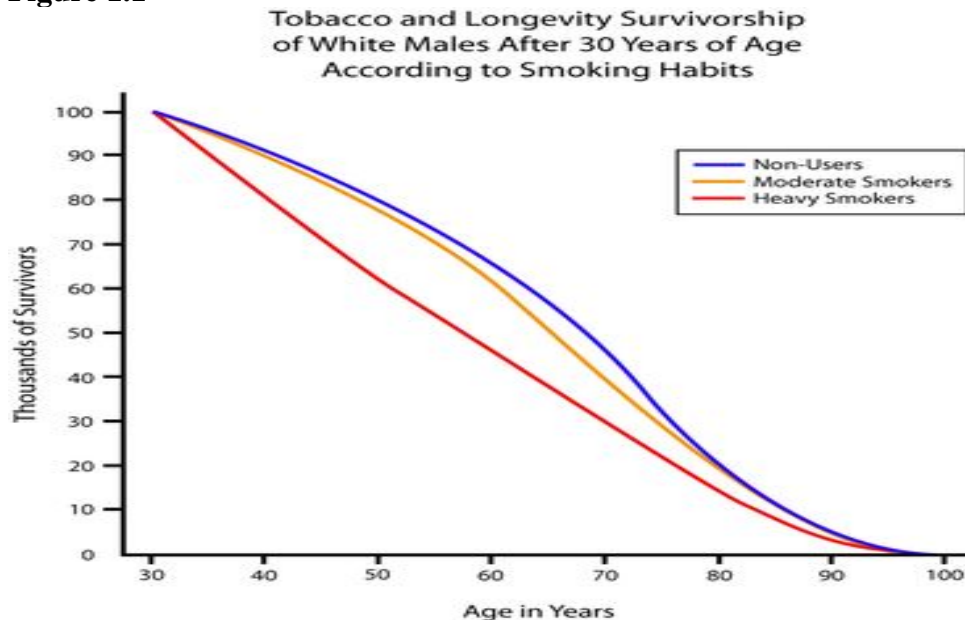
Source: Adapted by CTLT from Raymond (1938)

Similarly, evidence attesting that nicotine is addictive was reported in 1942 in the British medical journal, *The Lancet*, in support of public policy that can possibly change social norms of smoking. These and other reports attracted little attention from the popular press, although Reader's Digest was an early crusader against smoking. The Nazis, in the 1930s and early 1940s in Germany, used scientific evidence implicating smoking as a cause of cancer to mount an aggressive public health campaign to discourage smoking norms. Smoking was banned in many workplaces, cigarette taxes were raised, advertising restrictions were introduced, stop smoking programs were implemented, and an aggressive public education campaign was waged against smoking (Proctor, 1999). However, as a result of the Second World War the German campaign against smoking and much of the medical evidence implicating smoking as a cause of cancer was largely ignored.

It was not until the early 1950s and 1960s when scientists from the United Kingdom and the United States began to publish their research linking smoking and cancer that the modern era of tobacco control was born. In 1950, five scientific papers, one in United Kingdom (Doll and Hill, 1950), and four in the United States (Wynder and Graham, 1950; Levin et al., 1950; Schrek et al., 1950) were published that related cigarette smoking to the development of lung cancer. During this time, the research findings were more widely reported in the popular press such as Time (Gardner and Brandt, 2006). Wynder et al.'s study showed that mice that had cigarette "tar" painted on their backs were more likely to develop malignant tumours than control mice that were not painted with tobacco tar (Wynder et al., 1953), thus suggestive of smoking as the cause of cancer in humans. These findings were widely reported in newspapers and magazines such as the New York Times (May 27, 1950), Reader's Digest (December, 1952), and Life (December 21, 1953).

In 1957, the Public Health Service accepted a causal relationship between smoking and lung cancer (Burney, 1959). These were supported by the widespread publication of the first U.S. Surgeon General's Report on smoking and health in 1964 that cigarette smoking contributes substantially to mortality from certain specific diseases and to the overall death rate (USDHHS, 1989; Rabin and Sugarman, 1993). The report reviewed results of 7 cohort studies, including a prospective study of British physicians that has continued from 1951 to 2001, that demonstrated increased risk for dying in smokers compared with non-smokers, and some studies showing that the risk increased with the number of cigarettes smoked (Doll et al., 2004). Following the 1964 Surgeon General's Report, the Federal Trade Commission (FTC) proposed rules requiring tobacco companies to disclose on all cigarette packages and advertising that 'cigarette smoking is dangerous to health' and 'may cause death from cancer and

other diseases.' Health warnings were introduced as a consequence on cigarette packs in the 1960s (US Department of Health and Human Services, 1989).

The tobacco industry however, presented a number of physicians who testified that they disagreed with the conclusions of the Surgeon General's Report and argued that smoking had not been established as a cause of lung cancer and other related diseases (Diehl, 1969, p. 162; Kluger, 1996). The industry anticipated a decline in tobacco markets, as the Report supports argument for stronger tobacco control measures which could impact the social norms of smoking. Indeed, the industry understands the influence that changing social norms can have on consumption (Ling and Glantz, 2002, 2004). Accordingly, the tobacco companies claimed that their products were safe but promised to cooperate fully with tobacco-related research efforts, pledged to protect the public's health, and introduced filtered cigarettes in the 1950s and low tar cigarettes in the 1960s (Slade, 1993; Shopland, 2001). The industry's advertisements suggested that these new cigarettes were healthier than the old ones. Internal documents showed however, that these new brands were not clearly "healthier" than the old brands. Instead, the new brands had been created for marketing and public relations purposes, to give smokers the illusion of smoking a safer product and ease the public into a false sense of security regarding the health effects of smoking (Pollay and Dewhirst, 2002).

Despite the tobacco industry's efforts to create an environment where smoking is the norm, remarkable declines in cigarette consumption since the 1960s have been recorded especially in the States and UK resulting from measures that increased public awareness about the health implication of tobacco use, changing social norms of smoking, and increased governmental actions to regulate the use, sale, and advertising of tobacco products (Warner, 1986; Doll et al., 2004). Most recently,

public health measures that can prevent tobacco use are becoming progressively essential as smoking remains the major cause of death worldwide. In America, approximately 20% of all deaths are caused by smoking, more than by alcohol, illicit drugs, violence, and HIV combined (Centers for Disease Control and Prevention, 2005). Similarly, in countries such as the UK and Australia where most of these tobacco control programs and policies have been enacted, mortality and morbidity is mainly attributable to tobacco use. Each year nearly 20 000 Australians die and more than 150 000 are hospitalized due to tobacco-related illnesses (Australian Institute of Health and Welfare, 2002) whilst one in two long-term British smokers will die prematurely and an estimated 114 000 smokers are killed by smoking every year, accounting for one fifth of all UK deaths (Peto et al., 2000).

At the beginning of the 21st century about one third of adults in the world, increasingly more women, used tobacco (World Health Organisation: WHO, 2002). These changes in overall consumption and norms of smoking had marked influences on mortality and disease patterns (USDHHS, 2004). Peto et al.'s (1994) report on mortality from smoking in developed countries demonstrated that: "*for every 1000 20-year-old smokers it is estimated that while one will be murdered and six will die in motor accidents, 250 will die in middle age from smoking, and 250 will die in older age from smoking.*" Presently, the global norms of tobacco use is evident as smoking is the second major cause of mortality globally with approximately 5 million deaths recorded annually, and the fourth most common risk factor for disease (WHO, 2005). More alarming is the overwhelming studies revealing that smoking kills both smokers as well as non-smokers (Hackshaw et al., 1997; WHO, 2002).

Worldwide, an instrument for tobacco control was deemed necessary and initiated in May 1995 at the 48th World Health Assembly (WHA), followed by the adoption of

resolution WHA49.17, requesting the Director-General to initiate the development of a WHO Framework Convention on Tobacco Control (FCTC). The convention, developed in response to the globalization of the tobacco epidemic, is an evidence-base treaty that reaffirms the right of all people to highest standard of health (WHO, 2005). The treaty requires countries to impose restrictions on tobacco advertising and promotion; establish new packaging and labelling of tobacco products; establish clean indoor air controls; and strengthen legislation to clamp down on tobacco smuggling. Nonetheless, this treaty is somewhat limited given that individual governments have ultimate power to decide whether or not to execute the treaty, and thus restricts tobacco control efforts to reduce overall consumption and change social norms of smoking. This has also allowed tobacco companies to build political and business allies to delay enactment of effective tobacco control measures. The tobacco industry considered the FCTC treaty as an unprecedented challenge to the industry's freedom to continue doing business. The industry has responded in diverse ways to the scientific and global tobacco control community with aggressive legal, public relations, and political strategies, and has been mostly successful in making smoking a normative lifestyle and protected its profits in the face of overwhelming scientific evidence that tobacco products kill and disable hundreds of thousands of smokers and non-smokers every year (Ibrahim and Glantz, 2006).

1.3   Tobacco Industry's Strategy to Normalise Smoking

Increasing concern in the media and the scientific community about tobacco-related diseases strengthened the debate for tobacco control measures and consequential changes in smoking norms. The tobacco industry, as a result of this mobilized collective resources to prevent government regulation, stop public panic, establish

public confidence and normalised smoking (Saloojee and Dagli, 2000). Industry's normalisation approach include a memorandum of the initiated 1954 public relation campaigns which continues in full force today and appear to have handled the social norms of smoking effectively (Kannangora, 1987). For instance, documentary evidence emerging from court cases around the world exposes the tobacco industry as having suppressed evidence about the harmful effects and addictive nature of tobacco use (Bero, 2005). These documents reveal that for at least thirty years the tobacco industry in general has engaged in deception of the public, to protect business interest, maintain public credibility and the social acceptability of smoking (Anon, 1977).

The formation of the Tobacco Industry Research Committee (TIRC) by US tobacco companies in 1954, and subsequently renamed the Council for Tobacco Research (CTR) was partly industry's schemes to avert evidence linking smoking and disease, and sustain the social acceptability of smoking. Evidence attests that social acceptability has an important influence on both initiation and quitting (USDHHS, 1994). The industry deceitfully claimed that TIRC was an independent organization that would determine the truth about the health effects of smoking by funding independent scientific research. The documents show, however, that TIRC was originally created for public relations purposes, to convince the public that there was a "controversy" as to whether smoking is dangerous. The proposed industry research institution, as suggested by Addison Yeaman, then Brown and Williamson's vice president and general counsel, would:

"Free the industry to take a much more aggressive posture to meet attack. It would in particular free the industry to attack the Surgeon General's Report itself by pointing out its gaps and omissions, its reliance on statistics, its lack of clinical evidence, etc., etc. True we might worsen our situation in litigation, but that I would risk in

contemplation of the greater benefits to be derived from going on the offensive." (Glantz et al., 1996)

Industry documents currently available on the internet unveil the establishment of a conspiracy between Philip Morris, R J Reynolds, British-American Tobacco, Rothmans, Reemtsma, and UK tobacco companies Gallaher and Imperial, dating from 1977, to protect the industry's commercial interests both by promoting controversy over smoking and disease, through strategies directed at reassuring smokers (Francey and Chapman, 2000). Again, it was reported that Philip Morris agreed to establish three working parties to deal with the social acceptability of smoking, the benefits of smoking, and other possible causes of alleged smoking related diseases (Anon, 1977). This conspiracy resulted in the formation of the International Committee on Smoking Issues (ICOSI) and subsequently the International Tobacco Information Centre that operated through an internationally coordinated network of national manufacturers' associations to retard tobacco control measures throughout the world.

The industry also recognized that the passive smoking issue impacted negatively on the social acceptability of smoking, as increasingly, smoking was being pictured as socially unacceptable. Empirical evidence suggested that passive smoking endangers non-smokers (Bornhäuser et al., 2006). For instance, non-smoking women married to smokers had a higher risk of dying from lung cancer than non-smoking women married to non-smokers (Garfinkel, 1981; Trichopoulos et al., 1981; Hirayama, 1981). During the 1980s, research on passive smoking rapidly accumulated along with major consensus reports by the National Academy of Sciences' National Research Council, and the Surgeon General confirmed report that second hand smoke (SHS) endangers children and causes lung cancer in adults (International Agency for Research on Cancer: IARC, 2004; Hackshaw et al., 1997). Having listed passive smoking a major

source of respiratory problems in children in 1992 by the Environmental Protection Agency, the tobacco industry's effort to offset the evidence was to fund scientific research specifically designed to refute claims about the health effects of passive smoking (Bero, 2003).

Attempts to undermine the scientific evidence on passive smoking and maintain a normative smoking environment developed into part of a wider global strategy. Massively funded consultancy programmes designed to attack the science of SHS have been bankrolled by the tobacco industry in the USA (Muggli et al., 2003), Europe (Nemery and Piette, 1998), Latin America (Barnoya and Glantz, 2002) and Asia (Assunta et al., 2004). In 1995, Philip Morris's global budget for regulatory affairs (i.e. mainly to attack restrictions on smoking) was about $US 91 million. Other funded industry's special projects related to SHS through CTR include purposefully generating data that could be used on the tobacco industry's behalf. Reports in the Lancet exposed how scientists in the pay of the industry attempted to infiltrate the biggest European study conducted by the International Agency for Research on Cancer on the effects of SHS and succeeded in misrepresenting the study's findings (Ong and Glantz, 2000). The 10-year study found a 16% increased risk of lung cancer for non-smokers, a result consistent with earlier studies. The study was reported in the media however as showing no increase in risk, following the intervention of tobacco companies.

Evidence suggesting that tobacco advertising exposure is also associated with perceptions about smoking prevalence and peer approval of smoking as well as likelihood that adolescents will start to smoke (Henriksen et al., 2002; Lovato et al., 2003), supported a ban on tobacco promotion and advertising. Indeed, studies that utilised tobacco brands found that participants viewing the Benson & Hedges

advertisement described it as relaxed, cool, rich and classy (Donovan and Jones, 2002). Similarly, another study revealed that up to 90% of US 6 year olds were able to recognise the cartoon character Joe Camel advertisement (Fischer et al., 1991). These ads have the potential to increase positive brand user imagery directly, amplify their perception of prevalence and decision to smoke (Peters et al., 1995; Wakefield et al., 2006).

This is reflected in the UK's government statistics showing that by the age of 15years, 47% of boys and 53% of girls will have at least tried a cigarette (Department of Health, 1998), being influenced by predictive factors such as tobacco advertising and promotion (Pierce et al., 1998; Donovan et al., 2002; Lovato et al., 2003; Centers for Disease Control and Prevention, 2005). Thus, social advertising such as anti-tobacco 'truth' campaigns have been used to make smoking appear to be socially undesirable (Goldman and Glantz, 1998).

Even so, industry documents showed that tobacco companies recognised the importance of the cigarette pack display as a means of promoting brand awareness:

"The aim of the exercise is instant recognition: (Horizon) along with Benson & Hedges, that's given us full gold and blue blocks on display and that helps our brands stand out." (Swanton, 1998).

Recognizing the power of tobacco advertising as a means of communicating brand imagery, and thereby making smoking a socially desirable behaviour (Wakefield et al., 2002), the industry pursued a strategy of commissioning third-party surrogates in the light of the advertising ban, who submitted their work to scientific journals without disclosing their conflict of interest (DiFranza et al., 2006). Several authors asserted that tobacco promotions do not encourage youth to smoke (Jenkins, 1988; Moschis, 1989; Smith, 1990; McDonald, 1993; Boddewyn, 1986; Mizerski, 1995;

Sullum, 2002). For example, Jenkins' (1988) study arguing that tobacco promotion has no effect on children, appeared in the International Journal of Advertising without mentioning that the report was planned and funded by the Canadian Tobacco Manufacturers' Council (Jenkins, 1988). Sullum (2002) argued that even if promotions harm children, they should not be restricted. But industry's internal documents revealed that each of the authors who disagreed with conclusion on tobacco promotion and advertising effects on youth smoking has worked closely with the tobacco industry (Young and Moschis, 1989; Smith, 1990; McDonald, 1993; Boddewyn, 1986; Mizerski, 1995). Industry's consultants asserted that children who are between 8 and 17 years of age consume only an estimated 4% of all tobacco (Millar and Peterson, 1989; DiFranza and Tye, 1990; DiFranza and Librett, 1999). So, a ban on tobacco promotion, even if it resulted in an immediate and substantial reduction in existing smokers in this age range, they claimed would have only a tiny immediate impact on total cigarette consumption. Tobacco advertising and promotion ban, they argued would not eliminate existing underage smokers but likely reduce only the number of new smokers. They noted that since youth take an average of two years to progress from their first puff to smoking as much as a single cigarette per day (DiFranza et al., 2002), a decrease in the number of new smokers would have a negligible impact for several years on the quantity of tobacco smoked by youth.

1.4   Tobacco Denormalisation

The foregoing historical account has revealed a growing concern about the health consequences of smoking and attempts to reduce prevalence by a variety of means, especially since the 1950s. However, these attempts have been consistently countered by the tobacco industry. Essentially, both parties, i.e. governments and the tobacco

industry have recognized the potential value of focussing on social norms either by changing smokers away from smoking or encouraging potential smokers to believe that smoking is a normal behaviour.

Public health concerns for instance, about the health hazards of smoking (National Research Council, 1986; USDHHS, 2004) and social acceptability of smoking (Ling and Glantz, 2004) have made comprehensive regulation such as smoke free places, tobacco marketing ban, health warnings on cigarette packs and increased taxes more politically acceptable, and from the industry's perspective, ever more constraining. Tobacco industry documents, as mentioned earlier revealed the significance of social acceptability of smoking in the progression toward regular smoking, as well as the maintenance of smoking behaviour among established smokers (Ling and Glantz, 2002, 2004; Pollay, 2000). The tobacco industry for instance, has recognized since the 1970s that declining social acceptability of smoking for example, creates an environment where non-smoking is the normative and desirable lifestyle, and is the most serious problem it faces (Glantz, 1987; The Roper Proposal, 1972). This decline has been accelerated by the evidence, which started accumulating in the 1970s, that passive smoking endangers non-smokers (Dearlove et al., 2002; USDHHS, 1986, 2000; US Environmental Protection Agency, 1992; California Environmental Protection Agency, 1998) and hence facilitating smoke free legislation. More so, tobacco industry's concern for this decline have been reinforced as studies show that tobacco advertising influence perceived smoking prevalence by significant others (Wakefield et al., 2006), which is predictive of adolescent smoking uptake and progression (Pierce et al., 1998; Beiner and Siegel, 2000; Choi et al., 2002). The industry acknowledges that declining social acceptability increases voluntary quitting and weakens the industry's ability to develop allies (Dearlove et al., 2002; Ling and

Glantz, 2002). Indeed, report showing that tobacco products in retail outlets convey to young people that tobacco use is desirable, socially acceptable in society (Wakefield et al., 2006), is as well supportive of measures to restrict industry's marketing activities and denormalise smoking.

Public health efforts have in recent times focused on 'denormalising' smoking by advocating for comprehensive tobacco control programs and policies, so as to make smoking socially unacceptable and less normative. Initially, efforts to 'denormalise' smoking employed strategies that sought to change the broad social norms around smoking by pushing tobacco use out of the charmed circle of normal, desirable practice to being and an abnormal practice (California Department of Health Services, 1998), with remarkable success in reducing youth smoking (Sly et al., 2001, 2002). This approach, *denormalisation*, uses the revelation of accurate information about the environmental context in the form of population or group norms to reduce problem behaviour and enhance protective behaviour (Perkins, 2003, p.6). It asserts that providing accurate information about drug, alcohol, or tobacco use within referent groups will correct individuals' erroneous perception regarding the prevalence and acceptability of that behaviour (Perkins and Berkowtiz, 1986; Wechsler et al., 2003), and subsequently reduce the problem behaviour. The approach has been extended to include the tobacco industry's deceitfulness also termed 'tobacco industry denormalisation', with the object of raising people's awareness of the responsibility of the tobacco industry for tobacco related diseases and exposing the industry's manipulative tactics (Mahood, 1997, 2003). Tobacco Denormalisation, generally, involves efforts to change social norms of smoking and expose the industry's deceitful activities, leading to a corresponding change in smoking behaviour.

1.5   Aims and Objectives of the Study

The preceding discussion and historical account shows that governments, with the help of tobacco control advocates have come round to believing that public policy has an important role to play in shaping social norms around tobacco use. The aim of this research is to investigate how, if at all, public policies influence social norms. Tobacco control is used to explore this relationship and to establish whether and how this is true. For instance, did the introduction of the smoke-free policies in Scotland influence social norms about smoking, and did this in turn influence smoking behaviour? The objectives of this thesis are:

1. To examine the effect of a tobacco policy related measure (support for smoke-free legislation) on adult smokers' perceived social unacceptability of smoking, one month pre-ban and one year post-ban.

2. To investigate whether support for smoke-free legislation and perceived social unacceptability of smoking, increase quit intentions post-ban.

3. To examine the effect of tobacco advertising and promotion awareness on smoking intentions before, during and after the TAPA, through the effect of perceived prevalence, approval, and benefits.

4. To investigate the indirect effects of tobacco advertising and promotion awareness on intentions, via the moderation of perceived prevalence by benefits.

5. To examine the effect of normative influences on smoking intentions.

6. To investigate the effect of the perceptions of smoking restrictions on normative beliefs of adolescents' future smoking intentions.

7. To explore adolescents' perceptions of the effectiveness of tobacco control measures on social norms and smoking behaviour in the UK.

In the light of the first two objectives, the International Tobacco Control (ITC) Scotland/UK Survey is used to examine nationally representative samples of adult smokers, in Scotland and the rest of the UK. The ITC Scotland/UK Survey was a quasi-experimental longitudinal telephone survey that used nationally representative samples of smokers and non-smokers aged 18 years or older, in Scotland and the rest of the UK who were interviewed before the Scottish law (February to March 2006) and 1 year later after the law (March 2007) prohibiting smoking in public places. Participants were recruited by geographically stratified probability sampling with telephone numbers selected at random from the population of each country. These participants were part of a larger cohort study, the ITC Policy Evaluation Project (Fong et al., 2006). This Project was mainly designed to evaluate the psychological, behavioural and product-related effects of national-level tobacco policies that will be initiated or are enacted in one or more of the four countries: United States, Canada, United Kingdom, and Australia in the next few years. Currently, team members (over 50 independent investigators) are conducting studies in 20 countries. The ITC Project focuses not only on whether a given policy has its desired effect, but also on how and why those policy effects are achieved.

This research employs the ITC Scotland/UK data to examine whether nationally representative samples of smokers are influenced by the comprehensive smoke-free laws that cover, without exception, an entire nation (i.e. the legislation covers all of Scotland, with no local level regulatory variations), using the rest of the UK as a control group. This enables comparisons to be drawn with these countries that have, aside from smoke-free laws, very similar tobacco control policies to Scotland at the time of the study. In terms of smoke-free laws, a comprehensive nationwide smoking ban, including restaurants and public houses (pubs), came into effect in Scotland in

March 2006. For the rest of the UK, smoke-free legislation was implemented approximately twelve to fifteen months after the Scottish ban.

With regards to objectives three and four, this study employs three waves of the UK Youth Tobacco Policy Study (YTPS) data to examine the effects of the tobacco marketing awareness on youth smoking intentions, via their normative influences, before, during, and after the Tobacco Advertising and Promotion Act (TAPA). The YTPS survey is a long-term study monitoring youth smoking and reaction to tobacco marketing prior to and after the TAPA in the UK. At each survey wave a cross-sectional sample of 11 to 16 year olds are drawn from across the UK, using random location quota sampling. The first wave was conducted in Summer 1999 (three and a half years pre-ban), the second in Summer 2002 (six months prior to the main advertising ban and nine months prior to the main promotion ban) and the third in Summer 2004 (13 months after the promotion ban and 16 months after the advertising ban, but six months before point of purchase [POP] restrictions). The fourth wave was conducted in Summer 2006 (12 months after the final phase of the ban on international sponsorship, 18 months after POP restrictions, 37 months after the promotion ban and 40 months after the advertising ban).

For the purposes of this study only waves two to four of the UK YTPS data are used to examine the impact of the TAPA. Pivotal to the UK's tobacco control strategy is the Tobacco Advertising and Promotion Act, implemented between February 2003 and July 2005, prohibiting most forms of tobacco marketing. Specifically, between February and July 2003 the TAPA banned advertising on billboards, cinemas and in print media, as well as prohibiting direct mail and on-pack promotions and domestic tobacco sponsorship. In December 2004 restrictions were placed on point-of-sale advertising (limiting the size of advertising in-store to A5) and finally a ban on brand

sharing and international sponsorship came into effect in July 2005. The TAPA is intended to reduce tobacco consumption and might additionally convey changing social norms of smoking, and is important given the dose response relationship between adolescent tobacco marketing awareness and smoking uptake (Straub et al., 2003).

To address objectives five and six the UK Youth Tobacco Policy Study is employed to examine if any, the effects of perceptions of smoking restrictions on normative beliefs of adolescents' future smoking intention; and effect of normative influences on smoking intention. Finally, focus group research is used to explore how adolescents' perceptions of several tobacco measures influence social norms and smoking behaviours in the UK. To the extent that there is paucity of qualitative research exploring whether and how tobacco control measures affect social norms and smoking behaviours, we address this gap by examining adolescents' perceptions of the effectiveness of several of these measures on social norms of smoking.

1.6 Structure of the Thesis

Following this section, chapter two establishes the origins of the social norms concept also termed '*denormalisation*', as an effective norm-based intervention to preventing drug, alcohol and tobacco use. Case studies are then used to demonstrate that the approach has been successfully employed in classroom and college settings to influence health behaviour change.

A broader perspective of this approach is needed however in order to address public health issues at a societal level. In chapter three, tobacco control is used to demonstrate how this broader perspective can be achieved by establishing that tobacco policies can influence behaviour and norms, and recognizing that a

comprehensive approach is needed. Given that the definitions of norms are unclear and vague, a clear conceptual definition of 'tobacco denormalisation' that encompasses the tobacco industry's deceitfulness and social norms of smoking is provided. The chapter then presents a review of tobacco policy and how it impact norms and smoking behaviour.

In chapter four, the research gaps in the literature are identified, followed by the study objectives, hypotheses, research questions and a proposed research framework that will further contribute towards the topic under investigation.

The conceptual and operational methodology employed in this thesis is addressed in chapter five.

Analyses and discussion of the ITC Scotland/UK study and UK Youth Tobacco Policy Study are presented in chapter six.

Chapter seven presents findings and discussions of the focus group study which explores how adolescents' perceptions of current tobacco control measures affect social norms and smoking behaviour in the UK. Finally, chapter eight provides conclusions, policy implications for health advocates and policy makers, and directions for future research. Figure 1.2 outlines the thesis structure which comprises eight chapters. The review now focuses on establishing the origins of the generic concept: 'denormalisation' in the next chapter, and show that the approach has been successfully used in classroom and college settings to influence health behaviour.

Figure 1.2 Outline of the Study

Chapter 1
INTRODUCTION, THE THESIS, OBJECTIVES AND STRUCTURE
Chapter 2
SOCIAL NORMS DO CHANGE BEHAVIOUR
Chapter 3
TOBACCO DEMORMALISATION: THE ROLE OF POLICY AND COMPREHENSIVE STRATEGY
Chapter 4
THE RESEARCH FRAMEWORK
Chapter 5
RESEARCH METHODOLOGY: EPISTEMOLOGY AND CHOSEN METHODS
Chapter 6
QUANTITATIVE FINDINGS: HOW POLICY, NORMS AND BEHAVIOUR INTERACT
Chapter 7
QUALITATIVE FINDINGS: HOW YOUNG PEOPLE RELATE TO POLICY AND SOCIAL NORMS
Chapter 8
CONCLUSIONS, FUTURE RESEARCH, AND LESSONS LEARNED

CHAPTER TWO

2.0   Introduction

In chapter one the relationship between public health policy, social norms and health behaviour was explained. Tobacco control was used as a case study to establish how public policy can operate to influence smoking norms and behaviour. The chapter started with the emergence of social norms of smoking, followed by the potential role of tobacco control measures to transform smoking norms and reduce smoking behaviours. The chapter then introduced the conceptual synthesis and an outline of the aims and objectives of the research.

This chapter demonstrates that social norms have been successfully used in classroom and college settings to influence health behaviour. The chapter establishes the origins of the generic concept: 'denormalisation' as an effective norm-based intervention to preventing drug, alcohol and tobacco use, and therefore a sensible focus for this thesis. The chapter is divided into three sections. Section 2.1 provides a conceptual definition and reviews the theoretical underpinnings of denormalisation, demonstrating that it is a well established intervention approach based on the social norms theory. Section 2.2 presents case studies to show that both the theoretical underpinnings and conceptual definition have been successfully used in classroom and college settings to influence health behaviour change. Finally, a summary of the chapter is provided in section 2.3.

2.1   Social Norms Do Change Behaviour

The study of normative influences on both thought and behaviour is a clearly established area of research in the social sciences (Aarts and Dijksterhuis, 2003; Goldstein et al.,

2006; Terry and Hogg, 2001). Norms are essentially fundamental to understanding social order and variation in behaviour (Campbell, 1964; Durkheim, 1951). Indeed, over the past decade there has been a progressive increase in programs that have delivered normative information as a primary tool for changing socially significant behaviours, such as alcohol consumption, drug use, disordered eating, gambling, littering, tax evasion and recycling (Donaldson et al., 1994; Larimer and Neighbors, 2003; Neighbors et al., 2004; Kahan, 1997; Schultz, 1999). This section provides a conceptual definition for the social norms approach or also termed '*denormalisation*', to better understand the role of norms in influencing health behaviour change.

For theoretical reasons the generic concept *denormalisation* is used interchangeably in this study as social norms approach (SNA; Perkins and Berkowitz, 1986), commonly referred to as normative influence (Cialdini et al., 1990; Deutsch and Gerard, 1955), subjective norms (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975), norm setting (Hansen, 1992) or simply norms (Bendor and Swistak, 2001), to elucidate the underlying mechanism by which these normative perceptions influence health behaviours. *Denormalisation* is conceptualised as providing accurate information to correct misperceptions about the prevalence of referents' behaviour (a descriptive norm; Neighbors et al., 2004; Haines and Spear, 1996; Perkins et al., 1999) and beliefs about approval or disapproval by significant others (an injunctive norm; Reno et al., 1993; Deutsch and Gerard, 1955; Kallgren et al., 2000; Cialdini et al., 1990), and thereby establish conservative group norms (Hansen, 1992).

According to Perkins (2002) individuals tend to act in accordance with group expectations and behaviours by reason of adopting group attitudes based on affiliation

needs and social comparison processes (Festinger, 1954), social pressure toward group conformity (Asch, 1952), and the formation and acquisition of reference group norms (Newcomb, 1943; Newcomb and Wilson, 1966; Sherif, 1936, 1972). In many situations, people's perception about group attitudes and behaviours that are normal, acceptable, or even expected in a particular social context will greatly influence their behaviour. Thus, group norms could be considered as a powerful independent factor accounting for or determining individual behaviour, through the influence of much belief and action in addition to a descriptive characterization of the status quo (Perkins, 2002).

Research has found that perceptions of both descriptive and injunctive norms can be inaccurate in several ways. The, *false consensus* effects, reveals that the tendency for individuals to inaccurately conclude that other people's attitudes or behaviours are similar to their own, can occur (Marks and Miller, 1987). Individuals engaging in heavy episodic drinking or smoking, for instance, are likely to think that most others consume or smoke as much as they do, and will use this belief to justify their behaviour. Then again, *false uniqueness* effects can occur as individuals inaccurately conclude that their behaviour or attitudes are dissimilar from others (Marks, 1984).

As described by Larimer and Neighbors (2003), research across a range of health and social behaviours has demonstrated a link between perceptions of descriptive and injunctive norms and individual behaviour. Perceived descriptive norms have been found to be associated with a variety of socially significant behaviours such as alcohol use and abuse (Baer et al., 1991; Perkins et al., 1999; LaBrie et al., 2008, 2009), littering (Cialdini et al., 1990) and condom use (Buunk et al., 1998). Research examining college student drinking for instance, has shown that students who report higher perceived descriptive

norms for alcohol use among their peers also report heavier drinking themselves (Borsari and Carey, 2000; Lewis and Neighbors, 2004). Misperceived norms have also been found to appear consistently for all other types of drugs in substance use research (Perkins et al., 1999) as well as across subpopulations categorized by gender, ethnic group, residential circumstances and affiliation (Baer and Carney, 1993; Baer et al., 1991; Borsari and Carey, 1999), and in state-wide populations of young adults (Linkenbach and Perkins, 2003a). Similarly, research have found perceived injunctive norms to be associated with social behaviours such as littering and aggression (Cialdini et al., 1990; Reno et al., 1993), alcohol use and other unhealthy behaviours (Berkowitz and Perkins, 1986). Social norms, for this reason represent a powerful source of influence on human behaviour in the field of social psychology (Cialdini et al., 1990; Fishbein and Ajzen, 1975).

2.1.1 Emergence of Social Norms Approach

The origins of the development in the prevention field of the social norms approach commenced with research documenting misperceptions about peer norms (Perkins and Berkowtiz, 1986) followed by proposals for practical application of these findings (Perkins and Berkowtiz, 1986; Hansen, 1992), and a comprehensive theoretical model of the preventive approach (Perkins, 1991, 1997). The rationale for this approach was the demand for a science-based evaluation in view of the pervasive lack of impact from traditional substance abuse strategies (Bruvold, 1993; Perkins, 2003), and the impressive emerging data on reduction in substance abuse and other related problem behaviours achieved through social norms strategies (Hansen, 1992; Perkins, 2003). Basically, the social norms theory proposes that misperceived norms are formed as individuals conform

to erroneously perceived group patterns as they wish to or feel pressured to follow imaginary peers (Perkins, 2003). In accord with this theory, an individual's behaviour is influenced more by incorrect perceptions of how other members of a referent population think or act (the *perceived norm*) than by their real beliefs and actions (the *actual norm*). According to Berkowitz (2004) the gap between *perceived* and *actual* norm is referred to as misperception and its effect on behaviour provides the basis for the SNA. For instance, an individual may overestimate the permissiveness of peer attitudes and/or undesirable behaviour such as drug, alcohol, or tobacco use, or underestimate the extent to which peers engage in healthy behaviour (Prentice and Miller, 1993; Borsari and Carey, 2003). The theory predicts that overestimations of problem behaviour will increase these problem behaviours while underestimations of healthy behaviours will discourage individuals from engaging in them (Berkowitz, 2004). Thus, individuals use their perceptions of peer norms as a standard against which to compare their own behaviours (Baer et al., 1991; Clapp and McDonell, 2000). Therefore, an essential element of an SNA campaign is providing normative feedback to correct targets' misperceived norms within a referent population so as to reduce the occurrence of deleterious behaviours or increase prevalence of healthy behaviours.

In essence employing a *denormalisation* strategy in a drug, alcohol or tobacco use prevention programme necessitates utilising normative approaches. This involves gathering credible data from a target population and using various health communication strategies to consistently inform the at risk population, the truth about its actual norms of health, and avoidance of risk behaviours (Haines et al., 2005). With repeated exposure to a variety of positive, data-based messages, the misperceptions that helped to sustain

problem behaviour are reduced, and a greater proportion of the population begin to act in accord with the more accurately perceived norms of healthy lifestyle (see figure 2.1).

Figure 2.1   Social Norms Approach Model of Health Promotion
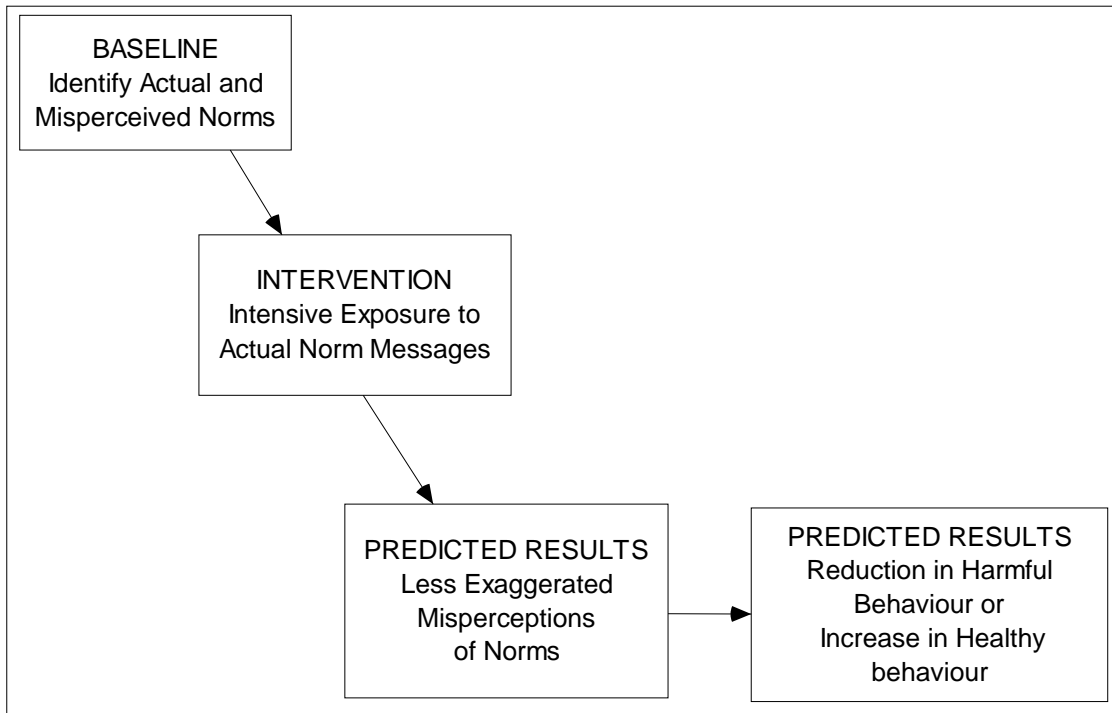
Source: Perkins, 2003

An in-depth description of the steps involved in a social norms campaign suggested by Berkowitz (2003c), Haines (1996), Johannesesen et al. (1999), Perkins (2003) and Linkenbach (2003) is provided below to illustrate the mechanism underlying how individuals' exaggerated perceptions might be altered which consequently helps them to change their behaviour.

Data Collection

The first step in a social norms campaign involves conducting a survey to ascertain the prevailing norms of conduct, i.e. gather information regarding the proportion of the target population who actually engage in the risky or unhealthy behaviour as well as their perceptions about the proportion of the target population who are involved in the risky behaviour (Perkins, 2003). This process leads to message creation based on the survey results. A social norms approach thus becomes an appropriate means for intervention provided the following conditions are satisfied:

- The findings of the survey should demonstrate that misperceptions exist between actual behaviour and perceived behaviour. Thus, there should be a difference between what people do and what they think other people do or believe. This difference must be a misperception in the direction of overestimation of problem behaviour. It is worth noting that if the survey reveal that there is no difference then the social norms approach becomes inappropriate. However, there is almost always a difference which sometimes ought to be uncovered using a more sensitive instrument.

- Majority of the population, i.e. at least 50 percent must conform to the healthy behaviour. As such a social norms approach might not be the most appropriate intervention if more than 50 percent of the population engage in unhealthy behaviour. This is because a social norms campaign presumes that individuals would conform to normal behaviour. So if most of the individuals (i.e. over 50%) are involved in the problem behaviour, a social norms message campaign might encourage the harmful behaviour. But it is worth noting that a proper

methodological approach to a social norms campaign will most certainly reveal that misperceptions exist in the target population.

To establish the baseline levels of actual behaviour and misperceptions within a population, internet surveys are often used because this have been found to generate substantial response rate especially among college students as they are familiar with the technology. Alternative methods of administering a survey are phone surveys, personal interviews, or mail surveys. The survey process includes: (i) planning, (ii) deciding on topics to be covered and when to administer the survey, (iii) questionnaire development, and (iv) providing incentives, i.e. individual rewards (cash or coupons) and lottery rewards to increase response rates.

Prior to the survey administration personalized letters are sent to respondents stating the aims of the research, how long the survey will be active, e.g. as with internet surveys, access information, what to expect such as cash rewards, confidentiality of the information provided, and contact information for the researchers. Repeat emails or letters are sent to remind and persuade respondents who might not have completed the survey to do so and thereby increase response rates.

Campaign Development

The second step after the survey involves analyzing the data and looking for patterns and inconsistencies between actual behaviour, attitudes and perceived norms. Provided significant differences between actual and perceived norms are identified, e.g. if the majority of students (over 50%) adhere to a healthy norm; then this is used in the next round of message creation. For example, a statistic suggesting that college students consumed 0-4 drinks the last time they partied, but they believing that the average student

consumed 5 or more drinks, could be used to develop a message such as, "Most students drink 0-4 drinks when they party," to correct the misperceived descriptive norm. The results from the survey could also reveal injunctive norms statistic, i.e. "Majority of students think passing out from drinking too much is unacceptable."

These exploratory messages are then pre-tested on small student groups in order to refine them before presenting these to the entire population. The pre-testing stage also involves examining which messages are most socially acceptable within the target group, which are believed to be the most effective and true.

Believability

Third, a campaign message which has the highest believability serves as reinforcement but should not be considered a sufficient condition for an effective campaign. Believability of a campaign message, if low, can probably have an impact on the desired behavioural change on account of lack of message persuasiveness. On the other hand, if believability is extremely high, e.g. most of us (over 90%) do not drink, the message is likely to be perceived as not challenging and this might not help students change the problem behaviour. So rather than considering extremely high believability, a social norm campaign message should aim for believability above 50% (Smith et al., 2006). After selecting a believable campaign message, a normative delivery strategy (i.e. appropriate promotional tools that can reach the target audience) and the required dosage (frequency of exposure needed to effect perceptual change) are used to communicate the message to the audience.

Evaluation

The final step involves performing an evaluation of the social norms campaign to measure whether or not it was successful. Key elements assessed are the outcome and impact of the campaign on the target population and cost and benefits analysis in terms of the cost effectiveness of a program.

An important measure assessed is whether or not perceptual change occurred? As a social norms approach is based on correcting misperceptions before changing behaviour, a healthy behavioural outcome are thought to occur as an outcome of corrected perceptions. The campaign objective most often is to help the target population understand the prevailing normative behaviour, e.g. most of their peers do not engage in heavy drinking, in order to correct their misperceived norms and encouraged them to practice a healthy normative behaviour. The campaign can therefore be said to be consistent with a social norms approach if there is a reduction in misperceptions. If misperceptions are reduced (i.e. changes in misperceptions occurred), then the extent to which these changes occurred and the degree to which one can believe that these changes are associated with the campaign becomes issues of concern.

Usually, the campaign results are compared with national averages to ascertain the findings of the social norms campaign. Also, the potential reach of the campaign message to its target audience and the frequency of exposure (e.g. a proper dosage of message exposure) can help predict the strength of the intervention as a consequence of positive health outcomes. The evaluation process thus assesses campaign effectiveness and provides new ideas for the campaign.

Although the theory of social norms makes intuitive sense to many health prevention specialists in contrast to other approaches (i.e. fear approaches) which may have failed to produce results, implementation is difficult and requires a significant amount of preparation to ensure that an infrastructure is available that can deliver a quality intervention (Berkowitz, 2005). A review by Johannessen and Dude (2003) indicated that elements of 'preparedness' or 'readiness' should be incorporated in the campaign. These are: 1) training key stakeholders and staff in the model, 2) creating support and discussion in the larger community, 3) revising policies that may foster misperceptions, 4) collecting and analyzing data, and 5) training and supporting project staff to implement the model properly.

Similar to the above suggested approach, Fabiano (2003) demonstrated that the stages of implementing a social norms media campaign can be grouped into six phases namely: data collection, selecting the normative message, testing the message with the target group, selecting the normative delivery strategy, dosage of the message; and evaluation of the effectiveness of the message. The author asserted that adhering to this six-stage approach would reduce unsuccessful normative campaign. For example, participants are likely to question initially the validity of survey data because of misperceptions they hold, but will rethink their assumptions if the data are reliable and presented in an open manner. In contrast, unreliable or confusing survey data may be rejected and in the end undermine the campaign and reinforce misperceptions (Berkowitz, 2005). Similarly, media content that are confusing or unappealing, presented by unreliable sources, or not presented in sufficient doses will not have an impact. In the same vein, negative

comments and criticisms made by key stakeholders or by sharing their own misperceptions might also undermine normative campaigns.

Haines (1997) affirmed the above assertion by suggesting that a normative message should be positive, inclusive, believable, and empowering because misperception is so greatly entrenched and reinforced by culture. The message should favourably inform the target population that, for the most part, they are engaging in healthy behaviour and incorporate everyone in the target population by being embracing, involving, and comprehensive. The objectives of the message development can be threefold: primary, secondary, or tertiary. Primary prevention should involve targeting the population at large and seek to address people before they engage in a high-risk behaviour. One demonstration of this is the Montana's message: "Most (70%) of us are tobacco free", targeting teen's initiation of smoking in seven western Montana's counties. Secondary prevention should focus on people who are already engaging in a certain risky behaviour and attempts to reduce risks. An example is the Montana's "Most (81%) of Montana college students have four, fewer, or no alcoholic drinks each week". Finally, tertiary prevention should target intervention and cessation. A message type demonstrating this is the "Most (70%) of Montanans who have successfully completed substance abuse treatment reported no substance abuse after one year".

Strategies for delivering data-based messages include print media campaigns (posters, billboards, targeted newspaper articles and ads, and mailings to specific populations), television and radio announcements, computer media communications, and classroom presentations (Perkins, 2003). As individuals begin to adhere to more accurately

perceived norm of substance use, misperceptions declines among the target population and the level of actual substance use in the population declines.

2.1.2   Social Norms Approach: Theoretical Synthesis

A number of theories proposed by Perkins (1991, 1997, 2002a) to explain the causes of misperceived norms was based on attribution theory, social conversation mechanisms, and cultural media predicting that these misperceptions would be formed among most populations in all peer-intensive environments. First, there is the general social psychological tendency to erroneously attribute observed behaviour of other people to their disposition (i.e. to view it as indicative of their essential character), and to think the behaviour is typical of the individual when the action cannot be explained by specific knowledge of the social context or by how others usually behave most of the time. Therefore, when observing a peer engaged in substance abuse, we have a propensity to assume it is characteristic of that individual (i.e. what the individual normally does) unless we know for a fact that it is not (Haines et al., 2005). For instance, individuals form misperceived norms as a minority of peers are observed engaging in highly visible problem behaviour (such as public drunkenness or smoking) and when this extreme behaviour is remembered more than responsible behaviour that is more common but less visible (Perkins, 1997).

Second, our conversation mechanisms routinely reflect the fact that an extravagant behaviour of an individual or few people under the influence of alcohol or other drugs is easily noticed and remembered (Haines et al., 2005). According to Perkins (1997) individuals do not collect information from a cross-section of peers in social gathering

and reflect on it casual conversation rather they often attend to what is unusual, vivid, or aberrant. For instance, young people recounting a weekend party are likely to focus on how wasted a few of their peers were rather than talk about less noticeable majority who did not drink, use drugs, or act out. The tendency is to recall the most vivid behaviours and then conversation gravitates to the extreme incidents, in the end making them seem more common than is really the case (Perkins, 2003).

Finally, cultural media such as music, film, and the news reaffirm and amplify these exaggerations. The public are bombarded with words and images from films and music that depicts and glamorizes drug, alcohol and tobacco use making it appear to be more common than it is among most peers. Also the news media and community forums provide headline attention to the problem behaviour among individuals, instead of highlighting the healthy majority who are usually not considered as newsworthy. Perkins (2003) argued that as the cultural dimensions focuses on the problem behaviours, the fact that it is a statistical minority gets lost and a picture quickly emerges in the public consciousness that "it is what most people do". Left unchallenged, these distortions of the truth become greater over time and the acceptable norm in a referent population. Based on the social psychological theories of conformity, peer identity formation, and cognitive dissonance, such misperceptions is likely to have substantial consequences on personal use (Perkins, 1997). As Merton (1948) asserts, 'it is a sociological dictum that if a situation is perceived as real, it is real in its consequences; perception of reality can ultimately produce behaviour leading to a self-fulfilling prophesy'.

2.1.3   Descriptive and Injunctive Norms

Basically two main types of norms, one of which is descriptive norms, was the first to be theorized (Perkins and Berkowtiz, 1986). The second type of normative influence, namely injunctive norms, was conceptualised by Cialdini et al. (1991). Descriptive norm is considered as "individuals' belief about how widespread a particular behaviour is among their referent others" (Rimal and Real, 2003, p. 185) or "beliefs about what is actually done by most others in one's social group" (Lapinski and Rimal, 2005, p. 130). The authors argued that descriptive norms provide information about the strength of the norm. In this vein, the behaviour of significant others motivates an individual by showing him or her what is the typical or normal thing to do, and what is likely to be an effective and adaptive decision (Reno et al., 1993; Deutsch and Gerard, 1955). Thus, the tendency that individuals will believe that engaging in the behaviour is normative, that is, within the prevailing norms of conduct is strengthened, as a consequence of greater perceptions of the prevalence of that behaviour. The underlying principle is that individuals' perceived prevalence of behaviour may not be accurate; as research undoubtedly has shown that they are often not (Perkins and Berkowitz, 1986; Ross et al., 1977). On the other hand, injunctive norm refer to the extent to which some population approves or disapproves of a given behaviour (Triandis, 1977; Reno et al., 1993; Kallgren et al., 2000; Borsari and Carey, 2003). Staub (1972) and Kallgren et al. (2000) argued that injunctive norms assist an individual in determining what is acceptable or unacceptable social behaviour. The distinction between the two types of norms is that injunctive norms indicate what ought to be done (Cialdini et al., 1990) whilst descriptive norms provide information about what is done. Previous research confirms this distinction by

demonstrating that the two types of norms lead to significantly different behaviour patterns in the same setting (Turner et al., 1987). Though injunctive norms might involve sanctions for non compliance descriptive norms typically do not; but both normative types can be congruent (Lapinski and Rimal, 2005). For instance, students may perceive that most of their peers drink (Perkins and Berkowtiz, 1986), and therefore not engaging in this behaviour might imply loss of friendships. Similarly, individuals attending a formal class lecture may notice that, because most others are silent and attentive (descriptive norms), they are required to act in a similar manner and that they will incur social sanctions if they do not comply (injunctive norms).

Both descriptive and injunctive norms can be considered at the collective or individual level (Lapinski and Rimal, 2005). At the individual level, descriptive norms pertain to individuals' beliefs about the prevalence or popularity of the behaviour among significant others or those whose opinions are valued. Similarly, personal level injunctive norms are conditioned, to a degree, by individuals' beliefs about the approval or disapproval of the behaviour in question by significant others (Park and Smith, 2007) or by respondent's perceived pressures to conform (Lapinski and Rimal, 2005).

Collective norms results from shared interaction among members of a social group or community (Bettenhausen and Murnighan, 1985) and provides prevailing codes of conduct that either prescribe or proscribe behaviours that members of a group can enact. At the collective level, information about descriptive norms may be gathered by observing media depictions' of trends surrounding a particular issue (Gerbner et al., 1994). Similarly, collective level injunctive norms may be collected by studying policies

enacted by specific communities to promote or proscribe a certain behaviour (Lapinski and Rimal, 2005).

However, higher levels of perceived prevalence will not necessarily equate to individuals engaging in the behaviour themselves (Cialdini et al., 1990; Rimal and Real, 2003). There are several situations were the two types of normative influences are not congruent (Cialdini et al., 1990). As the focus theory suggests, if only one of the two types of norms is prominent in an individual's consciousness it will exert the stronger influence on behaviour (Cialdini and Goldstein, 2004). Much of the evidence indicates for example, that injunctive norms are salient predictors of heavy drinking among college students. This relationship may however, depend on the reference group being examined (Borsari and Carey, 2003). The authors found that injunctive norms were more likely than descriptive norms to predict drinking behaviour and negative consequences of drinking. Similar conclusion was reached by Trockel et al. (2003) in an investigation of injunctive and descriptive drinking norms in fraternities, as did Larimer and Neighbors (2003) in a study of misperceptions of gambling norms.

Although both injunctive and descriptive norms are widely surveyed in social norms marketing campaigns, most successful SNA's have employed descriptive norms (Berkowitz, 2004). This probably explains why some SNA campaigns failed to produce substantial changes in behaviour (e.g. Clapp et al., 2003; Granfield, 2005; Peeler et al., 2000) and some increased undesirable behaviours and misperceived norms (Wechsler et al., 2003; Perkins et al., 2005). Schultz et al. (2007) claimed that a descriptive norms campaign supposed to reduce problem behaviour among the target group who engage in that behaviour at a rate above the norm, might at the same time actually serve to increase

the undesirable behaviour among individuals who engage in that behaviour at a rate below the norm. SNA campaign targeting heavy drinking behaviour might encourage students who previously drink less alcohol than the norm to consume more (Schultz et al., 2007). Therefore, as social norms campaigns are intended to reduce problem behaviour or increase pro-social behaviour, in situations where a SNA campaign based on descriptive normative information produce an undesirable boomerang effect, adding an injunctive message indicating that the desired behaviour is approved may possibly prevent that effect.

2.1.4   Social Norms Approach: Empirical Evidence

This section addresses published studies and programmes on normative approaches to show its effectiveness as a drug, alcohol and tobacco use prevention strategy. Several systematic reviews of drug, alcohol and tobacco use education campaigns have revealed that individual level interventions that are sustained by social influences theory, particularly where this includes normative approaches, are consistently more effective than programmes based on knowledge, 'scare tactics', self-esteem and other approaches (Bruvold, 1993; Hansen, 1992; Rooney and Murray, 1996; Sussman et al., 2004; Tobler, 2001; Tobler, et al., 2000). As Donaldson et al. (1996) assert if the perceived norm is to use drugs, individuals will be less likely to resist offers of drugs.

Given the power of social norms to correct misperceptions resulting in a reduction in actual instances of risky behaviours (Perkins and Berkowtiz, 1986), about 373 US colleges and universities reported in 2002 to have adopted the approach in some form to combat collegiate binge drinking (Wechsler et al., 2003). In most parts of the States,

positive research findings have been documented at small and large, and in both public and private schools. Following the initial success achieved at Northern Illinois University in reducing the incidence of heavy periodic alcohol consumption and related harm (Haines and Spear, 1996; Haines et al., 2003), a growing number of colleges and universities across the country have reported similar dramatic reductions after implementing their own social norms projects. Among these institutions are the University of Arizona (Johannessen and Glider, 2003), Hobart and Williams Smith Colleges in New York (Perkins and Craig, 2002), Western Washington University (Fabiano, 2003), Rowan University in New Jersey (Jeffrey et al., 2003), the University of North Carolina Chapel Hill (Foss et al., 2003, 2004), and the Virginia Commonwealth University that successfully used this approach to reduce the onset of tobacco among students (Hancock and Henry, 2003). At these schools, a reduction of 20% or more in high-risk drinking rates occurred within two years of initiating a social norms approach, and one case resulted in reductions of over 40% after four years (Berkowitz, 2004). Similar results for both tobacco and alcohol in social norms projects were reported by Haines et al. (2003) in two Mid-Western schools.

Several empirical studies also revealed that misperceptions are positively correlated with drinking behaviour or predict how individuals drink (Beck and Trieman, 1996; Botvin, et al, 2001; Clapp and McDonnell, 2000; D'Amico et al, 2001; Korcuska and Thombs, 2003; Kypri and Langley, 2003; Marks et al, 1992; Mattern and Neighbors, 2004; Page et al, 1999; Perkins, 1985, 1987; Perkins and Wechsler, 1996; Prentice and Miller, 1993; Sher et al, 2001; Steffian, 1999; Thombs, 1999; Thombs et al, 1997; Trockel et al, 2003). A review by Borsari and Carey (2001) concluded that misperceived norms of referent

others' drinking habits consistently predicts personal alcohol use, and to a lesser extent, alcohol-related problems. A number of documented evidence revealed that the overestimation of peer alcohol and cigarette use is widespread among students of middle and high school age (Botvin et al, 2001; Sussman et al., 1998; Thombs et al., 1997; Beck and Treiman, 1996), and that adolescent onset of use can be significantly delayed by reducing misperception of alcohol and cigarette use among peers (Haines et al., 2003; Perkins, 1992; Hansen and Graham, 1991). Perkins and Wechsler (1996), in a multi-campus study, found that perceptions of campus drinking climate explained more of the variance in drinking behaviour than any other variable. In two different studies conducted on the same campus, Perkins (1987) found that misperceptions predicted alcohol use and related problem use for students from different religious backgrounds. Similarly, Clapp and McDonnell (2000) noted that perceptions of campus norms predicted drinking behaviour and indirectly influenced drinking-related problems. In another study, the best predictors of alcohol use were misperceptions of alcohol use and social climate/context, which both predicted heavy drinking and negative consequences (Thombs et al., 1997; Beck and Trieman, 1996). A related study by Korcuska and Thombs (2003) showed that alcohol use intensity and drinking consequences were positively correlated with perceived norms for both 'close friends' and 'typical students'. Again, Page et al. (1999) found that overestimations of high-risk drinking were directly correlated with rates of high-risk drinking, especially among college men.

Perceptions of drinking norms at time one has also been found to predict drinking behaviour at time two in several longitudinal studies. Sher et al. (2001) found in a longitudinal study of fraternity drinking patterns that perceptions of heavy drinking in the

Greek system are largely responsible for the prevalence of heavy drinking among fraternity and sorority members. In another longitudinal study of over 1500 high school students, only perceived intensity of student alcohol use predicted behaviour change so that 'higher peer perceptions of alcohol use were associated with subsequent escalations of personal drinking' (D'Amico et al., 2001). A study of college freshmen found that men adjusted their drinking over time to fit the misperceived norm (Prentice and Miller, 1993).

Social norms interventions have also been found to accurately predict behaviour change at a later point in time. A norm-based intervention for middle school students, found that participants' estimates of the prevalence of alcohol use predicted their level of use one year later (Marks et al., 1992). Similarly, 'actual' perceived peer norms was the only outcome variable associated with continued reductions in high-risk drinking, in two years after a multi-component controlled middle school-based intervention to reduce high-risk drinking (Botvin et al., 2001). A review of the effectiveness of school-based interventions concluded that alcohol use was significantly reduced after one year among students who received any of the programs that included norm-focal component while those in the control group increased their alcohol use (Hansen, 1992).

Berkowitz (2004) explained that among the most comprehensive and thorough evaluations of social norm campaigns are those by Perkins and Craig (2002) and Foss and colleagues (2003, 2004). The social norms project described by Perkins and Craig (2002) began in 1996 at a college with higher than average alcohol use. The intervention combined a standard poster campaign with electronic media, class projects that developed parts of the campaign, interactive web site, and teacher training for curriculum infusion

and various evaluations were conducted to determine its effectiveness. Results from this normative project revealed the following: increases in drinking that normally occur during the freshman year were reduced by 21%; a campus-wide decrease in high-risk drinking during the previous week from 56% to 46%; and successive decreases in alcohol-related arrests over a four-year time period. In addition, there were reductions in misperceptions of use, heavy drinking at a party, and negative consequences associated with alcohol use (Berkowitz, 2004). Notably, surveys conducted at three time periods over five-year period showed successive linear decreases in all of these measures over time.

The body of evidence reviewed suggests that normative misperceptions exist, and that misperceptions are associated with unhealthy lifestyles such as heavy episodic drinking, drug abuse and smoking, and negative consequences from these behaviours. Findings of these problems behaviours have mainly been reported for drinking problems in correlational, longitudinal, and outcome studies with experimental and control groups. Similar findings have been reported for other problem behaviours, such as gambling (Larimer and Neighbors, 2003), HIV (Wu et al., 2007) and cigarette use (Hansen and Graham, 1991). It is worth noting that most successful social norms campaigns have used descriptive norms rather than injunctive norms. This might explain the underlying reason why some SNA campaigns failed to produce substantial changes in behaviour (e.g. Clapp et al., 2003; Granfield, 2005; Peeler et al., 2000) and some increased undesirable behaviours and misperceived norms (Wechsler et al., 2003; Perkins et al., 2005). As such, in situations where SNA campaign based on descriptive normative information produce

an undesirable boomerang effect, adding an injunctive message indicating that the desired behaviour is approved may possibly prevent that effect.

2.2   Case Studies

The basis of any SNA campaign is quantitative survey data that shows a disparity between what the target group reports as their actual norms, as compared to their perception of what they view as being normative of others in their referent population (Linkenbach, 2003). Results from such surveys which most often demonstrate that prevalent rates of the undesirable behaviour are overestimated tend to communicate the actual norm (mostly the majority norm) to the target population with the aim of reducing this risky behaviour. The subsequent sections present several case studies of substance abuse intervention approaches, one of which was applied in a state-wide environment to a young adult population, to demonstrate that the social norms approach is supported by practical experience that has help shape socially significant behaviours.

2.2.1   The Western Washington University (WWU) Social Norms Campaign

The extant literature has clearly demonstrated that the proportion of students engaging in heavy drinking can be reduced by changing their perception of drinking norms through the social norms campaigns (Perkins and Berkowtiz, 1986; Wechsler et al., 2003). Prior to the development of the social norms campaign in fall 1997, the Western Washington University was characterised as a campus where most students drink moderately or not at all, while some students engage in heavy episodic drinking (Fabiano, 2003). In particular, most students overestimated the frequency their peers drink. Hence, the WWU campaign was meant to address students who differed in level of involvement with alcohol,

consequences experienced, and decision-making strategies in their use and non-use of alcohol.

Data collection

A baseline survey in 1992 and 1997, prior to the initiation of the social norms campaign revealed that student alcohol use and consequences range from complete abstainers to those who typically drank a low-to-moderate amount of alcohol, i.e. one to four drinks on a typical occasion with no drinking problems, and those who drank heavily (five or more drinks on a typical occasion), and hence were at risk of drinking-related problems.

Moreover, a cross-sectional comparative analysis of the 1992 and 1997 cohorts indicated that the percentage of students in these groups remained the same. The proportion of students who noted that they did not drink at all in the last month remained almost statistically the same, i.e. 23.4% in 1992 and 21.5% in 1997. Again, the proportion of those who reported low-to-moderate drinking and those who reported heavy drinking remained statistically the same from 1992 to 1997, suggesting that a campus culture of moderate drinking existed among students (Meilman et al., 1999).

In addition to the above surveys, focus group research was conducted to clarify the complexity of decision making strategies within student use groups. Content analysis of the focus groups data categorised into men or women who were non-drinkers, moderate drinkers, or heavy drinkers provided further insight into student characteristics such as: (1) changes in student drinking between high school and college, (2) alcohol-related decision making strategies, (3) attitudes toward alcohol-free activities, (4) students' choices for substance free houses, and (5) perception of use among students in several alcohol use or non-use groups.

WWU Mass Media Campaign

The WWU lifestyle survey conducted in spring 1997 also revealed a large perceptual gap between actual drinking and perceived drinking on campus (i.e. students overestimate the frequency of peer alcohol use among students). The survey showed that 89% of both drinkers and non-drinkers thought that the typical student drank alcohol once a week or more, indicating a large gap between actual and perceived drinking frequency.

The WWU campaign hypothesised that using the mass media will be the most appropriate strategy to promote accurate campus drinking norms, as this was thought to have the greatest potential impact on low-to-moderate drinkers. Although, the campaign researchers hoped that the normative intervention would have impact on all students, they hypothesised that low-to-moderate drinkers would benefit most. This was because their drinking pattern seems to be more context-dependent, i.e. they drink less when socializing with non-drinkers or low-consumers, but more when socializing with higher-consuming individual or group.

At WWU, the social norms mass media campaign message: "Most (66%) Western students drink 4 or fewer drinks when they party" was featured in the student newspaper featuring a one six-by-eight-inch ad per week. The readership of this newspaper crossed the lines between WWU's on campus 3500 students and off-campus 8000 students. To increase the degree of weekly exposure to the campaign message, the ad was duplicated in an eleven by seventeen inch poster and distributed widely on campus. Simultaneously, ads that support the social norms message were placed in the same student newspaper, e.g. effect of alcohol on studying, concentration, sexuality, and nutrition. Students were

also taught the social norm concept, how perception can shape individual behaviour, and how the approach can be used to correct misperceptions of peer alcohol use. After completion of the taught program, students were committed to correcting misinformation about college drinking in various settings such as parties and casual peer group conversation.

WWU Campaign Evidence

The effectiveness of the social norms mass media approach was measured via a post survey administered in May 1998 to a randomly selected sample of 25% of WWU student population (n = 2500), with a 45% response rate. Three most important findings from the post survey were:

(1) In May 1998, only 49.6% estimated that other students drank once a week or more, whilst 89% held a similar view in 1997. Thus a significant reduction in student misperceptions, i.e. 44.4% (p < .001) was found on account that in 1998 fewer students thought that other students drank once or more a week. It should be noted that changes in reported rate of drinking that follow apply to only students who reported drinking alcohol.

(2) The proportion of students who drink five or more on a typical weekend occasion decreased significantly from 34.15% in 1997 to 27.3% in 1998. Also the percentage of men who drank had reduced from 48.5% in 1997 to 36.3% in 1998, and only 17.9% women drank heavily in 1998 compared to 23% in 1997.

(3) The percentage of self-reported alcohol-related negative consequences dropped form 60.9% in 1997 to 51.3% in 1998. Hence, the common problems students experience as a direct effect of drinking had reduced considerably.

To ascertain how the social norms mass media campaign might impact students actual and perceived alcohol drinking use patterns after one additional year, a follow-up study was conducted in 1999. Of the 800 follow-up mailed questionnaires, 347 were returned, a response rate of 43%. Results from a paired sample t-test showed that students drank slightly more often in 1999 than in 1998. However, a significant decrease was found in their quantity consumed per weekend occasion, their peak quantity during the last month, and their misperception of other students who had drank five or more in the past two weeks. Lastly, the proportion of students who noted alcohol related consequences had further decreased more in 1999 than in 1998.

2.2.2 All Stars

All Stars was developed as a distinct intervention beginning in the 1990s (Hansen, 1996) primarily to reduce adolescent risk behaviour, particularly tobacco, alcohol, marijuana and inhalant use and sexual activity. The program's goal was to delay the erosion of four key mediators that previous research has shown to be statistically significant (Fearnow-Kenney et al., 2002) and strongly linked to adolescent risk behaviour (McNeal et al., 2004).

All Stars have introduced several elements not previously included in earlier drug prevention programs. These include a focus on building perceived psychological incongruence between desired lifestyles and substance use and commitments to avoid substance use, found to be related to adolescent drug use reductions (Hansen and McNeal, 1999; Fearnow-Kenney et al., 2002). So, All Stars address four student-centred

mediators for intervention: (1) normative beliefs, (2) lifestyle incongruence, (3) commitment to not use drugs, and (4) bonding to school. An outline of the specific aims and learning outcomes are depicted in the All Stars Junior Logic model (see figure 2.2). A complete outline of the All Stars Senior model can be found at the Tanglewood Research homepage via http://www.tanglewood.net/kb.htm.

Figure 2.2: All Stars Junior Logic Model
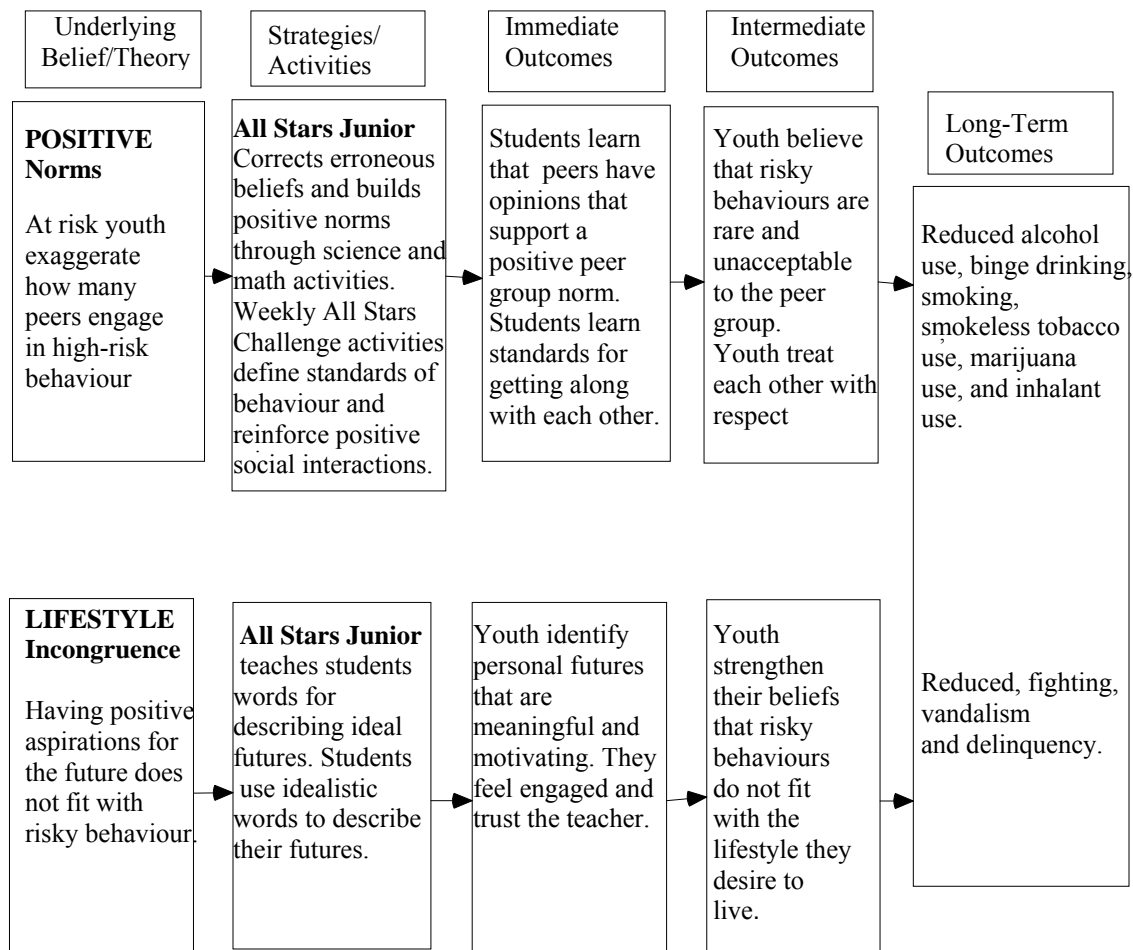
Source: Adapted from tanglewood research homepage

Aims

The current version of All Stars has three main behavioural goals: (a) to keep youths from experimenting with and regular use of alcohol, tobacco, marijuana and other substances; (b) to keep adolescents from becoming sexually active; and (c) to keep youths from becoming violent and destructive. These goals are accomplished through five objectives related to mediating variables:

- To increase students' beliefs about peer norms which consider abstinence from sex, violence and the use of drugs to be normal, acceptable, and expected by peers (normative beliefs);

- To increase students' perceptions that substance use and abuse, sexual activity, and violence will interface with their preferred lifestyles (Lifestyle Incongruence);

- To increase students' personal commitment to avoiding the use of drugs, abstaining from sexual activity, and avoiding violence (Commitment);

- To increase the degree to which students are socially bonded to positive friendship groups and social institutions (Pro-social Bonding);

- To increase positive parental attentiveness, including increasing parental monitoring, communication, and supervision (Parental Attentiveness) (Harrington et al., 2001).

Programme Outline and Content

Three formats of the All Stars core programme have been developed, for teacher, specialist and community delivery:

- The teacher format is designed for use by classroom teachers, and comprises 13 45-minute lessons in the first year of the programme (7TH Grade) and 8 45-

minute booster lessons in the following year. The teacher format is intended for delivery by regular classroom teachers, although experts recommend augmenting delivery with assistance from school guidance counsellors.

- The specialist format is designed for use by professionals from community prevention agencies (e.g. law enforcement officials, counsellors) who visit schools and organisation as outside experts. The lessons and activities are the same as in the teacher format.

- The community format is designed for use in non-school settings. The lessons are structured differently, comprising 9 one hour group meeting lesson plans in the core programme, and 7 one hour group meeting lesson plans in the booster programme. This format includes a community relations and promotional package. The 'community' format is intended for delivery by professional or voluntary adult leaders of youth community groups, including faith organisations, after school programmes, community centres, recreation programmes and day camps. A two-day training programme, delivered by Tanglewood research staff, is "highly recommended" for anyone wanting to deliver the programme. The training includes: a thorough explanation of the key concepts that underlie the programme; and an introduction to models, including strategies for addressing unanticipated events, continuing free phone technical assistance (SAMHSA Model Programs)

All three formats involve a mix of classroom lessons, involving whole class and small group activities; optional one-to-one meetings between students and teachers to help socially isolated students to "become integrated into social setting of the school" and

increase student attachment to school (McNeal et al., 2004); and a celebration ceremony to conclude the programme. Each classroom session is designed to affect at least one of the programme's five mediating variables. Home work activities are intended to increase interaction between students and parents and allow parents to play an active part in the programme (Harrington et al., 2001).

Programme Evidence

Many of the elements of the program, particularly methods used for establishing positive peer group norms, were developed and tested earlier as part of the Adolescent Alcohol Prevention Trial (AAPT) with marked success (Donaldson et al., 1994; Hansen, 1988). The AAPT programme designed to test two social psychological models, resistance training (teaching skills to refuse substance use offers) and normative education showed that normative programme significantly deterred onset of use of alcohol, marijuana and cigarettes, while the resistance programme had no discernible impact on substance use behaviour (Hansen and Graham, 1991). A summary of key findings from evaluations of the AAPT programme (Hansen and Graham, 1991) revealed the following:

1. A school cultural change program (denormalisation) lowered beliefs about drug use acceptability and prevalence estimates (in seventh grade), which predicted cigarettes, marijuana and alcohol use (in eighth grade). This pattern of results was virtually the same across potential moderators of gender, ethnicity, context (public versus private schools) drugs and levels of risk and was durable across time (Hansen and Graham, 1991; Donaldson et al., 1994);

2. Resistance skills training did improve refusal skills, but refusal skills did not

predict subsequent drug use (Donaldson et al., 1994);

3. Those who received only resistance skills in public schools had higher prevalence estimates (a undesired effect; Donaldson et al., 1995);

4. Refusal skills did predict lower alcohol use for those students who had negative intentions to drink alcohol (Donaldson et al., 1995); and

5. The effects of normative or denormalisation programme were subsequently verified using reciprocal best friends reports of drug use, in addition to traditional self-report drug use measures (Donaldson et al., 2000).

In most instances, the normative approach was effective if it was implemented singularly and even more effective when combined with other social resistance programs.

A large pilot study of All Stars (Hansen, 1996) tested the programme's capability to be delivered with integrity and its ability, when compared with 7th grade Drugs Abuse Resistance Education (DARE), to alter the development of characteristics that mediate substance use, violence and premature sexual activity such as: (a) having a personal commitment to avoid participating in high risk behaviours; (b) holding values and ideals incongruent with high risk behaviours; (c) bonding with pro-social institutions; and (d) holding conventional beliefs about social norms regarding high risk behaviours. All Stars students displayed significant improvements in all four mediating variables, in comparison to the students receiving DARE, whose outcome scores did not change or declined from the baseline measure. All Stars was also more favourably rated than DARE in terms of popularity.

2.2.3   The Montana Model

The cumulative empirical evidence demonstrate the effectiveness of applying normative programmes to produce positive outcomes (e.g. preventing heavy episodic drinking) among individuals in college campuses (Perkins and Berkowitz, 1986; Haines and Spear, 1996; Perkins and Craig, 2002). The application of social norms approach is nonetheless, not limited to school-based settings. The primary focus of the Montana's social norms project was to apply the model to Montana's state-wide population of 18 to 24 year old young adults purposefully to reduce alcohol-related problems. This model became the basis of several 'Most of Us' campaigns, including interventions to: (1) reduce driving under the influence (DUI) behaviour among young adults; (2) delay the onset of first tobacco use among teenagers; (3) increase support for parent-child communication concerning non-use of alcohol and drugs; and (4) increase adult seat belt use (Linkenbach and Perkins, 2003a). The next section provides two state-wide case studies as evidence of SNA's effectiveness to shape socially significant behaviours in community-wide environments.

DUI: Programme Outline

The Montana model is based on a seven step framework which serves as a data-driven process for all campaigns operated by the Montana Social Norms Project. These are planning and environmental advocacy, baseline data, message development, market plan, pilot testing and refining materials, and campaign implementation and evaluation. The planning and advocacy stage begins with understanding what exist by conducting research on any previous interventions that have attempted to address the targeted

behaviour.

As it was not certain whether the same pattern of misperception that was documented on certain college campuses existed among non-students of the same age, the Montana young adult alcohol phone survey was developed and administered to a sample of Montana's 18 to 24 year olds. The results of the survey demonstrated that a gap exist between what Montana's young adults reported as their perception of the frequency of drinking and driving, compared to what they reported as their actual use norms (Linkenbach and Perkins, 2003a). Several other surveys validated this results which demonstrated similar pattern of state-wide misperceptions of norms compared to actual behaviours (Linkenbach et al., 2002). There was a need to reshape the cultural environment by correcting these misperceptions since exaggerated perceptions of risk behaviours, as well as underestimation of protective factors and actual health norms, was negatively influencing the target group's actions and attitudes.

Once the baseline data have been gathered and rigorously analyzed, Linkenbach et al. (2002) suggested crafting a coherent and easy to understand messages that target a population regarding their misperception of the social environment. For instance, as in the DUI prevention, one unifying message "Most of Us prevent drinking and driving" was linked with localised statistics that reflect what percentage of people in various communities do not drink and drive. Thus, the target group benefited from the localised message: "Most North-western Montana's young Adults (88%) don't drink and drive", portraying the majority norm that is often supported by a statistic. The rationale was to reinforce the fact that majority do not drink and drive, through raising awareness in the public with the object of reducing the risk-taking behaviour of the minority.

After pilot testing and refinement of materials the various combination of promotional elements (radio and television commercials, posters, newspaper advertisements, billboards, theatre slides etc) were used to reach the target audience. Having obtained results from surveys, strategic news were created making use of press releases, opinion editorials, and letters to the editor. The campaign implementation sought to correct perception about a highly dominant misperception. Public reactions were constantly monitored, analysed and fed back into the campaign to refine the goals and processes of implementation. The essence is to maintain a proactive focus and trust that the process will align perception with true health norm, and ultimately result in measuring even stronger health norms.

Programme evidence

Three stages are documented in the social norms campaign evaluation efforts. To start with, the target population demonstrates a high level of awareness of campaign message, followed by their perceptions undergoing a measurable change, and finally, their behaviours or attitudes change. The post-test evaluation data associated with the Montana's DUI prevention demonstrated reduced risks of DUI behaviour in a state-wide population of the eighteen to twenty four year olds (Linkenbach and Perkins, 2005). Similarly, a state-wide application of the model also led to an increased seatbelt use among Montana's adult population (Linkenbach et al., 2002).

2.2.4 Montana Most of Us are Tobacco Free

The Montana's community-wide "Most of Us Are Tobacco Free" social norms project

works to prevent youth initiation of smoking in seven western Montana counties during an eight month period in 2000-2001(Linkenbach and Perkins, 2003a). The campaign's normative message "Most of Us, 70% of Montana's teens, are Tobacco Free" was derived using data from Montana's two leading health surveys in public schools. This statistic (70% of youth are tobacco free) represented the average who are aged twelve to seventeen who reported not using tobacco in the past 30 days on these surveys. Similar initial phone surveys conducted by the Montana Social norms project confirm this statistic.

Normative messages on non-use were delivered using a wide variety of channels that research had identified as useful. These are print and promotional materials distributed to schools and other locations; slides for movie theatres screens, billboards, and newspaper ads were used to communicate the message "Most of Us (70%) Are Tobacco Free". In addition, during the three eight-week period a six 30-second radio and television ads were aired.

Programme Evidence

The baseline data, gathered in a phone survey demonstrated no significant difference between the intervention (n=409) and the control (n=419) counties for age, gender, racial composition, in the percentage of the composition who had tried smoking. Additionally, baseline data showed no significant difference in the perceived norms of tobacco use between the control and intervention counties. However, prevalent rates were overestimated in both the intervention and control counties since a large percent of teens reported that majority of their peers smoked cigarettes.

At the end of the normative campaign post-test interviews were conducted with 641 of the initial 848 original respondents. The post-test data evaluation of Montana's "Most (70%) of Us Are Tobacco free" social norms project revealed delayed first-time use of tobacco by teenagers in an eight-month, seven counties project (Linkenbach and Perkins, 2003a). A comparative analysis of the post-test evaluation demonstrated the following findings:

1. There was a significant awareness of the normative message of non-use as more teenagers spontaneously recalled exposure to television, radio, and newspaper tobacco prevention messages during the past thirty days in the intervention than in the control counties.

2. In contrast to the baseline data, post-test analysis demonstrated that the percentage of respondents who misperceive the norm of tobacco use among their peers was significantly less in the intervention than in the control counties.

3. Essentially, data on smoking initiation showed a marked and statistically significant difference from pre-test to post-test. Only 10% of non-smokers initiated smoking following the campaign, while 17% in the control counties began smoking. This represents a 41% lower rate of initiation among respondents in the intervention counties than their peers in the control counties.

2.2.5   The Northern Illinois University (NIU) Campaign

The effectiveness of the social norms approach is further illustrated with the Northern Illinois University (NIU) most of us drink moderately campaign (Haines, 1996). Five key steps to successfully implementing this approach are: (a) collection of baseline data, (b)

developing a message that reflects actual norms, (c) ensuring credibility of the message source, (d) delivering message to the target population, and (e) supporting message retention within the population. The NIU actual norm message: "Most NIU students (55%) drink five or fewer drinks when they party," was based on data gathered from the Health Enhancement Services annual survey of student health behaviours. This normative campaign message met the development criteria, i.e. it was simple and supported the campus drinking norm of moderation; it reported actual data truthfully; and it was consistently used in all of the various media and program efforts. The term 'most' was used because it means normative, and reinforces perceptual change in student drinking norms. In addition, rather than developing a message that tells students what not to do such as "Don't drink too much", a positive statement of a specific achievable behaviour (five or fewer drinks) was preferred.

The credibility of the sources of information is as well important to change misperceptions. As such it was important to know how students perceive the agency or group that is sponsoring or conducting the campaign. Campaign groups or offices with low credibility may be viewed as the 'enemy' or having hidden agendas. So, the print media was selected as the first choice for delivering the actual drinking norm message because a survey revealed that students tend to rate higher the believability of print media, and also because it is relatively inexpensive. Promotional tools used included flyers, posters, newspaper advertisements, editorials, articles, billboards, bulletin boards, comics, and sidewalk chalk art.

Finally, to change misperceptions the actual norm message should be remembered and internalized by the target population. Three key factors that support retention of a

normative message are: simple content, source credibility, and frequency of exposure to the message. Thus, like the food and alcohol industry's advertising strategy, multiple exposures to the same simple message are important for it to be retained. Essentially, successful social norms campaigns must have high recognition and believability through communication models (e.g. AIDA; Awareness, Interest, Desire, Adoption) in order to change misperceptions (Clapp et al., 2003; Perkins, 2003) and influence healthy lifestyles.

With regards to the NIU campaign, students were exposed to three media advertisement per week, e.g. flyers on Tuesdays, a display ad in Wednesday paper, and a classified ad on Thursdays, throughout the fall semester. Incentives were given to students as an advertising technique to reward those who could remember the message. The NIU most of us campaign, was adjudged successful as the Health Enhancement Services survey (n = 716) found an 18% reduction in perceived binge drinking and a 16% reduction in actual binge drinking. More so, survey respondents reported a 5% and 33% reduction in alcohol-related injuries to self and to others respectively (Haines, 1996).

2.2.6   Unsuccessful Social Norms Campaigns

The foregoing case studies suggest that health promotion campaigns and interventions that incorporate social norms messages can possibly shape youth behaviour. Some authors however, view normative campaigns as vague, often contradictory and inappropriate to empirical tests, as a consequence of mixed results. The underlying reason, as noted earlier for this mixed successes could be attributed to a focus on only descriptive norms (e.g. Mattern and Neighbors, 2004; Broadwater et al., 2006), without

considering injunctive norms (Cialdini and Goldstein, 2004) or other potential moderating variables (Lapinski and Rimal, 2005). In addition, as the field evolves and grows reports of failed social norms media campaigns is predictable, and is especially likely in view of the many ways in which the implementation and evaluation process can be flawed.

For instance, Granfield (2002) provided a case study of a well-designed social norms media campaign that did not achieve expected outcomes because the message source was not believable to students. It is worthy of note that the campaign took place on a campus with a strong fraternity presence at a time when fraternities felt that they were under attack by the administration. As a result of this feeling students rejected the social norms messages because the campaign was perceived as part of an administration-led effort to undermine fraternities.

Another unsuccessful normative campaign was outlined by Werch et al. (2000). The authors developed and sent out social norms messages through the mail to a small sample of freshmen. Three greeting cards with normative data in the fall term and a follow-up phone call was conducted in the spring term. This campaign possibly failed because the campaign was only conducted over a one-month period, which may not have been long enough. Mores so, the messages were not focus grouped with students in advance and they may not have been persuasive, and the target subjects were exposed to campus-wide misperceptions that may have undermined the campaign's messages. A related normative campaign by Clapp et al. (2001) reported a failed social norms media campaign in which students did not understand the message. The message and image were incongruent, and the image overpowered the message. In this campaign the image featuring 'a student

throwing up' was inconsistent with the normative data provided, and students were more likely to remember the image than the data.

Despite these failed normative campaigns, programs such as the 'Truth' campaign in Florida and the Montana's "Most of Us Are Tobacco free" social norms programs have been found to reduce smoking prevalence by conveying a normative message to adolescents that tobacco use is undesirable, socially unacceptable and less prevalent in society. The American Legacy Foundation's 'truth' campaign, a national tobacco counter-marketing campaign, was purposed to denormlise tobacco use through hard-hitting advertisements that feature youths confronting the tobacco industry (Pierce et al., 1998). Declines in smoking initiation and prevalence among Floridian adolescents after campaign onset were paralleled by significant increases in negative and unfavourable attitudes about the industry, whereas, in the rest of the US, adolescent smoking increased and negative attitudes about the industry remained unchanged (Sly et al., 2001; Sly et al., 2002).

2.3 Summary

The body of literature and case studies reviewed suggest that normative programmes can be successfully used in classroom and college settings to influence health behaviour (Bruvold, 1993; Linkenbach et al., 2002; Harrington et al., 2001). These programmes have been implemented to a high degree of completeness and quality (e.g. Hansen, 1996; Haines, 1996; Linkenbach et al., 2002), and have consistently shown to be more effective than the other social influence approaches such as knowledge and scare based approaches (Bruvold, 1993). Linkenbach et al. (2002) and Haines (1996) asserted that successful

SNA messages should focus on the majority norm and should communicate information that is credible and believable to the audience. This was evident in the extant literature which demonstrated that normative campaigns that achieved remarkable success highlighted the perception that majority do not engage in the problem behaviour as well as making the campaign credible, enjoyable, engaging and memorable (Phelps et al., 1994, Sussman et al., 1993a; Haines and Spear, 1996; Jeffrey, 2000). Most importantly, Berkowtiz (2004) and Schultz et al. (2007) suggested that SNA campaigns might be highly effective if both descriptive and injunctive norms are imbued. Another, essential element of SNA is that it can be applied in state-wide environments as in "Montana's All of Us" campaigns to reduce high-risk drinking and promote moderate alcohol use (Linkenbach, 2001), and to reduce smoking prevalence and delay onset (Berkowtiz, 2004) among adults and young populations respectively. Nonetheless, it is worth noting that some social norm campaigns have not yielded the desired normative outcome partly because of methodological issues.

Following the high degree of success and effectiveness of normative interventions in colleges and state-wide settings, especially in the US, there might be a case of cultural transfer to the UK, i.e. there is the tendency that these successful social norms outcomes found in US schools and colleges can be applied to UK schools. This can be expected because the US and UK have relatively comparable declines in smoking prevalence among young adults, which has been attributed to tobacco control programs and policies enacted over the past few decades (Centers for Disease Control and Prevention, 2005; Office for National Statistics, 2006). So, the question is whether the social norms approach can be applied on a national level? For instance, "Did the nation-wide

introduction of the smoke-free legislation in Scotland influence adult smokers' normative beliefs, and did this in turn influence quit intentions?" and "Did support for the smoke-free legislation directly affect adult smokers' quit intentions?" Employing tobacco policies to denormalise beliefs about smoking on the national level might be essential for two significant reasons. First, denormalisation may increase adults' motivation to quit and actual quit behaviour; and reduce tobacco use and prevent uptake especially among adolescents. Second, denormalisation may promote support for more comprehensive tobacco control policies and regulations.

Having demonstrated in this chapter that social norms have been successfully used to influence health behaviour in schools and college settings, this thesis will take these ideas further by looking at a national level policy impact on norms and health behaviour. As this concept is advanced in tobacco control, the subsequent chapter will examine tobacco denormalisation to show how tobacco policies might influence social norms, tobacco industry perceptions and smoking behaviour. The review now focuses on clarifying the conceptual definition, i.e. *tobacco denormalisation* and provides evidence-based studies that explain the mechanism underlying how specific societal level tobacco policies might influence social norms and smoking outcomes in Chapter Three.

CHAPTER THREE

3.0   Introduction

Chapter two demonstrated that the social norms approach has been successfully used in classroom and college settings to influence health behaviour. The chapter provided a conceptual definition of denormalisation and reviewed the theoretical underpinnings of this approach, showing that it is based on the social norms theory. Case studies were then used to show that both the theoretical underpinnings and conceptual definition have been successfully used in classroom and college settings to influence health behaviour.

This chapter will take these ideas further by looking at how public health issues can be addressed at a societal level to change social norms and health behaviour. As this notion is advanced in tobacco control, the chapter will examine '*tobacco denormalisation*' to show how tobacco policies might influence social norms, tobacco industry perceptions and smoking behaviour. The chapter comprise four sections. Section 3.1 clarifies the conceptual definition: *tobacco denormalisation* employed differently by the public health community to counter tobacco marketing efforts and change social norms specifically to reduce smoking uptake and prevalence. Section 3.2 provides a review of specific tobacco policies effect on smoking norms, by presenting evidence-based studies showing the direct and indirect influences these might have on smoking intentions and behaviour. In section 3.3 the impact of comprehensive tobacco policies on smoking behaviour is provided to establish whether isolated policies are equally effective as comprehensive policies in altering smoking behaviour. The chapter is finally summarized in section 3.4.

3.1 Tobacco Denormalisation

Efforts to reduce the onset and progression of smoking among adolescents and adults in recent times has witnessed tobacco prevention programs and policies often aimed at promoting 'tobacco-free norms' or to 'denormalise' tobacco use, making smoking a socially unacceptable behaviour (Lavack, 1999; Wisotzky et al., 2004). Evidence suggests that norms exert a great deal of influence on behaviour and that the processes of normative influence exist in a variety of context and situations that people encounter in their everyday lives (LaBrie et al., 2008, 2009; Cialdini and Goldstein, 2004; Yanovitzky and Rimal, 2006). People conform to perceived group norms through the information they obtain from others via direct communication (verbally and non-verbally) or mediated communication (Yanovitzky and Rimal, 2006; Hogg and Reid, 2006). Indeed, norms can not exist in the absence of communication such as prevailing codes of conduct often derived from media and regulations as well as proximal reference groups (e.g. peers and family) that prescribe or proscribe behaviours that members of the group can enact (Rimal and Real, 2003).

Although evidence of successful social norms campaigns that have denormalised tobacco use are documented in the research literature (Linkenbach and Perkins, 2003a; Sly et al., 2001; Sly et al., 2001), the conceptual definition and measurement of these outcomes are mainly vague and under-theorized. Such efforts to denormalise smoking, commonly termed *Tobacco Denormalisation*, has focussed conventionally on correcting perceptions of prevalence (i.e. altering individuals' *descriptive norms*- the perceptions of what is done) and acceptability or approval of significant others' actions (perceptions of what should be done- an *injunctive norm*) by providing them with accurate information about the actual norms of smoking behaviour (Perkins and Berkowitz, 1986; Sheeran and Orbell, 1999; Linkenbach and Perkins, 2003a; Rimal

and Real, 2003). The power of these normative types (injunctive norms, for example) varies directly with one's bonding to the source- peers, parents, siblings, co-workers, neighbours, the mass media, authority figures, or religion (Hirschi, 1969; Rimal and Real, 2003). Traditionally, tobacco denormalisation has been based on this conceptualisation and sought to correct the broad social norms around using tobacco, such as the tendency of overestimating the prevalence of smoking (Wechsler et al., 2003; Haines and Spear, 1996; Juvonen et al., 2007), and consequently establish conservative group norms (USDHHS, 2000; Hansen, 1992). A more recent approach is the industry perspective which seeks to demonstrate that the tobacco industry is an illegitimate business and that tobacco products are addictive and dangerous to smokers and non-smokers (California Department of Health Services, 1998; Thomson and Wilson, 2005). The industry, referred to as the vector, have been criticised for distributing tobacco products to innocent victims or consumers (Last, 2001). Health advocates argued that the industry's marketing efforts to sell cigarettes, for instance, have been designed to appeal to young people and to allay health concerns among established smokers (Pollay, 2000; Slade, 2001; Warner, 1985). Essentially, the vector also works to undermine public health efforts to limit use by resisting the implementation of health-promotion programs and policies (Glantz and Begay, 1994; Saloojee and Dagli, 2000; USDHHS, 2000). Hence, efforts to deglamorize the industry, termed tobacco industry denormalisation, involve revealing the tobacco industry's deceitful activities and responsibility for tobacco related diseases and deaths (California Department of Health Services, 1998; Thomson and Wilson, 2005). A broad conceptual definition of tobacco denormalisation should therefore encompass descriptive and injunctive smoking norms as well as the tobacco industry perceptions, since these normative influences affect each other; and determine the normative

beliefs of smoking which tobacco control policies help to shape. Tobacco control policies may be conceptually distinguished by whether they primarily target perceptions of smoking as prevalent, socially acceptable or approved, and favourable perceptions of the tobacco industry. From the above conceptualization tobacco denormalisation is defined as: *'employing tobacco policies and programs to reduce tobacco use by correcting perceptions of smoking prevalence and approval by significant others, create unfavourable tobacco industry's perceptions, and consequently establish conservative group norms'* (Perkins and Berkowitz, 1986; Linkenbach and Perkins, 2003a; Rimal and Real, 2003; California Department of Health Services, 1998; Thomson and Wilson, 2005).

To some extent these domains hypothetically overlap with one another and are likely to influence one another (see hypothetical structural equation model; figure 3.1). The figure reveals the direct effects of tobacco policies, .i.e. smoking ban and pro-tobacco advertising on smoking outcomes, and the indirect effects of these on quit intentions and behaviour, via normative perceptions. Three geometric symbols are illustrated: ellipse representing unobserved latent variables, e.g. smoking ban; single-headed arrows representing the impact of one variable on another variable, e.g. smoking ban on perceived prevalence; and double-headed arrows representing correlations or covariances between pairs of variables. As such the double-headed arrows between smoking ban and pro-tobacco advertising suggest a correlation between these two variables.

Conceptually, the figure suggests that perceptions of tobacco companies as relatively deviant might build upon pre-existing perceptions of social disapproval or unacceptability of smoking within a referent population. An appropriate understanding of the mechanisms by which policies work, might be necessary to

distinguish these normative domains, analyzing the direct and indirect influences these might have on smoking intentions and behaviour. It is expected that some tobacco control policies are more likely to influence one domain over another. To date however, little is known about how national-level tobacco policies work: (a) on different normative domains, and (b) on behaviour.

Figure 3.1 Hypothesized Model of Policy Effects on Smoking Norms
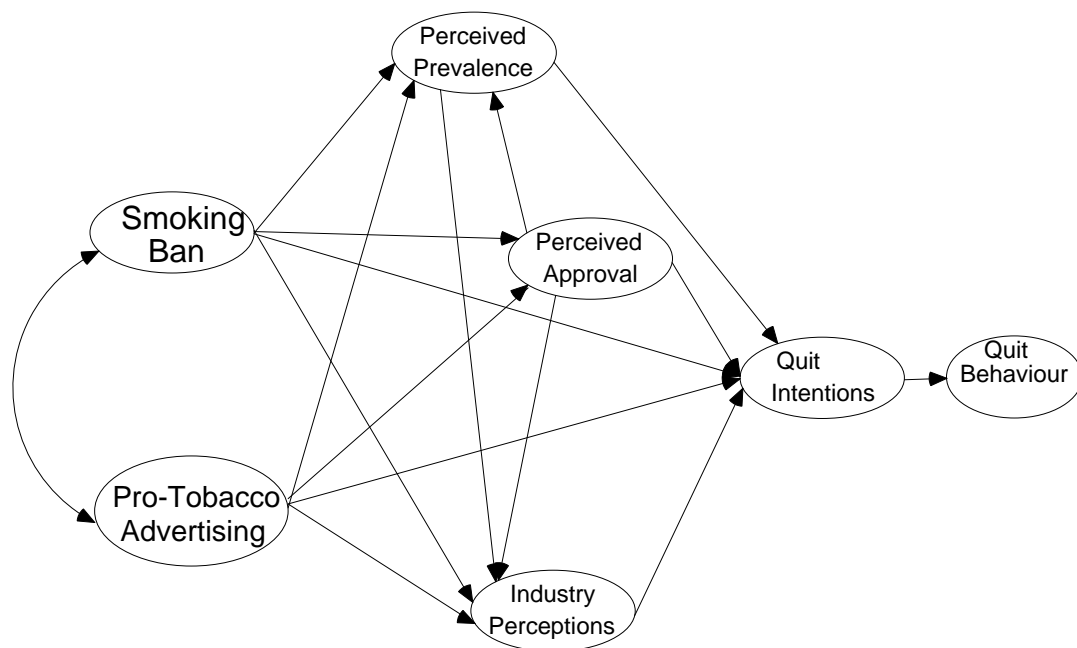
3.2 Policy Effects on Smoking Norms

This section provides a review of the mediating role of various normative domains in the relationship between tobacco control policies and smoking behaviour. The first part addresses the direct and indirect influence of tobacco control measures on smoking intentions and behaviour. Thus, the review presents the direct effect of tobacco policy on smoking behaviour as well as the indirect effect of tobacco policy on smoking outcomes mediated by normative perceptions, e.g. perceived prevalence of smoking, perceived social acceptability of smoking, and perceptions of the tobacco

industry. Next, the direct associations of normative perceptions with smoking outcomes are provided followed by a review of the impact of comprehensive tobacco control polices on smoking behaviour.

3.2.1 Influence of Smoking Bans on Norms and Behaviour

Public health efforts to restrict public smoking have proliferated since the 1980s (Rigotti and Pashos, 1991), mainly to protect people from the hazards of passive smoking especially in bars and restaurants (Siegel et al., 2005; Schnofield, 1995), thus prompting many communities to adopt smoking restrictions in establishments (Siegel et al., 1997; Jacobson and Zapawa, 2001; Siegel, 2002). Although these regulations are intended to reduce or eliminate second-hand smoke exposure, some have proposed that they may have the additional benefit of reducing smoking among youths and adults by altering perceptions of the prevalence and social acceptability of smoking (Jacobson and Zapawa, 2001; Levy et al., 2001; Albers et al., 2004). Wakefield and Forster (2005) argued that social norms (e.g. social norms of smoking) relate to community wide perceptions about acceptable behaviour, which is what is commonly done, approved or disapproved (Thomson et al., 2005; Cialdini et al., 1990). Exposure to environmental tobacco smoke during childhood has been suggested to increase tolerance for tobacco smoke and sensitise children to taking up active smoking in their teenage years by reducing the noxious deterrence of the first cigarette (Flay, 1993).

A study found that if smoking is freely permitted, smoking is implicitly communicated to be an acceptable behaviour for members of a society (Alesci et al., 2003). Consistent with this finding, another study showed that the more visible smoking is, the more it is perceived by adolescents as socially acceptable and normal. Undeniably, policies that ban smoking from public spaces decreased smoking and

have been proposed to do so through their impact on perceptions of smoking as socially unacceptable (Jacobson and Zapawa, 2001). Findings from a longitudinal study revealed that youth living in towns with smoke-free restaurant laws that completely banned smoking had lower rates of progression to smoking than those youth living in towns with weaker or no laws (Siegel and Biener, 2000). Effects of these were stronger when smoke-free laws had been in place for longer, and were not explained by a large number of possible individual or community level covariates. Similarly, evidence derived from cross sectional econometric or ecological studies, that strong state and local restrictions on smoking reduce smoking participation and consumption among youths (Gruber and Zinman, 2000; Siegel et al., 2005; Chaloupka and Grossman, 1996) or reduce overall smoking prevalence among adults (Wasserman et al., 1991; Stephens et al., 1997; Rigotti and Pashos, 1991). Imposing strict regulations on smoking in public places for instance, was found to significantly reduce the number of cigarettes consumed by teenagers (Wasserman et al., 1991). Smoking restrictions in the workplace and at home have also been found to contribute to reduce consumption (Chapman et al., 1999; Brownson et al., 1997; Farkas et al., 1999), intentions to quit, relapse prevention (Gilpin et al., 1999, 2002), and possibly increased cessation (Farkas et al., 1999; Biener and Nyman, 1999), as well as send a message that smoking is less prevalent and socially unacceptable (Thomson et al., 2005; Borland et al., 1999). A study by Brownson and colleagues (1997) concluded that public smoking bans appear to be effective in reducing non-smokers exposure to environmental tobacco smoke, and that work site bans do influence the intensity of smoking among workers. Such bans may also have a positive impact on quit rates (Lantz et al., 2000).

Using data from the Monitoring the Future project, Chaloupka and Grossman (1996) found that restricting smoking in public places significantly reduced the prevalence of youth smoking, and that restricting smoking in schools, in particular, reduced the average number of cigarettes smoked by young smokers. Likewise, Chaloupka and Wechsler (1997) also found that laws restricting smoking in restaurants and schools significantly lowered college students smoking participation rates.

While the potential effectiveness of smoke-free restrictions is illustrated, some less consistent results have been found. In a review of 29 studies conducted between 1983 and 1994 of the effect of worksite restrictive smoking policies, Eriksen and Gottlieb (1998) found consistent evidence of a reduction in cigarette consumption at work with a median reduction of 3.4 cigarettes per day. However, the results were less consistent regarding whether there was a decrease in overall cigarette consumption, with 12 of the 29 studies reporting some decrease and 3 reporting either no decrease or an increase. The evidence for a decrease in smoking prevalence was inconclusive. Half of the 14 studies that examined it found no change, and the six that did find a change showed a median prevalence decreased of 5% (Eriksen and Gottlieb, 1998).

Nonetheless, Chapman and colleagues (1999) calculated the impact of smoke free-policies on tobacco consumption in Australia and the United States, and then extrapolated to the impact if workplaces were universally smoke-free. They concluded that smoke-free workplaces are currently responsible for 1.8% decreases in cigarette consumption in Australia (602million cigarettes) and 2% in the United States (9.7billion cigarettes). They suggested that if all workplaces are smoke-free, the percentages would increase to 3.4% in Australia (1.14 billion cigarettes) and 4.1% in the States (20.9 billion cigarettes). Another review from the USA of 26 studies on the effect of smoke-free workplaces concluded that totally smoke-free workplaces are

associated with reduction in smoking prevalence of almost 4% when compared with no smoke-free workplaces at all (Fitchenberg and Glantz, 2002). Thus, confirming the previous study by Chapman and colleagues (1999). Clean indoor air laws may also make smoking less attractive by reducing opportunities to smoke by reinforcing non-smoking social norms. Again, a study of compliance with clean indoor act in Brookline, Massachusetts, showed that the law was popular and the incidence of smoking restrictions was high (Rigotti et al., 1992).

In countries with a high smoking prevalence rates such as Japan where 55% males smoke, a total ban is uncommon but policies such as limiting smoking to designated smoking areas are common (Ministry of Labor, 1998). However, the impact of such restrictions on smoking has been weak (Woodruff et al., 1993; Jeffery et al., 1994; Farrelly et al., 1999). Furthermore, evidence linking restrictive policies to smoker motivation to quit is limited (Woodruff et al., 1993; Longo et al., 1996). Though the reasons underlying why such laws may be effective in reducing smoking are unknown, one could consider that they simply reduce the opportunities available for smoking. In this vein clean indoor air laws may be a useful vehicle for creating a cultural norm that suggests that smoking is less socially acceptable (Jacobson and Zapawa, 2001; Levy et al., 2001; Goldman and Glantz, 1998). To conclude, although evidence show that smoking ban in public places (workplaces, homes and schools) leads to reductions in smoking prevalence and consumption among adults and youth, its impact on perceived prevalence and disapproval of smoking have mainly been reported among adolescence, i.e. when a household smoking ban was enforced (Thomson et al., 2005). However, no study has extended this finding to assess whether this consequently results in reductions in smoking uptake. Thus, evidence

demonstrating whether or not the relationship between smoking ban and smoking behaviour is indirect through normative perceptions remains unknown.

3.2.2   Advertising Ban and Smoking Norms

The tobacco industry strongly opposes restrictions on advertising not only as an infringement of corporate freedoms but on the grounds that such bans do not reduce cigarette consumption (Boddewyn, 1986). Empirical data however, suggest that tobacco advertising ban significantly influence smoking rates (Saffer and Chaloupka, 2000; United Kingdom Department of Health, 1992). According to a 1999 World Bank Report, advertising bans can reduce smoking prevalence by up to 7 percent. Besides, young people's future smoking behaviour has been shown to be predicted by their awareness and involvement in tobacco advertising, sponsorship and merchandising (MacFadyen et al., 2001). Support for a ban on tobacco marketing have again been strengthened as studies indicate that tobacco advertising and promotion influence perceived smoking prevalence (Wakefield et al., 2006), and predicts adolescents' smoking uptake and progression (Pierce et al., 1998; Biener and Siegel, 2000; Choi et al., 2002) as well as intentions to smoke (Charlton, 1986; Henriksen et al., 2004). Policy makers have responded to the public health threat posed by tobacco marketing by introducing policies to control the industry's advertising and promotional activities.

In the European Union (EU), Norway and Finland were among the first countries to ban tobacco advertising, with consequential significant decline in smoking rates after the implementation of this legislation (Sandford, 2003). A new legislation came into force in the EU on August 2005 banning advertising in print media, radio, over the internet and event sponsorship by tobacco companies that effectively ended 37 years

of tobacco sponsorship in Formula One and other motor sport categories in participating countries (Paseka, 2006, European Union News, 2005). The European Commissioner for Health and Consumer Protection, Markos Kyprianou noted that banning advertising is one of the most effective ways of reducing smoking (Paseka, 2006). A report by Saffer and Chaloupka affirmed that the European Commission (EC) directive, which will end tobacco advertising in the EU, will reduce consumption by about 6.9% on average in the EU. In the UK, a review by the Department of Heath noted that tobacco advertising increases tobacco consumption whilst tobacco advertising bans decreases use (Lynch and Bonnie, 1994).

Several empirical research have found that increased expenditure on tobacco advertising is positively related to high demand for cigarettes, while banning advertising is associated with reduction in tobacco consumption (Andrews and Franke, 1991; Laugesen and Meads, 1991). Such studies compared tobacco consumption prior to and after a complete advertising ban, having controlled for other factors. Despite the limitation of these studies i.e. inadequate data collection or poor implementation of the ban, results suggest that a complete advertising ban is essential in reducing smoking prevalence. A time series analysis of 22 member countries of the Organisation for Economic Cooperation and Development (OECD) studied factors affecting tobacco consumption per adult in each country between 1960 and 1986, and found that complete tobacco advertising restrictions since 1973 have increasingly been associated with lower tobacco consumption (Laugesen and Meads, 1991). The authors also suggested that if all governments across the OECD had banned completely tobacco advertising and promotion, and raised tobacco product prices consumption would have fallen by 40% in that year. Akin to these findings, numerous reviews by the United States Department of Health and Human Services, the United

States Institute of Medicine and the World Health Organisation have found similar conclusion (Lynch and Bonnie, 1994; US Department of Health and Human Services, 1994; Roemer, 1993).

Hamilton (1977) asserted that reducing cigarette consumption as a public health priority was the underlying reason why tobacco advertising is banned. He argued however that policy actions and interventions that depict scare messages might be more effective than a ban on advertising. Unlike this report, a review found that bans or restrictions on advertising in countries such as Norway, Finland, Canada, and New Zealand with the most complete data resulted in an overall decrease in consumption (Lynch and Bonnie, 1994). This affirms a review of 102 high income countries which concluded that complete tobacco advertising bans can reduce tobacco consumption (Jha and Chaloupka, 1999). In the United States, just after tobacco advertising was banned from the mass media (radio and television) in 1970, tobacco advertising expenditures declined, but within a couple of years, advertising expenditures were back at their former level.

Other studies on cigarette advertising bans using pooled international data sets had varied results (Boyd and Seldon, 1990). Data on 11 countries from 1948 to 1973 were presented by Hamilton (1977) showing a set of regression using pooled data of countries with bans and countries without bans. The regressions show no effect of a ban. Laugesen and Meads (1991) used data from 22 OECD countries for the period 1960 to 1986. Like Hamilton, the authors also found that prior to 1973 cigarette advertising bans had no effect on consumption. Laugesen and Meads (1991) however, found that after 1973, bans and warning labels had a significant negative effect on consumption. They pointed out that prior to 1973 tobacco manufacturers were able to increase alternative marketing efforts in response to broadcast advertising restrictions

but thereafter this was more difficult. A third study by Stewart (1993) again analysed data from 22 OECD countries for the period 1964 to 1990 and found that television advertising ban had no effect. Probable reasons for this are that the study did not control for increases in other forms of advertising which might have annulled this effect.

The tobacco industry often justifies tobacco advertising with this study in an effort to undermine the power of restrictions on advertising. Laugesen and Meads (1991), on the contrary reported that the increasing elasticity of advertising restrictions in the 1980s suggest that advertising restrictions can have enhanced effects over time. The authors argued that tobacco advertising ban, once in place, may foster social climate unfavourably to reduce tobacco consumption. The empirical study by Saffer and Chaloupka (2000) also addressed this issue and employed an international data set of 22 high-income countries over the period from 1970 to 1992. The result supports the view that a comprehensive tobacco advertising ban can reduce consumption (in this instance by 6.3%). This was an indication that outdoor advertising ban, included in the settlement by the US tobacco industry, will probably not result in much change in advertising expenditure or tobacco consumption, on account that the total number of bans was still relatively limited. To conclude, the extant literature demonstrate that comprehensive tobacco advertising ban can reduce tobacco consumption and prevalence but a limited or partial advertising ban will have little or no effect. More importantly, little is known about studies that focus on the processes underlying how comprehensive tobacco marketing bans affect smoking prevalence and consumption.

3.2.3 Counter Advertising

The existing literature indicate that anti-smoking advertising can be effective in

reducing levels of cigarette smoking among young people (Bauer et al., 2000; Friend and Levy, 2002; Siegel and Biener, 2000; Wakefield et al., 2003; Sly et al., 2002). In the United States, anti-smoking advertising has been used as part of comprehensive tobacco control programs, with consequential declines in smoking prevalence among both adults and young people (Bauer et al., 2000; Biener et al., 2000; Sly et al., 2001). These advertisements have the potential of promoting smoking cessation along with decreasing the likelihood of smoking uptake as well as influencing public support for tobacco control interventions.

In Australia, the use of anti-smoking advertising has also been an important element of tobacco control efforts since the early 1980s. As such advertisements mostly depict in graphic detail the health effect of smoking. These antismoking advertisements have generated high public awareness and positive responses among adults and youths (Pierce et al., 1990; Hill and Carroll, 2003; Wakefield et al., 2003; White et al., 2003). In Britain, tobacco control interventions have also employed anti-smoking advertising and have been somewhat successful in reducing smoking prevalence (McVey and Stapleton, 2000).

Past research shows that counter-advertising campaigns or antismoking advertising can significantly reduce cigarette consumption (Chaloupka and Warner, 1998). Much of the evidence is drawn from two major campaigns in the United States. Nevertheless, studies from Greece (Stavrinos, 1987), Finland (Perkurinen, 1989), Turkey (Tansel, 1993), and the United Kingdom (Townsend, 1987), indicate that the US experience is not unique. In each of these studies, mass media campaigns aimed at reducing cigarette smoking by providing information on the adverse health effects of smoking were estimated to have led to significant reductions in smoking prevalence and in cigarette consumption. Saffer and Chaloupka (2000) estimate that counter-

advertising messages set at about 15% of the total number of advertising messages can reduce smoking by about 2% each year. Counter-advertising has also been an important part of California's new tobacco control program.

A study by Goldman and Glantz (1998) analysed the effectiveness of different counter-advertising messages and found that such messages are most effective when they focus on the tobacco industry's manipulation of its existing and potential customers. Industry-manipulation messages depict tobacco executives as being deceitful, manipulative, dishonest, and greedy. According to the authors, this type of advertising helps adults and young people to change their self-image of smoking from 'guilty addict' to 'innocent victim'. Nonetheless, not all anti-smoking advertisements are equal in terms of their efficacy in changing smoking related beliefs, attitudes, and behaviours (Wakefield et al., 2003). Indeed, a number of studies have failed to find a relationship between anti-smoking advertising and reductions in tobacco use prevalence (Friend and Levy, 2002; Siegel and Biener, 2000; Wakefield et al., 2003). Clearly it is important to establish the characteristics of adverts and marketing strategies that are best able to advance tobacco control objectives. Opinions vary, however, regarding just what sorts of adverts are most likely to reduce smoking among youth and adults. Pechmann and Reibling (2000) suggested that messages that emphasise harm to family, and the socially unacceptable nature of smoking, are likely to be most effective whereas Goldman and Glantz (1998) argue that adverts that portray the harms caused by second hand smoke and the duplicitous nature of the tobacco industry will be most successful.

The extant literature however, provides little empirical evidence with respect to the impact of anti-tobacco advertising on changing social norms of smoking. The findings from Goldman and Glantz' study suggests that anti-tobacco advertisement that

emphasise the tobacco industry's deceitfulness primarily changes individuals' perceptions about the industry and consequently reduces smoking prevalence. Hence, the review shows that counter-advertising campaigns can significantly reduce cigarette consumption and prevalence among both adults and young people (Bauer et al., 2000; Biener et al., 2000; Sly et al., 2001), and directly influence social norms of smoking especially among young people (Goldman and Glantz, 1998).

3.2.4   Labelling Effect on Norms and Behaviour

For decades, warning labels have become a popular method by which governments attempt to inform their citizens of the health consequences of smoking (Strahan et al., 2002). Although the nature of health warnings varies considerably across countries, 77 countries were required to have health warnings on their tobacco products by 1991 (World Bank, 1999). Jha and Chaloupka (1999) asserted that cigarette warning labels is one of several national level policies that have been introduced to address the health burden of tobacco use. For instance, a cross sectional evaluation studies of previous Canadian and Australian warnings suggest that warning labels are an effective means of communicating the health effects of smoking (Tandemar Research, 1996; Environics Research Group, 2001; Hill, 1988). Another study conducted in Australia showed that the implementation of stronger warning labels resulted in a 27% increase in the percentage of people reporting always noticing the labels and a 7% increase in people reporting forgoing smoking due to the labels (Borland, 1997). Smokers were also better informed about the dangers of smoking after the labels went into effect (Borland and Hill, 1997). Studies from Canada (Anon, 1996; Mahood, 1995) and Europe (Naett and Howie, 1995) have also demonstrated the potential role of labels in individuals' decisions to quit smoking.

As with other harmful products, providing warning labels is a minimum condition for creating informed consent by consumers. Hammond et al. (2003) argued that warning labels are unique among tobacco control initiatives because they are delivered at the time of smoking. As a result, virtually all smokers are exposed to the intervention, and pack-a-day smokers are potentially exposed to the warnings over 7000 times per year (Hammond et al., 2003). Given this reach and frequency of exposure, the authors assert, even if warning labels have only a modest effect size on individual smokers they may have a dramatic impact upon smoking behaviour at the population level as a result of perceptual change. In the same vein, a longitudinal study examining the impact of warning labels on smoking cessation found that Australian warnings introduced in 1994 prompted some smokers to delay smoking or 'butt-out' a cigarette early (Environics Research Group, 2001; Borland, 1997).

Research has identified the basic principles for enhancing the effectiveness of tobacco warning labels, i.e. colour, pictures or graphics, positioning on the front of packs, increases in size, and direct unambiguous messages all increase the likelihood that smokers will notice warnings labels (Strahan et al., 2002). Large, direct health warning labels are effective way both of informing smokers of the hazards of smoking (thus encouraging smokers to stop), and of discouraging non-smokers from starting to smoke (Borland and Hill, 1997). Canadian and research into tobacco products and health warning labels also found there was a significant linear relationship between the size of a health warning message and the influence to stop smoking (Health Canada, 1999). Larger health warnings had a greater effect with people considering stopping or starting smoking than with hard-core smokers.

Empirical evidence from Canada, Brazil, Australia, the Netherlands and Belgium suggest that the large cigarette warning labels introduced recently are effective in

discouraging smoking and increasing awareness of the health effects of smoking (World Bank, 2003; Joossens, 2004; Joossens and Raw, 2006). In 1999, a World Bank report also found large, prominent and hard-hitting warning labels are effective, citing evidence from Australia, Canada and Poland. Polish warning labels occupy 30% of the largest sides on a cigarette pack and research found the larger labels to be strongly linked with smokers' decisions to stop or to cut down their smoking.

A few studies of the impact of tobacco warnings worldwide have been conducted in the past. A 1993 report concluded that, of the 77 countries requiring warnings in 1991, 44 did no more than state that smoking may be dangerous to your health (Roemer, 1993). Recently, the European Union (EU) commissioned a study to establish which countries were in compliance with the 1992 EU directive on tobacco warning labels. Most countries complied with the directive however many companies undermined the laws by perhaps intentionally using poor colour choice and package design (Naett and Howie, 1995). The above review suggests that warning labels discourages smoking and increasing awareness of the dangers of smoking.

3.2.5   Pricing and Smoking Behaviour

Tobacco prices and tax increases have been described by some as being a progressive public health policy for various reasons (Warner, 2000), and has become a popular way of controlling smoking rates particularly in the United States, Britain and elsewhere. A study by Wilson and colleagues suggested that tobacco taxation is widely used to encourage quitting and deter smoking uptake (Wilson et al., 2003). According to a recent systematic review there is strong evidence that increasing the unit price for tobacco products is effective in increasing smoking cessation and reducing consumption (Hopkins et al., 2001), with relatively large effects on young

people (Chaloupka et al., 2002).

Empirical studies by Jha and Chaloupka (1999) revealed that a price rise of 10% decreases consumption by about 4% in high-income countries and have the additional political advantage for governments of raising tax income. In the 1980s, coordinated efforts to increase taxes in Canada and so to reduce the affordability of tobacco products contributed to significant declines in smoking. Available data indicate that children and youths are more price sensitive than adults, and that pricing has a strong and immediate impact on reducing sales of tobacco products overall (Lynch and Bonnie, 1994). A study by Lewit and Coate (1982) found that the impact of price is on the decision to smoke rather than on the quantity smoked by smokers. In addition, the authors reported that smoking behaviour of young adults (20-25 years) is more sensitive to price than that of older individuals. A related study by Lewit et al. (1981) estimated that the price elasticity of demand among youths is -1.44, more than three times as high as it is among adults, and nearly double that of young adults (ages 20 through 25), when comparing their estimates to those of Lewit and Coate (1982). The findings suggest a strong impact of price on decision to smoke rather than on average consumption by smokers. These findings are confirmed in another study by Grossman et al. (1983) which uses 1974, 1976, 1977 and 1979 National Surveys on Drug Abuse. Similarly, based on the work by Grossman and colleagues, Harris (1987) concluded that the 1983 doubling of the Federal cigarette tax, and the coordinated price increases it induced, kept 600,000 teenagers from starting to smoke. Thus, the decision to smoke by youths is much more responsive to price than comparable decision for adults. However, once the decision to smoke has been made, average consumption decision by youth smokers are virtually unresponsive to price.

It is worth noting that judging the evidence summarised about the price elasticity of

tobacco products, tax-induced price rises alone possibly do little to curb smoking among existing adult users. The order of magnitude of probable effects is effectively indicated by British calculations that assuming an elasticity of -0.5, it would take more than 50 percent increase in cigarette prices to reduce cigarette sales by even 20% (Atkinson and Townsend, 1977). What tax-induced rises might do is to make the smoking habit substantially less attractive to teenagers not yet addicted to the drug. Precisely the same people whom we want most, on grounds of 'informed consent,' to prevent from taking up smoking are least able to afford more expensive cigarettes. This prior expectation is borne out by evidence that demand for cigarettes among teenagers is more than three times as elastic as among adults, on average; any given price increase is six times more likely to make teenagers stop or never start smoking than it would adults (Lewit et al., 1981).

Evans and Farrelly examined a phenomenon not previously studied by economists: the compensating behaviour by smokers in response to tax and price changes (Evans and Farrelly, 1998). Specifically, they found consistent evidence that, although smokers reduced daily cigarette consumption in response to higher taxes, they also compensated in several ways. In particular, smokers in high tax states consumed longer cigarettes than those that are higher in tar and nicotine, with young adult smokers also most likely to engage in this compensating behaviour. As a result, they argued that the perceived health benefits associated with higher cigarette taxes are likely to be somewhat overstated. Given this compensating behaviour, it has been suggested that if cigarette taxes are to be used to reduce the health consequences of smoking, then taxes based on tar and nicotine content would be appropriate (Evans and Farrelly, 1998). This line of reasoning was debatable as such policy action conveys the impression that low tar and nicotine cigarettes are less hazardous

(Chaloupka and Warner, 1998), although this is not at all clear. Even so, as people shift to low tar and nicotine brands their daily consumption may increase to compensate and if such a tax varied across states, it might increase cigarette smuggling.

The foregoing review suggest that pricing has a more direct effect on smoking rates, e.g. consumption whilst other policy measures such as smoking ban impact quitting outcomes and protects non-smokers. More so, smoking restrictions have been hypothesised to change social norms of smoking. Counter-advertising campaigns have a more direct influence on social norms and smoking prevalence particularly among young people. Also, tobacco advertising ban impacts smoking outcomes, e.g. smoking prevalence rates, whereas warning labels discourages smoking and increases awareness of the dangers of smoking. Notably, less is known about the impact of these policy measures (i.e. tobacco advertising ban, pricing, smoking ban, and labelling) on social norms and smoking behaviour. The review now presents the relations between normative perceptions and smoking behaviour.

3.2.6   Perceived Prevalence of Smoking

As previously stated, beliefs about what most people do in ones' social group describe the perceived prevalence of an individual, which is also referred to as descriptive norm (Cialdini et al., 1991). The greater the perceived prevalence of a behaviour, the greater the likelihood that individuals will believe that engaging in the behaviour is normative, that is, within the prevailing norms of conduct (Rimal and Real, 2003). Individuals' perceptions of the prevalence of a particular behaviour may be inaccurate because of overestimated beliefs about how widespread that behaviour is in their referent group (Juvonen et al., 2007; Perkins and Berkowitz, 1986). For example,

research indicates that adolescents tend to harbour exaggerated perceptions about the prevalence of smoking or drinking in their midst (Reid et al., 2008; Simons-Morton, 1999; Callas et al., 2004) and that as perceived prevalence increases, adolescents are more likely to construe their own consumption patterns as being normative (Olds and Thombs, 2001; Oostveen et al., 1996).

Thus, the perceived prevalence of smoking serves as a reference to contemplate in decision-making about smoking (Reid et al., 2008; Callas et al., 2004). Particularly, higher perceived prevalence of smoking is positively associated with increased risk of smoking intention, initiation and smoking progression (Chassin et al., 1981; Fagan et al., 2001; Flay et al., 1998). One longitudinal study has demonstrated that higher perceived smoking norms were positively associated with increased level of smoking over time among experimental smokers (Gerber and Newman, 1989). Other studies reveal that overestimation of peer smoking prevalence has been found in boys and girls regardless of their smoking status (Sussman et al., 1988), and this perception has been shown to predict smoking initiation (Botvin et al., 1992; Chassin et al., 1981). The few studies of descriptive norms among adult smokers have shown an inconsistent relationship with intentions to quit (de Vries et al., 1998; Sorensen et al., 1986) which might reflect the referent population under investigation.

The effect of perceived smoking prevalence in predicting smoking behaviors has been reported in several follow-up studies of non-smokers (Chassin et al., 1981; Collins et al., 1987). The risk of future smoking has been shown to increase across never smokers, non-smoking deciders, tried or experimenters, and current smoker groups (Kraemer et al., 2001).

3.2.7 Perceived Social Acceptability of Smoking

The extent to which some population consider a given behaviour to be socially acceptable or unacceptable is termed perceived social acceptability, an injunctive norm (Neighbors et al., 2006; Kallgren et al., 2000). In this conceptualisation, a behaviour can be socially acceptable through influence either because of perceived threats (e.g. losing friendships or being unable to cultivate them) or perceived benefits, that is, not engaging in the behaviour becomes equivalent to depriving oneself of such benefits (Rimal and Real, 2003). The perceived acceptability of referent behaviour may be acquired unconsciously from peers, media (e.g. advertising), parents and films (Sussman et al., 1988), and reflects the extent to which individuals feel pressured to engage-or not engage-in a particular behaviour. Evidence suggests that the behavioural choices adolescents make are partly determined by how acceptable they believe the behaviour to be among their peers (Flay et al., 1983; Jaccard, 1975; Berndt, 1979). Individuals are likely to behave in accordance with what they perceive as the group norm, especially if they are afraid to be viewed as deviants (Flay et al., 1998; Chassin et al., 1984; Eisenberg and Forster, 2003).

Most studies on injunctive norms among adults have assessed disapproval of smoking and/or encouragement to quit in particular referent populations, such as among family members, friends, co-workers, and even society in general. Perceived social unacceptability of smoking can operate independent of smokers' personal beliefs about smoking-related health outcomes, as members of his/her social network who are aware of health dangers to the smoker and to others may express their disapproval or encouragement to quit (Sargent and Dalton, 2001; Lewis and Butterfield, 2005). A study found that independent of smokers beliefs about smoking outcomes, perceived social unacceptability of smoking among network members have been independently

associated with strength of intention to quit (de Vries et al., 1998; Dotinga et al., 2005), and have predicted stronger intentions to quit and actual quit behaviour at follow up (de Vries and Mudde, 1998). In some referent groups than in others, perceived social unacceptability of smoking are more effective in predicting smoking behaviour as associations between smoking and perceived injunctive norms among co-workers is equivocal (Sorensen et al., 1986). The inconsistencies in these studies may reflect the referent population of co-workers, which may not be as influential as other referent populations, such as family members.

3.2.8   Perceived Approval of Smoking

As theorized in the previous chapter, personal-level perceived injunctive norms are conditioned, to a degree, by an individual's beliefs about the approval or disapproval of the behaviour in question by significant others (Park and Smith, 2007). Individuals mainly have direct knowledge about what valued others expect them to do, and thus develop perceptions about what is approved or disapproved through experiences with peers, parents, siblings and the public's reactions to their behaviours (Rimal and Real, 2005).

Studies show that the effect of family smoking on smoking initiation is strongest for early onset of smoking (Jackson and Henriksen, 1997; Vitaro et al., 2004), and for its association with the first stages of the smoking uptake process, as these send signals of approval to teenagers. Similarly, sibling smoking, and approval, also play a significant role in increasing the likelihood of smoking uptake (Mercken et al., 2007; Olds et al., 2005; USDHHS, 2000) and sibling acceptability has been found to be significant predictor of future smoking (Collins et al., 1987). Again, research has consistently demonstrated that adolescents surrounded by smoking friends and family

members are more likely to smoke (US Department of Health and Human Services, 1994). For instance, students exposed to smoking at their school are also more likely to smoke, even when controlling for the smoking behaviour of their close friends (Leatherdale et al., 2005).

Social approval and motivation to comply with adults' wishes have also been found to significantly predict future smoking (Collins et al., 1987; Armitage and Conner, 2001). In addition, although less widely researched, the acceptability of smoking by significant others has also been found to influence perceived deceitfulness of the tobacco industry (Thrasher et al., 2004). However, even where theories of health behaviour have focused attention on both social normative influences and beliefs about behaviour-related outcomes, they have not examined how perceptions of the tobacco industries that promote the behaviour may play a role in explaining intentions and behaviour.

3.2.9   Perceptions of the Tobacco Industry

The vast majority of evidence indicates that tobacco advertising plays a meaningful role in influencing perceptions, attitudes and smoking behaviour of youth (Pollay, 1997). Tobacco advertisements on billboards and in stores, magazines, on clothing, and at community events are designed to influence consumer knowledge, attitudes, and beliefs about a product (Schooler et al., 1996). These ubiquitous images and messages serve as symbolic social influences by conveying to young people that tobacco use is desirable, socially acceptable, safe, healthy, and prevalent in society (Warner et al., 1986). As explained by Kaufman and Nichter (1999), modern marketing strives to attach symbolic meaning to specific tobacco brands by carefully

manipulating the components of marketing: brand name, packaging, advertising, promotion, sponsorship, and placement in popular culture.

Research shows that concerns about harmful and socially irresponsible practices have led many individuals to avoid consuming a company's product (Voight, 2000). For instance, the American Legacy Foundation's 'truth' campaign, a national tobacco counter-marketing campaign, was launched primarily to target 12- to 17-year-olds who are susceptible to smoking (Pierce et al., 1998). The 'truth' brand builds a positive, tobacco-free identity through hard-hitting advertisements that feature youths confronting the tobacco industry. Empirical evidence for the potential benefits of the national 'truth' campaign's approach comes from the dramatic decline in youth tobacco use associated with the Florida (Bauer et al., 2000; Sly et al., 2001) and Massachusetts (Siegel and Biener, 2000) campaigns, as well as from other studies that have found campaigns focusing on tobacco industry practices to be effective (Goldman and Glantz, 1998).

After the onset of these campaigns, youths' attitudes changed toward smoking (Farrelly et al., 2002), and that in turn changed their smoking behaviour (Goldman and Glantz, 1998). Declines in smoking initiation, prevalence and intentions among Floridian adolescents after campaign onset were paralleled by significant increases in negative attitudes about the industry, whereas, in the rest of the US, adolescent smoking increased, intentions were higher and negative attitudes about the industry remained unchanged (Sly et al., 2001; 2002). Despite these promising findings, the effect of anti-tobacco industry perceptions on future smoking intentions remains under-researched elsewhere. Having reviewed the impact of social norms on smoking behaviour, the review now presents the effects of comprehensive tobacco policies on smoking outcomes.

3.3   Comprehensive Tobacco Policies

From the preceding debate, comprehensive policies are perhaps the most appropriate approach to reducing smoking rates among youths and adults. Hill et al. (1998) supported this view and argued that a number of different measures are needed for tobacco control programs to be effective at reducing the prevalence of tobacco use. These measures include banning the promotion of cigarettes, increasing the price of cigarettes, limiting the number of places where tobacco can be smoked, introducing effective anti tobacco advertising, effective health warnings on tobacco products, and restricting adolescents' access to tobacco products (Willemsen and De Zwart, 1999). The overall investigation of the impact of the comprehensive tobacco control strategies has been informed by surveys (Gray and Hill, 1975, 1977; Hill et al., 1991, 1998) and the focus is to reduce smoking related diseases by discouraging smoking uptake and increasing cessation (US Department of Health and Human Services, 1989, 2000; Centers for Disease Control and Prevention, 1999).

A review of the available literature concludes that isolated actions have little effect in reducing youth smoking arguing that only in combination with measures like increased health education and advertising ban will reductions in adolescent smoking be expected (Willemsen and De Zwart, 1999; Centers for Disease Control and Prevention, 1999). Hamilton (1977) investigated effects of advertising bans, income and price on cigarette consumption per adult among 11 countries between 1948 and 1973 and found that partial advertising bans did not depress cigarette consumption per adult. In a related study, Cox and Smith (1984) analysed 15 OECD countries between 1962 and 1980. After allowing for price and income effects, they found that in countries with tobacco legislations, tobacco consumption fell more rapidly than in countries relying on voluntary agreements between governments and the tobacco

industry (Cox and Smith, 1984). Another study assessed the degree of restriction on tobacco marketing with a score for each country, for example, Iceland, Finland and Norway (Smee et al., 1992). The authors found that countries with a comprehensive ad ban and strong warnings on tobacco products scored 10, while others with less strict measures, such as a ban only on TV, radio or cinema advertising, had a lower score. The findings showed that an increase of 1 point was found to translate into a 1.5% reduction in tobacco consumption. One drawback was that other types of anti-tobacco measures, such as public information campaigns, were not corrected for. Also, although anti-smoking advertising campaigns are very effective in prompting decisions to quit, price rises would appear to be more effective than these campaigns in reducing consumption (Laugesen and Meads, 1991).

Hu and colleagues (1995) demonstrated the strength of comprehensive policy actions by examining the relative effects of taxation versus an anti-smoking campaign on cigarette consumption. The authors found that a 25 cent per pack increase in State tax was more effective than the anti-smoking media campaign (expenditure of approximately US$26 million) in reducing cigarette sales, but concluded that the strength of the effects observed was influenced by the magnitude of the taxes and the amount of expenditure of the mass media campaign (Hu et al., 1995). Laugesen and Meads (1991) showed that a combination of increases in tobacco prices and a complete advertising ban proved to be more effective than either measure on its own. They compared the *elasticity* of price and of the advertising restrictions source and concluded that consumption is three times more responsive to price rises (if indexed regularly for inflation) than to advertising restrictions. The authors concluded that where a complete ad ban is coupled with an intensive public information campaign on smoking, a reduction in tobacco consumption of 6% can be achieved. Tobacco

taxation may be fiscally desirable, but reliance on both taxation to raise price and other forms of legislation to end tobacco promotion will be more effective than reliance on one policy alone. Again, if both tobacco advertising and promotion are banned and prices also increased in real terms by 36% the effect is additive, i.e. consumption would have fallen by 13.5% in 1986. Obviously, a two-way policy approach is better than relying on price increases alone. However, the two policies may be more complementary than comparable; advertising bans, warnings and price increases may each affect different groups of smokers or potential smokers (Laugesen and Meads, 1991). In their study, the authors argued that tobacco consumption across the OECD would fall by 40% in 1986, if taxes had been raised in OECD countries, such that average tobacco prices relative to income was no higher than the highest level found in any OECD country, and laws were passed in that same year to end tobacco promotion. A recent report by the World Bank supports this conclusion (Jha and Chaloupka, 1999), which supposedly would make smoking less attractive.

Notably, a less- than-total ban is predicted to have half the effectiveness of a strict ban (Levy and Friend, 2003). For instance, a large increase in the tax on cigarettes and a ban on smoking in bars and restaurants, which came into effect on 30th March 2003, are being credited with contributing to 11% decline in the number of adult smokers in New York City from 2002 to 2003, one of the steepest short-term declines ever measured, according to surveys commissioned by the city. The surveys show that the number of regular smokers, after holding steady for a decade, dropped by more than 100,000 over the period. It is estimated that 19% of adults in New York smoked in 2003, down from 22% in 2002 (Gottlieb, 2004).

3.4   Summary

The aim of this chapter was to examine how, if possible, national level tobacco policies impact social norms and smoking behaviour. In the light of tobacco denormalisation, the preceding literature identified three normative constructs (injunctive smoking norms, descriptive smoking norms and unfavourable tobacco industry perceptions) that possibly mediate the influence of national level tobacco policies on smoking intentions and behaviour. The accumulated evidence from the foregoing discussion has demonstrated that national level policy measures such as smoke-free legislation (Clark et al., 2006; Wakefield et al., 2009), pricing (Levy et al., 2005), tobacco marketing ban (Davis et al., 2008), and graphic health warnings (O'Hegarty et al., 2006; White et al., 2008), directly help to reduce youth smoking uptake and increase quitting among adults (Gilpin et al., 1999; Biener and Nyman, 1999). Specifically, pricing has a more direct effect on consumption (Lynch and Bonnie, 1994) whilst smoking ban influence smokers to quit and protects non-smokers (Clark et al., 2006) as well as possibly impact smoking norms. Counter-advertising has a more direct impact on social norms and smoking prevalence mostly among the youth (Mudde and de Vries, 1999). Tobacco advertising ban reduces smoking prevalence (Saffer and Chaloupka, 2000), whereas warning labels discourages smoking and increases awareness of the dangers of smoking (Borland, 1997). The extant literature also showed that efforts to denormlise smoking by creating unfavourable tobacco industry perceptions have yielded positive behavioural outcomes (Bauer et al., 2000; Friend and Levy, 2002; Siegel and Biener, 2000; Goldman and Glantz, 1998; Farrelly et al., 2002). Again, the review showed the strength of descriptive and injunctive norms in influencing health behaviour (Botvin et al., 1992; Perkins et al., 1999; Berkowitz, 1972; Berkowitz 2004; Cialdini et al.,

1990; Reno et al., 1993).

Little is known however about the impact of these policy measures (i.e. tobacco advertising ban, pricing, smoking ban, and labelling) on social norms and smoking behaviour. For instance, tobacco policies (e.g. smoke-free legislation) that appear to impact consumption and prevalence among adults, have been hypothesised in the longer term to affect teenage use through changing societal norms about smoking (Jacobson and Zapawa, 2001; Levy et al., 2001; Wakefield et al., 2009; Albers et al., 2004). This thesis employs a national-level tobacco policy (e.g. smoke-free legislation) to address this drawback in the literature, that is, to what extent does policy impact behaviour through changing social norms? Following investigation of how tobacco policy can possibly influence social norms and behaviour, the focus of Chapter Four is to identify the research gaps in the literature, provide the study objectives and hypotheses, and propose a research framework that will further contribute towards the topic under investigation.

CHAPTER FOUR

4.0 Introduction

The large body of evidence reviewed in the previous chapters demonstrates the power of social norms campaigns to denormalise socially significant behaviours (Perkins et al., 1999; Berkowitz, 2004; Cialdini et al., 1990; Reno et al., 1993). Similarly, tobacco policies were found to influence smoking intentions and behaviour directly and arguably indirectly, through changing smoking related norms (Albers et al., 2004). More so, recent efforts to denormlise tobacco use by creating unfavourable tobacco industry perceptions have also yielded positive behavioural outcomes (Bauer et al., 2000; Friend and Levy, 2002; Siegel and Biener, 2000; Goldman and Glantz, 1998; Farrelly et al., 2002). Past research suggests a widespread adoption of social norms campaigns. However, evidence for the success of such programs has been mixed, partly due to the conceptual definition and methodical approach, thus prompting some authors to view it as vague, often contradictory and inappropriate to empirical tests.

In view of the preceding discussions the theoretical gaps identified which need further investigations are: the lack of conceptual clarity of the term "tobacco denormalisation" and the mechanisms underlying how this concept is assessed to change smoking behaviour. The need for an absolute conceptual definition that incorporates all normative influences has been addressed in the preceding literature. So, the focus of this chapter is to address the processes underlying how tobacco policies influence smoking behaviours via social norms. Section 4.1 outlines the study objectives, research questions and hypotheses. A research framework is proposed in section 4.2 that is aimed at further contributing towards the topic under investigation. Evidence from the extant literature, suggest that no study has examined how national-level tobacco policy impact smoking behaviour by changing social norms among

youths and adults. This study therefore aims at filling a research gap in the literature by investigating the normative pathways between tobacco policy effects on smoking behaviour. A number of specific research gaps contributing to knowledge development have been established as a result of the discussion in Chapters 1, 2, and 3, and which are subsequently evaluated via both the quantitative and qualitative approaches discussed in the research methodology using the proposed research framework.

4.1   Research Objectives, Questions and Study Hypotheses

This section provides the research objectives, questions and hypotheses of the study. Table 4.1 depicts the overall study objectives which captures the research gaps identified in the review. To achieve these research objectives a framework is developed, i.e. objectives one and two (ITC Scotland/UK survey) are examined based on the Focus Theory of Normative Conduct (FTNC); objectives three and four (the impact of the TAPA on youth normative perceptions and smoking intentions) are evaluated using a model similar to the Theory of Normative Social Behaviour (TNSB); and objectives five and six (normative influences on youth smoking intentions, and policy effects on smoking norms) are examined using the Social Norms Approach (SNA).

The justification for these objectives is that probable pathways exist in the relation between tobacco policies and smoking outcomes. Significant findings of how tobacco control policies might influence normative beliefs of adults and adolescents is essential because it may increase motivation to quit and prevent uptake, leading to a reduction in smoking related diseases, as well as promote support for the implementation of FCTC policies in other countries. The uniqueness of this study

stems from the fact that the processes by which tobacco policies affect smoking outcomes have not been investigated extensively. More importantly, no study has considered whether changes in normative beliefs of smoking between countries is strengthened or weakened as a consequence of the policy**.**

Table 4.1 RESEARCH OBJECTIVES

Quantitative Methods	Study Objectives
Using FTNC (ITC Scotland/UK Survey)	1. To examine the effect of a tobacco policy related measure (support for smoke-free legislation) on adult smokers' perceived social unacceptability of smoking, one month pre-ban and one year post-ban.
	2. To investigate whether support for smoke-free legislation and perceived social unacceptability of smoking, increase quit intentions post-ban.
Using TNSB (UK YTPS study)	3. To examine the effect of tobacco advertising and promotion awareness on smoking intentions before, during and after the TAPA, through the effect of perceived prevalence, approval, and benefits.
	4. To investigate the indirect effects of tobacco advertising and promotion awareness on intentions, via the moderation of perceived prevalence by benefits.
Using SNA (UK YTPS study)	5. To examine the effect of normative influences on smoking intentions.
	6. To investigate the effect of the perceptions of smoking restrictions on normative beliefs of adolescents' future smoking intentions.
Qualitative Methods	**Study Objective**
Exploring how youth perceive tobacco control measures	7. To explore adolescents' perceptions of the effectiveness of tobacco control measures on social norms and smoking behaviour in the UK.

4.1.1   Research Questions

Drawing from the above overall objectives the key research questions to be considered are provided in table 4.2.

Table 4.2 RESEARCH QUESTIONS

Quantitative Methods	Research Questions
ITC Scotland/UK Survey	1. Did the smoke-free legislation increase adult smokers' quit intentions in Scotland and the rest of the UK?
	2. Were the effects of the smoke-free legislation on quit intentions mediated by their perceived social unacceptability of smoking?
	3. Have smokers' perceived social unacceptability increased or decreased between the two countries post-ban?
	4. Did these probable changes in smokers' perceived social unacceptability of smoking affect quit intentions at follow-up in Scotland and the rest of the UK?
UK YTPS study	5. Did the advertising and promotional ban affect adolescents' future smoking intentions directly, or indirectly, through the mediation of perceived approval, prevalence, and benefits of smoking?
	6. Did interaction between perceived descriptive norm and benefits mediate the effect of tobacco marketing on intentions?
	7. Did perceptions about social norms influence youth smoking intentions
	8. Did perceptions of smoking restrictions affect intentions through the various normative influences
Qualitative Methods	**Research Question**
Exploring how youth perceive tobacco control measures	9. How did youth react to the several tobacco policies and smoking norms?

4.1.2   Study Hypotheses

The research hypotheses proposed in Tables 4.3A and 4.3B are based on the Focus Theory of Normative Conduct (Cialdini et al., 1990, 1991), Social Norms Approach (Perkins and Berkowitz, 1986; Berkowitz, 2004) and the Theory of Normative Social Behaviour (Rimal and Real, 2005). It is expected that a tobacco policy related variable is likely to influence the various normative perceptions and behaviour. For instance, the smoke-free legislation might lead to higher levels of perceived social unacceptable of smoking in Scotland than in the rest of UK.

Table 4.3A RESEARCH HYPOTHESES

Quantitative Data	Research Prepositions
Using FTNC (ITC Scotland/UK Survey)	P1: Among adult smokers, support for smoking ban at baseline is independently associated with quit intentions at follow-up (H1) and perceived social unacceptability at baseline (H2), and this is associated with higher levels of social unacceptability at follow-up (H3), in Scotland than the rest of the UK.
	P2: Among adult smokers, support for smoking ban at follow-up is higher in Scotland than the rest of the UK (H4), and this, in turn is independently associated with higher levels of perceived social unacceptability (H5) and quit intentions post-ban (H6), in the former country than the latter.
	P3: Among adult smokers, support for smoking ban at baseline is positively associated with higher levels of perceived social unacceptability of smoking in Scotland than the rest of the UK (H7), and this is associated with greater quit intentions post-ban (H8), in the former country than the latter.
Using TNSB (UK YTPS study)	P4: Higher awareness of promotions (H1a) and advertising (H1b) will positively affect perceived prevalence, and in turn intentions (H2a).
	P5: Higher awareness of promotions (H1c) and advertising (H1d) will positively affect perceived approval, and in turn intentions (H2b).
	P6: Higher awareness of promotions will positively affect perceived benefits (H1e) and moderation of perceived prevalence by benefits (H1f), and both perceived benefits and moderation of perceived prevalence by benefits will, in turn, independently affect intentions (H2c and H2d respectively).
	P7: Higher awareness of advertising will positively affect perceived benefits (H1g) and moderation of perceived prevalence by benefits (H1h) and each of these, will independently affect intentions (H2e and H2f respectively).
	P8: Higher awareness of promotions (H2e) and advertising (H2f) will positively affect intentions.

In the same vein it is expected that awareness of tobacco advertising and promotion in

the UK might distinctively influence adolescents' future smoking intentions, possibly

through normative influences. Thus, with reference to the above research objectives

(see table 4.1), the following hypotheses are proposed in tables 4.3A and 4.3B.

Table 4.3B   RESEARCH HYPOTHESES

Quantitative Data	Research Prepositions
Using SNA (UK YTPS study)	**P9:** Among adolescent smokers and never smokers, greater perceptions of smoking prevalence (H3a), sibling approval of smoking (H3b), and favourable perceptions of the Tobacco Industry (H3f) will independently and positively affect future smoking intentions. **P10:** Among adolescent smokers and never smokers, greater perceptions of sibling approval of smoking will positively affect tobacco industry perceptions (H3c). **P11:** Among adolescent smokers and never smokers, greater perceptions of risk from smoking will independently and negatively affect tobacco industry perceptions (H3g), perceived prevalence (H3e) and smoking intentions (H3d).
	P12: Among adolescent smokers, perceptions of smoking restrictions are negatively associated with their perceived prevalence of smoking (H4a), which in turn, positively affect future smoking intentions (H4e). **P13:** Among adolescent smokers, perceptions of smoking restrictions are positively associated with their perceived social unacceptability of smoking (H4b), and this in turn, negatively affect future smoking intentions (H4f). **P14:** Among adolescent smokers, perceptions of smoking restrictions are negatively related to future smoking intentions (H4i). **P15:** Among adolescent smokers, perceptions of smoking restrictions are positively associated with their perceived risk of smoking (H4c), which in turn, is negatively associated with future smoking intention (H4g). **P16:** Among adolescent smokers, perceptions of smoking restrictions are positively related to their perceptions of tobacco industry as illegitimate (H4d), and this affect negatively their future smoking intention (H4h).

4.2   Research Framework

To address the theoretical gaps a research framework that will further contribute towards the topic under investigation is proposed in the subsequent sections. Section 4.2.1 presents a proposed framework (based on FTNC) that investigates the impact of tobacco related policy (i.e. support for smoke free legislation) on quit intentions, through adult smokers' normative beliefs. In section 4.2.2, an extended model of the Theory of Normative Social Behaviour (TNSB) is proposed to assess the mediating and moderating effect of adolescents' perceived smoking norms on intentions, as a result of tobacco advertising and promotion ban. To examine the effectiveness of health promotion campaigns that have incorporated both normative and fear approaches, and to assess whether tobacco industry perceptions might denormalise youth smoking intentions, this thesis proposes in sections 4.2.3 and 4.2.4 an examination of the (1) impact of youths' (smokers and non-smokers) normative beliefs (i.e. tobacco industry perceptions, perceived prevalence, perceived sibling approval) as well as perceived risk of smoking on future intentions to smoke, and (2) perceptions of smoking restrictions on intentions, via normative beliefs. Finally, section 4.2.5 explores why and how adolescents' perceptions of tobacco control measures and social norms affect their smoking behaviour in the UK.

4.2.1   Objectives One and Two: Using the Focus Theory of Normative Conduct (ITC Scotland/UK Study)

The purpose of the International Tobacco Control Scotland/UK study is to fill the gap in the tobacco control literature by assessing whether a comprehensive smoking ban, introduced in Scotland in 2006, increases quitting behaviours among adult smokers by legitimizing non-smoking as a societal normative behaviour by making smoking more

unacceptable (Gruber and Zinman, 2000; Wakefield et al., 2000). It is evident from the extant literature that comprehensive smoke-free legislation, covering all indoor areas, is capable of reducing smoking prevalence (Chapman et al., 1999; Eriksen and Chaloupka, 2007; Gallus et al., 2007; Levy et al., 2001; Tauras, 2005; Wilson et al., 2007). In fact, along with high tobacco taxation, comprehensive smoke-free laws may represent one of the most effective tobacco control measures available (Fichtenburg and Glantz, 2002; Levy et al., 2004). Surprisingly however, although there is a direct link between smoking restrictions and reduced prevalence and intensity, there is a paucity of research exploring the role that normative influences play in this process (Albers et al., 2004). More than most other tobacco control measures, smoke-free legislation can denormalise tobacco use by transforming smoking norms and accelerating approval of a non-smoking environment as the prevailing norm (Kagan and Skolnick, 1993; Opp, 2002; Ostrom, 2000). For example, research has provided evidence of changing norms about smoking concomitant with smoking restrictions in the workplace (Gilpin et al., 2004; Shopland et al., 2001). As smokers conform to non-smoking directives in workplaces this may result in stronger anti-smoking norms, by reducing smoking visibility in these settings and encouraging societal disapproval of smoking (Alesci et al., 2003; Eisenberg and Forster, 2003; Siegel et al., 2005).

Another mechanism via which smoking restrictions can denormalise tobacco use is through increased unacceptability of smoking. Research has incorporated normative influences, such as social unacceptability, in behavioural models and found that this measure correlates with, and strongly predicts a range of behaviours, including smoking (Armitage and Conner, 2001; Eisenberg and Forster, 2003; Hamilton et al., in 2008). It has also been found to predict quit intentions and behaviours (Dotinga et al., 2005).

Research that has assessed the extent to which smoking restrictions influence normative influences, such as acceptability (Albers et al., 2004; Gallus et al., 2007), are generally limited to cross-sectional data however, thus preventing causal associations being drawn between smoke-free regulation and changes in acceptability of smoking. A notable exception is Albers, Siegel, Cheng, Biener, and Rigotti's (2007) longitudinal research assessing the effect of (weak or strong) smoking regulations in local restaurants, across 351 towns in Massachusetts, on adult smokers' perceived acceptability of smoking and quit behaviours (quit attempts and actual cessation). For smokers who had already attempted to quit at baseline, living in a town with strong regulations increased the odds of making a quit attempt at follow-up (OR = 3.1). And for smokers perceiving smoking as unacceptable at baseline, smoke-free regulations appeared to consolidate these initial beliefs, but in neither case were local regulations found to have an effect on cessation at follow-up. The fact that local smoke-free regulations were weak in the vast majority (87.5%) of towns provides an explanation for the failure to find increases in cessation.

This study adds to the tobacco control literature by specifically examining: (1) the effect of a policy related measure (support for smoke-free legislation) on adult smokers' perceived social unacceptability of smoking, one month pre-ban and one year post-ban; and (2) whether support for smoke-free legislation, and perceived social unacceptability of smoking, increase quit intentions post-ban (see figure 4.1; hypothesized model).

The hypothesized model (figure 4.1) shows the direct and indirect effects of smoking ban on perceived social unacceptability of smoking and quit intentions, using geometric symbols, i.e. ellipse and single-headed arrows. As explained in chapter three, the ellipse represent unobserved latent variables, e.g. smoking ban and the

single-headed arrows represent the impact of one variable on another variable, e.g. smoking ban at baseline on perceived social unacceptability at baseline. So, figure 4.1 reveals that smoking ban at baseline is hypothesised to affect both social unacceptability at baseline (H2) as well as smoking ban at follow-up (H4), which in turn affects quit intentions at follow-up (H6). Again, social unacceptability at baseline affects unacceptability at follow-up (H3), and this in turn affects quit intentions at follow-up (H8). A detailed description of the research hypotheses of the ITC Scotland/UK survey, which is based on the Focus Theory of Normative Conduct, is shown in Table 4.3A above (i.e. propositions: P1, P2 and P3).

This study extends Albers et al.'s (2007) work in three ways; first, a nationally representative samples of smokers is employed; second, the researcher assesses comprehensive smoke-free laws that cover, without exception, an entire nation (i.e. the legislation covers all of Scotland, with no local level regulatory variations); and third, the rest of the UK is used as a control group, which enables comparisons to be drawn with these countries that have, aside from smoke-free laws, an identical tobacco control policy to Scotland at the time of the study.

Figure 4.1 Hypothesized Model of Support for Smoking Ban, Unacceptability and Quit Intentions
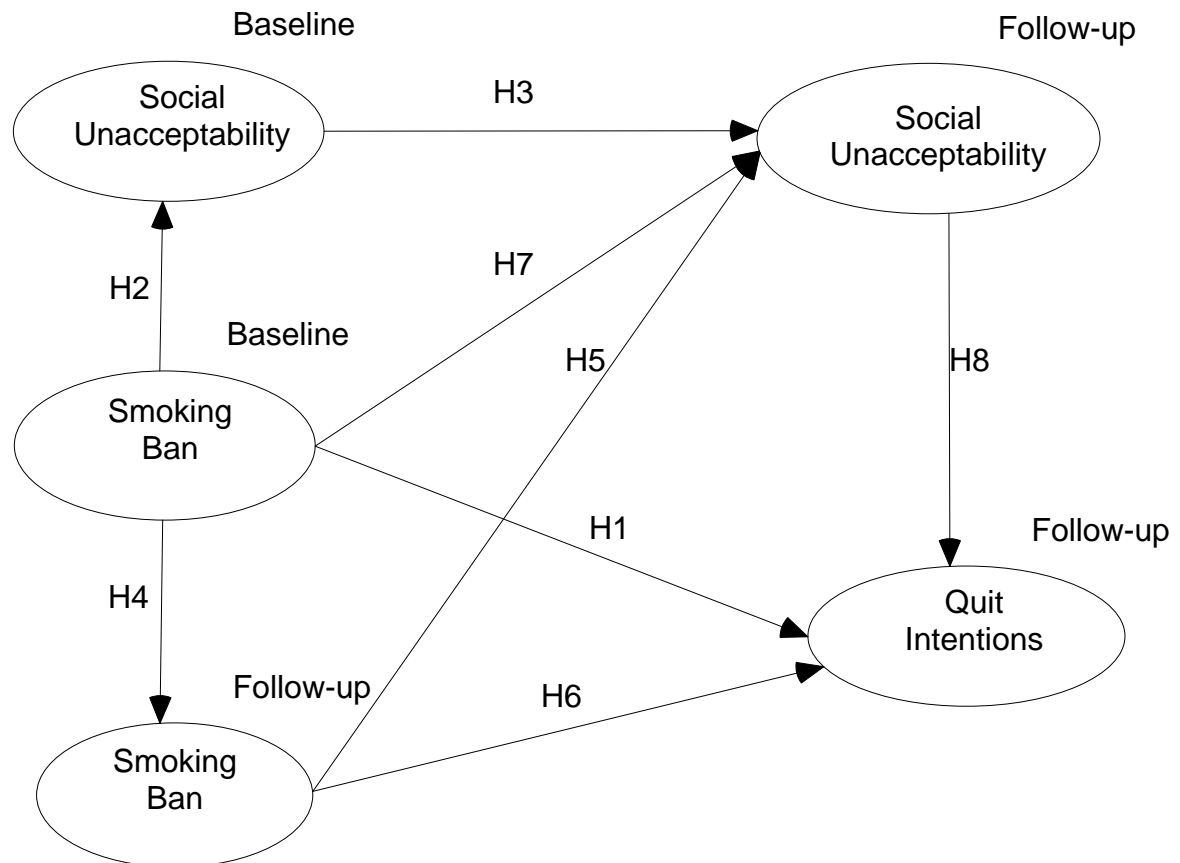
Source: ITC Scotland/UK Study

4.2.2 Objectives Three and Four: Using a Model Similar to Theory of Normative Social Behaviour (TNSB)

To the extent that results from normative programs are mixed, a model similar to the Theory of Normative Social Behaviour is used to examine whether incorporating normative constructs (i.e. descriptive, injunctive and other attitudinal domains) will help explain the association between tobacco advertising and promotional awareness and smoking intentions. The rekindling of interest in social norms can be partly

attributed to the increasing application of public health approaches, frequently supported by mass media campaigns, to a plethora of health-risk behaviours (Yanovitzky and Rimal, 2006). As social norms appear to act as influential moderators in the norm-behaviour relationship (Cruz et al., 2000; Lapinski and Rimal, 2005), then it is possible to use normative information as the primary tool for altering behaviours. However, despite the recent tendency to adopt social norms marketing campaigns to address behaviours ranging from conservation (Schultz et al., 2007) to reducing HIV (Wu et al., 2007), results have been found to be mixed (Schultz et al., 2007; Lapinski and Rimal, 2005). The reason underlying the mixed results in some normative marketing campaigns may be attributable to the tendency to focus on only descriptive norms (e.g. Mattern and Neighbors, 2004; Broadwater et al., 2006), without considering injunctive norms (Cialdini and Goldstein, 2004) or other potential moderating variables (Lapinski and Rimal, 2005).

Policy Effects (TAPA) on Youth Smoking Norms

As stated earlier, descriptive norms or perceived prevalence, are beliefs about what most people in ones' social group do (Lapinksi and Rimal, 2005). Higher levels of perceived prevalence of smoking are known to increase risk of smoking uptake and intentions among teenagers (Gunther et al., 2006; Ertas, 2007). However, focusing solely on descriptive norms may not be sufficient to elicit behaviour change. Rimal and Real (2005) have addressed this issue by developing the Theory of Normative Social Behaviour, a model assessing descriptive norms and moderators of descriptive norms (injunctive norms, outcome expectations and group identity) on intentions to consume alcohol. Multifaceted models such as the TNSB, that allows the delineation

of factors that moderate the influence of descriptive norms on behaviour, are necessary given the multidimensional nature of normative influences.

The TNSB was developed using a survey examining normative influences on intentions to consume alcohol among incoming college students. Of the 2000 surveys distributed, 1352 (67.6%) were returned, representing 19% of the total first year population (Rimal and Real, 2005). It was found that each mechanism independently predicted intentions with the model explaining 63% of the variance. The strength of the interaction between descriptive norms and group identity (aspiration and perceived similarity) however was not significant, and group identity only explained 5% of the overall variance. Indeed, it has been subsequently reported that the group identity moderators within the TNSB require further conceptual clarification(Lapinski and Rimal, 2005; Real and Rimal, 2007) and other research, investigating the relationship between the Theory of Planned Behaviour (Ajzen, 1985) and intentions, has also failed to find support for the moderating role of group identity (Norman et al., 2005).

In contrast to the poor performance of group identity within the TNSB, outcome expectancies (perceived benefits and anticipatory socialisation) explained a massive 48% of the variance, highlighting the importance of perceived benefits, and its moderating effect with perceived prevalence, on intentions. Perceived benefits are therefore central to the TNSB, and indeed Social Learning Theory (Bandura, 1986) and the Theory of Reasoned Action (Fishbein and Ajzen, 1975), as they increase the likelihood that individuals will engage in a particular behaviour. Tobacco marketers are fully cognisant of the power of perceived benefits and present tobacco use as a solution for adolescents' insecurities about their image, appearance and popularity (Pollay, 1995; Cummings, 2002). The role that perceived benefits, as a measure of

outcome expectancies, plays in behaviour is not indicative of the influence of descriptive norms, this only becomes so when these perceived benefits interact with descriptive norms to influence behaviour (Rimal and Real, 2005). So, engaging in a behaviour, or not, becomes attractive and rewarding in terms of perceived benefits in light of the perceived prevalence of a behaviour.

Together with group identity and outcome expectancies, injunctive norms make up the third moderating variable of descriptive norms within the TNSB. Injunctive norms are known to moderate the relationship between descriptive norms and behavioural intentions, and help determine the acceptability of behaviour (Cialdini et al., 1990). Descriptive and injunctive norms appear to have a monotonic relationship, where the influence of descriptive norms on intentions is heightened when injunctive norms are also strong and weakened when injunctive norms are weak (Rimal and Real, 2003). As such, strong descriptive norms, backed up by strong injunctive norms, offer the most effective way of altering behaviour. Research suggests that the relationship between injunctive norms (measured as approval) and behaviour (in this case gambling among students) varies greatly with different reference groups (Neighbors et al., 2007). Approval from proximal reference groups, e.g. peers and family, was positively associated with gambling frequency and expenditure, whereas approval from distal reference group, for instance, students, was not. Similar findings have been obtained in earlier gambling research (Larimer and Neighbors, 2003), as it has for use of alcohol, cigarettes and marijuana among adolescents (Campo et al., 2003; Olds et al., 2005). It is important therefore to assess approval by proximal reference groups, rather than distal groups (Terry and Hogg, 1996), particularly peers and family. This is because smoking among peers, siblings and parents, and also approval among these same groups, has been found to be a consistent predictor of smoking

initiation (Strong and Eftychia, 2006; Picotte et al., 2006; O'Loughlin et al., 1998; Mercken et al., 2007; Dijk et al., 2007; Olds et al., 2005; Ertas, 2007).

Societal Level (Policy) Influences

Although a recently developed model, researchers have attempted to extend the purview of the TNSB by assessing other moderators of descriptive norms such as group orientation (Lapinski and Rimal, 2005) and peer communication (Real and Rimal, 2007). This research does not aim to examine other moderating variables of perceived prevalence but focuses instead on the impact that a policy measure (specifically advertising and promotions ban) has on intentions via a model similar to the TNSB. Specifically, this study proposes a framework that investigates the impact of advertising and promotion awareness on intentions via descriptive norms and two moderators of descriptive norms (perceived benefits and injunctive norms), but without the third moderator in the TNSB, group identity, given problems with its measurement and conceptualisation (Real and Rimal, 2007). This permits the researcher to investigate, from a theoretical perspective, whether a policy change at the collective (or societal) level appears to affect normative influences at the individual level.

Collective and perceived norms are conceptually distinct as they operate at societal and individual levels respectively, although a change at societal level would likely have an impact at the individual, psychological level. For example, comprehensive tobacco control measures introduced in the UK are aimed at making non-smoking the norm at the collective level, with policy makers hoping that this will filter down to the individual level, leading to a situation where adolescents no longer overestimate the perceived prevalence of smoking within their referent group but instead feel pressure

to conform to this non-smoking norm. This information regarding descriptive and injunctive norms at the collective level can be obtained for the former via observing media depictions of trends surrounding a particular issue (Lapinski and Rimal, 2005) and from observing or hearing about policy or legislative changes that proscribe or promote certain behaviours for the latter. In the current climate, where tobacco control in the UK is more stringent than anywhere else in Europe (Joossens and Raw, 2006), strong disapproval cues from authority figures concerning smoking are evident.

Tobacco Promotion Ban

Pivotal to the UK's comprehensive tobacco control strategy is the Tobacco Advertising and Promotion Act (TAPA), implemented in five phases between February 2003 and July 2005, which prohibits most forms of tobacco marketing (Office of Public Sector Information, 2002). The TAPA is intended to reduce tobacco consumption and might additionally convey strong disapproval cues about smoking to young people, and is particularly important given the dose response relationship between tobacco marketing awareness and smoking uptake (King et al., 2000; Straub et al., 2003; Lovato et al., 2003; DiFranza et al., 2006). Aside from the direct influence tobacco marketing has on smoking uptake and intentions, it also has an indirect influence, as knowledge of peers' tobacco use mediates decisions on future cigarette smoking (Rosendahl et al., 2005). Evidence suggests that tobacco companies target youngsters with positive lifestyle images and covert messages (Pierce et al., 1991; Cunningham and Kyle, 1995; Slade et al., 1995), which possibly shape and reflect social norms of smoking (Wakefield et al., 2003). Indeed, research suggests that tobacco marketing bans, or antismoking advertising depicting family or social

norm messages about smoking, significantly lower intentions to smoke (Pechmann and Goldberg, 1998), perhaps by communicating non-smoking norms among peers.

To date, research assessing the mechanisms underlying the indirect effect of tobacco marketing on smoking intentions, mediated through normative influences, have considered the mass media in isolation (Gunther et al., 2006), rather than other potential forms of tobacco marketing such as advertising and promotions. This study investigates: (a) the effect of tobacco advertising and promotion awareness on adolescents' smoking intentions, through the effect of perceived prevalence, approval, and benefits, and (b) the indirect effects of tobacco advertising and promotion awareness on intentions, via the moderation of perceived prevalence by benefits (See figure 4.2; hypothesized model).

This model reveals geometric symbols, i.e. ellipse, single-headed arrows and double-headed arrows. Again, here the ellipse represent unobserved latent variables, e.g. tobacco advertising awareness; single-headed arrows represent the impact of one variable on another variable, e.g. direct effects of tobacco advertising awareness on smoking intentions; and double-headed arrows representing correlations or covariances between pairs of variables such as the correlations between tobacco promotion and advertising awareness. So, figure 4.2 shows the direct effect of tobacco advertising and promotion awareness on smoking intentions, and the indirect effects via normative perceptions (perceived prevalence, perceived approval, perceived benefit and interaction between perceived prevalence and benefit). For instance, the model shows independent hypothetical paths from tobacco promotion (H2e) and advertising (H2f) awareness to smoking intentions. Again, the hypothetical paths from tobacco promotion awareness independently affects perceived prevalence (H1e), perceived approval (H1g), perceived benefit (H1a) and interaction between perceived

prevalence and benefit (H1b), and these paths [i.e. perceived prevalence (H1f), perceived approval (H1h), perceived benefit (H1c) and prevalence x benefit (H1d)], subsequently affects smoking intention independently. Similar relationships are found between independent paths from tobacco advertising awareness to individual normative perceptions and intentions as shown in figure 4.2. A detailed description of the research hypotheses of the UK YTPS study using the Theory of Normative Social behaviour is shown in Table 4.3A above (i.e. propositions: P4, P5, P6, P7 and P8).

To the extent that these normative influences mediate the relationship between tobacco marketing awareness and intentions, the mediation of perceived prevalence, hypothetically, is heightened by perceived benefits in these normative mechanisms. This thesis employs a model similar to the Theory of Normative Social Behaviour to assess the indirect influence of tobacco advertising and promotion awareness on adolescents smoking intentions before, during and after the TAPA, via its effects on normative influences.

Figure 4.2 Hypothesized Extended Model of TSNB
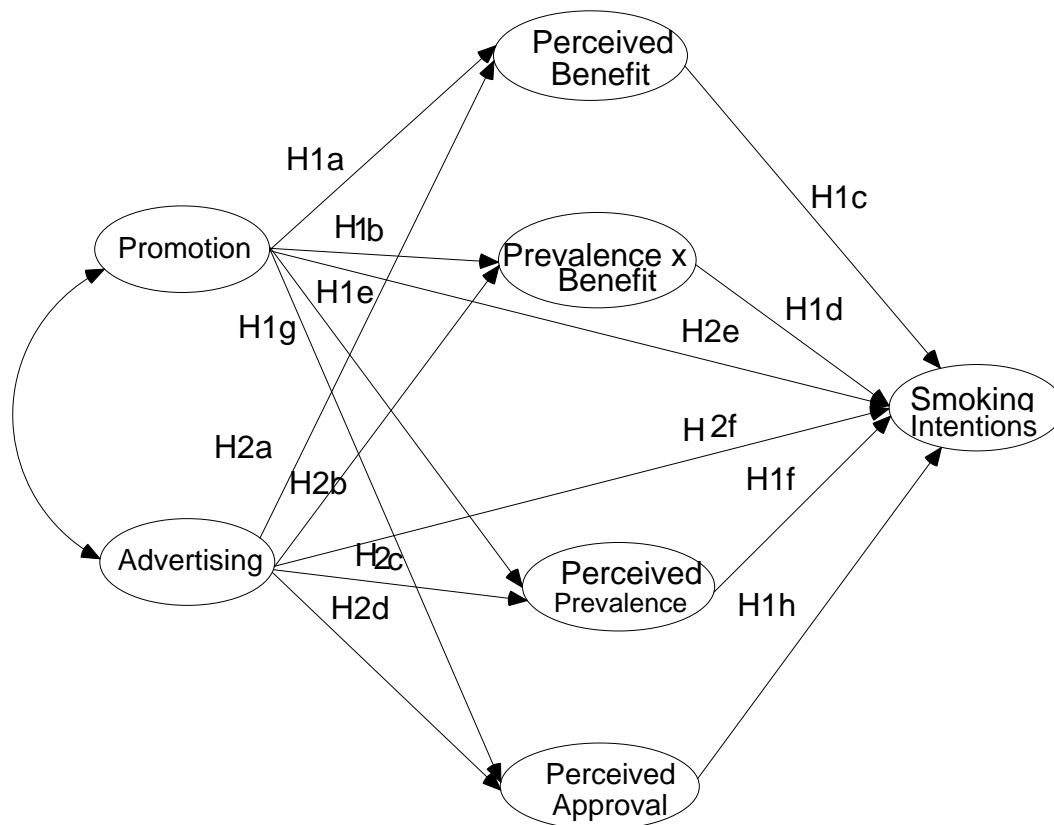
Source: UK Youth Tobacco Policy Study

4.2.3 Objective Five: Normative Influences on Youth Smoking Intentions

In addition to the above proposed research framework another mechanism via which

tobacco use can be denormalised among adolescent smokers and non-smokers is by

creating unfavorable tobacco industry perceptions. As previously stated marketing

efforts to encourage cigarette use by tobacco companies have been designed to appeal

to young people and to allay health concerns among established smokers (Pollay,

2000; Slade, 2001; Warner, 1985). The industry's activities also undermine public

health efforts to limit use by resisting the implementation of health promotion

programs and policies (Landman and Glantz, 2009; Saloojee and Dagli, 2000;

USDHHS, 2000). As such health campaigns that seek to discourage smoking lately include efforts to deglamorize the industry by revealing the industry's deceitful activities and responsibility for tobacco related diseases.

Overall the normative mechanisms associated with the onset and regular use of tobacco include perception that tobacco use is the norm, arising from erroneously conforming to peer influence (Powell et al., 2005), lack of parental support and disapproval during adolescence (Foshee and Bauman, 1992), creating favourable perceptions of the tobacco industry (Siegel and Biener, 2000), as well as perceived risk of smoking (Pierce and Gilpin, 2001). The rationale for the fourth variable (perceived risk of smoking) in the model is to assess the debate surrounding the effectiveness of fear approaches employed in health promotion campaigns to increase perceptions of the health concerns of smoking so as to decrease smoking rates. Of these tobacco-related social norms, research has predominantly focused on measures of perceived smoking prevalence (Fagan et al., 2001; Perkins et al., 1999; Pokorny et al., 2004) and perceived social acceptability (Bauman et al., 1992), both of which are known predictors of smoking intentions, initiation and behaviour. To date however, no study on tobacco related norms of adolescent smoking has simultaneously assessed the independent influence on smoking behaviour of these normative domains: tobacco industry perceptions, perceived prevalence, perceived approval, and also perceived risk of smoking. Hence, to address this gap in the literature, this study proposes a framework that examines the effect of these normative domains on smoking intentions (see figure 4.3).

As explain in figure 4.2, the hypothetical model in figure 4.3 also comprise geometric symbols, i.e. ellipse, single-headed arrows and double-headed arrows, and follow similar meaning as described above in section 4.2.1. This model, i.e. figure 4.3 reveals

the direct associations of normative perceptions (perceived prevalence, perceived approval, tobacco industry perceptions and perceived risk of smoking) with smoking intentions. Independent paths from perceived risk of smoking affects perceived prevalence (H3e), tobacco industry perception (H3g) and smoking intentions (H3d). Also, hypothetical paths from perceived prevalence (H3a), perceived approval (H3b), and tobacco industry perceptions (H3f) independently affect smoking intentions. A similar path is observed between perceived approval and tobacco industry perceptions (H3c). A detailed description of the research hypotheses assessing the hypothetical model of perceptions of social norms on intentions is shown in Table 4.3B above (i.e. propositions: P9, P10 and P11).

Figure 4.3 Hypothesized Structural Equation model of Normative constructs on future smoking intentions
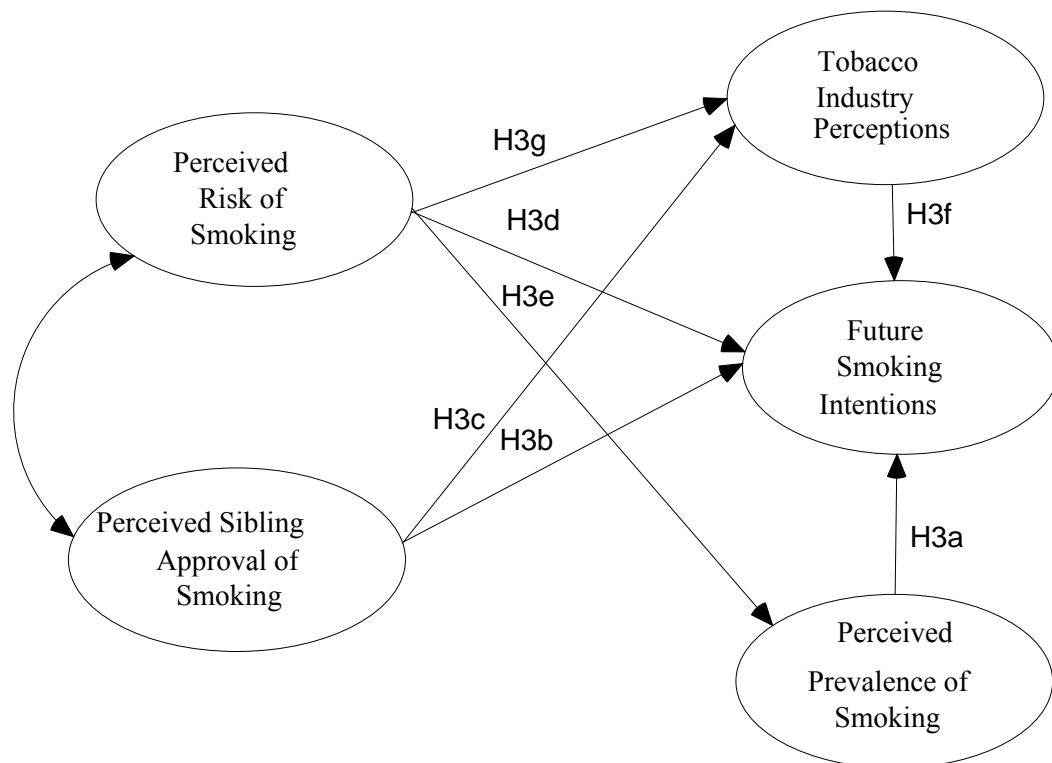
Source: UK Tobacco Youth Policy Study

4.2.4 Objective Six: Perceptions of Smoking Restrictions on Smoking Norms

Having provided a framework to investigate associations between normative perceptions and youth smoking intentions, this normative model is extended to examine the effect of a tobacco related policy (perceptions of smoking restrictions), intended to reduce or eliminate second-hand smoke exposure, which may as well reduce smoking among youths and adults by altering normative perceptions of smoking (Levy et al., 2001; Glantz, 1999; Jacobson and Zapawa, 2001). No study has examined these four factors (tobacco industry perceptions, perceived prevalence, perceived approval, and perceived risk) that may mediate the effect of smoking restrictions on adolescents smokers' future smoking intentions (Albers et al., 2004). The thesis fills this gap by examining how a specific tobacco policy related variable (perceptions of smoking restrictions) might influence youth smokers' future intentions via normative beliefs. As shown in figure 4.4, these domains are simultaneously assessed to determine whether paths from perceptions of smoking restrictions (a policy-related variable) affects tobacco industry perceptions (H4d), perceived prevalence (H4a), perceived social unacceptability (H4b), and perceived risk of smoking (H4c), which in turn independently (i.e. H4h, H4e, H4f, H4g) affect adolescents' future smoking intentions (figure 4.4). Hence, the study proposes that the relationship between perceptions of smoking restrictions on smoking intentions is rather indirect. Table 4.3B above (i.e. propositions: P12- P16) provides a detailed description of the research hypotheses of how perceptions of smoking restrictions might influence smoking intentions via their normative perceptions.

Figure 4.4 Hypothesised Model of Policy Effects on Denormalisation Constructs of Future Smoking Intention
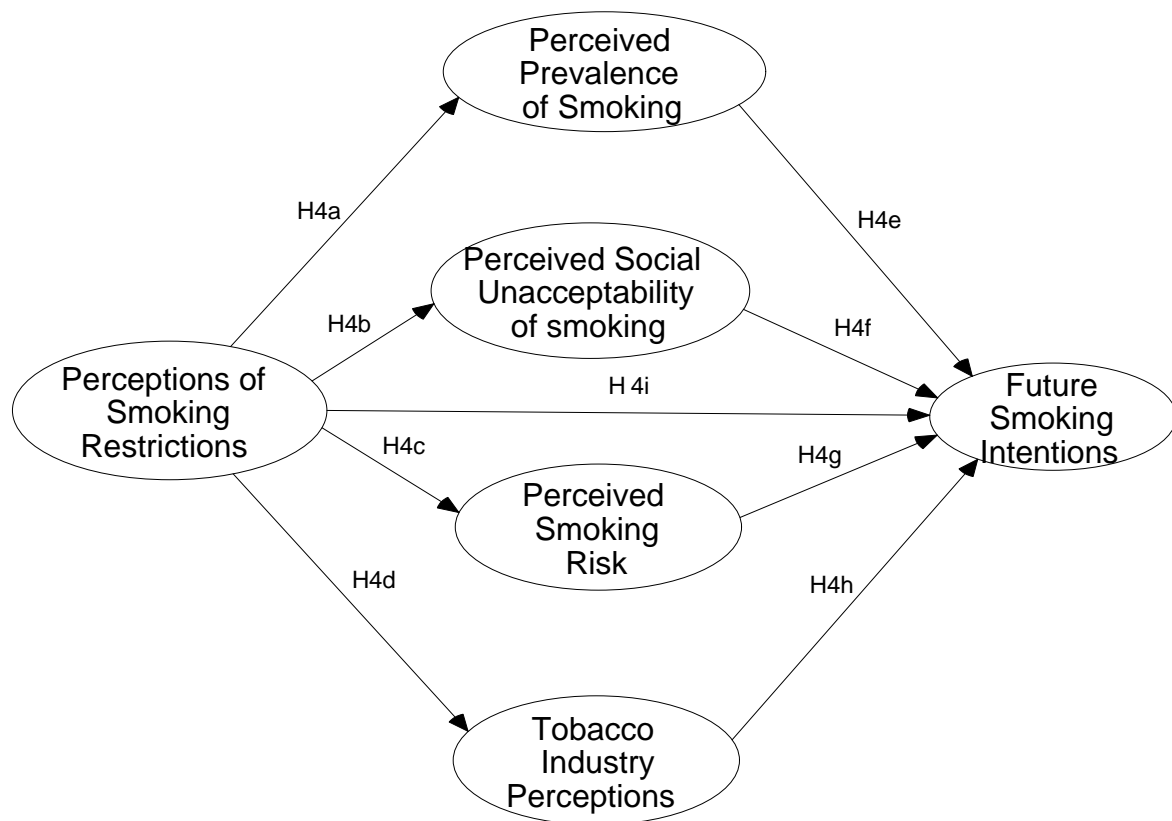
Source: UK Youth Tobacco Policy Study

4.2.5   Objective Seven: Exploring Adolescents' Perceptions of Tobacco control measures on social norms and smoking behaviour in the UK

Preventing young people from using tobacco remains a key global public health challenge. Less is known however about how teenage smokers and non-smokers view specific tobacco control measures. For example, while some measures, such as smoking restrictions in public places, appear to exert a more immediate influence on tobacco consumption and prevalence among adults, they may affect teenage use in the longer term through changing societal norms about smoking (Albers et al., 2004). It is important therefore to know which measures seem capable of transforming smoking norms and which are less influential, so that these measures can be developed, or altered, to maximise their potential. As much as there is a paucity of qualitative

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research exploring the role of current tobacco control measures in changing normative beliefs and smoking behaviour, this study address this gap by examining adolescents' perceptions of the effectiveness of several of these measures. The objective is to explore adolescents' perceptions of the effectiveness of tobacco control measures on social norms and smoking behaviour in the UK.

Tobacco policy measures and campaigns that incorporate social norms messages can possibly shape youth behaviour. Some authors however, view normative campaigns as vague, often contradictory and inappropriate to empirical tests, as a consequence of mixed results. The underlying reason, as noted earlier for this mixed successes could be attributed to a focus on only descriptive norms (e.g. Mattern and Neighbors, 2004; Broadwater et al., 2006), without considering injunctive norms (Cialdini and Goldstein, 2004) or other potential moderating variables (Lapinski and Rimal, 2005). In addition, as the field evolves and grows reports of failed social norms media campaigns is predictable, and is especially likely in light of the many ways in which the implementation and evaluation process can be flawed.

For instance, a related normative campaign by Clapp, Russell and DeJong (2001) reported a failed social norms media campaign in which students did not understand the message. The message and image were incongruent, and the image overpowered the message. In this campaign the image featuring 'a student throwing up' was inconsistent with the normative data provided, and students were more likely to remember the image than the data.

Despite these failed normative campaigns, programs such as the 'Truth' campaign in Florida and the Montana's "Most of Us Are Tobacco free" social norms programs have been found to reduce smoking prevalence by conveying a normative message to adolescents that tobacco use is undesirable, socially unacceptable and less prevalent in

society. The American Legacy Foundation's 'truth' campaign, a national tobacco counter-marketing campaign, was purposed to denormlise tobacco use through hard-hitting advertisements that feature youths confronting the tobacco industry (Pierce et al., 1998). Declines in smoking initiation and prevalence among Floridian adolescents after campaign onset were paralleled by significant increases in negative and unfavourable attitudes about the industry, whereas, in the rest of the US, adolescent smoking increased and negative attitudes about the industry remained unchanged (Sly et al., 2001, 2002).

Likewise, a state-wide campaign, the Montana's "Most of Us Are Tobacco free" social norms program, revealed delayed first-time use of tobacco by teenagers in an eight-month, seven counties project (Linkenbach and Perkins, 2003a). A comparative analysis of the post-test evaluation demonstrated a significantly high awareness of the normative message of non-use (and misperceived norms of tobacco use was significantly less), as more teenagers spontaneously recalled exposure to television, radio, and newspaper tobacco prevention messages during the past thirty days in the intervention than in the control counties. There was also a marked and statistically significant difference from pre-test to post-test as 41% lower rate of smoking initiation was reported among respondents in the intervention counties than their peers in the control counties.

From the preceding discussion a theoretical explanation is needed to unearth how young people come about beliefs and attitudes about smoking, such as perceptions of prevalence, approval or acceptability, and unfavourable industry perceptions of smoking. This thesis employs focus group research to explore how and why adolescents' perceptions of current tobacco control measures and campaigns in the UK can help to shape social norms and smoking behaviour. The group study seek to

provide insight into how and why youth react to several tobacco policies enacted over years, and in what way they perceive this impacts social norms of smoking among youths and adults. A proper understanding of the reasons underlying why and how smoking norms are formed is important in order to develop effective social norms interventions and refine measures in general that can possibly transform smoking behaviours among youths and adults.

4.3   Summary

This chapter identified the research gaps in the literature, provided the study objectives, questions and research hypotheses, and proposed the research framework that will further contribute towards the topic under investigation. Having provided the adopted research framework, the focus of Chapter Five is to present the research methodology employed in this thesis in more detail.

CHAPTER FIVE

5.0   Research Methodology

As discussed in chapter one, the aim of this thesis is to investigate how, if at all, public policy impacts social norms. This thesis therefore contributes to the Framework Convention on Tobacco Control (FCTC) - the world's first public health treaty, by evaluating how tobacco control measures influence social norms and smoking behaviour. The research methodology employed in evaluating normative pathways between tobacco policies and smoking behaviour is presented in this chapter. First, the research philosophies, i.e. epistemology are presented to show the theoretical reasoning for selecting the research methods. Next, the research design is presented which focus on the research methods (i.e. involving quantitative and qualitative methods) adopted to provide multiple sources of converging evidence that will resolve the research problem. On account that majority of research in tobacco control is based on either quantitative or qualitative data, mixed methods is employed to evaluate the usefulness of this emerging research area so as to contribute to public health. Following this, the choice of research methods adopted for the ITC Scotland/UK study, UK YTPS surveys and the focus group discussion are presented in the subsequent sections to show the data gathering procedures, sampling techniques, analytic methods and research instruments or measures employed for the quantitative and qualitative approach.

5.1   The Research Philosophies

Like all researchers, when deciding on a particular research methodology in public health, the question often confronted with is: what is the best way to investigate the research problem? To answer this question the debate tends to centre on positivist and

humanistic reasoning (Johnstone, 2004). Glanz et al. (1990) observed for instance, that theory and research in public health education have been traditionally based on the tenets of logical positivism. This was in part due to its close links with biomedicine, which favours positivism inquiry based on empirical gathering of quantifiable data (Lupton, 1995). However, in recent times most public health research especially in tobacco control has embraced either positivism inquiry alone or in combination with humanistic inquiry (Baum, 1995; Casebeer and Verhoef, 1997; Sofaer, 1999; Nichter et al., 1997; Crawford, et al., 2002; Heath et al., 2004).

Positivism inquiry can be equated with the experimental, hypothesis-testing approach used in the natural sciences (Buchanan, 1998). It facilitates access to powerful statistical tools, depends on prior work on conceptualization, and on valid and reliable measurement (Babbie, 1998). On the other hand, humanistic inquiry promotes the advance of practical reason or phronesis (Buchanan, 1998; Taylor, 1995), in order to gain in-depth understanding of a research problem. It utilizes a phenomenal approach, which focuses on qualitative methods and provides valuable and rich descriptions of complex phenomena; tracks unique or unexpected events; illuminates the experience and interpretation of events by actors with widely differing stakes and roles; gives voice to those whose views are rarely heard; conducts initial explorations to develop theories and moves toward explanations (Sofaer, 1999; Heath et al., 2004).

These two distinct research philosophies (positivist and humanistic/phenomenological inquiry; see figure 5.1) describe the sequential reasoning which is prerequisite for investigators to discover, describe, explain and interpret a phenomenon under investigation (Kaplan, 1964; Morgan, 1998). The humanistic inquiry comprises a series of stages, i.e. conceptualization of the research phenomenon, explorative investigation and personal involvement of the phenomenon. As Berg and Smith

(1988; p25) argued, it entails: (a) direct involvement with and/or observation of human beings or social systems; and (b) commitment to a process of self-scrutiny by the researcher as he or she conducts the research; (c) willingness to change theory or method in response to the research experience during the research itself; (d) description of social systems that is dense or thick and favours depth over breadth in any single undertaking; and (e) participation in the social systems being studied under the assumption that much of the information is only accessible to or reportable by its members.

Table 5.1 Functions of Inquiry

Positivism	
Prediction	Hypothesizes in advance about the strength and direction of relationships among independent variables or about the results of experimental interventions
Explanation	Gives or shows the cause of a phenomenon using statistical techniques such as multiple regression
Humanistic	
Making explicit assumptions	Develops or formulates direct, publicly available statements about states of affairs previously taken for granted.
Understanding	Grasps or uncovers the meaning and significance of events
Sense making	Puts forward an interpretation of events to stimulate a discerning awareness and appreciation of their significance
Sensitization	Stimulates a more responsive and more delicate awareness of the nuances of a given situation through analytic descriptions
Critique	Evaluates and analyzes the merits and demerits of extant and potential states of affairs

Source: Adapted from Buchanan, 1998; Beyond positivism

By contrast, positivism is based on the belief that phenomena can be deduced to their constituent parts, measured and then causal relationships deduced. Positivism therefore follows a deductive process of knowledge attainment, which logically uses quantitative and experimental methods to test hypothetical generalizations (Hanson and Grimmer, 2007). This approach is a theory testing process starting with an established theory or generalization, and seeks to see if the theory is applicable to specific instances. It also seeks to verify facts and searches for causal explanations and fundamental laws, and generally reduces the whole to simplest possible elements in order to facilitate analysis (Easterby-Smith et al., 1991; Remenyi et al., 1998).

Traditionally, this approach has been dominant in established disciplines such as the physical sciences and social sciences, e.g. health policy research and epidemiological research (Kidd, 2002; Baum, 1995). For instance, research relating to tobacco control and drug abuse prevention has widely used this form of inquiry, employing various theories, e.g. Theory of Planned Behaviour, Theory of Reasoned Action, and Trans-theoretical Model to effect health behaviour change (Bledsoe and Graham, 2005; Bledsoe, 2006; Carlson et al., 2005; Callaghan et al., 2007). The assertion is that an objective reality is out there to be found and epistemologically this can be accomplished with knowable degrees of certainty using objectively-correct scientific methods (Jean Lee, 1992; Long et al., 2000; Neuman, 1994, 2003). The consequence is certain knowledge, even when bounded by probabilities of correctness. Among the major implications of this approach are the need for independence of the observer from the subject being observed, and the need to formulate hypotheses for subsequent verification. Concepts such as reliability, validity and statistical significance are methodically employed with the purpose of describing some part of reality with certainty (Hanson and Grimmer, 2007). There might be limitations on this certainty

but the background assertion is always that it is possible to determine the extent to which reality has been described (Cohen, 1992, 1994; McClelland, 1997; Nancarrow et al., 2001). Nonetheless, positivism's high ground in research had been shaken since the 1960s by critique from philosophers of science (Popper, 1959; Toulmin, 1961; Kuhn, 1970; Feyerabend; 1975) and numerous proponents of the competing 'qualitative' research paradigms.

Humanistic inquiry, an inductive reasoning process, uses qualitative and naturalistic approaches to holistically understand human experience in context-specific settings (Sale et al., 2002). This approach deemed a theory building process, commences with observations of specific instances, and seeks to establish generalizations about the phenomenon under investigation. Inductive reasoning tries to understand and explain a phenomenon, rather than search for external causes or fundamental laws (Easterby-Smith et al., 1991; Remenyi et al., 1998). Inductive reasoning, by its very nature, is more open-ended and exploratory, especially at the beginning, observes the world, and attempt to explain based on observations and start with no prior assumptions.

Deductive reasoning is narrower in nature and is concerned with testing or confirming hypotheses. It tests the validity of statements using cause-and-effect hypotheses such as the 'If-Then' form (Buchanan, 1998). For example, to test whether normative perceptions are related to behaviours, the researcher could propose a hypothetical statement like: 'If social norms of smoking change (become more positive, i.e. less normative), then quitting behaviours will change (become more positive)'. This can then be tested to ascertain whether norms are, in fact, related to behaviours. Deductive reasoning therefore involves conceptualization of theories in the form of statements about relationships among variables of interest from which hypotheses are deduced. These hypotheses make predictions about the outcome variable of interest as a

consequence of changes in the independent variables. It is worth noting however that, although in the past public health research have been dominated by positivism inquiry, the extant literature has revealed that in recent times health researchers have embraced both paradigms to resolve public health concerns (Bond and Corner, 2001; Bledsoe, 2006).

5.1.1   Public Health Research Paradigms

In order to understand which research paradigm, i.e. positivism and/or humanistic approach is appropriate for a public health inquiry; the underlying reasons for selecting a particular paradigm needs investigation. Howe (1992) suggested that researchers should forge ahead with what works. This assertion appears to be the prevalent attitude in mixed methods research and suggest that only pragmatists, or those not committed to either paradigm, would attempt to combine research methods across paradigms. However, the issue of differing assumptions of the two paradigms as shown in Table 5.2 is not addressed. By definition a paradigm is a set of basic beliefs or a worldview that defines, for its holder, the nature of the world, the individual's place in it, and the range of possible relationships to that world and its parts (Guba and Lincoln, 1994). It provides a general perspective on the complexities of the real world. These broad perspectives of worldview are based on the following assumptions, i.e. ontology (the basic philosophical beliefs related to the nature of the social world), epistemology (the nature of social knowledge), axiology (the nature of value, which captures the value question of what is intrinsically worthwhile), and methodology (the ways in which such knowledge can be developed and constructed) (Guba and Lincoln, 1994; Heron and Reason, 1997, p.287).

Table 5.2. Major Assumptions of Positivist and Humanistic/Naturalistic Paradigms

Assumptions	Positivist Paradigms	Humanistic Paradigms
Ontological (what is the nature of reality?)	Reality exist; there is a real world driven by real natural causes.	Reality is multiple and subjective mentally constructed by individuals.
Epistemological (how is the inquirer related to those being researched?)	The inquirer is independent from those being researched; Findings are not influenced by the researcher.	The inquirer interacts with those being researched. Findings are the creation of the interactive process.
Axiological (What is the role of the values in the inquiry?)	Values and biases are to be held in check. Objectivity is sought.	Subjectivity and values are inevitable and desirable.
Methodology (How is knowledge obtained?)	*Deductive Processes* Emphasis on discrete specific concepts. Verification of researchers' hunches. Fixed design Tight control over context. Emphasis on measures, quantitative information, statistical analysis. Seeks generalizations.	*Inductive Processes* Emphasis on entirely some phenomenon. Emerging interpretation grounded in participants' Experiences. Flexible design and context bound. Emphasis on narrative information; qualitative analysis. Seeks patterns.

Source: Adapted from Polit and Beck (2004)

Much of the literature on research paradigms suggest that the choice of a particular epistemological position leads to a preference for a particular method on the grounds of its greater appropriateness given the preceding philosophical deliberations. Advocates of positivism and humanistic (i.e. quantitative and qualitative) paradigms have engaged in fervent dispute over the past five decades (Popper, 1959, 1968). From these debates, purists have emerged on both sides (Campbell and Stanley, 1966; Lincoln and Guba, 1985). Proponents of quantitative paradigm (Ayer, 1959; Maxwell and Delaney, 2004; Popper, 1959; Schrag, 1992) articulate assumptions that are consistent with what is commonly called a positivist philosophy. The assertion of quantitative purists is that social observations should be treated as entities in much the same way that physical scientists treat physical phenomena (Bryman, 1984, 2001). It further asserts that the viewpoint of the observer must be bear in mind at all times in describing any part of the world.

This line of reasoning suggests that the observer is separate from the entities that are subject to observation and maintain that social science inquiry should be objective. Time- and context-free generalizations are considered desirable and possible, and real causes of social scientific outcomes arguably, can be determined reliably and validly (Nagel, 1986). In accord with this school of thought, qualitative researchers should eliminate their biases, remain emotionally detached and uninvolved with the objects of study, and test or empirically justify their stated hypotheses.

Proponents of qualitative paradigm (humanistic inquiry) reject what they call positivism and argue for the superiority of constructivism, idealism, relativism, humanism, hermeneutics, and, sometimes, postmodernism (Guba and Lincoln, 1989; Lincoln and Guba, 1985; Schwandt, 2000; Smith, 1983, 1984; Ritchie and Lewis, 2003). Qualitative purists justify their preference for participant observation by

reference to its ability to meet a prior set of epistemological requirements, such as being much more fluid and flexible than quantitative paradigm in that it emphasizes discovering novel or unanticipated findings and the possibility of altering research plans in response to such unexpected occurrences (Smith, 1983, 1984; Bryman, 1984, 1988). The perspective of qualitative purists is that qualitative methods are more sensitive to the complexities of social phenomena than quantitative methods which tend to ride forcefully over their unfathomable quality (Bryman, 1984; Green and Thorogood, 2004). They contend that the pursuit of directly observable quantitative indicators leading to abstract causal relationships among them, which is then imposed upon an unsuspecting social reality neither captures the underlying phenomena in their full complexity nor facilitates an understanding of their contextual significance (Sale et al., 2002). Qualitative purists however, assert that prolonged and close involvement provides empirical leverage upon such concerns.

Essentially, the viewpoint held by qualitative purists is that multiple-constructed realities arguably abound, that time- and context-free generalizations are neither desirable nor possible, that research is value-bound, that it is impossible to differentiate fully causes and effects, that logic flows from specific to general (e.g. explanations are generated inductively from the data), and that knower and known cannot be separated because the subjective knower is the only source of reality (Guba, 1990). Qualitative purists also are characterized by a dislike of a detached and passive style of writing, and rather preferring, detailed, rich, and empathic description, written directly and somewhat informally.

Remarkably, both sets of purists view their paradigms as the ideal for research, and, implicitly if not explicitly, advocate that these are incompatible (Howe, 1992). They posit that qualitative and quantitative research paradigms, including their associated

methods, cannot and should not be mixed. Guba, a qualitative purist, affirmed this assertion when he contended that accommodation between the two paradigms is impossible on account that these two lead to vastly diverse, disparate, and totally opposing ends (Guba, 1990, p. 81). His assertion brings into play the persistent focus on the differences between the two orientations, resulting in two research cultures, i.e. one professing the superiority of deep, rich observational data and the other the virtues of hard, generalisable data (Sieber, 1973, p. 1335; Guba and Lincoln, 1989).

Regardless of the many important paradigmatic differences between qualitative and quantitative paradigms, it makes philosophical sense to combine these approaches because both provide better (stronger) inferences about the research questions and offer an opportunity for presenting a greater diversity of divergent views (Haase and Myers, 1998; Sale et al., 2002; Biesta and Burbules, 2003). Indeed, Dzurec and Abraham (1993, p. 75) pointed out that the objectives, scope, and nature of inquiry are consistent across methods and across paradigms.

In the light of public health research, the focus has broadened from positivism approach to incorporate humanistic approach. Recognition of the value of qualitative methods in health research implies that positivism inquiry alone is not able to do justice to the complexities of public health (Baum, 1995; Caracelli and Greene, 1993; Caracelli and Riggin, 1994; Casebeer and Verhoef, 1997; Datta, 1997; Greene and Caracelli, 1997; House, 1994; Morgan, 1998). In particular, the World Health Organization (WHO) has recognised that both paradigmatic approaches can help improve public health concerns (Baum, 1995). The international health organisation has come to appreciate that health issues are a result of a complex mix of social, economic, political and environmental factors all of which reflect complex issues of power, status and resource distribution. As Baum (1995) asserts, even when both

methods are combined, understanding and interpreting the rich tapestry against which public health strategies are implemented and evaluated remains extremely challenging. In spite of this, public health researchers often engage in intense debate about the suitability of different methods. A true understanding of the strengths and weaknesses of both paradigms is therefore essential to highlights the need for flexible research methods which can accommodate the unexpected happenings, often a matter of concern to public health advocates (Morgan, 1998). By considering combined paradigms, e.g. mixed methods, theories and data sources, researchers will be equipped to overcome the intrinsic bias that comes from single-methods, single-observer and single-theory studies (Denzin, 1978; Baum, 1995).

5.1.2   Argument for Mixed Methodology Approach

Having discussed some of the basic philosophical assumptions of the two paradigms this section provides the distinctions between the two paradigms (i.e. strengths and weaknesses) to support arguments for combining quantitative and qualitative methods in a single study. In the 1990s, the idea of combining qualitative and quantitative methods into one methodology with variant typologies was proffered as a way to extend the repertoire of social science and health research (Jick, 1979; Creswell, 2003; Miller and Crabtree, 1994). The notion of using mixed methods was to explore issues and problems when little was known (Campbell and Stanley, 1966; Morgan, 1998) and to ensure confidence in the conclusions made (Denzin, 1978). Mixed methods approaches became an emerging 'new paradigm' which offered, as it was argued, a bridge between the paradigms and more diversity in methods available to researchers dealing with complex problems in practice. The assertion was that

combining qualitative and quantitative methods would give more evidence, more certainty and therefore more confidence in the 'truth value' of the outcomes.

With regards to public health research, recent health concerns have led researchers to recognize the need for multiple approaches to understanding problems and developing effective interventions that address contemporary public health issues (Baum, 1995; Sale et al., 2002). Indeed, Ulin et al. (2005) asserted that today's public health concerns are associated with socioeconomic, political, genetic and environmental factors. The authors noted that public health problems are complex, not only because of their multi-causality but also as a consequence of the new and emerging domestic and international health needs. Therefore, employing mixed methods, e.g. qualitative methods along side quantitative methods fills a gap in public health research by helping us understand the *how* and *why* questions of attitudes, perceptions and cultural norms relating to health behaviours in a way that quantitative methods alone cannot.

Although, employing quantitative methods alone has been very useful in explaining public health issues, especially the cause and extent of disease, it has also been criticized for enforcing a simplistic and possibly misleading process of categorization on phenomena (Busfield and Paddon, 1977; Johnstone, 2004; Baum, 1995). In general applying quantitative methods involve numerical estimation and statistical inference from a generalizable sample, which are usually used in relation to a larger population of interest. For instance, epidemiologists have often used quantitative methods to design case control or cohort studies, where attempts are made to exert control over sufficient variables to make an internally valid design. These designs have been powerful in suggesting a link between an external factor and a particular disease such as the link between tobacco smoking and lung cancer. The outcome of such crucial designs is better understanding of disease causality. Most commonly, these methods

use surveys, ranging from small-scale surveys used in local needs assessments to international registers commonly used to compare mortality and morbidity patterns across countries. Survey data collection repeatedly allows comparison across time which is often crucial for evaluating the progression of diseases and the effectiveness of preventive measures. However, critics argue that quantitative methods might mask peoples' experience and their interactions with others and therefore is less powerful in allowing an understanding of the complex issues that have become the concern of public health in recent years.

Alternatively, qualitative methods provide narrative description and constant comparison to understand the specific populations or situations being studied. Qualitative results also help to understand the psychosocial, economic and political factors associated with contemporary and emerging public health issues (Ulin et al., 2005; Powell and Single, 1996). Detailed, valid data that allow formulation of new hypotheses and inform further study or practice are generated from qualitative methods. On the other hand, quantitative methods result in reliable, empirical data upon which preconceived hypotheses are evaluated. As Eisner (1991) asserts all knowledge including that gained through quantitative research, is referenced in qualities, and that there are many ways to represent our understanding of the world.

To some extent the basis for employing both qualitative and quantitative methods is that statistical research is not able to take full account of the many interaction effects that take place in social settings (Cronbach, 1975). The author noted with examples of several empirical 'laws' that do not hold true in actual settings to illustrate this point and stated that "the time has come to exorcise the null hypothesis," because it ignores effects that may be important, but that are not statistically significant. However, qualitative inquiry accepts the complex and dynamic quality of the social world and

allows for a situational responsiveness that strict adherence to one paradigm or another will not (Patton, 1990).

To this end, combining qualitative and quantitative research is believed to be an effective method by many researchers (Strauss and Corbin, 1990; Patton, 1990). For instance, inclusion of qualitative methods might provide a better understanding of a particular natural (uncontrolled) fact, which often looks for patterns and processes that explain how and why of research problems. This also helps simultaneous expression of preference for a contextual understanding so that behaviour is understood in the context of meanings, norms and systems employed by a particular group or society. In this vein, qualitative research is deemed to be much more fluid and flexible than quantitative research in that it emphasises on discovering a novel or unanticipated findings and the possibility of altering research plans in response to such unexpected occurrences (Bryman, 1984). Consequently, Casebeer and Verhoef (1997) argued that instead of either ignoring or defending a particular research paradigm, it is possible and more instructive to see qualitative and quantitative methods as part of a continuum of research techniques, all of which are appropriate depending on the research objective. Shaffir and Stebbins(1991) demonstrated this assertion in their work in a way that challenges the notion that qualitative methods is entirely exploratory and inductive, while quantitative method is solely explanatory and deductive. Table 5.3 illustrates the usual distinctions often made concerning the use and value of both methods. The term 'usual' used in table 5.3 serves as a reminder that these distinctions are not entirely discrete.

TABLE 5.3. Usual distinctions between Quantitative and Qualitative Paradigms

Deduction Reasoning	*Induction Reasoning*
Objectivity	Subjectivity
Causation	Meaning
Type of question	
Pre-specified	Open-ended
Outcome-oriented	Process-oriented
Type of analysis	
Numerical estimation	Narrative description
Statistical inference	Constant comparison

Source: Adapted from Casebeer and Verhoef, 1997

Along with the recognition that both methodological approaches have an equally respectable place in public health research; quantitative and qualitative methods can and should co-exist as potential tools of the research paradigms (Caracelli and Greene, 1993, 1997; Caracelli and Riggin, 1994; Casebeer and Verhoef, 1997; Punch, 1998).

On account that public health research has been dominated by mixed methods approach and to provide a rich, detailed understanding and stronger inference of the reasons underlying youth and adults smoking behaviour, this thesis employs both quantitative and qualitative methods to evaluate: (1) the normative perceptions and quit intentions of a cohort of adult smokers, and whether their behavioural outcomes are affected by tobacco control measures, e.g. smoke-free legislation; and (2) explore why and how tobacco control measures affect adolescents perceptions of smoking and social norms. The chosen methods are thought to be compatible and appropriate given

that stronger, reliable and valid conclusions are expected to be drawn from this study approach, which will provide valuable insight into the mechanisms underlying smoking behaviours. This permits rigor, conscientiousness, and critique in the research process (Reichardt and Rallis, 1994). Indeed, evidence suggest that research efforts should focus on understanding why and when to use one or the other method, or both, rather than justifying the less highly regarded method which appears to shift over time and across disciplines in any case (Forthofer, 2003). Frequently, mixed methods have been used in health promotion and public health research in an attempt to understand the processes and outcomes in different but equally complex health behaviours (Haase and Myers, 1988; Baum, 1995; Smith, 1983; Creswell, 2003; Tashakkori and Teddlie, 2003). To answer these complex health behaviours most health researchers have argued in favour of mixed research methods, which continue to grow in acceptance (House, 1994; Smith, 1983; Forthofer, 2003; Creswell, 2003; Haase and Myers, 1988). Most of the mixed methods approach frequently starts with qualitative research, e.g. interviews or focus group to develop a preliminary understanding of the health problem (Forthofer, 2003). The results of this qualitative approach are used to develop more standardised methods, i.e. quantitative methods such as sample surveys. This follows a more quantitative research to help provide an in-depth interpretation of the findings and allows for the best possible series of research, i.e. qualitative-quantitative-qualitative methods. Research on the determinant of breast and cervical cancer screening has been used to illustrate this mixed method approach among women in Florida (Forthofer, 2003; Bryant et al., 2000). Using a mixed method approach not only allowed the researchers to understand how many women had sought breast cancer screening, but also provided insight into why they had or had not taken advantage of the screening services in the

area. The approach also provides confidence in both internal and external validity of the study findings (Forthofer, 2003). Parsons and MacCormack Brown (2004) demonstrated how mixed method approach can be used to answer research questions regarding tobacco and alcohol use among young people. Similarly, some researchers have argued that the complexities of most public health problems (Baum, 1995) or social interventions, such as health education and health promotion programs (Steckler et al., 1992), require the use of a broad spectrum of qualitative and quantitative methods. Others claim that researchers should not be preoccupied with the quantitative-qualitative debate because it will not be resolved in the near future, and that epistemological purity does not get research done (Miles and Huberman, 1984; Forthofer, 2003).

5.2   Research Design

Having provided an overview of the various research methodologies available to the social scientist and the rationale for selecting a mixed methodology approach, the next step is to focus on the research design used in this study. The pluralistic approach, i.e. quantitative and qualitative data used in this study, allows analyses of quantifiable data (i.e. from a longitudinal survey of adult smokers and ongoing cross-sectional study of adolescents) combined with qualitative data from the focus group study of youth smokes and non-smokers. By adopting mixed methods approach to this research, the chosen method is centred on analytical and narrative (descriptive) method (Patton, 1990; Steckler et al., 1992). The analytical method involves the statistical evaluation of changes in normative perceptions (e.g. social unacceptability of smoking, a mediating variable), outcome measures such as quit intentions, and policy related or independent variables, e.g. smoke-free legislation. This method

results in high population validity and reliability (Patton, 1990; Trochim, 2006), but critics have expressed a lack of ability to express true sentiments on account that respondents may feel constrained by the types of questions employed as well as the inability for the investigator to prompt and probe respondents freely through naturalistic methods, e.g. participant observation based on an inductive approach (Donnellan, 1995). Moreover, despite the rich and in-depth information that can be obtained via qualitative method about the research problem, it is not devoid of criticism as it lacks the ability to produce information that can be used to generalise a target population to some degree of certainty. Therefore, by employing a mixed methodology approach the chances of making invalid statements following data analysis can be reduced (Patton, 1990; Campbell and Fiske, 1959). The descriptive method, i.e. focus group discussion involves exploring adolescents' perceptions about how and why they react to tobacco control measures in relation to social norms of smoking. Hence, the quantitative and qualitative data used serves as complementary data, permits different research techniques and minimises biases in single-method approach (Campbell and Fiske, 1959; Smith, 1983). The credibility of the study is also increased as it follows a pluralistic approach which enables cross-checking of internal data.

This thesis evaluates probable relationships between tobacco policies, normative beliefs and smoking behaviour of youth and adult smokers and non-smokers in Scotland and the rest of the United Kingdom to understand the mechanisms underlying how tobacco policy influence smoking behaviour. The underlying reason is to establish whether tobacco policies directly impacts smoking behaviour or indirectly through its influence on normative beliefs (perceptions of prevalence, acceptability and the tobacco industry perceptions) among youth and adults. Policy

relevant findings that significantly lead to changes in smoking behaviour will provide support and build the evidence base for the FCTC implementation throughout the world. The justification for employing this approach (both quantitative and qualitative data) was to broaden the depth and richness of the findings, and thereby increase the validity and reliability of the theoretical propositions, that point to the fact that one of the mechanisms by which public policy impacts behaviour is through normative influences.

Two existing quantitative datasets, i.e. the International Tobacco Control (The ITC Scotland/UK Project) and the UK Youth Tobacco Policy Study (UK YTPS) were readily available, so the analytic approach took the form of descriptive and inferential techniques (Anderson et al., 1996; Bryman and Cramer, 1997). Additionally, a more qualitative content analysis was used with the focus group data to explore why and how adolescents (aged 11-16, recruited in Lothian and Glasgow) react to tobacco control measures and social norms in order to confirm and complement the quantitative data findings. On account that a mixed methodology approach is employed it is expected that a more balanced findings will emerge from this research rather than from either a purely quantitative or qualitative approach (Campbell and Fiske, 1959; Patton, 1990).

5.2.1   Conceptual Synthesis: ITC Scotland/UK and UK YTPS

As stated earlier, this study fills a gap in the literature by investigating the impact of several key national-level tobacco control policies (i.e. tobacco advertising and promotion ban and smoking restrictions) enacted over the years on adults and adolescents' smoking outcomes through the mediated effect of normative beliefs in

the United Kingdom. The first phase of the study employs quantitative data and draws from the ITC Scotland/UK Survey and the UK Youth Tobacco Policy Study datasets. The study primarily draws from the ITC Scotland/UK dataset to investigate whether smokers' normative beliefs explain how a given policy (i.e. support for smoking ban) may lead to changes in quit intentions. The International Tobacco Control Policy Evaluation Project (the ITC Project) is an international consortium of tobacco control researchers who have come together to establish a very influential and productive research initiative. The goal of the international research programme is to rigorously evaluate evidence-based, national-level tobacco control policies that form the bedrock of the Framework Convention on Tobacco Control (FCTC). The FCTC is the first-ever international treaty on public health. The power of this data set continues to increase, as additional countries have joined and the cumulative information generated by the time series data strengthens the evidence for the positive impact of proven tobacco control policy measures on tobacco-related attitudes, knowledge and behaviours. An active commitment to publication and dissemination of results has also proven to be a valuable and effective counter-measure to the misinformation strategy of the tobacco industry and its lobbyists. The unequivocal evidence of the positive impact and acceptability of tobacco control policy generated by the ITC project is a vital tool in refuting tobacco industry lobbying against tobacco control policy.

Launched in 2002, the initial ITC Project, known as the ITC Four-Country Survey is a cohort survey of a representative sample of over 2,000 adult smokers in each of the four countries (Canada, US, UK, and Australia). A further 16 countries, i.e. Ireland, Thailand, Malaysia, South Korea, China, Mexico, Uruguay, New Zealand, France, Germany, Netherlands, Brazil, Bangladesh, Mauritius, Bhutan and India have now

joined the collaboration of tobacco control researchers whose mission is to conduct parallel annual surveys. With regards to the ITC Four-Country Survey, six annual survey waves have been successfully completed.

The ITC Project focuses not only on whether a given policy has its desired effect, but also on how and why those policy effects are achieved. Aside from the ITC Project, there have been few international studies involving natural experiments (also known as "quasi-experiments") in which one country that is implementing a tobacco control policy is compared to other countries in which no such policy has been implemented. Among these policies are the enhancements of warning labels on tobacco packages, restrictions on the use of light or mild descriptors of tobacco products, restrictions on advertising and promotion of tobacco products, changes in taxations or price, lifting of restrictions on alternative nicotine delivery products (e.g. toxicant-reduced cigarettes and smokeless tobacco products), and smoking ban in public places.

Respondents (adult smokers aged 18 and above) were selected at random from the population of each country using random-digit dialling (RDD) methods within strata defined by geographic region and community size. In three of the countries, i.e. Canada, the US and the UK, samples were generated by Survey Sampling International (SSI) using the random digit dialling methodology. In Australia, no comparable sample was available; as a result, a probability sampling frame was created using a similar design as for the other three countries.

This thesis is specifically focussed on a unique area of the ITC project, that is, the mediating effects of normative beliefs, as a tobacco policy-related variable such as support for smoking ban impact quit intentions. The study also addresses the longitudinal nature of the ITC dataset as it explores whether there are changes in normative perceptions over time as a consequence of policy exposure. Policy

effectiveness on quit behaviours can be established if, say, social norms of smoking have changed across time, and whether that led to a relevant behaviour. Second, the UK Youth Tobacco Policy Study conducted to examine UK youth's awareness of tobacco marketing before, during and after the TAPA also assess whether similar effects (i.e. mediating influences) as examined in the ITC Scotland/UK data are prominent among adolescents. Finally, to complement findings from the quantitative methods and increase the validity of the results, focus group discussion is used to explore how and why adolescents' perceptions of tobacco control measures affect their normative beliefs of smoking and behaviour in the UK.

5.2.2   Conceptual Framework: The ITC Project

The conceptual model depicts the processes by which tobacco control policies affect behaviour (figure 5.1). The general conceptual model is a causal chain model, and as such, suggests that the proximal variables play a critical mediating role because they reside between the policy and the outcome variables that are so important in public health, for example, quitting behaviour. Policies are conceptualized as affecting a variety of psychosocial and behavioural variables. The most immediate effects are those on the proximal variables, that is, those variables that are most connected with the policy itself. Hypothetically, graphic warning labels should increase salience and noticeability; price should affect perceived expense or costs of cigarettes (e.g. belief that cigarettes have become too expensive), lifting of restrictions on alternative nicotine products, should lead to increased awareness of the availability of those products. These in turn may increase the likelihood of discrete behaviours such as smokers hesitating, or even forgoing or stubbing out cigarettes.

Figure 5.1: The ITC Project Conceptual Model
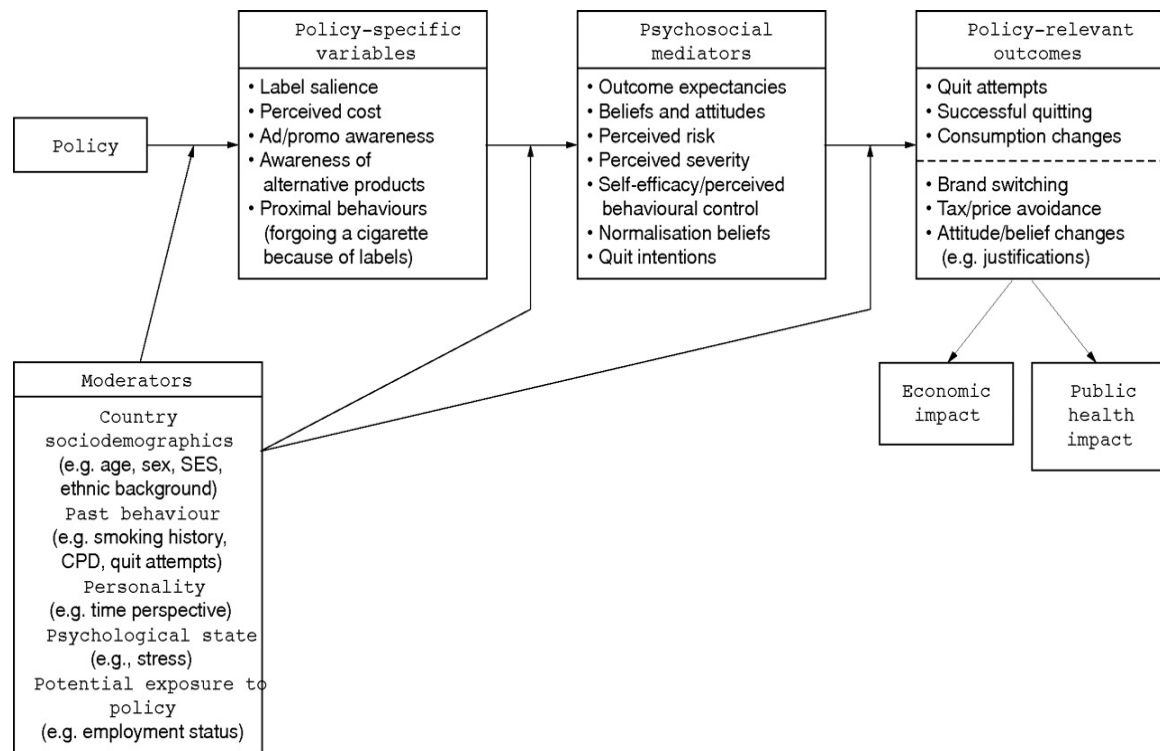
Source: Adapted from Fong et al., 2006

Distal variables are those that are more distant from the policy, but are those that have been demonstrated to predict smoking behaviour and changes in smoking behaviour (e.g. quitting). Among these are variables from well-known psychosocial models of health behaviour, including the Theory of Planned Behaviour (Ajzen, 1985), Social Cognitive Theory (Bandura, 1986), the Health Belief Model (Becker, 1974), and Protection Motivation Theory (Rogers and Prentice-Dunn, 1997). It is hypothesized that policies affect these distal variables indirectly, through their prior effects on the proximal variables.

An essential aspect of the ITC Project is to understand the psychosocial processes that explain how and why a given policy may lead to changes in smoking behaviour. The

longitudinal design helps to explicitly test the causal chain of effects that is depicted in the model; a repeat cross-sectional design would not.

The conceptual model is also a general framework for thinking about policies and their effects on a broad array of important psychosocial and behavioural variables. It is hypothesized that there will be important distinctions across different policies in not only whether those policies are effective, but also how they achieve their effects by explicitly testing those commonalities and differences among policies in this regard.

The behaviours of interest include measures that confer benefits (e.g. quitting outcomes) and also important compensatory behaviours that the smoker may engage in that, although responsive to the policy, may not lead to the economic and public health benefits that are ultimately the goal of such policies. For example, in response to price increases, smokers may switch to discount brands, which would confer no public health benefit. Efforts to evaluate these measures thus provide a more complete picture of the effects that may result from the implementation of a tobacco control policy.

It is assumed that policies vary in the psychosocial 'routes' that they take to affect behaviour. For example, if switching to graphic warning labels eventuates in increased quitting, then it is hypothesized that this occurs by first increasing their salience, noticeability, and the likelihood that smokers will think about the messages that appear. Thus, the first step in the causal chain is from labels to increases in these label salience variables, that is, in the proximal variables associated with labels. It is not expected that the same magnitude of change will take place in a proximal variable associated with some other policy (if that policy is not also being affected at the same time). Hence, a comparison of changes in proximal variables that should change (those associated with the policy that has changed) with changes in proximal variables

that should not change (those associated with some other policy that has not changed) is the key comparison. This pattern of results would provide further indication that changes in downstream variables are indeed associated with the policy that has changed. This strategy is an application of the principles of construct validity (specifically, of discriminant validity) that are central in making causal inferences from data. It should be noted, too, that the presence of control proximal variables is the analogue to the presence of control countries in the ITCPES design. In this way, then, the ITC Project provides both between-country and within-country controls. Additionally, changes in the proximal variable should be associated with downstream changes in the distal variables (e.g. quit intentions) and ultimately to quit attempts. Thus, rather than conceptualizing policy as affecting proximal variables and also affecting behaviour, it is conceptualized that policy affects proximal variables, which in turn, affect behaviour. In other words policy affects behaviour because it causes changes in psychosocial variables that are specific to that policy. The design of the ITC Project is therefore guided by the possibility of disentangling the web of alternative explanations and competing forces through the careful selection of specific mediators and applying the principles of causal inference through a combination of convergent and discriminant validity. A more detailed description and elaboration of the mediational models that underlie the ITC Project is available via www.itcproject.org.

5.2.3   Quantitative Methods (Sampling Procedure): ITC Scotland/UK Study

As previously stated the ITC Scotland/UK Survey was a quasi-experimental longitudinal telephone survey using nationally representative samples of both smokers and non-smokers, aged 18 years or older, in Scotland and the rest of the UK.

Participants were part of a larger cohort study conducted as part of the ITC Policy Evaluation Project (Fong et al., 2006). These participants were recruited by geographically stratified probability sampling with telephone numbers selected at random from the population of each country. List assisted telephone numbers comprising a sampling frame of 100-banks of residential numbers were obtained from Survey Sampling International (SSI).

Specifically, SSI begins with a database of all directory-listed households in the country. Using area code and exchange data, this file of directory-listed telephone numbers is subjected to an extensive cleaning and validation process to ensure that all exchanges are currently valid, assigned to the correct area code, and falling within an appropriate set of zip/postal codes. The SSI samples were generated using a database of 'working blocks.' A block (also known as a 100-bank or a bank) is a set of 100 contiguous numbers identified by the first two digits of the last four digits of a telephone number. For example, in the telephone number 255-4200, 42 is the block. A block is considered to be working if one or more listed telephone numbers are found in that block.

The SSI samples were generated using random sampling procedures in the U.K. and stratified sampling procedures in the U.S. and Canada. Stratified sampling divides the population of sampling units into subpopulations called strata. A separate sample is then selected from the sampling units in each stratum. Random B sampling methodology is an SSI term denoting samples of random numbers distributed across all eligible blocks in proportion to their density of listed telephone households. All blocks within the specified geographical stratum (e.g. county) are organized in ascending order by area code, exchange, and block number. Once the quota has been allocated to all regions in the frame, a sampling interval is calculated by summing the

number of listed residential numbers in each eligible block within the county and dividing that sum by the number of sampling points assigned to the county.

From a random start between zero and the sampling interval, blocks are systematically selected in proportion to their density of listed households. Once a block has been selected, a two-digit number is systematically selected in the range 00-99 and is appended to the exchange and block to form a 10-digit telephone number.

With regards to the ITC Scotland/UK study, the sample was stratified geographically, i.e. quotas were assigned to the numbers of respondents in each of several regions. The numbers in the sampling frame, randomly ordered, were called until these quotas were met. These quotas were proportional to current estimates of the size of the population 18 and over in the region. Only one respondent was selected from each household. The Next Birthday Method (Binson et al., 2000) was used to select respondents in households with multiple smokers. No substitution within household was permitted, except where the selected respondent was known to be unavailable for the entire fieldwork procedure, in which case the person in the household whose birthday is next became the respondent. An adult smoker was defined as an individual who reported smoking at least once in the month prior to interview and had smoked at least 100 cigarettes in their lifetime.

The two samples (Scotland and the rest of the UK) were interviewed one month before the smoking ban came into effect in Scotland on March 2006, and one year later. At follow-up, smoking bans in the rest of the UK had not yet been implemented, although they were imminent. Results are weighted to be representative of the adult smoker population within each country. The total achieved sample comprised 1,014 smokers at baseline (507 from Scotland and 507 from the rest of the UK), see table 6.1 for age and gender classification. The response rate was 29% in Scotland and 30%

in the rest of the UK. Hence, of the total sample of smokers recruited at baseline (i.e. 1749 and 1690 smokers in Scotland and the rest of the UK respectively), only 507 smokers each were successfully interviewed in Scotland and the rest of the UK. The retention rate (achieved sample) for Scotland and rest of the UK was 53% (270 smokers) and 51% (257 smokers) respectively at the follow-up survey and included 527 smokers. The study protocol was approved by ethics review boards at the University of Stirling (Scotland), University of Waterloo (Canada), Roswell Park Cancer Institute (United States) and the Cancer Council Victoria (Australia).

5.2.4 Recruitment into the Cohort

Recruitment of respondents into the ITC Scotland/UK study at baseline (wave 1) followed similar pattern as with the ITC Four Country Survey. All respondents were contacted twice. At the first contact, the recruitment survey was conducted to screen for eligibility and ascertain consent. This recruitment survey lasted an average of 9-13 minutes. During the recruitment, qualifying respondents (those at least 18 years old who had smoked at least 100 cigarettes and were currently smoking at least once a month) were asked to participate in a 35-minute survey on smoking being conducted by an international group of universities and research institutions in four countries. This 35-minute survey, which was typically conducted one week after the recruitment call, is known as the *Main Survey*. Respondents were told they would receive a small payment to thank them for their time and were assured that their responses would be kept strictly confidential. Smokers recruited into the ITC Scotland/UK survey received a £7 shopping (Boots) voucher as an incentive to participate while non-smokers received a £4 Boots voucher. For this research, only smokers are included in the analyses.

Where necessary, additional information was provided on the study, the survey firm and the research institutions. Interviewers arranged with respondents who agreed to participate in the survey to set up a time for the administration of the *Main Survey*. Respondents were also provided with contact information in case they had concerns about ethics or privacy. Finally, respondents were told that they would be contacted in approximately 6 months time to complete a second 35-minute survey, for which they would receive a second payment. It is worth noting that respondents recruited at baseline to the ITC Scotland/UK study were re-contacted one year after for the follow-up survey.

A compensation letter, containing the compensation, was mailed immediately after the recruitment call, so that it arrived before participants were called back to complete the *Main Survey*. The compensation letter also included information about the ITC research team and provided contact information for two individuals: (i) the Principal Investigator in the participant's country, and (ii) the person in the participant's country to whom concerns about ethics/privacy should be addressed. The amount of compensation was roughly standardized across each of the four countries: $10 US, $15 CDN, $15 AUS, or a £7 voucher for Boots shops in the UK. Respondents who had not received compensation by the time of the *Main Survey* call were given the option of completing the survey at that time or at a later date, after the incentive had arrived. This kind of pre-survey incentive (that is, compensating respondents before they have completed the survey) has been shown in randomized experiments to increase response rates by over 10% (Singer et al., 2000; Lynn et al., 1997).

Calling Etiquette

Several steps were undertaken to maximize response rates. First, to avoid any call scheduling bias, recruitment calls were conducted at numerous times of the day (e.g. morning, afternoon, and evening) and different days of the week (e.g. weekday vs. weekend). Second, once respondents had completed the Recruitment Survey, every effort was made to follow them up for the *Main Survey*. In the event that appointments scheduled for the *Main Survey* were not kept, follow-up calls were made later in the same day, at similar times of the following day, and then on different days at different times. Up to 25 call attempts were made to follow-up respondents for the *Main Survey* in accordance with this schedule. In addition, respondents could complete the Main Survey during 2 or more calls if necessary. Respondents indicating a desire to terminate the *Main Survey* were reminded of the importance of their participation and an offer was made to complete the survey at another time.

Cohort Replenishment

Once a respondent is included in the cohort at Recruitment, every effort is made to track and re-contact him/her at subsequent waves. At subsequent waves, however, some proportion of the 2,000 respondents in the initial cohort will fail to complete the survey. This will be due to any of a number of factors such as: (i) failure to contact by phone, (ii) moved away and no forwarding number, (iii) refusal, (iv) missed survey call appointment and subsequent inability to contact.

In order to ensure that the number of completed surveys at each wave is up to the target sample size in each country (e.g. 2000 in the each country; ITC Four Country Survey), respondents lost to attrition are replaced. The number of new recruits necessary to replenish lost panel members is estimated after every week of the re-contact phases of follow-up surveys and beyond. The rate of attrition is used to guide

the number of potential re-contact respondents that will be recruited starting at Week 3 of the survey period. Replenishment needs are reviewed and updated every week until the end of the survey period. Sampling procedures and calling protocol for replenishment at subsequent waves are identical to those at baseline recruitment. Finally, data from continuing and replenished respondents are conducted to assess the influence of 'time in sample' on the outcome variables. Panel attrition at each wave is being modelled as depending on age, gender, education, and health status from previous wave(s). This enables the construction of attrition weights (Duncan and Kalton, 1987) to adjust for respondents who have dropped out.

5.2.5   ITC Survey Measures

The ITC Project includes all *raw measures*, as well as a set of key variables (e.g. demographic variables, daily consumption, and measures of dependence) that have been derived from the raw data and standardized for data analysis. The ITC Survey was developed by a trans-disciplinary team of tobacco control experts with backgrounds in psychology, public health, epidemiology, economics, community medicine, marketing, sociology, and statistics/biostatistics. The survey instrument was developed through a series of more than 30 teleconferences and extensive written communications among members of the ITC Project research team, including senior representatives from Environics Research Group and Roy Morgan Research.

First, critical domains and policy areas were identified. Next, international benchmarks and standardized measures were identified from which ITC measures were drawn and revised, where necessary. Representatives from the survey firms contributed to this process and helped to refine the structure and content of the survey, taking into account interviewer demands and survey administration issues.

The ITC Survey is standardized across countries: respondents in each country are asked the same questions, except for minor variations in wording to account for national differences in colloquial speech (e.g. "at the cinema" in the UK vs. "at the movies" in the other three countries) and slight differences on a few questions, omitting response options that do not pertain in some countries (e.g. elimination of "military commissaries" in the UK and Australia as a source of cigarettes).

The survey includes questions from the following domains: (1) demographic variables, including age, gender, income, education, (2) smoking behaviour, including measures of dependency, quit history, and alternative tobacco use, (3) warning labels, including label salience and perceived effectiveness, (4) advertising and promotion, including self-reported exposure to both messages promoting tobacco products and messages about the dangers of smoking, (5) light/mild brand descriptors, including beliefs about the relative risk of such brands, (6) taxation and purchase behaviour, including brand information, pricing, and purchasing sources, (7) stop-smoking medications and alternative nicotine products, including Potential Reduced-Exposure Products (PREPs), (8) cessation and quitting behaviour, and (9) key psychosocial measures, including intentions to quit, perceived risk, denormalization beliefs, self-exempting beliefs, knowledge of health risks, and other potential moderators (e.g. time perspective and impulsivity).

5.2.6 Measures: ITC Scotland/UK Study

The hypothesised model employed to examine the effect of a policy related construct on adult smokers' quit intentions via their normative beliefs comprised 11 items and 5 latent variables as shown in figure 4.1. These are described below.

Policy specific measures: Perceptions of Smoking Restrictions

Two policy-related items were employed to create a single index to measure the level of support for smoking restrictions in public houses. The first item: 'Do you support or oppose a total ban on smoking inside pubs' was measured on a 4-point scale ranging from 'strongly support' to 'strongly oppose'. The second item: 'Do you think that bans on smoking in pubs are a good thing or bad thing' was measured on a 4-point scale ranging from 'very bad' to 'very good'. Cronbach alpha for this construct was .87 and .82 for waves one and two respectively.

Psychological mediator: Social Unacceptability of smoking

Three items were used to create a single index to measure the social unacceptability of smoking among proximal groups (People who are important to me believe I should not smoke), society in general (Society disapproves of smoking) and self-perception of unacceptability (There are fewer and fewer places where I feel comfortable smoking). Each item was assessed using a 5-point Likert scale, ranging from 'strongly agree' to 'strongly disagree'. Cronbach alpha was .62 and .60 for waves one and two respectively.

Outcome measure: Quit Intentions

Intention to quit was assessed with a standard question based on the stages of change model (de Vries and Mudde, 1998; Prochaska et al., 1997). The question asked how soon participants planned to quit smoking, with a 4-point scale ranging from 'plan to quit smoking within the next month' to 'not planning to quit', which was collapsed into dichotomous responses 'yes, intend to quit' or 'no, not intending to quit'.

Control variables

Respondents were asked to report their age, sex, ethnicity, and education level. Comparable measures of education in each country were combined into three categories: less than "secondary" school; technical or trade school, community collect, and/or some university attendance without obtaining a degree; and post-secondary degree or higher.

5.3 Quantitative Methods: UK Youth Tobacco Policy Study

The UK Youth Tobacco Policy Study was conducted to examine the impact of the Tobacco Advertising and Promotion Act on young peoples smoking behaviour. The first wave was conducted in Summer 1999, the second in Summer 2002, the third in Summer 2004 and the fourth wave was conducted in Summer 2006.

The fieldwork comprised face-to-face interviews conducted in-home, by professional interviewers, accompanied by a self-completion questionnaire to gather more sensitive data on smoking behaviour. Parental permission and participant consent were secured prior to each interview. At each survey wave a cross-sectional sample of 11 to 16 year olds was drawn from across the UK, using random location quota sampling. The initial stage of sampling involved a random selection of 92 electoral wards across the UK, stratified by Government Office Region and ACORN classification (a geo-demographic classification system that describes demographic and lifestyle profiles of small geographic areas) to ensure coverage of a range of geographic areas and socio-demographic backgrounds. As a guide to the ward boundary, interviewers were supplied with a list of the streets and specific addresses which were within their ward. Interviewers approached households within their ward, seeking respondents who met the quota requirements and who lived there all or most

of the time. A gap of at least four doors was left between achieved interviews. Within blocks of flats a maximum of two interviews were permitted on any one landing. No more than one interview per household was permitted. In households where more than one person met the quota requirements, the person whose birthday was closest to the date of interview was selected.

The final stage of sampling had to rely on non-probability sampling, due to the absence of reliable and accessible sampling frames for 11-16 year olds. As a result of this interviewers had limited discretion over the selection of participants however. While they had a ward area to work within, the very specific age group being sought meant that they sometimes had difficulty in finding eligible respondents. In some cases, the ward area was exhausted before the quota of 15 interviews was obtained. Where this occurred the interviewers were instructed to gradually work outwards of the ward boundary to a maximum radius. Nevertheless, despite the reliance on quota selection for the final stage of sampling, the samples obtained can still be generalised to the UK adolescent population. To support this point, smoking prevalence in the UK YTPS (Moodie et al., 2008) across the three waves is very similar to that of a large national sample, drawn from schools, in comparable years. Among 11 to 15 year olds in the UK YTPS surveys the proportion of regular smokers was 9%, 10% and 9% respectively in 2002, 2004 and 2006 compared with estimates of 10%, 9%, and 9% obtained from a large school-based sample of 11 to 15 year olds in respective years (Fuller, 2006).

All wards covering the Scottish islands, areas north of the Caledonian Canal in Scotland and fewer than three urban/sub-urban Enumeration Districts, were excluded from the sampling frame on account of cost effectiveness and practicality. Data for

this study came from three waves comprising 1121 adolescents in wave 2, 1123 in wave 3 and 1159 in wave 4.

5.3.1   Questionnaire Design: UK Youth Tobacco Policy Survey

Questionnaire development was carried out using focus groups and individual interviews. This research suggested the need for an interviewer-administered questionnaire to allow interviewer probing, control over question order, and the opportunity to view visual prompts, and yet still enable sufficient privacy to allow respondents to give honest answers. Interviews were therefore carried out in respondents' homes, followed by a short self-completion questionnaire. The face-to-face questionnaire started with some warm-up questions on television viewing, use of the internet and mobile phones. Adolescents were asked about their attitudes to advertising in general and cigarette advertising in particular, then probed for awareness of ways in which tobacco companies marketed their products, such as shows, sports sponsorship, coupons and posters.

Respondents' demographic information and occupational details of the head of household were requested from the parent/guardian to facilitate in classifying the social class of the household. The study protocol was cleared by the Stirling University ethics committee. Parental permission was obtained prior to commencement of each interview.

5.3.2   Survey Measures: UK Youth Tobacco Policy Study

Smoking status was established based on two questions. Non-smokers comprised those who indicated 'I have never smoked', in response to one question and confirmed 'I have never tried smoking, not even a puff or two', at a subsequent

question. Smokers comprised only current smokers who indicated 'I sometimes smoke cigarettes now but I don't smoke as many as one a week' or 'I usually smoke between one and six cigarettes per week' or 'I usually smoke more than six cigarettes per week' or 'I do sometimes smoke cigarettes'.

Perceived Social Unacceptability of Smoking

The perceived social unacceptability of smoking was assessed based on one item, representing attitudes towards sibling disapproval of smoking, which was measured on a 5-point scale. Only respondents who have siblings were included in the analysis. A score of 1 equated to 'In general, my older brothers/sisters disapprove of smoking' and a score of 5 equated to 'In general, my older brothers/sisters approve of smoking'.

Perceived Prevalence of Smoking

Three indicators accounted for the perceived prevalence of smoking: the number of 11, 13, and the number of 15 year olds that the respondents think smokes at least one cigarette a week. Response categories included 'none', 'very few', 'a few', 'about half, 'most' and 'all'.

Perceived Risk of Smoking

The perceived risk of smoking was accounted for by an indicator representing attitudes towards harms caused by smoking, measured on a 5-point scale. A score of 1 equated to 'As soon as people start smoking it harms their health' and a score of 5 equated to 'People have to smoke for years before it harms their health'.

Tobacco Industry Perceptions

Three indicators accounted for tobacco industry perceptions, signifying attitudes towards: whether or not cigarette company sport sponsorship should be discouraged, whether cigarette adverts should be allowed or not, and attitudes towards coupons schemes, which were measured on a 5-point scale. For the first indicator, a score of 1 equated to 'cigarette companies should be encouraged to sponsor sport' and a score of 5 equated to 'cigarette companies should be discouraged from sponsoring sport'. A score of 1 for the second indicator equated to 'the companies that make cigarettes should be allowed to advertise them as they please' and a score of 5 equated to 'the companies that make cigarettes should not be allowed to advertise them as they please'. Finally, a score of 1 equated to 'cigarette coupon schemes are a really good idea' and a score of 5 equated to' cigarette coupon schemes are a really bad idea' for the third indicator.

Future Smoking Intention

The future smoking intention indicator was based on one measure: which of these best describes whether or not you think you will be smoking cigarettes when you are 18 years old? Response categories for this measure were 'when I'm 18 years old I definitely will not be smoking', 'when I'm 18 years old I probably will not be smoking', 'when I'm 18 years old I probably will be smoking', and 'when I'm 18 years old I definitely will be smoking'.

5.3.3   Data Analysis

Structural equation modelling (SEM) with Analysis of Moment Structures (AMOS 7.0) was considered as an appropriate method to analyse the ITC Scotland/UK study

data and the UK Youth Tobacco Policy Study data (i.e. examine direct and indirect effects of tobacco policy on social norms and behaviour). The strength of SEM include simultaneous assessment of various types of relations among variables and the ability to rigorously examine and compare similarities among and differences between two or more groups of participants (Hoyle, 1995b). In SEM, interest usually focuses on latent constructs (i.e. abstract psychological variables such as 'intelligence' or 'perceptions of youth smoking prevalence') rather than on the observe variables used to measure these constructs. By explicitly modelling measurement error, SEM researchers seek to derive unbiased estimates for the relations between latent constructs.

Specifically, SEM provides the researcher with the flexibility to: (1) model relationships among multiple predictor and criterion variables, (2) latent variables (3) model errors in measurements for observed variables, and (4) statistically test a priori substantive/theoretical and measurement assumptions against empirical data via confirmatory analysis (Bagozzi et al., 1981). A structural equation model implies a structure of the covariance matrix of the measures. After estimating the model's parameters, the resulting model-implied covariance matrix can then be compared to an empirical or data-based covariance matrix. If the two matrices are consistent with one another, then the structural equation model can be considered a plausible explanation for relations between the measures.

Bearing in mind the study objectives, the Statistical Package for Social Scientists (SPSS) was also used to conduct exploratory analysis (i.e. descriptive statistics) and to perform reliability analyses of the measurement scales via cronbach's alpha. To test the measurement models, confirmatory factor analysis (CFA) with maximum likelihood estimation method was conducted (Joreskog and Sorbom, 1998). In order

to check the reliabilities of the study constructs, convergent reliability (CR) and average variance extracted (AVE) were assessed (Fornell and Larcker, 1981).

Like any statistical method, SEM relies on tests which are sensitive to sample size. So, sample size should not be too small in SEM. It is recommended that sample size should be at least 100-200 (Hoyle, 1995; Loehlin, 1992; Kline, 1998a). A common practice is that sample size should be at least 50 more than 8 times the number of variables in the model. Indeed, Bentler and Chou (1987) suggested that researchers may go as low as five cases per parameter estimate in SEM analyses, provided the assumptions of normality and constant variance are satisfied. It is also worthy of note that, AMOS is capable of producing efficient estimates even in the presence of missing data, which results in small sample sizes, using maximum likelihood estimates (MLE; Little and Rubin 1989; Hoyle, 1995). Standardised regression coefficients, means, and variances obtained may be compared simultaneously, even across multiple between-subjects groups.

SEM was selected over other statistical techniques such as multilevel modelling using MLwin, SAS, and Mplus because SEM (either with AMOS or LISREL) is distinguished by having a very user-friendly graphical interface, including model-drawing tools, and has strong support for estimation. Missing data is well handled especially when performing SEM with AMOS than with multilevel modelling (Hoyle, 1995). AMOS software was also readily available in the University Library.

Again, AMOS allows statistical test and confirms the validity of hypotheses such as 'how norms mediates policy effect on smoking behaviour', using path diagrams to show hypothesized relationships among variables. LISREL was used for UK YTPS study, specifically for objectives five and six because: (1) of the relatively small samples (i.e. objective five: 146 smokers and objective six: 158 adolescents smokers)

and (2) the data comprised ordinal variables. Therefore, the two datasets (drawn from waves 2 and 3) were transformed to asymptotic covariance matrix and polychoric covariance matrix to conform to assumptions of normality and constant variance (Byrne, 2001; Joreskog, 2006a; Sorbom and Joreskog, 1993). The matching procedure accounted for missing values in the data (Byrne, 2001; Joreskog et al., 2001). This was so because AMOS does not have this facility. All other analyses were performed with AMOS.

5.3.4   Multi-Group Analysis

Multi-group analysis or multi-sample SEM analysis is employed for cross-validation (i.e. compare model calibration/development sample with a model validation sample); experimental research (i.e. compare treatment group with control group); and longitudinal analysis (i.e. compare an earlier sample with a sample at a later time), as well as merely to compare two groups in a cross-sectional sample, for example between boys and girls. In seeking evidence of the extent to which a model is consistent across the two groups (e.g. between Scotland and the rest of the UK) with reference to the ITC Scotland/UK study, multi group analysis was used to determine the consistency of the model over time (Byrne, 2001), by comparing a constrained model with an unconstrained model (or baseline model).

This method has two advantages over doing separate analyses for any two groups. First, it provides a test for the significance of any differences found between these groups. Second, if there are no differences between the groups or if the group differences concern only a few model parameters, the simultaneous analysis of both groups provides more accurate parameter estimates than would be obtained from two separate single-group analyses. Data for multi-group analysis can be organized in a

variety of ways. One option is to separate the data into different files, with one file for each group. A second possibility is to keep all the data in one big file and include a group membership variable.

A model testing strategy is recommended as the order in which constrained are imposed on a model can influence the outcome of subsequent tests (Farrell, 1994). The sequence of analyses that described this analyses are: (1) the evaluation of the measurement model specifying the pattern of relationship; (2) comparison of the structural models that differed in their assumptions about the pattern of cause-effect relationships among the latent variables; and (3) evaluation of the consistency of the structural model across gender and time (Farrell, 1994). The author asserted that, researchers applying SEM to other longitudinal data sets may not find all of stipulated steps appropriate and therefore may decide to test the hypothesised relations in a different order.

5.3.5   Analytic Strategy

According to Anderson and Gerbing (1988) the initial step in SEM with latent variables is to specify the pattern of relationships between the observed variables and the latent variables in a defined measurement model. Thus, each observed variables should be linked to a single latent variable within each of the two time points (with reference to longitudinal studies). The measurement model also included correlations among all latent variables (Kessler and Greenberg, 1981).

A confirmatory factor analysis is performed as first step to assess the overall fit of the measurement model (Joreskog and Sorbom, 1998). A measure of overall poor fit suggests that assumptions about the underlying structure of the latent variables may be incorrect or the measures are inappropriate, and hence a need for refinement is

mostly recommended (Anderson and Gerbing, 1988). Having obtained a satisfactory measurement model, multi-group analyses is then employed to examine the consistency of the model across different groups (i.e. Scotland and the rest of the UK) along a continuum (Bollen, 1989). The consistency of the measurement model across groups is established sequentially in harmony with Bollen's (1989) guidelines: (i) the models have the same fixed and free parameters; (ii) the factor loadings are identical across groups; (iii) the factor loadings and measurement errors are identical across groups; and (iv) the factor loadings and the variances and covariances among measurement errors are identical across groups. The model fit procedure is carried out by imposing identical parameter estimates for the two groups except where significant differences are obtained (i.e. until a significantly poorer fit than the model that precedes it is obtained), signifying that the less constrained model could be retained.

Having established the consistency of the measurement model across group, a sequence of analyses can be conducted to determine the consistency of the measurement model across time.

Following evaluation of the measurement model, further analyses can be conducted to examine the structural models that reflect hypothesised relationships among the latent variables. These structural models were suggested to be compared on different assumptions about the directions of effects (Rogosa, 1979; Anderson, 1987). The present study based on the SNA, proposes that a tobacco control policy (i.e. support for smoking ban) will increase the social unacceptability of smoking, which in turn, will strengthen quit intentions. Similarly, support for the smoking ban is hypothesized to directly affect quit intentions.

5.3.6 Missing Data

One standard method for dealing with missing values or incomplete data is to eliminate from the analysis any observation for which some data value is missing, also known as list-wise deletion (Schafer and Graham, 2002). This method is unsatisfactory in as much as it requires discarding the information contained in the responses that the person did give because of the responses that he did not give (Rubin, 1976; Dempster et al., 1977). If missing values are common, this method may require discarding the bulk of a sample. Another approach, in analyses that depend on sample moments, is to calculate each sample moment separately, excluding an observation from the calculation only when it is missing a value that is needed for the computation. The second approach referred to as the pair wise deletion is to exclude an observation only if variable under consideration is missing. A third approach is data imputation (Beale and Little, 1975; Little and Rubin, 1986) replacing the missing values with say, mean substitutions, and then proceeding with a conventional analysis appropriate for complete data. It is best to avoid mean substitution unless the proportion of missing values is very small and there are no other options available to the researcher. Expectation maximization (EM) methods offer the most reasonable approach to imputation of missing data in SPSS (Little and Rubin, 1986). The program also permits adjustment of imputed values so that over consistency is reduced.

Even in the presence of missing data, AMOS computes maximum likelihood estimates (Anderson, 1957). For this reason, whenever missing data is encountered, one may prefer to use Amos to do a conventional analysis, such as a simple regression analysis or to estimate means. Sometimes the very fact that a value is missing conveys information. For instance, people with very high incomes tend (more than others) not

to answer questions about income. Failure to respond may thus convey probabilistic information about a person's income level, beyond the information already given in the observed data.

If the missing at random condition is satisfied, AMOS provides estimates that are efficient and consistent. By contrast, the methods mentioned previously do not provide efficient estimates and provide consistent estimates only under the stronger condition that missing data are missing completely at random (Little and Rubin 1989).

5.4   Qualitative Methods: Focus Group Discussion

Focus group study is a qualitative method that can be used to gain new perspectives on things about which much is already known, or to gain greater depth information that may be difficult to convey quantitatively (Strauss and Corbin, 1990). It involves selecting a group of individuals by a researcher to discuss and comment on, from personal experience, the topic that is the subject of the research (Powell and Single, 1996). It has the ability to more fully describe a phenomenon from the respondents' perspective by providing them information in the form in which they usually experience it (Lincoln and Guba, 1985). Focus group discussion could be used when existing knowledge of a subject is inadequate and elaboration of pertinent issues or the generation of new hypotheses is necessary before a relevant and valid questionnaire can be constructed or an existing one enhanced (Powell and Single, 1996).

With regard to this study the objective for conducting the focus group research was to explore how and why adolescents' perceptions of several tobacco control measures influence social norms and smoking behaviour. Adolescents' perceptions such as prevalence and acceptability of smoking are explored with smoking imagery from

media content and policy related messages, to comprehend how they come about these perceptions, given that youth smoking behaviour is influenced by media messages and regulations, as well as by perceptions of peers, close friends and family approval and prevalence of smoking. According to Morgan and Krueger (1993) focus groups can provide the researcher with a tool that is uniquely suited especially when the objective is to modify behaviour that depends on complex information flow or mix of attitudes, knowledge, and past experiences. The authors however, affirmed that focus groups for this purpose will typically be used along with secondary data or observation as proposed by this group study.

Group interview was chosen over other qualitative research techniques due to the advantage of group dynamics to produce new and additional data. Besides, the evolving relations among the group members can be a stimulus to elaboration and expression (Frey and Fontana, 1993). Additionally, a phenomenological dimension can be added to the interpretation and understanding of the event, activity, or behavioural pattern that has taken place in the field. Focus groups are also less costly regarding time constraints than traditionally face-to-face and can be a source of validation for events observed and for individual interview data.

The merits of using focus group interviews also include an excellent mechanism for bringing the researcher closer to even more respondents, flexibility and ability to probe responses considerably (Wells, 1979). The non-verbal actions of the respondents and the substance of the relations of group members reveals a great deal about social relations that exist beyond the group and thus provide a greater in-depth understanding about the field context and about relations of the members of a particular setting. Lastly, focus group can stimulate new ideas, identify language or symbols not previously acknowledged, serve as a testing ground for hypotheses or

analytic suggestions, and expand the depth and variation in response description of relevant social event (Frey and Fontana, 1993).

A researcher should however be sensitive to group dynamics regarding how an opinion of one member can sway others or how relations outside the group influence response patterns within the group or how size affects response patterns as these can threaten the quality of data. Group interviews may experience the pressure to conformity (Isenberg, 1986) as individuals may be stifled rather than stimulated by the group, creating interpersonal conflict in interacting groups, and thereby draining the responses of the group. As a result the production of irrelevant data may be high and the outcome of the interview could very possibly be biased by the interviewer's role in the group. Therefore, active membership role must be employed if intense phenomenological interviewing is required, but the less active role facilitates organising informal spontaneous group interviews. The research process and data collection methods employed are provided in more detail in the next sections.

5.4.1   Focus Group Design

Numerous studies have documented the benefits of using focus groups for studies which are exploratory in nature with teenagers (Watson et al., 2003). According to Gibbs (1997), the main purpose of focus group research is to draw on respondents' attitudes, perceptions, beliefs, experiences and reactions in a manner which would not be feasible using other methods, for example observation, one-to-one interviewing, or questionnaire surveys. It employs a well structured and guided interactive discussion as a means of generating the rich details of complex experiences and the reasoning behind individuals' actions, perceptions, beliefs and attitudes (Powell and Single, 1996). Five steps identified in the design are: number of groups to be interviewed,

setting objectives and formulating discussion guidelines, targeting the participant, and analysis.

5.4.2   Number of Groups Interviewed

The number of participants per group as suggested is usually six to ten (Kreuger, 1988; MacIntosh, 1981), though some investigators have used up to fifteen people (Goss and Leinbach 1996) or as few as four (Kitzinger, 1995). This study employed a range of five to six persons per group in consistent with previous research criteria (Bedford and Burgess, 2001, p.121; Cronin, 2001). The homogeneity of group composition was followed in the focus group discussion as group members were identical in respect of the relevant selection criteria, but unknown to each other (Tonkiss, 2004, p. 201). Overall, twelve distinct discussion groups were used, six of these comprised adolescent smokers' only and the subsequent six groups were exclusively adolescent non-smokers. The rationale was to test the likely varying views of these two groups with respect to smoking norms and how they come about these normative beliefs. The number was considered sufficient as the aim was mainly to explore how adolescents' perceptions of current tobacco policies and campaigns impacts smoking norms and behaviour in the UK.

5.4.3   Objectives Setting and Formulating Discussion Guide

The next essential step in designing focus group is to define and clarify the concepts that are to be investigated (Knodel, 1993). As stated previously, the primary objective of the group discussion was to explore adolescents' perceptions of the effectiveness of tobacco control measures on social norms and smoking behaviour in the UK. Participants' reactions to tobacco policies and social norms of smoking are therefore

explored, so as to understand how these perceptions are derived and whether these affect behaviour. As such the group study assesses the effectiveness of media content and tobacco policies enacted over the years to help understand how these measures shape adolescents perceptions of norms and behaviour.

The number of broad concepts examined is kept moderate in order to examine each in detail. The concepts to be explored are formulated as a set of discussion guidelines that can be used by the moderator during the group discussion (Knodel, 1993). The rationale for the guidelines is to lay out a set of issues for the group to discuss whilst the moderator most often improvise comments, questions and other probing techniques (showing cards, pictures) within the framework set by the guidelines. The questions are mainly open-ended, and the moderator stimulates thought patterns so as to engage all the participants. The discussion guidelines are usually sub-divided into three sections. The introductory sections introduce participants and are informed about the topic to be discussed. The second section focus on the topic that need to be covered and the third provides the ending of the interview. The discussion guide can also be structured, semi-structured, or unstructured (Krueger, 1998). The preferred guide is mostly the semi-structured as the other two types either suppress group interaction (i.e. structured) or endanger the depth of the interview (i.e. unstructured) in cases where the moderator has little experience (Krueger, 1998).

This group study used a semi-structured questioning procedure to ensure consistency in the questions asked across groups, but also permit some flexibility in accordance with topics raised and level of participation within the groups (Nuemark-Sztainer et al., 1999). Prior to each group discussion eligible students were informed that the purpose of the research was to obtain their opinions about smoking and the variety of messages and images they see in the media and surroundings that affect social norms

of smoking and behaviour. In keeping with suggested guidelines, issues of consent, confidentiality, the right to withdraw from the group and the right not to respond to any question were also covered (Watson et al., 2003). Participants were informed that all points of view were encouraged and that there were no right or wrong answers (Gray et al., 1997).

The discussion started with exploring teenagers' interests, hobbies, internet use, favourite movies and television shows. To help participants think about factors influencing smoking behaviour, encourage independent thinking before group discussion, and help them ground their responses with concrete examples, participants were first asked to complete a set of tasks.

In their first task they were asked to go through a pile of pictures from magazines and sort these into ones they think, smoke regularly, tried smoking or never smoked, and describe what attributes are associated with these groups. Magazine photos of celebrities such as Amy Winehouse, Victoria Beckham, Brad Pitt, Naomi Campbell and Kate Moss, and non-celebrities were drawn from a variety of the UK and international magazines. In their second task they were asked to think about how many people of their age: 'smoke at least one cigarette per week', 'have tried smoking a cigarette', and/or 'has a smoker living in their house', with response ranging from 'none' to 'all', and consider why they smoke. To conform to findings of the UK Youth Tobacco Policy Study survey, participants were asked to discuss their perceptions of smoking prevalence by considering how many 13 (and 15) year olds out of ten smoke at least one cigarette per week. After every task participants' responses were discussed within the group, exploring why they think certain ones smoke and others do not. Having discussed factors attributed to smoking and perception of smoking prevalence, the group discussion focussed on what participants

think encourage or discourages both young people and adults from smoking in general, with particular emphasis on media depictions (tobacco advertising and promotion) and other forms of regulations. To get relevant and useful information about perceptions of acceptability or approval of smoking, more specific open-ended questions on factors influencing smoking patterns were developed and asked: (1) how do you feel about people smoking near you (e.g. peers, siblings, parents, and the public)?; (2) How often have people smoke near you?; (3) Of those who have experience people smoking near them, where, when and who was this smoker? (4) Are there places or situations where you would or not mind when people smoke near you (e.g. being in a car with someone who is smoking; being outside [bus stop] and near someone who is smoking; and being indoors?).

The time required to cover a topic is considered since the length of the focus group is about one-to-two hours. Krueger and Casey (2000) and Krueger (1998) explained that conducting focus group in less than one hour will generate much information whereas more than two and half hours might render the participants tired. With regard to this group study, the discussion ran for approximately an hour and half and was facilitated by a moderator (researcher) and a co-moderator in some instances. Lack of participation in the study was due to failure to return signed consent forms or absenteeism on the day of the focus groups. The discussion ended by asking if participants had additional comments or questions after which they were thanked for their participation and received incentives.

5.4.4   The Target Population

Having described the concepts that are to be investigated, the next step is to decide on the characteristics of the individuals who are to be targeted for discussion. In

accordance with the sampling size two types of groups are identified: the large or full group consisting of 8 to 12 participants, and the moderate or minimum group comprising 4 to 8 participants (Morgan, 1998; Greenbaum, 1998). The problem with group size is that if it is too small the risk of being productive is very low. However, when a group is too large the danger of losing control is evident and the discussion could be inconclusive. The group composition involves selecting participants that are representative of the study under investigation (Krueger, 1998). With respect to this study, the size of the groups varied from five to six participants. The selection of a youth sample was to allow conformity with the previous studies (i.e. UK Youth Tobacco Policy Study). Further, the relatively small group sample enabled researcher to gain control over the discussion since large size might lead the researcher to lose control as the discussion progresses.

As the purpose of the focus group was to determine the appropriateness of the informants and their knowledge of the topic rather than on the equal probability of being selected, a non-probability sampling procedure (i.e. purposive sampling) is used in this study. Purposive sampling and convenience sampling are the two most widely used techniques for focus group (Patton, 1990; Strauss, 1987; Strauss and Corbin, 1990). Convenience sampling involves selecting cases by pure chance and therefore saving time, money, and effort on the part of the researcher but it also uses the poorest selection rational. Hence, it yields information-poor cases and low credibility. Purposeful sampling selects only cases that are viewed as being information-rich and this can provide a great deal of information about the issue under investigation. Though some authors argue that purposeful sampling might be biased since results may not be representative of the target population, others assert that it's appropriate

since the actual size of the group, its composition and the sample process is based on the objectives of the study (Patton, 1990; Morgan, 1998; Morgan and Kreuger, 1993). In view of the topic under investigation i.e. to explore how adolescents' react to tobacco policies and social norms, the focus group design used purposive sampling procedure to select participants who are either smokers or never smokers. To do this contact was made by a trained recruiter to the relevant authority figures within youth clubs, who thereafter asked children to fill in screening questionnaires designed to gather demographic information and determine smoking status. If children gave their consent, letters were then sent to their parents to both inform of the study and request their consent. Once the target sample of 72, split into twelve groups by gender, smoking status and age, had been achieved the focus groups were scheduled.

This group were mostly familiar with peer smoking and tobacco related campaigns and regulations. A homogeneous composition in terms of gender was employed per group in order to capture the comparable findings within groups. The first two group discussions (both smokers and non-smokers) was meant to pilot test the group discussion and to see whether the questions where understood by these groups. The final focus group was employed to evaluate the reliability of the previous group discussions. The purpose was to cross checked if the data generated consist of similar characteristics to those in the previous groups (Knodel, 1993). Findings indicating that the concepts previously identified from the other groups were repeated suggest that satisfaction level of reliability was achieved.

5.4.5   Analysis of the Group Discussion

The analysis of focus group research varies in accord with the study purpose, the complexity of the topic and the extent to which conclusions are easily reached

(Krueger, 1998; Knodel, 1993). The most common form of analysis for qualitative research involves the generation of interview transcripts followed by discussion of the conclusion that can be drawn. Transcription is usually done for the entire interview. The moderator documents word by word the respondents' answers and includes any additional information observed during the interview (e.g. non-verbal communication). Once the transcript is finished it can be used as the basis for further analysis.

Following transcription of all focus group data, any quote that potentially fitted into one of the predefined categories (i.e. smoking ban, smoking at home and in car, anti-tobacco advertisements, point-of-sale, access to cigarettes, warning labels, social acceptability, perceived prevalence, and mood) was included into the appropriate category. As the analysis progressed the process of transferring quotes was dependent on each quote either; fitting in to the category better than existing quotes already in that category; illustrating a facet of the category that was not already captured; or was a relevant point well articulated (Neumark-Sztainer et al., 1999). The rationale underlying this approach was to see how each quote could add to the explanatory power of the category. Once completed, the categories were examined to see how well the quotes within each category fitted together, and whether there were all embracing similar themes. Each transcript was then re-examined to see if there were any relevant quotes that were originally missed. The study was approved by the Ethics Review Board at the University of Stirling (Scotland).

5.5   Summary

This chapter outlined the methodological strategy employed for this thesis. As the research involves assessment of processes by which normative influences might

mediate the effect of national level tobacco policy on smoking behaviour, mixed method approach was employed. To this end, the quantitative data (ITC Scotland/UK study data and UK Youth Tobacco Policy Study data) was used to examine:

(a) the effect of a tobacco policy related measure (support for smoke-free legislation) on adult smokers' perceived social unacceptability of smoking, one month pre-ban and one year post-ban, (b) whether support for smoke-free legislation and perceived social unacceptability of smoking, increase quit intentions post-ban, (c) the effect of tobacco advertising and promotion awareness on adolescents' smoking intentions, through the mediating effect of perceived prevalence, approval, and benefits, and (d) the indirect effects of tobacco advertising and promotion awareness on intentions, via the moderation of perceived prevalence by benefits.

A second approach was to explore adolescents' perceptions of tobacco control policies and social norms on smoking behaviour using qualitative research methods (focus group study). Following this chapter, the thesis now focuses on chapter six to present findings from the quantitative research (i.e. ITC Scotland/UK Study and the UK Youth Tobacco Policy Study).

CHAPTER SIX

6.0   Introduction

The primary objective of chapter five was to present the research methodology employed in this thesis. The chapter commenced with the conceptual aspects of research paradigms to provide the theoretical reasoning for selecting the research methods followed by an appropriate research design as a means of achieving the objectives and hypotheses of the thesis. The objective of this chapter is to present the findings and discussions from the quantitative methods. First, the chapter presents the analytic findings of the ITC Scotland/UK study that assessed whether a comprehensive smoking ban, introduced in Scotland in 2006, increased quitting behaviours among adult smokers by legitimizing non-smoking as a societal normative behaviour (Gruber and Zinman, 2000; Wakefield et al., 2000; Albers et al., 2004). Specifically, results of the analytic procedure of the: (1) effect of a policy related measure (support for smoke-free legislation) on adult smokers' perceived social unacceptability of smoking, one month pre-ban and one year post-ban; and (2) influence of smoke-free legislation, and perceived social unacceptability of smoking on quit intentions post-ban are provided in section 6.1.

For decades, smoking prevalence has varied slightly in Great Britain (i.e. in Scotland and the rest of the UK). In 2005, smoking prevalence among adults aged 16 or over in the UK was 24 per cent compared with 45 per cent in 1974 and 35 per cent in 1982 (Office For National Statistics, 2006). In Scotland, smoking prevalence among adults (aged 16 and over) in 2004 was approximately 26.5 per cent compared with 24.7 per cent of adult smokers in 2007 (NHS Scotland, 2008). A slightly higher proportion of men (28.1 per cent) smoke than women (26.5 per cent) but, given that the female population is larger than the male population, there are slightly more female smokers

(570,000 vs. 543,000). The highest smoking prevalence rates are in Greater Glasgow and Clyde (29.8 per cent), Lanarkshire (29.3 per cent) and Ayrshire and Arran (28.9 per cent), whereas the lowest are in Orkney (21.7 per cent) and Shetland (22.5 per cent). Alternatively, in England, 21 per cent of adults aged 16 and over in 2007 reported smoking cigarettes, compared with 22 per cent in 2006 and 39 per cent in 1980. As with previous years men are more likely to smoke than women, i.e. 22 percent compared with 19 per cent (The NHS Information Centre for Health and Social Care, 2009).

In section 6.2, this chapter secondly presents the findings of analytic procedure of the model similar to the Theory of Normative Social Behaviour (TNSB) using the UK Youth Tobacco Policy Study (YTPS) data which investigated: (a) the effect of tobacco advertising and promotion awareness on adolescents' smoking intentions, through the effect of perceived prevalence, approval, and benefits, and (b) the indirect effects of tobacco advertising and promotion awareness on intentions, via the moderation of perceived prevalence by benefits. To the extent that these normative influences mediate the relationship between tobacco marketing awareness and intentions, the mediation of perceived prevalence, hypothetically, is heightened by perceived benefits in these normative mechanisms.

Third, using wave 2 data of the UK YTPS the findings of a model assessing youth smokers and non-smokers' normative influences as well as perceived smoking risk on intentions to smoke are provided in section 6.3. Using wave 2 data of the UK YTPS the impact of independent influences of these normative types on smoking intentions is simultaneously addressed. Fourth, section 6.4 presents the findings of the perceptions of smoking restrictions on adolescents' future smoking intentions, via their tobacco related norms. The extant literature suggests that knowledge about how

a particular tobacco policy intervention might influence youth smoking intentions is under-theorized (Levy et al., 2001; Glantz, 1999; Jacobson and Zapawa, 2001). By using a mediation model the effect of these normative domains (i.e. perceptions of the tobacco industry, perceived prevalence, perceived sibling approval as well as perceived risk) on adolescents' future smoking intentions as a result of a policy-related variable (perceptions of smoking restrictions) are addressed. Having presented the major findings of each study, a detailed discussion of individual studies (i.e. sections 6.1, 6.2, 6.3 and 6.4) are provided in the subsequent sections.

6.1   Objectives One and Two: ITC Scotland/UK Study

In December 2004, the Scottish Executive announced a Bill to ban smoking in enclosed public places, including pubs, bars and offices. The smooth passage of the Scottish Health Bill through the Scottish Parliament sharply contradicts with the disagreement in the UK Government that preceded the publication of the Health Bill for England (Haw et al., 2006). Although, similar arguments were made for and against a comprehensive ban both north and south of the border, public opinion in Scotland was that everyone should be protected from exposure to environmental tobacco smoke in public places. Inevitably, a comprehensive ban was the only possible solution, especially with evidence from the Republic of Ireland, suggesting that this has led to an improvement in respiratory symptoms following the enactment smoke-free legislation (Allwright et al., 2005). In England, the Health Bill initially proposed only a partial ban, but in February 2006 the House of Commons voted to include both pubs that do not sell food and private members clubs within the legislation (Haw et al., 2006).

Concerns about public support for the smoke-free legislation were refuted as surveys such as the British Market Research Bureau's (BMRB) target group index survey revealed that opinion polls at its introduction indicated a clear majority of the Scottish public were in favour of the smoking ban (BMRB, 2008). Three-fifths of all adults in Scotland agreed that smoking should be banned in public places, an increase from 56 previous years. Specifically, the smoke-free legislation was supported by 69 per cent of bar workers before enactment rising to 79 per cent 2 months after enactment of the legislation (Hilton et al., 2007). In England, the survey showed that 63 per cent of adults aged 16 and over thought that smoking should be banned in public places (BMRB, 2008).

Consistent with the above findings, Fong et al.'s (2006) study also indicated that in Ireland, support among smokers for a comprehensive ban prior to and after the ban increased from 43 to 67 percent, from 45 to 77 percent and from 13 to 46 percent for bans in workplaces, restaurants and pubs, respectively. At post legislation, 83 per cent of Irish smokers also said that the ban was a 'good' or 'very good' thing. Another concern was the potential negative economic impact on the hospitality industry, particularly pubs and bars. Overall the best designed studies reported no impact or a positive impact of smoke-free restaurant and bar laws on sales or employment. Studies concluding negative impacts were supported by the tobacco industry, i.e. 94% of the tobacco industry supported studies concluded a negative economic impact compared to none of the non-industry supported studies (Scollo et al., 2003). The findings thus support calls for smoke-free legislation to reduce tobacco smoke pollution and its related diseases.

Previous studies shows that although there is a direct link between smoking restrictions and reduced prevalence and quit behaviours, there is a paucity of research

exploring the role that normative influences play in this process (Wakefield et al., 2000; Albers et al., 2004). To assess the mediating role of normative influences as a consequence of the Scottish smoking ban on quitting behaviours, the following objectives and prepositions of the ITC Scotland/UK study were considered:

1. To examine the effect of a tobacco policy related measure (support for smoke-free legislation) on adult smokers' perceived social unacceptability of smoking, one month pre-ban and one year post-ban.

2. To investigate whether support for smoke-free legislation and perceived social unacceptability of smoking, increase quit intentions post-ban.

P1: Among adult smokers, support for smoking ban at baseline is independently associated with quit intentions at follow-up(H1) and perceived social unacceptability at baseline (H2), and this is associated with higher levels of social unacceptability at follow-up (H3), in Scotland than the rest of the UK.

P2: Among adult smokers, support for smoking ban at follow-up is higher in Scotland than the rest of the UK (H4), and this, in turn is independently associated with higher levels of perceived social unacceptability (H5) and quit intentions post-ban (H6), in the former country than the latter.

P3: Among adult smokers, support for smoking ban at baseline is positively associated with higher levels of perceived social unacceptability of smoking in Scotland than the rest of the UK (H7), and this is associated with greater quit intentions post-ban (H8), in the former country than the latter.

6.1.1 Analytic Procedure

Initial exploratory analysis indicated that the total sample of the ITC Scotland/UK data comprised 1,014 smokers at baseline (507 from Scotland and 507 from the rest of the UK), see table 6.1 for age and gender classification.

Table 6.1 Age and gender of smokers in Scotland and rest of the UK

	Scotland		Rest of UK	
	N (%)		N (%)	
Age	Baseline	Follow-up	Baseline	Follow-up
18-24	34 (6.7)	11 (4.1)	52 (10.3)	16 (6.2)
25-39	157 (31.0)	77 (28.5)	172 (33.9)	71 (27.6)
40-54	191 (37.7)	108 (40.0)	157 (31.0)	92 (35.8)
55+	125 (24.7)	74 (27.4)	126 (24.9)	78 (30.4)
Gender				
Female	297 (58.6)	169 (62.6)	268 (52.9)	141 (54.9)
Male	210 (41.4)	101(37.4)	239 (47.1)	116 (45.1)

Source: ITC Scotland/UK Survey

The response rate at baseline was 29% in Scotland and 30% in the rest of the UK. Therefore, of the total number of smokers recruited at baseline, i.e. 1748 and 1690 smokers in Scotland and the rest of the UK respectively, only 507 smokers each were successfully interviewed in Scotland and the rest of the UK. At follow-up, the retention rate (achieved sample size) for Scotland and rest of the UK was 53% and 51% smokers (i.e. 270 and 257 smokers) respectively, comprising a total of 527

smokers. Analysis between responders and non-responders on demographic information (age, gender and SES) found non-responders from both countries more likely to be between the ages of 25 and 54, although no significant differences in gender and SES were found (see table 6.2).

Table 6.2 Logistic regression for gender, age and SES of respondents versus non-respondents in Scotland and the rest of the UK

	Scotland				Rest of the UK			
	OR	95% CI		P	OR	95% CI		P
Gender								
Female	1.00				1.00			
Male	1.17	.82	1.68	.39	.89	.63	1.27	.54
Age								
18-24	1.00				1.00			
25-39	.32	.18	.62	.001	.26	.14	.49	.001
40-54	.39	.24	.64	.001	.40	.24	.67	.001
55+	.66	.41	1.06	.087	.88	.52	1.51	.65
SES	.83	.65	1.06	.13	1.14	.88	1.46	.33

Source: ITC Scotland/UK Study data

The hypothesised model employed to examine the effect of a policy related construct on adult smokers' quit intentions, via their normative beliefs comprised 11 items and 5 latent variables as shown in figure 4.1. Cronbach alpha for the latent factor: 'perceived social unacceptability of smoking' was .62 and .60 for waves one and two whereas alpha for the latent factor: 'support for smoking ban' was .87 and .82 for waves one and two respectively. This hypothesized model, which tests the relations among the latent factors (independent, mediating, and dependent variables), was

analyzed using structural equation modelling (SEM) with Analysis of Moment Structures (AMOS; Arbuckle and Wothke, 2003).

Prior to testing the structural models for both Scotland and the rest of the UK, the viability of the proposed latent factors was established using confirmatory factor analysis (CFA; Joreskog and Sorbom, 1998). CFA seeks to determine if the number of latent factors and the loadings of indicator variables on them conform to what is empirically expected (Kim and Mueller, 1978b). The latent factors comprise all unobserved variables (e.g. support for smoking restrictions) which are measured by their respective observed variables (e.g. people who are important to me believe I should not smoke).

Statistical tests to evaluate model fit were based on the normed fit index (NFI; Bentler and Bonett, 1980), comparative fit index (CFI; Bentler, 1990), Tucker Lewis Index (TLI; Browne and Cudeck, 1993) and root mean square error of approximation (RMSEA; Browne and Cudeck, 1993). Values above .90 on the NFI, TLI, and CFI, and values less than .05 for RMSEA, signify good fit (Browne and Cudeck, 1993). Chi squared is reported but, as it is sensitive to sample size, it was used to evaluate the relative differences in fit among competing models (Hoyle, 1995).

The consistency of the measurement model across group and time was established sequentially in harmony with Bollen's (1989) guidelines. Following evaluation of the measurement model, further analyses were conducted to examine the structural models that reflect hypothesized relationships among the latent variables (see figure 4.1). This hypothesized model was compared against a series of alternative models using multi-group analyses to examine the consistency of the model across different groups (i.e. Scotland and the rest of the UK) along a continuum (Bollen, 1989).

6.1.2   Results: Support for a smoking ban and unacceptability of smoking

To help contextualize the subsequent models for Scotland and the rest of the UK, Table 6.3 shows the latent variables (support for smoke-free legislation and perceived unacceptability of smoking) across waves 1 and 2, for Scotland and the rest of the UK. The items representing unacceptability and support were initially summed and averaged before paired sample t-tests were performed to assess any difference within and between countries at waves 1 and 2.

Within country results showed a significant difference between support for a ban from waves 1 to 2 in both Scotland and the rest of the UK. Likewise, a significant difference was found for unacceptability in both Scotland and the rest of the UK between the two waves (see table 6.3). Correlational analyses also revealed significant associations (p<.01) for both Scotland and the rest of the UK for support for a ban and unacceptability. Comparing the two countries, it was found that there were no significant differences between Scotland and the rest of the UK for both unacceptability and support for a ban at wave 1. At wave 2 there was no significant difference between Scotland and rest of the UK for unacceptability, although a higher increase in unacceptability was observed in Scotland. However, there was a significant difference between Scotland and the rest of the UK for support for a ban at wave two, with a greater increase in levels of support in Scotland.

Table 6.3 Support for a ban and unacceptability of smoking across waves 1 and 2, within and between countries

Within Country	Scotland			Rest of UK		
	Wave 1	Wave 2	*p*	Wave 1	Wave 2	*p*
Support (1-4)	2.44	2.75	.001	2.34	2.54	.001
Unacceptability (1-5)	2.21	3.27	.001	2.28	3.21	.001

Between Countries	Wave 1			Wave 2		
	Scotland	Rest of UK	*p*	Scotland	Rest of UK	*p*
Support (1-4)	2.44	2.34	.32	2.75	2.54	.01
Unacceptability (1-5)	2.21	2.28	.48	3.27	3.21	.85

Source: ITC Scotland/UK Study data

6.1.3 Evaluation of Measurement Models

The evaluation of the multi-group models' robustness was judged on the basis of (a) the appropriateness of the direction, strength, and the significance of the parameter estimates, (b) the convergence of the maximum likelihood estimate, (c) the statistical tests and fit indices previously noted (NFI, TLI, CFI, RMSEA), (d) a comparison of the constrained model with the unconstrained counterpart using the chi square difference test, RMSEA, and the CFI change, and (e) the model's ability to explain the variance of quit intentions in both samples.

Two identical measurement models, one for the Scottish sample and one for the sample from the rest of the UK, were tested separately. All variable loadings on the hypothesized latent factors were significant (p < .01). Overall fit was good for both the Scotland model ($\chi^2_{29} = 72.269$, p < .001, CFI = .97, TLI = .95, NFI = .96, RMSEA = .04) and the model for the rest of the UK ($\chi^2_{29} = 105.629$, p < .001, CFI =

.95, TLI = .91, NFI = .94, RMSEA = .05). Following this, multi group analysis was used to simultaneously assess the invariance across the two countries. Multi group invariance test permits the assessment of the goodness of fit of a baseline model with all factor loadings unconstrained across the two countries compared to a constrained model. The chi-square value of the constrained model was compared with that of an unconstrained model which had no equality constraints imposed. This result indicated statistically significant group differences in the factor loadings for Scotland and the rest of the UK ($\Delta \chi^2_{13} = 23.779$, p < .05).

6.1.4 Evaluation of Structural Model

Having established group difference, the hypothesized structural model, assessed separately for Scotland and the rest of the UK, was used to examine the goodness of fit (see figure 4.1). Good overall fit was found for both the Scottish ($\chi^2_{36} = 78.765$, p < .001, CFI = .96, TLI = .93, NFI = .94, RMSEA = .04) and the rest of the UK models ($\chi^2_{36} = 91.910$, p < .001, CFI = .94, TLI = .90, NFI = .91, RMSEA = .05). Subsequently, all path coefficients of these structural models were constrained to be identical across the two groups, which were then compared with an unconstrained model. Results of a chi-square difference test ($\Delta \chi^2_{16} = 34.53$, p < .01) indicated that the unconstrained model fit the data significantly better. This shows there are differences in the path coefficients for smokers in Scotland and the rest of the UK. Finally, the consistency of the structural model over time was tested by comparing the constrained path coefficients linking baseline and follow-up variables with an unconstrained model in which these coefficients were estimated freely. The chi-square difference test indicated that the unconstrained model fit the model better than

the constrained model ($\Delta \chi_8^2 = 16.336$, p < .05). Thus, there is significant difference in the structural paths across time. A further test of invariance to pinpoint where these significant structural paths lie revealed no significant difference in structural paths from support for a ban at baseline and social unacceptability at follow-up to quit intentions between Scotland and the rest of the UK (chi-squared difference values are: $\Delta \chi_9^2 = 17.0$, p = .05 and $\Delta \chi_8^2 = 15.70$, p = .05 respectively). However, between the two countries significant differences were found between the paths from support for a ban at baseline to support for a ban follow-up ($\Delta \chi_7^2 = 14.80$, p < .05), and from social unacceptability at baseline to unacceptability at follow-up ($\Delta \chi_8^2 = 15.91$, p < .05).

6.1.5 Comparative Evaluation of Models

Table 6.4 shows the standardized path coefficients (i.e. standardized regression weights) among latent variables, with both the Scotland and UK models assessed separately. Results indicated that in Scotland five out of eight hypotheses were supported as shown in table 6.4. Specifically, in Scotland support for the smoking ban significantly heightened social unacceptability of smoking at baseline (β = .19). Similarly, the path linking social unacceptability at baseline to social unacceptability at follow-up was significant (β = .75). Therefore, smoking was significantly less socially acceptable at follow-up as a result of the indirect effect of support for a smoking ban. The path from unacceptability at follow-up to quit intentions at follow-up was significant (β = .20) and the path from support for a ban at baseline to quit intentions at follow-up significantly increased (β = .21). Likewise, support for a ban at baseline also significantly increased support for a ban at follow-up (β = .68). This

finding indicated that the model accounted for 19% of variance in quit intentions at follow-up. The independent paths from support for the ban at baseline and follow-up to social unacceptability at follow-up, as well as support for a ban at follow-up to quit intentions were not significant across Scotland. The overall model provided good fit ($\chi^2_{35} = 68.152$, p < .001, CFI = .97, TLI = .94, NFI = .94, RMSEA = .04).

Table 6.4 Model paths of support for ban, unacceptability and quit behaviours, across Scotland and rest of UK

	Scotland		The rest of the UK	
Paths	β	CR	β	CR
Unacceptability (T1) ⟶ Unacceptability (T2)	.75***	5.65	.71***	5.39
Ban (T1) ⟶ Unacceptability (T1)	.19**	3.13	.26***	4.01
Ban (T1) ⟶ Ban (T2)	.68***	8.87	.62***	7.74
Ban (T1) ⟶ Unacceptability (T2)	.03	.26	-.03	-.23
Ban (T2) ⟶ Unacceptability (T2)	.11	1.04	.26	1.79
Ban (T1) ⟶ Quit Intentions (T2)	.21**	2.91	.16	1.79
Ban (T2) ⟶ Quit Intentions (T2)	.14	1.73	.06	.06
Unacceptability (T2) ⟶ Quit Intentions (T2)	.20**	2.66	.19**	2.32

***p < .001, **p < .01, *p < .05, CR-Critical ratio, T1-Baseline, T2-Follow-up.

In the rest of UK, the hypothesized structural model revealed that four out of eight hypotheses were supported by the model. Table 6.4 showed that support for a ban at baseline heightened social unacceptability at baseline (β = .26) which, in turn, significantly heightened social unacceptability at follow-up (β = .71). Support for a

ban at baseline also significantly increased support for a ban at follow-up (β = .62), though this did not independently increase quit intentions at follow-up. Rather, social unacceptability at follow-up increased quit intentions at follow-up (β = .19). The independent paths from support for a ban at baseline and follow-up did not affect quit intentions and unacceptability at follow-up. Although the overall fit of the model was good ($\chi^2_{35} = 77.002$, p < .001, CFI = .95, TLI = .91, NFI = .92, RMSEA = .05) the variance explained by the predictors of quit intentions (12%) was less than the variance explained in the Scottish model (19%).

6.2   Objectives Three and Four: A Model Similar to TNSB

The impact of the UK Tobacco Advertising and Promotion Act was assessed using data from waves 2 to 4 (i.e. 1121 adolescents in wave 2, 1123 in wave 3 and 1159 in wave 4) of the Youth Tobacco Policy Study (YTPS) to examine a model similar to the Theory of Normative Social Behaviour. The objectives and propositions of this study are:

3. To examine the effect of tobacco advertising and promotion awareness on smoking intentions before, during and after the TAPA, through the effect of perceived prevalence, approval, and benefits.

4. To investigate the indirect effects of tobacco advertising and promotion awareness on intentions, via the moderation of perceived prevalence by benefits.

P4:   Higher awareness of promotions (H1a) and advertising (H1b) will positively affect perceived prevalence, and in turn intentions (H2a).

P5:   Higher awareness of promotions (H1c) and advertising (H1d) will positively affect perceived approval, and in turn intentions (H2b).

P6:   Higher awareness of promotions will positively affect perceived benefits (H1e) and moderation of perceived prevalence by benefits (H1f), and both perceived benefits and moderation of perceived prevalence by benefits will, in turn, independently affect intentions (H2c and H2d respectively).

P7:   Higher awareness of advertising will positively affect perceived benefits (H1g) and moderation of perceived prevalence by benefits (H1h) and each of these, will independently affect intentions (H2e and H2f respectively).

P8: Higher awareness of promotions (H2e) and advertising (H2f) will positively affect intentions.

6.2.1   Analytic Procedure

To examine the set objectives structural equation modelling with Analysis of Moments Structures was utilised to analyse the hypothesized TNSB model (Arbuckle and Wothke, 2003). The first step in SEM with latent variables is to define a measurement model (CFA) specifying the pattern of relationships between the observed variables and the latent variables (Anderson and Gerbing, 1988). The structural model subsequently specifies the dependent and independent relationships amongst the constructs. Prior to the SEM analysis descriptive statistics for the three waves by age and gender were performed as shown in table 6.5. Table 6.6 shows a revised measurement model, with 12 items, for tobacco advertising and promotion

measures, which was tested and provided good model fit. The means, standard deviations, cronbach's alphas, convergent reliabilities and average variance extracted of constructs are indicated in table 6.7.

Table 6.5 Adolescents' smoking status by age and gender across three waves

Variable	Smoking Status N (%)								
Age (years)	Non-smokers			Tried Smokers			Current Smokers		
	Wave 2	Wave 3	Wave 4	Wave 2	Wave 3	Wave 4	Wave 2	Wave 3	Wave 4
11	153	143	166	24	29	26	5	6	2
	(23.3)	(21.9)	(23.6)	(8.3)	(10.1)	(9.8)	(3.4)	(3.8)	(1.2)
12	119	130	156	52	36	39	6	6	6
	(18.1)	(19.9)	(22.2)	(18.1)	(12.5)	(14.8)	(4.1)	(3.8)	(3.7)
13	147	123	128	52	64	51	22	18	17
	(22.4)	(18.9)	(18.2)	(18.1)	(22.3)	(19.3)	(15.1)	(11.4)	(10.6)
14	84	97	106	68	59	45	32	38	30
	(12.8)	(14.9)	(15.1)	(23.6)	(20.6)	(17.0)	(21.9)	(24.1)	(18.6)
15	98	80	84	50	53	53	49	41	49
	(14.9)	(12.3)	(12.0)	(17.4)	(18.5)	(20.1)	(33.6)	(25.9)	(30.4)
16	56	79	62	42	46	50	32	49	57
	(8.5)	(12.1)	(8.8)	(14.6)	(16.0)	(18.9)	(21.9)	(31.0)	(35.4)
Gender									
Female	337	318	317	149	149	132	81	92	92
	(51.2)	(48.8)	(45.2)	(51.6)	(51.9)	(50.0)	(55.5)	(58.2)	(57.1)
Male	321	334	385	140	138	132	65	66	69
	(48.8)	(51.2)	(54.8)	(48.4)	(48.1)	(50.0)	(44.5)	(41.8)	(42.9)
Total sample	658	652	702	289	287	264	146	158	161

Source: UK Youth Tobacco Policy Study Data

6.2.2   Measures of Constructs

In general, 7 constructs comprising 22 items were used in the hypothesised extended TNSB model to examine the impact of tobacco advertising and promotion awareness on youth smoking intentions, via mediating and moderating influences (see figure 4.2).

Descriptive norms

Perceived prevalence: Measured via three items; 'How many 11 (13 and 15 for subsequent items) year olds do you think smoke at least one cigarette a week?' This was measured on a 7-point scale: none, very few, a few, about half, most, almost all and all. Cronbach alpha was .83, .83 and .84 respectively for the three waves.

Injunctive norms

Older sibling approval: Measured via one item, with a score of 1 for 'In general, my older brothers/sisters approve of smoking' and a score of 5 for 'In general, my older brothers/sisters disapprove of smoking'. Only respondents with older siblings were included in the analysis.

Policy measures

Tobacco marketing awareness: Seventeen items were employed to assess awareness of advertising and promotions, with the items highlighted in bold employed in the final model (see table 6.6). Confirmatory factor analysis revealed that the initial measurement was unsatisfactory. As five indicators measuring awareness of promotion had very low r-squared ($< .10$) these were deleted in each wave, and a revised measurement model, with 12 items, was tested and provided good model fit.

Cronbach alpha was .62, .62 and .59 for promotion and .60, .58 and .59 for advertising for the three waves.

Table 6.6 Measures of awareness of specific tobacco marketing channels

Advertising

1 **Adverts for cigarettes on large posters or billboards in the street**

2 **Adverts for cigarettes in newspapers or magazines**

3 **Signs or posters about cigarettes in shops or on shopfronts:**

     on shop windows

     on shop doors

     on cigarette display units inside shops

     on clocks inside shops

     on staff aprons or overalls

     on signing mats inside shops

    Some other signs or poster about cigarettes (in shops or on shopfronts)

Promotions

4 Free trial cigarettes being given out or offers to send away for free cigarettes

5 Free gifts from the shop keeper when people buy cigarettes

6 **Free gifts when people save coupons or tokens from inside cigarette packs**

7 **Free gifts when people save parts of cigarette packs**

8 **Free gifts showing cigarette brand logos being given out at events (sports/festivals/concerts)**

9 **Special price offers for cigarettes**

10 **Promotional mail, from cigarette companies, being delivered to people's homes**

11 **Clothing or other items with cigarette brand names or logos on them**

12 **Competitions or prize draws linked to cigarettes**

13 **Famous people, in films or on TV, with a particular make or brand of cigarettes**

14 **New pack design or size**

15 Internet sites promoting cigarettes or smoking (do NOT include anti-smoking sites)

16 Email messages or mobile phone text messages promoting cigarettes or smoking (do NOT include anti-smoking messages)

17 Leaflets, notes or information inserted in cigarette packs

Source: UK YTPS

Outcome expectancies

Perceived benefits: Five items relating to stress relief, relaxation, weight control, attractiveness and image, all measured on a 5-point scale. Cronbach alpha was .60, .59 and .58 for the three waves.

Intentions

Intentions to smoke: Measured with the item 'Which of these best describes whether or not you think you will be smoking cigarettes when you are 18 years old?' with four response categories; *when I'm 18*, I definitely will not be smoking, I probably will not be smoking, I probably will be smoking, I definitely will be smoking.

6.2.3 Results: *Reliability and Validity*

To test the measurement models for each wave confirmatory factor analysis (CFA) with maximum likelihood estimation method was conducted (Anderson and Gerbing, 1988). The W2 model revealed good fit ($\chi^2_{165} = 429.35$, $p < .001$, CFI = .92, IFI = .92, TLI = .90, RMSEA = .038) in accordance with the usual conventions (Bollen, 1989). All regression paths from constructs to indicators were significant ($p < .001$). Convergent reliability (CR) and average variance extracted (AVE) were assessed to check construct reliabilities (Hu and Bentler, 1999). As table 6.7 shows, the findings provide support for CR and AVE since the values obtained exceed the recommended levels of 0.7 for CR and 0.5 for AVE (Fornell and Larcker, 1981).

The W3 model provided good fit when assessed via CFA ($\chi^2_{165} = 385.57$, $p < .001$, CFI = .93, IFI = .93, TLI = .91, RMSEA = .035) with all paths significant ($p < .001$) and AVE and CR above 0.5 and 0.7 respectively. The W4 model also provided a good

fit ($\chi^2_{165} = 362.44$, $p < .001$, CFI = .93, IFI = .93, TLI = .91, RMSEA = .032). All paths were significant ($p < .001$) and both AVE and CR were above 0.5 and 0.7 respectively (see table 6.7).

Table 6.7 Properties of measurement scales

Constructs	Mean (SD)			Alpha			CR (AVE)		
	Wave 2	Wave 3	Wave 4	Wave 2	Wave 3	Wave 4	Wave 2	Wave 3	Wave 4
Prevalence	3.65	3.38	3.26	.83	.83	.84	.74	.71	.88
	(1.17)	(1.06)	(1.08)				(.55)	(.56)	(.71)
Benefits	2.40	2.36	2.33	.60	.59	.58	.71	.70	.77
	(.28)	(.27)	(.34)				(.56)	(.57)	(.59)
Promotion	1.14	1.01	1.07	.62	.62	.59	.73	.74	.75
	(.01)	(.05)	(.04)				(.55)	(.57)	(.52)
Advertising	1.57	1.43	1.30	.60	.58	.59	.74	.70	.75
	(.03)	(.02)	(.02)				(.64)	(.51)	(.62)
Approval	3.54	2.61	3.56						
	(1.40)	(1.47)	(1.53)						
Intention	1.50	1.21	1.52						
	(.78)	(.45)	(.79)						

Source: UK Youth Tobacco Policy Study

6.2.4 Invariance Test

Multi group analysis was used to examine the invariance of structural models simultaneously across the three waves (Bryne, 2001). All path coefficients were constrained to be identical for the three waves, and then compared with an unconstrained model. Results of a chi-squared difference test ($\Delta \chi^2_{58} = 265.77$, $p < .01$) indicated that the unconstrained model fit the data significantly better. This revealed that there are significant differences across the three waves. Following this, an invariance test employed to examine all path coefficients between groups (i.e.

waves 2 and 3, waves 2 and 4, and waves 3 and 4) showed further significant differences between each group. Results of a chi-squared difference test for each group [waves 2 and 3; $\Delta \chi^2_{29} = 74.36$, $p < .001$; waves 2 and 4; $\Delta \chi^2_{29} = 178.28$, $p < .01$; and waves 3 and 4; $\Delta \chi^2_{29} = 164.03$, $p < .001$] indicated that the unconstrained models fit the data significantly better. Lastly, a test of invariance employed to examine structural paths between groups (i.e. waves 2 and 4; and waves 3 and 4) showed that the unconstrained models for each group fit the data significantly better than the constrained models [waves 2 and 4; $\Delta \chi^2_{14} = 43.64$, $p < .001$; waves 3 and 4; $\Delta \chi^2_{14} = 77.87$, $p < .001$]. However, results of chi-squared test for structural paths between waves 2 and 3 revealed no significant difference [$\Delta \chi^2_{14} = 9.94$, $p > .05$]. Hence, although there were significant differences between the structural paths of waves 2 and 4 and also between waves 3 and 4, no significant difference was found between waves 2 and 3. All further analyses are therefore conducted independently for each wave.

6.2.5   Hypothesis testing via SEM

SEM analysis, conducted with three models, considered the mediation and moderation of norm related variables as a result of the influence of adolescents' awareness of tobacco advertising and promotion on future smoking intentions. Table 6.8 provides the path loadings, critical ratios and *p*-values. All path loadings from latent constructs to indicators were significant (*p* < .001*)*. The findings in a wave two model fully support nine out of fourteen hypotheses, which are H1a, H1c, H1d, H1f, H1g, H1h, H2a, H2b and H2d. The independent paths from awareness of advertising and promotions to intentions were fully mediated by perceived approval and perceived

benefits. Only the path from advertising to intentions was mediated by the interaction between perceived prevalence and benefits. Perceived prevalence affected intentions but had no association with advertising and promotion. Even so, the model indicated that the independent paths from awareness of advertising and promotions to intentions were not supported. For this model, the amount of variance captured in intention was 24%, with the model indicating good fit ($\chi^2_{219} = 584.58$, $p < .001$, CFI= .91, IFI= .89, TLI= .86, RMSEA= .039).

To determine associations after the TAPA, wave three and four models were examined. The path loadings and critical values of the wave three model supported eleven of the fourteen hypotheses; H1a, H1b, H1c, H1d, H1e, H1f, H1g, H2a, H2b, H2c and H2d. The independent paths from awareness of advertising and promotions to intentions were fully mediated by perceived prevalence, perceived benefits, and the moderation of perceived prevalence by benefits. The loadings from advertising and promotion to perceived approval were also supported but these did not subsequently affect intentions. As with wave two model, the direct paths from advertising and promotions to intentions were not supported. For the wave three model, the amount of variance captured in intention was 36%, with the model indicating good fit ($\chi^2_{219} = 514.32$, $p < .001$, CFI = .92, IFI = .92, TLI = .89, RMSEA = .035).

Examining the mediating and moderation role of normative influences and perceived benefits in the wave four model revealed that ten out fourteen hypotheses were supported; H1a, H1b, H1c, H1e, H1f, H1g, H2a, H2b, H2c and H2d. The findings were similar to the wave three model as the independent paths from promotions and advertising to intentions were fully mediated by perceived prevalence and perceived benefits, although not for the interaction of perceived prevalence and benefits. The paths from advertising and promotions were also related to approval and interaction

effects of prevalence and benefits; however, these did not affect intentions. Comparable with previous models, advertising and promotions had no direct association with intentions. For the wave four model, the amount of variance captured in intention was 39%, with the model providing a good overall fit ($\chi^2_{219} = 531.23$, $p < .001$, CFI = .91, IFI = .91, TLI = .88, RMSEA = .035).

Table 6.8 Analysis of policy exposure effects on smoking norm

Model Fit	χ^2	d.f.	CFI	TLI	IFI	RMSEA
Wave 2	584.58	219	.91	.86	.89	.039
Wave 3	514.32	219	.92	.89	.92	.035
Wave 4	531.23	219	.91	.88	.91	.035

		Complete sample (with moderation effects)					
		Wave 2		*Wave 3*		*Wave 4*	
HYPO	PATHS	β	CR	β	CR	β	CR
H1a	Promo → Prevalence	.15	1.89	.67**	3.19	.59***	4.81
H1b	Advert → Prevalence	-.05	-.58	.53*	2.57	.44***	3.78
H1c	Promo → Approval	.39***	3.46	1.73***	3.87	.68***	4.66
H1d	Advert → Approval	.29**	2.69	1.65***	3.85	.55***	3.91
H1e	Promo → Benefits	.48***	3.78	1.17***	3.58	1.19***	4.82
H1f	Promo → Prev x Ben	.09	1.09	.54*	2.41	.29*	2.54
H1g	Advert → Benefits	.30**	2.65	1.11***	3.95	1.13***	4.67
H1h	Advert → Prev x Ben	.22*	2.50	.58**	2.60	.33**	2.79
H2a	Prevalence → Intentions	.19***	5.86	.12**	3.27	.12**	3.12
H2b	Approval → Intentions	.14***	3.30	.03	.32	.08	1.59
H2c	Benefits → Intentions	.38***	6.67	.50**	3.25	.42***	4.05
H2d	Prev x Ben → Intentions	.07*	2.19	.15*	3.66	-.02	-.48
H2e	Promo → Intentions	-.04	-.47	.09	.11	.34	.1.27
H2f	Advert → Intentions	-.16	-1.72	-.03	-.04	.15	.59
R^2		.24		.36		.39	

***p<0.001, **p<0.01, *p<.05

6.3   Objectives Five: Adolescents' Perceptions of Social Norms on Future

Smoking Intentions

Empirical evidence suggests that social norms can shape behaviours. Nonetheless, to date, no study has assessed the possible independent association between normative domains (i.e. tobacco industry perceptions, perceived prevalence, perceived approval, and also perceived risk of smoking) and smoking intentions. Hence, this thesis fills this gap by examining the effect of normative influences on future smoking intentions. The propositions of the study are:

P9: Among adolescent smokers and never smokers, greater perceptions of smoking prevalence (H3a), sibling approval of smoking (H3b), and favourable perceptions of the Tobacco Industry (H3f) will independently and positively affect future smoking intentions.

P10: Among adolescent smokers and never smokers, greater perceptions of sibling approval of smoking will positively affect tobacco industry perceptions (H3c).

P11: Among adolescent smokers and never smokers, greater perceptions of risk from smoking will independently and negatively affect tobacco industry perceptions (H3g), perceived prevalence (H3e) and smoking intentions (H3d).

6.3.1   Analytic Procedure

Data analysed in this study come from an achieved sample of 804 never smokers and current smokers (1124 if including tried smokers) from the wave two survey, conducted in Summer 2002, approximately six months prior to the implementation of

the first phase of the TAPA. Table 6.9 displays descriptive statistics of smokers' status, gender and age whilst the means, standard deviations, cronbach's alphas, and covariance matrix among latent constructs for Wave 2 smokers and never smokers are shown in Table 6.10.

Table 6.9 Descriptive statistics of current smokers and never smokers

Variable	Smokers	Never smokers
Gender		
Female	81 (55%)	337 (51%)
Male	65 (45%)	321 (49%)
Age (years)		
11	5 (3%)	153 (23%)
12	6 (4%)	119 (18%)
13	22 (15%)	147 (22%)
14	32 (22%)	84 (13%)
15	49 (34%)	98 (15%)
16	32 (22%)	56 (9%)
Total sample	146 (13%)	658 (59%)

Source: UK Youth Tobacco Policy Study

6.3.2 Measures: Smoking status

A total of five (5) latent constructs and nine (9) items were employed in this hypothesized model via SEM (figure 4.3). Smoking status was established based on two questions. Never smokers consisted of 658 (58.5%) participants who indicated 'I have never smoked' in response to one question, and confirmed 'I have never tried smoking, not even a puff or two' at a subsequent question. Current smokers consisted of 146 (13%) participants who indicated 'I do sometimes smoke cigarettes', 'I sometimes smoke cigarettes now but I don't smoke as many as one a week', 'I usually

smoke between one and six cigarettes per week' or 'I usually smoke more than six cigarettes per week'. Tried smokers were not included in this analysis.

6.3.3 Independent variables

Injunctive and Descriptive Norms

The two latent constructs: perceived sibling approval of smoking, an injunctive norm, and perceived prevalence of smoking, a descriptive norm, used in this model are identical to the descriptive and injunctive norm constructs employed in the TNSB model. Nonetheless, as this model assessed smokers and never smokers only, the three descriptive norm items utilised yielded a Cronbach alpha value of .81 for smokers and .80 for never smokers.

Tobacco Industry Perceptions

Three indicators accounted for tobacco industry perceptions, signifying attitudes towards: whether or not cigarette company sport sponsorship should be discouraged, whether cigarette adverts should be allowed or not, and attitudes towards coupons schemes, each measured on a 5-point scale. For the first indicator, a score of 1 equated to 'Cigarette companies should be encouraged to sponsor sport' and a score of 5 to 'Cigarette companies should be discouraged from sponsoring sport'. A score of 1 for the second indicator equated to 'The companies that make cigarettes should be allowed to advertise them as they please' and a score of 5 to 'The companies that make cigarettes should not be allowed to advertise them as they please'. Finally, a score of 1 equated to 'Cigarette coupon schemes are a really good idea' and a score of 5 to 'Cigarette coupon schemes are a really bad idea' for the third indicator.

Cronbach's alpha for these three items was .60 for smokers and .61 for never smokers.

Perceived Risk from Smoking

The perceived risk of smoking was accounted for by an indicator representing attitudes towards harms caused by smoking, measured on a 5-point scale. A score of 1 equated to 'As soon as people start smoking it harms their health' and a score of 5 to 'People have to smoke for years before it harms their health'.

Future Smoking Intention

As with the extended TNSB model the future smoking intention indicator was based on one measure. The reason underlying converting this categorical data into continuous data was so that it was amenable to structural equation modelling.

6.3.4   Analytic Strategy

The hypothesized model was analyzed using structural equation modelling (SEM) with LISREL. Like AMOS, performing SEM in LISREL involves modelling with a set of relations among constructs, simultaneous estimation of all hypothesized paths, and estimation of mediation or indirect effects. The presence of measurement errors is identified and LISREL provides a means of controlling for it (Hoyle and Smith, 1994; Joreskog and Sorbom, 1998). The study data comprised ordinal variables and therefore was transformed to asymptotic covariance matrix and polychoric covariance matrix (see table 6.10) to conform to assumptions of normality and constant variance (Byrne, 2001; Joreskog, 2006a; Sorbom and Joreskog, 1993). The matching procedure accounted for missing values in the data (Byrne, 2001; Joreskog et al., 2001). The list

wise sample was increased to impute missing values on the items: 'Number of 13 year olds that they think smokes at least one cigarette a week' and 'The companies that make cigarettes should not be allowed to advertise them as they please' by matching the other variables (Joreskog, 2006b). The item 'perceived sibling approval' had a number of missing values, however values were not imputed on this as most of these are likely adolescents who had no older siblings. The final matched sample with complete data for the analysis was 401 never smokers and 129 smokers. Two of the central constructs in the data (perceived prevalence of smoking and tobacco industry perceptions) were assessed with multiple indicators, making SEM a logical choice for analytic strategy. Each coefficient represents the relationships between two variables while controlling for all the other variables and relationships in the model.

Table 6.10 Descriptive Statistics, Alphas, and Covariance Matrix among Latent Constructs for Smokers (Never smokers in brackets)

	Number of items	Mean	SD	Alpha	1	2	3	4
1. Smoking intention	1	1.47 (1.21)	1.30 (.45)		-			
2. Perceived Prevalence	3	4.74 (3.89)	1.76 (1.93)	.81 (.80)	.40 (.19)	-		
3. Industry Perceptions	3	2.96 (1.90)	1.72 (.26)	.60 (.61)	.31 (.24)	.04 (.06)	-	
4. Sibling Approval	1	1.55 (2.09)	1.35 (1.29)		.17 (.27)	.03 (.03)	.21 (.26)	-
5. Perceived Risk	1	1	2.75 (1.86)		-31 (-.19)	-.19 (-.19)	-.24 (-.29)	-.06 (-.18)

Source: UK Youth Tobacco Policy Study

6.3.5 Results

Results of the hypothesized structural equation modelling for smokers and never smokers, assessed independently to gauge what normative factors appear to be salient for both groups, are presented in table 6.11. As with the AMOS models, overall model fit was evaluated using the normed fit index (NFI; Bentler and Bonett, 1980), the comparative fit index (CFI; Bentler, 1990), and the root mean square error of approximation (RMSEA; Browne and Cudeck, 1993). Like the previous models assessed, values above .90 on the NFI and the CFI indicated good fit. RMSEA values less than .06 indicated good fit, values around .08 reasonable fit, and values above .10 poor fit (Browne and Cudeck, 1993; Hu and Bentler, 1999).

6.3.6 Validity and Reliability

Confirmatory factor analysis was used to assess the validity of the two multi-item constructs (perceived prevalence and tobacco industry perceptions). For smokers, the model confirmatory factor analysis indicated that all paths from constructs to indicators were significant p < .001. This model provided good fit ($\chi^2_{10} = 11.47$, p = .32, RMSEA = .037, NFI = .93 and CFI = .99). Likewise, for never smokers, confirmatory factor analysis indicated good model fit ($\chi^2_{10} = 6.95$, p = .73, RMSEA = .001, NFI = .99 and CFI = .99).

Convergent validity is suggested if the factor loadings are .60 or higher (Bagozzi and Yi, 1988), which was the case for both smokers and never smokers, with the lowest factor loading from LISREL output .67. Therefore, in order to check the reliabilities of these constructs, convergent reliability (CR) and average variance extracted (AVE) were calculated (Fornell and Larcker, 1981). Reliabilities of perceived prevalence and tobacco industry perceptions were .84 and .70 respectively for smokers, and .87 and

.71 for never smokers, exceeding the recommended cut-off value of .70 (Fornell and Larcker, 1981). The AVE also exceeded the recommended 50 percent for both constructs; perceived prevalence was .65 and tobacco industry perceptions was .51 for smokers, whilst perceived prevalence was .71 and tobacco industry perceptions .54 for never smokers.

6.3.7 Hypotheses testing via SEM: Smokers

To assess model hypotheses (see figure 5.3), SEM analysis was conducted based on the final sample of 129 smokers. Table 6.11 gives the path loadings and t-values which fully support four out of the seven hypotheses, namely H3a, H3d, H3f, and H3g. These four significant paths (p < 0.05) were those from perceived prevalence, industry perceptions and perceived risk to future smoking intention, and also from perceived risk to industry perceptions. The overall model fit was reasonably good ($\chi^2_{23} = 33.23$, p = .078, RMSEA = .059, NFI = .90 and CFI = .95). The paths from sibling approval to future smoking intention and to industry perceptions were not significant however, nor was the path from perceived risk to perceived prevalence.

6.3.8 Hypotheses testing via SEM: Never smokers

Hypothesis testing for never smokers' normative constructs on future smoking intentions was conducted based on the final sample of 401 adolescents. The path loadings and t-values supported four out of the seven hypotheses; H3b, H3c, H3e and H3g (see table 6.11). These four significant paths were from sibling approval to smoking intention and industry perceptions, and from perceived risk to perceived prevalence and industry perceptions. The model fit was reasonably good ($\chi^2_{23} = 27.27$, p = .245, RMSEA = .03, NFI = .96 and CFI = .99). The independent

paths from perceived prevalence, perceived risk and industry perceptions to future smoking intention were not significant.

Table 6.11 Structural Equation Modelling results for smokers and never smokers

Hypothesis	Path	Smokers			Never smokers		
		B	t-value	Supported (Y/N)	B	t-value	Supported (Y/N)
H3a	Perceived Prevalence →Smoking intention	.28	3.88	Y	.13	1.86	N
H3b	Sibling approval →Smoking intention	.11	1.35	N	.21	2.27	Y
H3c	Sibling approval →Industry Perceptions	.20	1.79	N	.21	2.46	Y
H3d	Perceived Risk →Smoking intention	-.20	-2.35	Y	-.08	-0.84	N
H3e	Perceived Risk →Perceived Prevalence	-.19	-1.90	N	-.19	-2.28	Y
H3f	Industry Perceptions →Smoking intention	.23	2.12	Y	.15	1.33	N
H3g	Perceived Risk →Industry Perceptions	-.23	-2.01	Y	-.26	-2.49	Y

Source: UK Youth Tobacco Policy Study

6.4 Objectives Six: Adolescents' Perceptions of Smoking Restrictions on Intentions via Normative beliefs

As perceptions of tobacco industry, prevalence, approval, and risk of smoking are probable mediators of the effect of smoking regulations on adolescents smokers'

future smoking intentions (Albers et al., 2004), this thesis fills this gap by examining how a specific tobacco policy related variable (perceptions of smoking restrictions) might influence youth smokers' future intentions via normative beliefs. These normative domains are simultaneously assessed to determine whether industry perceptions, perceived prevalence, perceived social unacceptability (perceived sibling disapproval) and perceived risk of smoking mediate the effect of perceptions of smoking restrictions (a policy-related variable) on adolescents' future smoking intentions (figure 4.4). The propositions of this study are:

P12: Among adolescent smokers, perceptions of smoking restrictions are negatively associated with their perceived prevalence of smoking (H4a), which in turn, positively affect future smoking intentions (H4e).

P13: Among adolescent smokers, perceptions of smoking restrictions are positively associated with their perceived social unacceptability of smoking (H4b), and this in turn, negatively affect future smoking intentions (H4f).

P14: Among adolescent smokers, perceptions of smoking restrictions are negatively related to future smoking intentions (H4i).

P15: Among adolescent smokers, perceptions of smoking restrictions are positively associated with their perceived risk of smoking (H4c), which in turn, is negatively associated with future smoking intention (H4g).

P16: Among adolescent smokers, perceptions of smoking restrictions are positively related to their perceptions of tobacco industry as illegitimate (H4d), and this affect negatively their future smoking intention (H4h).

6.4.1 Analytic Procedure

Data analysed in this study comes from an achieved sample of 1,123 Wave 3 respondents, interviewed in summer 2004. Structural equation modelling (SEM) with LISREL was used to simultaneously test the relations between constructs and indicator variables. As with objective five, this study data comprised ordinal variables and therefore was transformed to asymptotic covariance matrix and polychoric covariance matrix to conform to assumptions of normality and constant variance (Joreskog, 2006; Sorbom and Joreskog, 1993; Byne, 2001). Similarly, model fit of SEM models examined was evaluated using the normed fit index (NFI; Bentler and Bonett, 1980), the comparative fit index (CFI; Bentler, 1990), and the root mean square error of approximation (RMSEA; Browne and Cudeck, 1993).

6.4.2 Measures: Smoking Status

Overall, the wave three hypothesized SEM model consisted of nine (9) items and six (6) constructs used to assess the effect of perceptions of smoking restrictions on smoking intentions via their smoking related norms. Smokers comprised current smokers, consisting of 158 (14%) wave 3 participants. As described previously in section 6.3 (Objective Five), the definition for current smokers is compatible with all UK YTPS studies. Again, for consistency most of the constructs used (i.e. perceived prevalence, perceived sibling disapproval, tobacco industry perceptions, perceived risk of smoking, and future smoking intentions) in this study follow the same pattern

as in the previous study (Objective Five), apart from using only wave three smokers of the UK Youth Tobacco Policy study data.

6.4.3 Perceptions of Smoking Restrictions

This was a one-item policy-related variable indicative of restrictions on smoking in public places, measured on a 5-point scale. A score of 1 is equated to 'There are not enough restrictions on where people can smoke' and a score of 5 equated to 'There are too many restrictions on where people can smoke'.

6.4.4 Results

Descriptive statistics of smokers' status, gender and age is illustrated in table 6.12. The means, standard deviations, cronbach's alphas, and covariance matrix among latent constructs for Wave 3 smokers are shown in Table 6.13. Results of hypothesised structural equation modelling for Wave 3 smokers are presented in Table 6.14.

Table 6.12 Descriptive Statistics

Variable	Wave three Smokers
Gender	
Female	92 (58%)
Male	66 (42%)
Age (years)	
11	6 (4%)
12	6 (4%)
13	18 (11%)
14	38 (24%)
15	41 (26%)
16	49 (31%)
Smoking Status	158 (14%)

Notes: Smokers comprised only current smokers

6.4.5 Reliability and Validity

The validity and reliability of the two multi-item constructs was assessed via reliability and confirmatory factor analysis (see table 6.13). The two items measuring smokers' perceived prevalence yielded an alpha value of .62. The three items measuring perceived disapproval of tobacco marketing yielded a Cronbach's alpha of .63. For this model confirmatory factor analysis indicated that all paths from constructs to indicators were significant *P*<.05. This model provided good fit ($\chi_4^2 = 7.10$, *p*=.131, RMSEA = .064, NFI = .94 and CFI = .97).

Table 6.13 Exploratory Analysis and Covariance Matrix of SEM model

	No of items	Mean	SD	alpha	1	2	3	4	5
Smoking Intention	1	2.68	.97		-				
Perceived Risk	1	2.54	1.41		.31	-			
Perceived Prevalence	2	4.00	1.50	.62	.44	.26	-		
Sibling Disapproval	1	2.70	1.40		-.27	-.11	-.13	-	
Tobacco Industry	3	2.83	1.21	.63	-.62	-.45	-.57	.16	-
Perceived Smoking Ban	1	3.24	1.33		.19	.33	.40	.32	.50

Source: UK Youth Tobacco Policy Study

6.4.6 Hypotheses Testing via SEM: Wave 3 Smokers

Hypotheses testing for the influence of smokers' perceptions of smoking restrictions on normative domains of future smoking intentions were conducted based on the

sample of 158 adolescents. The path loadings and *t*-values supported six hypotheses out of ten, which are H4b, H4c, H4d, H4f, H4h, and H4j as shown in table 6.14. The independent paths from perceptions of smoking restrictions were significantly associated with perceived risk, social unacceptability of smoking, and tobacco industry perceptions. Also the paths from perceived social unacceptability of smoking, and tobacco industry perceptions were independently associated with future smoking intention. Again, the path from perceived prevalence of smoking was significantly related to tobacco industry perceptions. However, the independent paths from perceptions of smoking restrictions to perceived prevalence and to future smoking intention were not significant. Similarly, the independent paths from perceived risk and perceived prevalence of smoking to future smoking intention were not significant. The model fit was good ($\chi^2_{28} = 37.90$, *p*=.101, RMSEA = .052, NFI = .91 and CFI = .97).

Table 6.14 Structural Equation Modelling Results for Wave Three Smokers

Hypothesis	Path	B	t-value	Supported(Y/N)
H4a	Perceived Smoking Ban → Perceived Prevalence	.18	1.04	N
H4b	Perceived Smoking Ban → Social Unacceptability	.32	2.96	Y
H4c	Perceived Smoking Ban → Perceived Risk	.33	3.47	Y
H4d	Perceived Smoking Ban → Industry Perceptions	.39	2.79	Y
H4i	Perceived Smoking Ban → Smoking intention	.24	1.81	N
H4e	Perceived Prevalence → Smoking intention	.18	.84	N
H4f	Social Unacceptability → Smoking intention	-.23	-2.40	Y
H4g	Perceived Risk → Smoking intention	.09	.78	N
H4h	Industry Perceptions → Smoking intention	-.50	-2.44	Y
H4j	Perceived Prevalence → Industry Perceptions	-.44	-2.08	Y

Source: UK Youth Tobacco Policy Study

6.5   DISCUSSION OF MAJOR FINDINGS

6.5.1   Objectives One and Two: ITC Scotland/UK Study

Evidence suggests that smoking restrictions are accompanied by quitting intentions and behaviours, and help denormalise smoking (Wakefield et al., 2000; Albers et al., 2004). This sought to develop a theoretical model and test the influence of smoke-free legislation on adult smokers' quit intentions, through the mediation of normative beliefs of smoking. The findings are consistent with the Focus Theory of Normative Conduct, which predicts that individuals will conform to a relevant norm, provided it is prominent in their consciousness (Cialdini et al., 1990, 1991; Cialdini and Goldstein, 2004). In this study, prior to the smoking ban in Scotland, support for a ban significantly heightened smokers' perceived social unacceptability of smoking, and further strengthened these perceptions post-ban. To the extent that the relevant norm (in this case a non-smoking directive) is focal or salient, increased unacceptability of smoking would be expected, possibly through media portrayals and peer communication about the implementation of smoke-free laws (Cialdini and Trost, 1998; Real and Rimal, 2007). The results provide evidence that smokers' perceptions of non-smoking directives at baseline can transform their smoking norms, which legislation serves to reinforce. These findings support previous research demonstrating a link between approval of bans and perceptions of smoking as less normative (Albers et al., 2007; Borland et al., 1999; Trotter et al., 2002); which are propagated in peer networks, through communication about the relevant norm (Perkins, 1997; Real and Rimal, 2007).

Similar findings were obtained for smokers in both Scotland and the rest of the UK in terms of changes in social unacceptability of smoking. However, social unacceptability of smoking among smokers in Scotland post-ban was slightly greater

than for smokers in the rest of the UK. Thus, as the normative directive (i.e. smoke-free legislation) became evident in Scotland post-ban, smokers in Scotland perceived smoking as more socially unacceptable than smokers from the rest of the UK, which had no ban at the time.

Comparable with the rest of the UK, in Scotland perceived social unacceptability of smoking at follow-up increased quit intentions. This finding is consistent with several studies which have found perceived social acceptability of smoking among referent groups to be independently associated with both strength of intention to quit, and actual quit behaviour, at follow up (de Vries et al., 1998; Dotinga et al., 2005; Hammond et al., 2006). Nonetheless, as there was no significant difference in quit intentions between two countries, this increase in quit intentions is perhaps indicative of the filtering effects of the Scottish ban coupled with media depictions about the enactment of smoke-free laws in the rest of the UK, which were implemented in summer 2007. To the extent that a non-smoking directive is enacted, quit intentions and behaviours will be largely guided by normative considerations and this will likely impact upon neighbouring environments, especially on account of media campaigns and accessibility to and from both settings.

This study also found that in the rest of the UK, support for a ban at baseline significantly increased support for a ban at follow-up, though this had no effect on quit intentions at follow-up. That support for a ban at follow-up did not affect quit intentions is perhaps suggestive of the strength of perceived unacceptability to influence quit intentions in a country preparing to introduce a ban rather than support for a ban. Likewise, among smokers in Scotland, support for a ban increased post-ban, but quit intentions were heightened by support for a ban at baseline rather than follow-up. This increase in support for a ban, and quit intentions, at follow-up may be

partly due to the marked decreases in secondhand smoke evident in Scottish pubs (Semple et al., 2007).

In harmony with the rest of the UK, support for the ban increased in Scotland at follow-up but support was greater in Scotland than the rest of the UK. This confirms the BMRB's target group index survey which revealed that opinion polls at its enactment (i.e. March 2006) showed a clear majority of adults in Scotland and England supported the smoking ban, which might have increased even more in Scotland than the rest of the UK post-ban. The findings is analogous to what was observed in a related study by Hyland et al. (2009), which found that support for smoke-free policies increased to a greater extent in Scotland than in the rest of the UK. The fact that the ban was first enacted in Scotland in March 2006 followed by England in July 2007 might explain why at follow-up (i.e. February/March 2007) support in Scotland was greater than the rest of the UK, probably as a result of communication and media effects. The findings also suggests that attempts to create public awareness and debates surrounding the smoking ban might have played a role in educating people about the dangers of SHS and altering smoking practices in public places and at home, and thereby leading to somewhat higher support in Scotland than the rest of the UK.

The variance in quit intentions in Scotland was greater (19%) than that for the rest of the UK (12%) but this difference was not significant, similar in this respect to the findings of a recent Scotland/UK ITC study that compared smoking cessation indicators and exposure to second hand smoke in a range of venues between Scotland and the rest of the UK (Hyland et al., 2009). These findings reflect the effectiveness of smoking bans, whether implemented or due to be implemented, in increasing quit

intentions, and supports the view that smoke-free laws should be a public health priority for legislators (Edwards et al., 2008).

6.5.2   Objectives Three and Four: A Model Similar to TNSB

Despite evidence attesting that adolescents' normative influences are influenced by tobacco marketing (Gunther, 1991; Gunther and Thorson 1992; Henriksen and Flora 1999; Milkie, 1999; Wakefield et al., 2002; Moodie et al., 2008), the processes and the extent of these influences on smoking behaviour are not well documented (Gunther and Storey, 2003). The aim was to develop a conceptual model and provide empirical evidence that: (1) adolescents' normative influences mediate the association of tobacco marketing with intentions to smoke, and (2) the influence of tobacco marketing on intentions is mediated via the interaction of perceived benefits with perceived prevalence.

The W2 model shows higher levels of awareness of both tobacco advertising and promotions to be independently associated with higher levels of perceived sibling approval and, in turn, intentions. This is consistent with earlier research demonstrating that injunctive norms influence behaviour if salient at the time (Cialdini et al., 1990). As the TAPA had not been implemented greater exposure to tobacco advertising and promotions may have strengthened adolescents' perceived sibling approval of smoking, in turn increasing smoking intentions. The findings revealed higher awareness of advertising and promotions to be independently associated with higher perceived benefits and, in turn, intentions. To the extent that perceived benefits can be thought of as beliefs that guide behaviours (Ajzen and Fishbein, 1980), greater exposure to tobacco marketing will likely heighten these beliefs given that tobacco

advertising continues to highlight smoking as a solution for adolescents' insecurities (Pollay, 1995; Cummings et al., 2002).

Importantly, advertising awareness indirectly affected intentions via the interaction between perceived prevalence and benefits, rather than through the independent mediation of only perceived prevalence. This suggests that greater awareness of tobacco advertising (in print, billboards, shops) amplifies perception of prevalence through the moderation of perceived prevalence by perceived benefits, which in turn affects intentions. This finding justifies the inclusion of potential moderating variables to increase the variance explained in a normative model. This study also found that perception of prevalence was independently related to intentions at W2, indicating that adolescents are likely to construe their own smoking intentions as normative if they exaggerate perceptions of peer smoking prevalence (Perkins, 2007).

The W3 and W4 models revealed that perceived prevalence fully mediated the independent paths from advertising and promotion awareness to smoking intentions. As these models were obtained after the main advertising and promotion bans, perceptions of prevalence derived from tobacco marketing awareness might have reduced, thus reducing smoking intentions. The findings support this assertion as relatively smaller estimates of perceived prevalence were reported at W4 compared to W3, indicative of the indirect pathway of the TAPA on smoking intentions.

The W3 and W4 models were consistent regarding the mediation of perceived benefits on the influence of advertising and promotion awareness on intentions. Similar estimates were obtained for these two models yet the W2 model yielded lower estimates, showing an increase in perceived benefits post-ban. Although in the opposite direction to that hypothesized, the failure to eliminate, rather than just restrict, POP provides a plausible explanation given that, globally, the industry

response to advertising bans has been dramatic increases in expenditure at POP (Wakefield et al., 2002). An on-going study, starting pre-ban, examining the presence of tobacco marketing through a number of sources (print media, smokers panel and retail observation) has revealed that many tobacco marketing channels have been practically eliminated in the UK, except POP (Moodie et al., unpublished manuscript). Increased presence of tobacco products in retail outlets at W3, after advertising and promotions were banned but before POP was regulated, might convey to youth that tobacco use is desirable and socially acceptable. Even after the POP regulations came into effect, prior to W4, it only involved minimal restrictions on POP advertising and did not cover product display. The findings affirm the need for a comprehensive tobacco marketing ban, one eliminating POP once and for all.

The role of the moderating and mediating effect was also demonstrated at W3 as the indirect effect of tobacco marketing on intentions was positively affected through the interaction of perceived prevalence and benefits. This highlights the emphasis placed on POP by the tobacco industry during the partial ban, and thereby affecting perceived benefits which also moderately enhanced perceptions of prevalence and consequently influenced smoking intentions.

Interestingly at W3 and W4 the TAPA reduced perceived sibling approval of smoking, yet, approval did not affect intentions. Conversely, all three models showed no direct relation between advertising and promotion awareness and smoking intentions, highlighting that the relationship between tobacco marketing awareness and intentions is mostly indirect. The variance explained in intentions increased from 24% in W2 to 36% in W3 and 39% at W4. Thus, the tobacco marketing ban improved the predictability of the W3 and W4 models as intentions to smoke decreased significantly mid-ban and this continued post-ban.

6.5.3 Objective Five: Adolescents' Perceptions of Social Norms on Future Smoking Intentions

There is impressive emerging data on reduction in substance abuse and related problem behaviours that has been achieved through normative strategies (Hansen, 1992; Perkins, 2003), thus demonstrating its effectiveness. The primary objective of this study was to develop and test a model of normative influence on adolescents' future smoking intention, given that intention is a strong predictor of future behaviour (Ajzen, 1985). The conceptual clarity in defining the normative domains in the literature was necessary and consequently considered.

Adolescent smokers' perceived prevalence of smoking, which is highly influenced by use among peers, was positively related to future smoking intentions, supporting previous research (Chassin et al., 1981). This suggests that as smokers perceive smoking is within the prevailing norms of conduct they overestimate beliefs about how widespread smoking is in their referent group, thus increasing their likelihood of future smoking. On the contrary, smokers' perceived approval of sibling smoking had no association with their future smoking intentions. This affirms the assertion that the two types of norms lead to significantly different behaviour patterns in the same setting (Turner et al., 1987). Perceived sibling approval of smoking, as with parental and peer smoking, is likely to influence adolescents' initiation and use of tobacco (Duncan et al., 1996; Flay et al., 1999) rather than likelihood of smoking in future. The fact that only approval among older siblings was assessed, and not younger siblings or parent and peers, may have impacted upon the results, although large-scale research from six European countries has found that older siblings have as strong an influence as peers upon adolescent health-risk behaviours, including smoking, drinking and illicit drug use (Kokkevi et al., 2007). Nevertheless, more research is

needed to understand the mechanisms underlying this process for effective tobacco prevention programs.

Remaining with adolescent smokers, it was found that greater perceived risk from smoking was negatively associated with intention to smoke in future. This study suggests therefore that future smoking intentions of youth smokers will reduce as perceived health risk of smoking increases. Although having greater knowledge about the health risks associated with tobacco would expectedly lead to reductions in smoking intentions, previous research has not always found this to be so, with adolescent smokers often downplaying the risks associated with the use of tobacco products (Halpern-Felsher and Rubenstein, 2004). The findings may reflect the emphasis that the UK government, since the turn of the century, has placed on health and education promotion in an attempt to reduce smoking prevalence, or equally highlight the effectiveness of anti-tobacco advertising campaigns on perceived health dangers of smoking given that we found that smokers' perceived risk also affected their tobacco industry perceptions.

Another important finding was that among never smokers greater perceived approval of sibling smoking was positively associated with intentions to smoke in future, drawing attention to significant others' influence on intentions (Park and Smith, 2007) and demonstrating that this is not just limited to peers and parents. Sibling approval was also associated with more favourable perceptions of the tobacco industry. Higher perceived risk of smoking was negatively associated with tobacco industry perceptions however, as well as with lower perceived prevalence. Greater anti-tobacco advertising will likely increase perceptions of the dangers of smoking among never smokers, leading to unfavourable tobacco industry perceptions and reduced perceived prevalence of smoking. The above findings is vital as the tobacco industry

might attract people to cigarette consumption through the ubiquity and familiarity of tobacco advertising contributing to an environment where tobacco use is perceived to be more socially acceptable, prevalent, more normative and less hazardous (USDHHS, 1989). Research has also shown that concerns about harmful and socially irresponsible practices have led many individuals to avoid consuming a company's product (Voight, 2000), suggesting their disapproval for the company and its products.

Never smokers' perceived prevalence of smoking did not affect their future smoking intentions however. This is in accordance with previous research, which revealed that a particular social norm, either descriptive or injunctive, is unlikely to influence behaviour unless it is salient for an individual at the time of behaviour (Caildini et al., 1990). Never smokers are less likely to smoke in the future as they might not perceive smoking as prevalent within their referent population, likely a consequent of neither spending time around smokers nor considering perceived threats of significant peers.

In general, the findings substantiate studies on normative prevention approaches which have led to a reduction in smoking rates (Evans et al., 1978; Hansen, 1996). Interventions aimed at changing beliefs are based on research demonstrating that (a) the more prevalent behaviour is perceived to be within a group, the more normative it is regarded (Prentice and Miller, 1993) and (b) perceived group norms influence behaviour (Grube et al., 1986). The results suggest that adolescent smokers' perceived prevalence, tobacco industry perceptions and perceived smoking risk influence their likelihood of future smoking intentions; and never smokers' perceived sibling approval impacts upon their future smoking intentions.

6.5.4   Objective Six: Adolescents' Perceptions of Smoking Restrictions on

      Intentions via Normative beliefs

Information on the mediating mechanisms by which tobacco prevention programs and policies achieve effects is useful for the development of efficient programs and provides a test of the theoretical basis of prevention efforts (MacKinnon et al., 2002). Prior research provides evidence that changes in social norms are a critical mediating mechanism for successful tobacco prevention (Hansen and Graham, 1991; Flay, 1985). The purpose of this study was to develop and test a mediation model of tobacco policy-related variable on adolescents' future smoking intention. The conceptual clarity of how a policy-related variable (e.g. perceptions of smoking restriction) affects mediators (e.g. denormalsiation domains) and also how the mediators are related to tobacco use was necessary and consequently considered in the literature.

As predicted, adolescent smokers' perceptions of smoking restriction was independently associated with perceived social unacceptability of smoking, and subsequently reduced intentions to smoke in future. This is consistent with the assertion that information about the perceived approval or disapproval may be collected by studying policies enacted by specific communities to promote or proscribe a certain behaviour (Lapinski and Rimal, 2005). The findings also support studies by Caildini et al. (1990) which revealed that a particular social norm of either the descriptive or injunctive type (e.g. perceived social acceptability) is unlikely to influence behaviour unless it is salient for an individual at the time of behaviour. Thus, perceptions of smoking restrictions send a message that smoking is not socially acceptable in a particular community, which leads to reduced intentions to smoke in future.

Similarly, supporting the hypothesised relationships, adolescent smokers' perception of smoking restrictions was independently associated with tobacco industry perceptions, which subsequently affected future smoking intentions. This suggest that studies on smoke-free restrictions, which have been associated with both decreased smoking behaviour (US Department of Health and Human Services, 1994), may have been mediated by tobacco industry perceptions in communities where anti-tobacco advertising campaign is strong.

Adolescent smokers' perceptions of smoking restrictions was also found to be associated with perceived risk from smoking, but did not lead to a further reduction in future smoking intentions. This effect perhaps is due to perceptions of smoking restriction which makes knowledge of health consequences, such as dangers of second-hand smoke, easier to absorb. As Doll et al. (1994) explained, one approach toward efficiently reaching large numbers of smokers has been to deliver health-risk messages through public health campaigns with the intention of increasing perceptions of personal risk attributable to smoking. However, the fact that perceived risk from smoking had no association with future smoking intentions suggest adolescents believe that any serious effects of smoking are unlikely to occur until a person has been smoking for many years (Viscusi, 1992). This explanation is supported in part by the finding that adolescents who smoke also perceive lower risk, as well as by other studies finding a relationship between perceptions of second-hand smoke and plans to quit smoking (Glantz and Jamieson, 2000; Roemer and Jamieson, 2001). On the contrary, smokers' perception of smoking restrictions was not associated with perceived prevalence of smoking, which also did not affect future smoking intentions. One probable reason was that prevalence of smoking among

referent group was not perceived as widespread and, therefore, did not affect their intentions to smoke in future.

In general, the results suggest that perceptions of smoke-free policies could change normative beliefs, and subsequently reduce youth future smoking intentions. There is evidence from tobacco control literature that changes in public policies have powerful influence on social norms of smoking (Kagan and Skolnick, 1993). The findings suggesting that, adolescent smokers' perceptions of restrictions on smoking was independently associated with perceived social unacceptability of smoking and industry perceptions, and both subsequently affected by future smoking intentions, have important health implications. Tobacco control policies that influence denormalisation beliefs will most likely reduce smoking intentions.

6.6   Summary

This chapter presented the findings of the quantitative methods (i.e. ITC Scotland/UK Study and the UK Youth Tobacco Policy Study). In general, findings from the ITC Scotland/UK Study (objectives one and two) suggested that for smokers in both samples (Scotland and the rest of the UK), support for smoke-free legislation at baseline significantly heightened perceived unacceptability of smoking, although perceptions of unacceptability were stronger in Scotland than the rest of the UK post-ban. For both samples, quit intentions had increased on account of heightened perceived unacceptability at follow-up. The overall variance explained in quit intentions was greater in Scotland than in the rest of the UK, but not significantly so. Support for smoke-free legislation at baseline significantly increased support at follow-up for both samples. However, this did not independently increase quit intentions among smokers from both Scotland and the rest of the UK.

With reference to objectives three and four (that assessed the impact of the TAPA), the findings suggested that at pre-ban, higher levels of awareness of advertising and promotion were independently associated with higher levels of perceived sibling approval which, in turn, was positively related to intentions. Independent paths from perceived prevalence and benefits fully mediated the effects of advertising and promotion awareness on intentions mid- and post-ban. Advertising awareness indirectly affected intentions via the interaction between perceived prevalence and benefits pre-ban, whereas the indirect effect on intentions of advertising and promotion awareness was mediated by the interaction of perceived prevalence and benefits mid-ban.

In relation to objective five, the findings showed that while among adolescent smokers perceived prevalence and risk from smoking were associated with future smoking intentions, among never smokers perceived social unacceptability (sibling disapproval) and risk from smoking were associated with more negative tobacco industry perceptions, which consequently reduced future smoking intentions.

Lastly, perceptions of smoking restrictions were found to be independently associated with smokers' feelings about the social unacceptability of smoking, the tobacco industry, and the perceived risk of smoking. Adolescent smokers' future smoking intentions were also reduced by social unacceptability of smoking and tobacco industry perceptions, but not by the perceived risk of smoking.

To summarise, the findings demonstrate that tobacco policy can denormalise smoking behaviours via changing normative beliefs of smoking among adults and adolescents.

Having uncovered these statistical relationships from the quantitative methods, the next chapter describes the results of the qualitative methods (i.e. focus group discussion), which looks in greater depth and explores how and why adolescents'

perceptions of tobacco control measures influence social norms and smoking behaviour.

CHAPTER SEVEN

7.0   Introduction

Chapter six presented results from the quantitative methods which showed that for the ITC Scotland/UK study, support for smoke-free legislation at baseline significantly heightened perceived unacceptability of smoking among smokers in both samples (Scotland and the rest of the UK), although perceptions of unacceptability were stronger in Scotland than the rest of the UK post-ban. For both samples, quit intentions were associated with perceived unacceptability at follow-up. The overall variance explained in quit intentions was greater in Scotland than in the rest of the UK, but not significantly so. More so, support for smoke-free legislation at baseline significantly increased support at follow-up for both samples.

With reference to objectives three and four (that assessed the impact of the Tobacco Advertising Promotion Act), the findings suggested that at pre-ban, higher levels of awareness of advertising and promotion were independently associated with higher levels of perceived sibling approval which, in turn, was positively related to intentions. Independent paths from perceived prevalence and benefits fully mediated the effects of advertising and promotion awareness on intentions mid- and post-ban. Advertising awareness indirectly affected intentions via the interaction between perceived prevalence and benefits pre-ban, whereas the indirect effect on intentions of advertising and promotion awareness was mediated by the interaction of perceived prevalence and benefits mid-ban.

In relation to objective five, the findings showed that while among adolescent smokers perceived prevalence and risk from smoking were associated with future smoking intentions, among never smokers perceived social unacceptability (sibling

disapproval) and risk from smoking were associated with more negative tobacco industry perceptions, which consequently reduced future smoking intentions.

Lastly, perceptions of smoking restrictions were found to be independently associated with smokers' feelings about the social unacceptability of smoking, tobacco industry, and perceived risk of smoking. Adolescent smokers' future smoking intentions were also reduced by social unacceptability of smoking and tobacco industry perceptions, but not by the perceived risk of smoking.

This chapter presents the key findings of the focus group discussion which aims at exploring how adolescents' perceptions of the tobacco control measures impacts social norms and smoking behaviour in the UK. The focus group study examines youth reactions to several tobacco measures enacted over the years and how they perceive these impacts social norms of youth and adult smoking. To this end, the study investigates how young people come about perceptions of prevalence, approval or acceptability of smoking, and whether tobacco policies, media, family and peers help shape normative beliefs of smoking.

Intervention strategies aimed at preventing young people from using tobacco remain a key global public health challenge. There is little knowledge however about how teenage smokers and non-smokers view specific tobacco control measures. For example, while some measures, such as smoking restrictions in public places, appear to exert a more immediate influence on tobacco consumption and prevalence among adults, they may affect teenage use in the longer term through changing societal norms about smoking (Albers et al., 2004). Again, results from measures such as social norms marketing campaigns have been found to be mixed (Schultz et al., 2007), despite a progressive increase in the Social Norms Approach (SNA) to address socially significant behaviours (Linkenbach and Perkins, 2003a; Hancock and Henry,

2003; Lapinski and Rimal, 2005; Schultz et al., 2007). Hence, knowledge of which measures seem capable of transforming smoking norms and which are less influential is essential, so that these measures can be refined, transformed and harmonized to maximise their potential. This chapter's intent is to explore how and why youth's reaction to tobacco control measures and social norms affect smoking behaviour.

7.1   Results

The study comprised 67 adolescent smokers and non-smokers, aged 11-16 years, recruited in February 2008 from two regions of Scotland; Glasgow and Lothian. Twelve focus groups were conducted with each group containing five or six participants, segmented by age, gender and smoking status (see table 7.1). Six focus groups consisted of smokers (N = 32), those who had smoked one day during the last month (Centers for Disease Control and Prevention, 2004), and six non-smokers (N = 35). The uneven number of smokers and non-smokers and males and females, and the reason why some groups only contained five participants, was due to four male smokers and one female non-smoker being either absent on the day of the focus group or failing to return the consent form.

Table 7.1 Participant's smoking status by age, gender and social class

	Smoking Status	
Age	Smokers (N = 32)	Non-smokers (N = 35)
11-12	10	11
13-14	10	12
15-16	12	12
Gender		
Female	18	17
Male	14	18
Social Class		
ABC1	14	18
C2DE	18	17

Source: Focus Group Research

7.1.1   Social Norms

One of the themes that most young people seemed to particularly identify with was the social norms of smoking. When asked why they think people smoke, their responses were mainly associated with coolness, sociability, and a sense of belonging. For instance, participants frequently recounted that if smoking is the usual thing among friends (i.e. cool or the prevailing norm) then one will smoke to appear sociable, friendly and be considered as part of the group.

'It's the sort of thing you do sometimes to be sociable. If your friends smoke and you want to appear to be friendly, it looks like the usual thing to do' (Male, 15, C2DE, Smoker)

'I was with my friends when I tried it because they were smoking. Thought if everyone is smoking it then it's cool. I have been smoking since' (Male, 14, ABC1, Smoker)

'I tried smoking because everyone [my colleagues] has tried it. It's the sort of thing we do to belong' (Female, 16, ABC1, Smoker)

Despite unanimous perceptions that smoking was 'cool', participants' responses frequently suggested as well that smoking was particularly attributable to perceptions of what is done (i.e. perceived prevalence of smoking) rather than what should be done (perceived approval of smoking). For instance, it appeared that even with frequent responses that people smoke because everyone else has tried smoking, they frequently did not endorse or 'approve' of this behaviour mainly on account of parental disapproval and messages depicting health consequences of smoking.

'Too much is said about smoking now. Even at home I hide before smoking because my parents don't approve of me smoking. I don't like [approve] *it either. I know it's bad. I smoke because my mates smoke'* (Male, 13, ABC1, Smoker)

'Smoking makes me feel liked by my friends. I don't really like [approve of] *the idea but have to smoke to be sociable. Will stop some time in life'* (Female, 15, ABC1, Smoker)

'The dangers of smoking are obvious. Doesn't make me like smoking, but I do because of my friends. Can't smoke at home because of my mum' (Male, 14, ABC1, Smoker)

'I don't mind if my friends smoke but I don't approve of it. It's not healthy as the messages say' (Male, 14, ABC1, Non-smoker)

7.1.2   Smoke-free legislation

Most participants considered smoking in pubs, restaurants and other public places no longer socially acceptable, even if it represented an inconvenience for smokers. A smoker mentioned that the ban may discourage smoking and is also good for the health of non-smokers.

'[I] *think smoking is not considered acceptable because they don't permit smoking in bars and restaurants and other public places'* (Female, 16, ABC1, Smoker)

'I know they don't allow smokers to smoke in pubs. [I] *think people don't accept smoking in public'* (Male, 11, ABC1, Non-smoker)

'It [smoking in pubs] *used to be acceptable but now the ban makes it not acceptable in such places'* (Female, 15, C2DE, Non-smoker)

'It obviously discourages smoking but it's bad for smokers because very often they have to go out and smoke. But for non-smokers it is ok, good for health, so older people may consider it socially acceptable' (Female, 15, ABC1, Smoker)

There was mixed views concerning whether disapproval of smoking, as a consequence of the ban, will reduce consumption and quit behaviour. Although those in the higher social class grouping (ABC1) stated that acceptability of the ban will help smokers reduce consumption or quit, the majority of those from the lower social class grouping (C2DE) thought that adult smokers might consider smoke more elsewhere, e.g. at home. However, one non-smoker did consider an increase in smoking elsewhere only applicable in the short term, with smokers possibly consuming less in the long term. For all respondents however the consensus seemed to be that adult smokers would comply with the ban.

'It's kind of difficult to stop smoking. But smokers, like my mum will stop smoking with time. She doesn't smoke much now' (Male, 14, ABC1, Smoker)

'[I] *think the smoking ban and all the stuff about stop smoking have reduce*[d] *the number of those who smoke'* (Male, 13, ABC1, Smoker)

'I just think that for smokers who are hooked onto smoking it's a problem because the ban will only mean smoking elsewhere. Don't think they will cut down' (Male, 14, C2DE, Smoker)

'Generally smoking is not acceptable in pubs. But smokers won't be quite happy about it and they may smoke more at home' (Males, 16, C2DE, Smoker)

'Smokers will smoke even more outside pubs or maybe at home. It's the sort of thing that happens when you're addicted. Probably with time they may reduce consumption' (Female, 15, C2DE, Non-smoker)

7.1.3 Smoking at home and in cars

Most participants perceived smoking at home as unacceptable, with some distancing themselves from smoking family members because they do not want to inhale the smoke, even going as far as to say that *'if smoke enters my body, I may get cancer'*. There were no indications that there were specific rules about whether or not their parents or relatives should smoke indoors, but they did seem to be aware that smoking indoors when children are present is inappropriate behaviour.

'My mum often opens the windows before smoking. Sometimes she goes out to smoke when it's not cold' (Female, 12, C2DE, Non-smoker)

'She [referring to her mum] *waits till we go to school before smoking. Think she knows she should not smoke when we are at home'* (Female, 11, ABC1, Smoker)

'Grandma doesn't like smoking indoors. I will move away and stand somewhere else even at home if she is smoking by the window because if the smoke enters my body, I may get cancer' (Female, 14, ABC1, Non-smoker)

'At home when my uncle smokes without going out [because] *he thinks no one is home I go into my bedroom because I don't want to inhale the smoke. But when we are all in the house he goes out and smokes'* (Male, 13, C2DE, Non-smoker)

Responses about smoking in cars were positive, ranging from rolling down windows to parents no longer doing it, with mention of '*a cultural change'*.

'In our car the windows are opened before anyone smokes' (Female, 11, ABC1, Smoker)

'It's just not the sort of thing we do. My mum smokes but has stopped smoking in the car when driving us to school' (Male, 15, ABC1, Non-smoker)

'My parents used to smoke in our car, but now they have stopped' (Male, 14, ABC1, Smoker)

'People don't smoke in cars anymore because they probably know it's not allowed in buses as well. It's like a cultural change' (Male, 16, ABC1, Non-smoker)

7.1.4   Anti-tobacco advertisements

For non-smokers, anti-tobacco ads seemed to reinforce their negative beliefs of smoking and act as a further deterrent to smoking initiation. For smokers, the ads seemed equally effective, with one saying '*TV ads make me think about my health and quitting'*. Most also suggested that ads that depicted the negative impact of smoking on family members (especially nursing mothers, children and babies) helped

portray smoking as less acceptable, and might reduce smoking rates among smoking parents and pregnant women. Mention of NRT as a useful tool to help smokers stop was also made.

'*Passive smoking adverts on television, such as babies inhaling smoke, is disgusting. Families think about these ads more positively than single adults. Mothers probably are being discouraged from smoking*' (Female, 16, C2DE, Non-smoker)

'*Women with babies won't accept people smoking by them*' (Female, 12, ABC1, Smoker)

'*TV ads make me think about my health and quitting. People like nursing mothers won't smoke by their children and also cut down on it*' (Male, 14, ABC1, Smoker)

'*That's what I think about* [talking about his health] *when I watch these TV ads. Also makes me think I shouldn't smoke around my brother. Not fun to smoke now. Will stop someday*' (Male, 15, C2DE, Smoker)

'*Don't think it makes smoking* [the] *right thing. I saw the nicotine patches ad on TV that replaces smoking. I think it will encourage smokers to go for it*' (Female, 12, C2DE, Non-smoker)

7.1.5   Access to tobacco

Ease of access to tobacco was considered a contributory factor to persistent smoking. Some smokers implied that stricter enforcement of regulation, such as monitoring

shop staff to comply with age restrictions, might help reduce smoking given that it is 'e*asy to smoke because some shops don't ask for identity'*. However, some stated that older siblings could purchase cigarettes on their behalf, therefore circumventing these restrictions.

'[It is] *easy to smoke because some shops don't ask for identity'* (Male, 13, ABC1, Smoker)

'*In most shops, especially corner shops, it* [is] *easy to get it* [cigarettes]*. I will be smoking less if they were really checking'* (Male, 15, C2DE, Smoker)

'*If you have money it's easy to smoke. Your older siblings will buy it for you'* (Male, 13, ABC1, Smoker)

'*I smoke if I want to because my older brother* [who she later tells is 16] *buys it for me,* [he] *looks older than his age. But if ID is checked most of us can't smoke'* (Female, 14, C2DE, Smoker)

7.1.6 Point-of-sale (POS) tobacco displays

POS tobacco displays were '*obvious'* within shops due to the '*massive display'*. Moreover, the displays appeared to be attractive to both male and female smokers, being described as '*cool'* and likely to encourage smoking or stimulate purchase. Even a non-smoker could see the appeal of cigarette displays, stating that '*things like this attracts people to smoke'*.

'Cigarette displays in shops makes you think that it's cool to smoke' (Female, 13, C2DE, Smoker)

'Say you enter into the shop you see this massive display over the counter. In the shops things like this attracts people to smoke' (Male, 11, ABC1, Non-smoker)

'Have seen this type [shows pack of Mayfair] *in shops on the shelves and with my friends in schools. Like, it's cool and fun to smoke'* (Male, 12, C2DE, Smoker)

'Things like [cigarette] *displays arouse me to buy. Looks cool'* (Female, 14, C2DE, Smoker)

'It's [referring to a cigarette display] *obvious in shops. You think it's cool'* (Male 15, C2DE, Smoker)

7.1.7   Health warnings

Youth were cognisant of health warnings such as smoking kills but generally felt that this does not impact upon those who smoke, or how much they smoke, but only informs of health consequences. Indeed, one child even stated that *'lots of people who smoke still don't agree that smoking kills'*.

'People think its ok to smoke because lots of people who smoke still don't agree that smoking kills. You know, like my mum, she doesn't agree that smoking kills and does smoke' (Male, 12, C2DE, Non-smoker)

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'Labels on packs, smoking kills, they are just words. I smoke normally, [it] *doesn't discourage me in spite of the warning'* (Male, 15, C2DE, Smoker)

'I might look at it but I don't think about it. Doesn't affect how much I smoke' (Female, 11, C2DE, Smoker)

'People are encouraged to smoke because even labels like smoking kills doesn't change people [or] *how much they smoke'* (Male, 14, ABC1, Non-smoker)

'Think it only tells them [smokers] *about what to expect. My brother still smoke*[s] *regardless of this'* (Male, 16, ABC1, Non-smoker)

7.1.8 Mood

Adolescents most frequently recounted that boredom and excitement are the issues mostly identified as 'mood attributes' that influenced their smoking behaviour.

'When I'm bored or worried I feel like having a cigarette' (Male, 15, C2DE, Smoker)

'I smoke at parties. I smoke even more when I get drunk and excited' (Female, 16, C2DE, Smoker)

7.1.9 Prevalence of Smoking

Participants discussed their perceptions of smoking prevalence by first considering how many young people of their age who they thought have tried smoking a cigarette, with responses ranging from 'none' to 'all'. Most participants (both smokers and non-

smokers) in the lower age group (11-13 years) said '*about half*' whilst the upper age group (14-16) responded '*almost all*' have tried smoking. Subsequently, when participants were asked to discuss prevalence of smoking among 10 thirteen year olds who smoke at least one cigarette per week, they frequently thought more boys than girls smoke. Specifically, participants in the lower age group (11-13) said about '*4 out of 10 thirteen year olds smokes*' whilst those aged 14-16 frequently said about '*6 out of 10 thirteen year olds smokes*'. This number was higher when asked about how many 10 fifteen year olds smoke at least one cigarette per week for both groups and between smokers and non-smokers. In general, the older group often said about '*7 out of 10 fifteen year old smokes*' whilst the younger group frequently thought about '*5 out of 10 fifteen year old smokes*'. This finding is consistent with previous studies that showed that prevalence rates increases with age (Fuller, 2007). When asked why they think more 15 year olds smoke their responses frequently reflected attractiveness and the fact that most people in their referent groups smoke.

'*That's when all your friends smoke and you're attracted because you think it's ok to try it because everyone is smoking. First you try it and seem to like the idea that it's a teen thing*' (Male, 15, C2DE, Smoker)

'*I smoke because they* [my friends] *smoke most often when we are chatting*' (Male, 12, C2DE, Smoker)

'*Everyone has tried smoking. That's what you do at point in time to belong*' (Female, 15, C2DE, Non-smoker)

7.2 Discussion

Although most tobacco control measures are not implemented exclusively to prevent youth smoking initiation, this nevertheless remains the most effective way to tackle the tobacco pandemic. This is because calls for tobacco to be banned are unrealistic unless the youth of today and tomorrow are effectively discouraged from tobacco use. For example, despite the progress made in tobacco control in the UK in the last decade, to the extent that it now has the most stringent tobacco control policy in Europe (Joossens and Raw, 2007), the decline in smoking prevalence and susceptibility has somewhat plateaued in the last five years (Fuller, 2007; Moodie et al., 2008). As such, understanding young peoples' views of tobacco control measures and how and whether they perceive these to both encourage non-smoking norms and discourage smoking behaviour is imperative. The aim of the focus group research was to elucidate how tobacco measures affect norms and behaviour. The findings have key implications for effective design of tobacco control measures and social marketing normative campaigns that aimed at guiding pro-social behaviour. The subsequent sections present a detailed discussion of this study.

7.2.1 Acceptability of smoke-free bans

The study sample generally supported smoke-free laws, which guide both smokers and non-smokers to view smoking as less normative and less acceptable. Participants, mostly from the higher social class group, believe the ban will help smokers reduce consumption levels and thus make quitting easier, which ties in with both quantitative and qualitative research. For example, among adult smokers in Ireland who quit after the introduction of smoke-free legislation, most reported that the ban had made them more likely to quit (80%) and stay quit (88%) (Fong et al., 2006). Similarly, an

increase in quit rates occurred among a sample of older adults (aged 50-75 years) in Scotland in the three-month period prior to the smoking ban. Of those that had quit, 43.9% said that the legislation had assisted them in doing so, although socio-economic status was not related to cessation (Fowkes et al., 2008) which is interesting as it was more affluent adolescents that thought the ban would assist quitting.

The findings are also comparable with the ITC Scotland study which showed that support for the ban had increased at follow-up in both countries. This suggests that the smoke-free legislation enacted after the focus group study was conducted might have had positive filtering effect on youths' thoughts regarding support and acceptability of smoking. As Albers et al. (2004) argued a smoke-free ban which is meant to protect people from environmental tobacco smoke and reduce smoking rates among adults might impact the social norms surrounding youth smoking.

The findings are also compatible with another focus group research exploring perceptions of how smoke-free policies might influence smoking behaviour among young social smokers and older regular smokers (Wakefield et al., 2009). Older regular smokers who were contemplating quitting within the next six months were less accepting of smoking bans, yet they thought that they would get accustomed to a ban and subsequently reduce consumption and attempt to quit. Taken together, these findings suggest that acceptance of a ban motivates quitting, perhaps by shifting social norms around smoking. However, although agreeing that smokers would conform to bans in pubs and restaurants, many respondents from the lower social class group thought that they would continue to smoke, possibly even more, elsewhere. This can be understood by the references made about smokers being addicts and, as a result of this addiction, seeking alternative avenues to compensate for their usual smoking rate.

Consistent with this belief, Wakefield et al. (2009) found that some regular adult smokers suggested that if disallowed from smoking in public settings they might smoke more in others. So both studies suggest that an implication of smoking bans might lead to higher levels of smoking in homes and in private transport. However, most respondents in this study indicate that this has not happened with parents and relatives often going outside before smoking at home and not smoking at all in cars. This is known as 'social diffusion' where restrictions in one setting carry over to another, i.e. smoke-free public places stimulate adoption of smoke-free homes (Borland et al., 2006; Semple et al., 2007). That young people are exposed to adults leaving the house to smoke helps foster anti-smoking beliefs by showing smoking to be unacceptable (Farkas et al., 2000), with it likely that the same holds true for smoking in cars; which has been considered an extension of the domestic environment (Rees and Connolly, 2006). Clearly, heath promotion campaigns should focus on promoting strict smoke-free behaviour in domestic situations as the odds of having ever smoked, being a current smoker or smoking in excess of five cigarettes per day have been found to be significantly smaller in US households with strict no-smoking policies in place; compared to households where smoking was permitted anywhere (Clark et al., 2006).

7.2.2 Anti-tobacco advertising

Despite the expense of anti-smoking ads they can reach the widest audience base, including socially deprived groups most at risk of tobacco use, and are strong tools for delivering messages to young people and influencing their perceptions of acceptable behaviour. Research indicates that anti-smoking ads help both reduce smoking onset and progression to regular smoking (Johnston et al., 2005; Emery et al., 2005). The

findings of this group study add weight to the value of these ads, which seemed to strike a chord with the study sample, irrespective of age, class, gender and smoking status. Ads stressing the serious consequences of smoking reinforced non-smokers' beliefs about the negative impact of smoking and deterred them from smoking, and also made smokers think about their health and quitting. Ads highlighting the harmful effects of smoking on significant others within the family (e.g. babies) were described as disgusting and discouraging to tobacco use. That ads depicting the adverse effects of smoking on the family seem to hold particular promise is consistent with previous research, with these ads additionally found to lower adolescents' smoking intentions (Goldman and Glantz, 1998).

Interestingly, although anti-smoking ads provoked negative feelings about smoking little was said about the responsibility of the tobacco industry for smoking related diseases, or the manipulativeness of the industry, contrasting sharply with adolescents' views in the US (Goldman and Glantz, 1998; Dejong and Hoffman, 2000). This is understandable however as anti-tobacco ads in the UK seldom inform of industry malpractices, which suggests that this is something that may be worth incorporating into future ads, and possibly another avenue for reducing youth uptake.

7.2.3 Health warnings

The tobacco pack has many functions; used by the industry to steer brand imagery and reinforce brand identity, and by governments to display health warnings (Sandford, 2003). These warnings were not considered a useful measure for reducing smoking prevalence however, but instead only served to inform of associated risks. This is disconcerting given the reach of the pack, although they are at least helping create awareness of the dangers of smoking. Findings from this study are comparable with

that of previous research where health warnings increased knowledge, recall and awareness, but did not alter smoking behaviour (Robinson and Killen, 1997).

The phasing in of graphic images on tobacco products as of October 2008, might prove more effective in denormalising smoking and motivating a reduction in intensity, an increase in quitting and a decrease in initiation. Indeed, research indicates that graphic images are more effective than text-based warnings at motivating smokers to quit (O'Hegarty et al., 2006; White et al., 2008), largely by increasing awareness and being more visually attentive (Hammond et al., 2003). Similarly, White et al. (2008) found that most adolescents noticed graphic warnings, which increased their cognitive processing of these messages and decreased their smoking intentions; essentially the opposite of the findings of this group research for text only warnings.

7.2.4 POS tobacco displays, and access to cigarettes

POS tobacco displays were viewed as encouraging adolescents to smoke, being considered attractive and cool. The purpose of displays is to yield high frequency exposure (Pollay, 2007), particularly among youth, which is a concern as 75% of adolescents in the US visit convenience stores weekly (Henriksen et al., 2004). It is therefore impossible to safeguard children from POS tobacco displays, which appear to stimulate unplanned purchases (Wakefield et al., 2008) and encourage smoking uptake (Hastings et al., 2008). Fortunately, Scotland has continued to be an exemplar for global tobacco control by prohibiting tobacco displays, a move that will send a clear message to youth that tobacco is unacceptable.

Another factor that participants of this group study said promoted smoking was accessibility to tobacco products. Monitoring access to tobacco products has been a

long established strategy to restrict youth smoking, but there is significant evidence from the UK that youth are able to purchase cigarettes with relative ease. For example, a study in 2000 found that 18% of English school children aged 11-12 years were able to buy cigarettes from shops (Boreham and Shaw, 2001), with little changing in 2006 (Fuller, 2007). Findings from this study suggested likewise, but a ban of sales to children is difficult to enforce and the positioning of tobacco as an adult product is encourages young people to attempt to purchase tobacco. Furthermore, that the industry supports a ban of sales to minors as part of their 'youth smoking prevention' campaigns suggests that this measure is likely to be ineffective (Sandford, 2003). Indeed, although some smokers in this group study thought that retail staff sell cigarettes without checking for identification and that this needs tightened, others indicated that it is easy to circumvent age restrictions by having someone purchase tobacco on their behalf.

7.2.5   Social Norms: Perceived prevalence and disapproval

The results showing that tobacco use among most people (i.e. adolescents) is influenced by perceptions of what most people do, support the Social Norms Theory (Perkins, 2003; LaBrie et al., 2008, 2009). Drawing from the findings of this group discussion, perceived prevalence of smoking in social gatherings by significant others (i.e. friends) mostly determines the norm of smoking rather than perceived approval. The tendency to smoke is probably heightened in such social settings because the unhealthy behaviour is evident and perceived as the prevailing norm. As the focus theory suggest, if only one of the two types of norms is prominent in an individuals' consciousness, it will exert the stronger influence on behaviour (Cialdini and Goldstein, 2004). With regards to this study, the results suggest that the relevant

normative behaviour (descriptive norm) is stronger and prominent in their consciousness than perceived disapproval (injunctive norm) because in such social gathering most individuals are seen smoking. The possession of strong descriptive norms consequently lead to norm based action, which is smoking among friends.

This findings demonstrating that social norms of smoking among youth is largely motivated by perceptions that everyone in the social group smokes add to previous work that found descriptive norms as one of the underlying factors attributable to onset and progression of tobacco use (Linkenbach and Perkins, 2003a). Indeed, several empirical studies have found that smoking among young people is mostly influenced by perceptions of what everyone is doing within the referent group (Neighbors et al., 2004; Haines and Spear, 1996; Worth et al., 2006). The perceived number of smokers among peers has been shown to serve as references to contemplate in decision making about smoking. There is converging evidence as well that perceived descriptive smoking norms are among the most influential factors for *adolescent* smoking. These include studies that found positive associations between perceived smoking norms and increased risk of smoking intentions, initiation, experimentation, and progression (Chassin et al., 1981; Fagan et al., 2001; Conrad et al., 2006; Epstein et al., 2003).

The findings also suggest that perceived injunctive norms are weak in this context, possibly because there were no sanctions or motivation to comply (Cialdini et al., 1991). For instance, smoking at home among youth smokers in the group study was mostly non-existent as they thought parents strictly disapprove of them cultivating this deviant behaviour, or minimal because they smoke in the absence of their parents. The results support a study by Kallgren et al. (2000) that found that perceived injunctive norms can not direct behaviour if they appear to be weak unless they are

focal when the opportunity for norm-relevant behaviour arises. The authors asserted that the extent to which the relevant norm is focal or salience and the character of the underlying norm (the strength of the target norm) is key in determining the consistency of normative behaviour. Hence, perceived injunctive norms will influence behaviour not only to the extent that they are activated but also the degree to which it is salient; else behaviour will largely be unguided by these normative considerations.

The need to reduce the social norms of smoking has become even more important as the progression toward regular smoking and maintenance of smoking behaviour among established smokers have been revealed by industry documents to be significantly related to social acceptability of smoking (Ling and Glantz, 2002; Pollay, 2000). In deed, the findings showing that perceptions of prevalence increases with age supports the increasing acceptability of smoking as the prevailing norm among older peers who might progress to regular smoking, and thus emphasise the need for an effective norm-based interventions to reduce this problem behaviour.

7.3   Summary

This chapter has presented the major findings pertaining to the focus group methods. The group study was conducted to evaluate how young people come about perceptions of prevalence, approval or acceptability of smoking, and whether they thought tobacco measures help to shape normative beliefs and smoking behaviour. Overall, the findings indicate that acceptability of smoking in social settings was attributable to perceptions of what is done in a referent group (i.e. descriptive norm; what everyone in the social group does) rather than perceptions of what is actually done by the group (injunctive norm; what everyone ought to be doing). Thus, young people's smoking behaviour is predicted by perceived descriptive norm which also

helps smoking practices momentarily. However, conformity to non-smoking norms was stronger among youth at home. Acceptability of smoking among social groups was amplified by mood effects (e.g. excitement, heavy drinking), which can increase the intensity of smoking.

Perceptions about the effects of the smoking ban on behaviour were varied. The results suggest that participants from social class ABC1 thought the ban would help smokers to reduce smoking whilst those from C2DE thought smokers would look for alternate places to smoke. However, participants from both groups thought the ban will shape society's (smokers and non-smokers) perceptions of smoking as a socially unacceptable behaviour. Pro-tobacco ads were thought to impact smoking behaviour as well as convey smoking as a less normative behaviour, particularly among families and nursing mothers. Tobacco policies such as health warning labels (text-based warnings) were perceived as a tool for creating awareness rather than influencing their smoking behaviour. The findings suggest that a more prominent graphic health warning might increase noticeability and help reduce uptake of smoking among youth as well as quitting among smokers. That point of sale displays and easy access to cigarettes encouraged smoking habits among adolescents, point to support argument for the removal of POS tobacco displays and advertising in shops. Evidence suggests that smoking uptake among adolescents is associated with exposure to point of sale displays (Paynter and Edwards, 2009), which is indicative that removal of POS display might help youth to reduce initiation.

Following this, the study presents Chapter Eight, which provides conclusions and recommendations for future theorising and practice. The chapter will first present an overview of the thesis structure, followed by a summary of the key findings for each objective, address the theoretical and practical implications of the research, as well as

outline the limitations of the study. Areas of future research are discussed before finally focusing on the key contributions to knowledge.

CHAPTER EIGHT: CONCLUSION

8.0   Introduction

This thesis offers a fresh explanation for the mechanisms underlying the relationship between public health policies, social norms and behaviour. The thesis has demonstrated that one of the mechanisms via which public policies (e.g. tobacco control measures) can promote health behaviour change such as reduction in smoking rates is by changing social norms of the unhealthy behaviour. By distinguishing between injunctive norms, descriptive norms, and unfavourable perceptions of the tobacco industry, and demonstrating the direct, indirect and moderating effects of various normative constructs through tobacco policies effect on smoking behaviour with the Focus Theory of Normative Conduct, Theory of Normative Social Behaviour and Social Norms Approach models, the current study contributes to knowledge development and extends previous research that have used these models.

To summarise, this study showed a relationship between public health policy, social norms and behaviour. The social norms concept was demonstrated to have been successfully implemented in classroom settings to change health behaviour. There followed the need to address public health issues from a broader perspective to impact behaviour at a societal level. Tobacco denormalisation was consequently conceptualised to establish how social norms mediate the relationship between national-level tobacco policies and smoking behaviour. Thereafter, an empirical review was designed around tobacco control measures, social norms and smoking behaviour, and the mixed successes in health behaviour outcomes accounted by social norms marketing campaigns. This was followed by an extensive quantitative and qualitative data analysed and discussed to examine the objectives of the thesis in relation to tobacco policies (e.g. smoking ban, tobacco advertising and promotion),

social norms, and behaviour, in the light of the research hypotheses and questions. Adopting this approach revealed essential new insights into the role of health policy actions and social norms in promoting health behaviour and encouraging motivation to quit unhealthy lifestyles such as smoking among adults and adolescents.

This chapter will firstly present an overview of the thesis structure by setting out the salient points. It will then attempt to summarise the key findings for each objective, before addressing the theoretical and practical implications of the research, as well as outline the limitations of the study. Areas of future research are discussed before finally focusing on the key contributions to knowledge which this thesis has made.

8.1   Summary of the Thesis Structure

The thesis was organized into a total of eight chapters to order the study to sequentially flow to conclusion. The introductory chapter to the thesis explained the relationship between public health policy, social norms and health behaviour change. Tobacco control was used as a case study to establish this underlying mechanism. The justification for this study stems from the extensive lack of knowledge on predicting health behaviour change as a result of public health policy and changes in social norms. Following this, an outline of the study objectives and structure of the research were addressed.

After the Introduction in Chapter One, the thesis started with the historical investigation into the origins of the social norms concept and demonstrated that norms have been successfully used in schools and college settings to influence health behaviour change in Chapter Two. This was deemed necessary to establish the theoretical underpinnings of the social norms approach and to show that norms do change unhealthy behaviour with particular reference to heavy episodic drinking and

smoking. Health behavioural change was found to be influenced not only by perceived descriptive norms but also perceived injunctive norms. Most social norms marketing campaigns that recorded decrease in problem behaviour were however conducted in American colleges.

This followed a broader perspective of the social norms approach so as to broadly address public health issues at a societal level. Tobacco denormalisation was conceptualised to demonstrate this by showing how individual public policies and comprehensive strategy influence social norms and smoking behaviour. Given that the definitions of norms pertaining to smoking are unclear and vague, Chapter Three provided a conceptual definition of tobacco denormalisation that encompassed the tobacco industry's deceitfulness and social norms of smoking. The chapter then reviewed the extant literature in detail to determine any research that reflected the relationship between tobacco policy, social norms and behaviour. This showed that past research has focused mainly on predicting health behaviour change directly, as a consequence of public policies and interventions. Numerous studies relating to tobacco control for instance, revealed that tobacco policy (e.g. anti-tobacco media advertising) has a direct influence on smoking behaviour. Knowledge of the role of norms in the relationship between national-level tobacco policy and smoking behaviour was however unknown.

Following a thorough review of literature, the research gaps which this thesis sought to fill were identified in Chapter Four, and a research framework was proposed that will further contribute towards the topic under investigation. Chapter five, Methodology, was utilized to discuss the research methods, techniques, and the rationale for choosing quantitative combined with qualitative methods approach, and procedures employed to empirically test the models. To this end, the thesis structure

has been examining the broader dimension of the role that social norms can play as the mediator in the relationship between public policy and health behaviour change, e.g. smoking behaviour.

This breadth is complemented with more depth, as shown in the analyses and discussion in Chapter Six. This Chapter provide a series of findings from the quantitative analyses, using data from the ITC Scotland/UK survey, a longitudinal study which investigated adult smokers and non-smokers behaviour in relation to various psycho-social and policy variables, and from the UK Youth Tobacco Policy Study which examines the impact of the UK Tobacco Advertising and Promotion Act enacted before, during and after the ban. One of the most significant research findings was related to the UK Youth Tobacco Policy Study which investigated the mediating role of norms on adolescent smoking intentions on account of awareness of Tobacco Promotion and Advertising. This finding, affirmed in the ITC Scotland/UK study, suggest that the influence of tobacco policy on smoking behaviour is indirect, through the mediation of normative beliefs. Finally, Chapter Eight provides an overall judgement of the thesis, its process and its contribution to academic knowledge and the health community.

8.2   Summary of Major Findings

Despite evidence suggesting a direct association between public health policies and health behaviour change, alternative routes of policy effect (such as influence of policy on behaviour through the mediation of social normative change) may be equally or perhaps more promising venues of uncovering policy effects. Indeed, past research suggests that health policies (smoking restrictions, for example) are

associated with quitting behaviours, and help denormalise smoking (Albers et al., 2004).

Focussing the study analysis on adult smoking over time, this thesis sought among other objectives to validate this approach by comparing the power to predict quitting intentions between smokers in Scotland and rest of the UK, as a consequence of the smoke-free legislation through the mediation of social normative change, before and after a ban. The findings from this study (i.e. ITC Scotland/UK survey) suggest that while social norms of abstaining from smoking have increased on account of the smoke free legislation, the relationship between the legislation and quit intentions is rather indirect. So, in both Scotland and rest of UK, support for the legislation among adult smokers was linked with increased social unacceptability, which, in turn, was associated with quit intentions. Besides, support for the legislation had increased at follow-up among smokers in both Scotland and rest of the UK, although this was fairly higher in the former, which had enacted the law. These results are equally compatible with Cialdini et al.'s (1991) Focus Theory of Normative conduct which posits that social norms affect behaviour especially if these norms are salient at the time a behavioural decision is made. According to this theory, an individual will report higher levels of perceived social unacceptability at follow-up to the extent that the non-smoking norm becomes prominent and salient on account of the non-smoking directive (i.e. the smoke-free legislation).

Parallel to this findings, the UK Youth Tobacco Policy Study, which examined normative pathways between tobacco marketing awareness and smoking intentions, prior to, during, and after the Tobacco Advertising and Promotion Act (TAPA), also suggest that all three models (pre-ban, mid-ban, and post-ban models) showed no direct relation between advertising and promotion awareness and smoking intentions,

highlighting that the relationship between tobacco marketing awareness and intentions is mostly indirect. At pre-ban, higher levels of awareness of advertising and promotion were independently associated with higher levels of perceived sibling approval which, in turn, was positively related to intentions. Independent paths from perceived prevalence and benefits fully mediated the effects of advertising and promotion awareness on intentions mid- and post-ban. Advertising awareness indirectly affected intentions via the interaction between perceived prevalence and benefits pre-ban, whereas the indirect effect on intentions of advertising and promotion awareness was mediated by the interaction of perceived prevalence and benefits mid-ban.

Results from UK YTPS assessing wave three smokers suggest that, the independent association between perceived smoking restrictions and future smoking intentions is mediated by smokers' feelings about the social unacceptability of smoking and unfavourable tobacco industry perceptions, but not by the perceived risk of smoking. While findings from wave two data of the UK YTPS demonstrate that adolescent smokers perceived prevalence, tobacco industry perceptions and risk from smoking were associated with future smoking intentions, and never smokers perceived sibling approval was associated with future smoking intentions.

The focus group research finding likewise provided greater insight into how and why young people relate to social norms. In harmony with the UK YTPS the group study revealed that perceived prevalence (perceptions that everyone smokes) influences youth smoking. Again, in keeping with past research, the focus group demonstrated that smoke-free restrictions help foster anti-smoking beliefs among youth (Farkas et al., 2000) whilst anti-tobacco advertising convey messages that smoking is less acceptable, reinforce negative beliefs of smoking and discourage them from smoking.

Text-only health warnings were viewed by young people as ineffective, on account that this did not discourage smoking. Interestingly, tightening regulation on ease of access to cigarettes and prohibiting point of sale displays were considered as necessary measures to reduce youth smoking, although some smokers suggested that the former could be easily circumvented by having others purchase tobacco on their behalf. That health policy (i.e. tobacco control) assessed in the current research provides motivation to quit unhealthy practices (smoking) via normative beliefs, is indicative that similar health behaviour change can be influenced by changing social norms of other unhealthy behaviours. The current finding therefore broadens the conceptual framework within which health policy and campaigns contribute to the processes of health behaviour change. Public health policy may be a powerful tool for promoting health behaviour change if they are used for promoting social normative changes that, in turn, provide people with an additional source of motivation to quit or modify their involvement in risky behaviour.

8.3 Theoretical Implications

Examination of the relationship between public health policy, social norms and health behaviour has revealed several theoretical issues which impact both on public health community in general and on tobacco control policies and campaigns. These are discussed under the heading: The Social Norms Concept and Synergistic Approach.

8.3.1 The Social Norms Concept

This research has investigated the import of the social norms concept via a variety of normative mechanisms to explain the underlying processes by which public health policies influence health behaviour. The results demonstrate that in general, the social

norms concept is a valuable and promising norm-based model that has significant health implications for policy actions and interventions designed to influence health behaviour change, although past research suggest that results from normative interventions are mixed. The implications for a clearly defined conceptualisation of social norms are discussed, as this is imperative for the success of norm-based interventions and policy actions.

Normative interventions, specifically, descriptive norms campaigns have been useful in the States from the mid 1980s, with important impacts on health campaigns and corresponding behavioural change. The period of its usefulness coincided with a growing demand for a science-based intervention in the light of the pervasive lack of impact from traditional substance abuse strategies (Bruvold, 1993; Perkins, 2003; Botvin et al., 1992; Borsari and Carey, 2003). It marked changes in the evolution of health-based interventions, as the concept was incorporated into drug abuse prevention approaches (Keeling, 2000). Increasingly, the approach have been successfully applied in health campaigns to numerous American college campuses, with evidence demonstrating that perceptions are almost invariably incorrect, and that communicating actual norms will benefit society as well as individuals, with consequential reduction in problem behaviours or increase participation in healthy behaviours (Bosari and Carey, 2001; Neighbors et al., 2004; Perkins et al., 2005). In the UK, McAlaney and McMahon (2007) revealed that misperceived norms may indeed be found beyond the American college halls (Bosari and Carey, 2001), with students overestimating rates of heavy episodic drinking within the university to a degree consistent with the American studies. Empirical support for conformity to norms as predictive of behaviour change is thus well documented (Aarts and Dijksterhuis, 2003; Terry and Hogg, 2001; LaBrie et al., 2008, 2009; Reno et al.,

1993; Kallgren et al., 2000; Cialdini et al., 1990; Lapinski and Rimal, 2005). But there is still a controversy surrounding normative influences on account of some failed norm-based interventions to change behaviour (Granfield, 2005; Peeler et al., 2000; Russell et al., 2005; Werch et al., 2000).

In part, these failed normative interventions are attributed to the lack of conceptual clarity and methodological flaws. Berkowitz (2004) argued that while both injunctive and descriptive norms are widely surveyed in social norms campaigns, most successful SNA's have used descriptive norms. Indeed, the distinct levels of norms (personal-level norms, for example) have been identified to influence behaviour change (Park and Smith, 2007). Norm-based interventions thus are faced with the difficulty in distinguishing between these types of norms empirically and strategically integrating these into interventions. Wechsler et al.'s (2003) review of norm-based interventions to reduce heavy episodic drinking, for example, failed to find behaviour change across any of seven behavioural measures. It would however, be inappropriate to conclude that norms are inconsequential. Norms often prescribe appropriate rules and standards that are understood by members of a group and that guide behaviour (Cialdini and Trost, 1998). They shape people's beliefs about how they ought to act, which are enforced by the threat of sanctions or the promise of rewards. As individuals interact daily with family members, peers, and within organisations, they learn about others' expectations of their behaviours and this information is used to adopt behaviours that are considered acceptable and avoid those unacceptable behaviours. The propensity to conform to a given situation is also expected, when people do not know how to respond, and consequently look to others, observe how they behave, and imitate that behaviour (Bandura, 1986; Cialdini and Trost, 1998; Deutsch and Gerard, 1955).

As such a discrepancy between perceived and actual norms often exists, but norm-based intervention that communicate statistical social norms messages (a descriptive norm) about a problem behaviour might encourage the majority to change their judgment (but not their behaviour) toward the provided statistic (Campo and Cameron, 2006). Granfield (2005) demonstrated this thinking in a social norm intervention designed to reduce drinking among students. Results from data collected at baseline and follow-up suggested that whilst misperceptions had reduced significantly, no significant changes in consumption rates occurred. This lack of effects is perhaps suggestive of boomerang effects. Providing descriptive normative message to a target group might instigate negative outcomes among individuals who already abstain from the undesirable behaviour to cultivate this habit. Alternatively, being informed about the majority norm might also increase the undesirable behaviour within the minority group who perform that behaviour at a rate below the norm.

8.3.2 Synergistic Approach

The extent to which these unintended effects might be prevented based on a clearly defined concept will possibly resolve the methodological ambiguity. According to the Focus Theory of Normative Conduct an individual will act in accordance to the prevailing norm if only one of the two types of norms (descriptive or injunctive) is prominent in his consciousness (Cialdini and Goldstein, 2004). So, the actual levels of injunctive norms and descriptive norms among a certain group and in their society (Cialdini et al., 1991; Schaffer, 1983) should be clearly distinguished in normative interventions. At the personal level, descriptive norms refer to individuals' beliefs about the popularity of the referent behaviour of significant others, whereas injunctive

norms refer to individuals' belief about approval or disapproval of the relevant behaviour of valued others. Beliefs and behaviours of relevant groups (parents, siblings, peers and friends) can influence individuals' perceived prevalence, approval, and behaviour through social interaction.

At the societal or collective level, injunctive norms (societal approval or disproval) may be collected by studying policies enacted by specific communities to promote or proscribe certain behaviours (Lapinski and Rimal, 2005). Likewise, information about descriptive norms (perceived popularity or prevalence) may be gathered by observing media depictions' of trends surrounding a particular issue (Gerbner et al., 1994; Park and Smith, 2007). Industries such as the tobacco and alcohol industry, recognising the power of media portrayals, have successfully branded their lethal products with images embodied in socially desirable and idealized characteristics. The perceived popularity of 'The Marlboro Man', so familiar in commercials since the 1950s, for instance, provided an appealing social model for the Marlboro cigarette's target audience. In the same vein, the use of models, such as the independent, rebellious youth featured in the American Legacy Foundation's truth counter-marketing campaign provided adolescents with accurate information about the tobacco industry, with consequential decreases in smoking prevalence (Bauer et al., 2000).

Drawing from this conceptualisation, the efficacy of normative interventions will possibly be realized provided campaigns and policy actions integrate all normative types to work in a synergistic fashion to transform behaviour. The wisdom of setting these key normative motivations in line with rather than in opposition to one another within norm-based interventions has direct implications for the design of these interventions. Public health efforts that focus primarily on misperceived norms of the undesirable lifestyles (for example, high suicidal rates, binge drinking, and drug

abuse), may be both true and well intentioned, but these campaigns might be missing something critically essential, such as the norm of what is socially approved or disapproved.

Individuals' perception that most others recycle their waste, for instance, might not influence them to do so in a private setting because enactment of this behaviour will not be known to others (Ewing, 2001). However, if this normative information is coupled with a perceived threat of social sanctions for defying the norm, then such influences may be due to injunctive norms, or a combination of both. Cialdini et al. (2006) investigated this thought using the case of Arizona's Petrified Forest National Park, which suffers from the estimated theft of more than a ton of wood per month by visitors. Normative information that focussed recipients on injunctive norm (social disapproval) of environmental theft was hypothesised as superior to normative messages that focus recipients on descriptive norm (the harmful prevalence), with findings suggesting that the descriptive norm message resulted in more theft than the injunctive-norm message (7.92% vs. 1.67%). Thus, given that the situations require people to abstain from the target behaviour; injunctive normative campaigns might be effective. Alternatively, if the majority norm is for example energy conservation, then including descriptive normative information in campaigns might be effective if it is intended to increase residential energy conservation. More so, if energy conversation is socially approved by the majority, it would be wise to incorporate this injunctive normative information as well.

This line of reasoning is consistent with results from this research (assessing the TNSB model) showing that at mid- and post-ban, perceived prevalence of smoking (personal-level descriptive norm) have reduced as a result of decreased tobacco marketing awareness (collective level descriptive information), which, in turn,

reduced youth smoking intentions. However, adolescents' perceived approval (personal-level injunctive norm) did not affect smoking intentions, though tobacco marketing awareness was related to perceived approval. So, as a consequence of the Tobacco Advertising and Promotion ban, adolescents' perception of prevalence was less salient, along with decreased perceived approval, but only perceived prevalence affected intentions. The strength of the ban which consequently reduced tobacco marketing awareness is hence reflected in decrease in perceptions of prevalence and approval, but its consequential effect on smoking intentions was related only to a descriptive norm.

The qualitative research findings also support this conceptualisation as adolescents' perceived prevalence of smoking frequently influenced their smoking behaviour, although they (smokers and non-smokers) mostly emphasised that they do not '*approve*' of this behaviour largely because of perceived parental disapproval of smoking. Adolescents however conformed to the non-smoking norm only in the midst of their parents when perceived parental disapproval is activated.

The tendency for descriptive normative information (personal or collective) to produce an undesirable boomerang effect can therefore be prevented, if an injunctive message is added to depict that the undesired behaviour is disapproved and unacceptable. Even so, interventions and policy actions that include societal level norms such as exposing the alcohol and food industry for purposefully marketing addictive and fatty products to individuals and teens in particular can help denormalise such industries and change unhealthy behaviours. Failure to recognize the distinction between these normative types might imperil the campaign, given that people who tend to imitate what is approved might as well mimic what is popular.

By clarifying the conceptualization of normative influences this research provides an explanation for the mixed results that can help to construct appropriate measures to empirically test each distinct normative domain. This thesis has shown that both descriptive norms and injunctive norms can augment each other. The contributions of these normative types (at the societal or personal level) to the intent of behaviour change have important implications for one's family and personal group as well as for the society at large. Norm-based interventions and policy actions that seek to promote social change should provide descriptive and injunctive normative messages (including industry-focus denormalisation messages) that work in a holistic and synergistic manner rather than in competition with one another. Efforts to denormalise behaviours might also benefit from the moderation of normative and attitudinal influences, as shown in the UK YTPS findings. Such a line of attack unites the power of normative motivations and can provide a highly successful approach to promote health behaviour.

8.4   Practical Implications

Most recent public health policies and campaigns are a consequence of efforts to change unhealthy lifestyles such as tobacco use, heavy episodic drinking, unhealthy eating habits, and unprotected sex (McGinnnis and Foege, 1993; Mattern and Neighbors, 2004; Wakefield et al., 2008; LaBrie et al., 2008, 2009). Health campaigns and policies have been designed primarily to educate the public about the negative consequences of these lifestyles (Brown and Walsh-Childers, 1994; Lapinski and White, 1998; Emery et al., 2005), and to denormalise these behaviours (Albers et al., 2007). Most health advocates are considering alternative ways of impacting behaviour, as the processes underlying how public health campaigns impacts

behaviour change remains inconclusive and under-researched (Wakefield et al., 2003). This thesis provided one of mechanisms by which health policy (i.e. tobacco control) impacts behaviour through changing social norms related to that behaviour. The implication of normative mechanisms for public health policy and campaigns are wide-ranging, and is undeniably not only confined to denormalising smoking and binge drinking (Perkins and Wechsler, 1996; Cialdini et al., 2006).

The first implication is that health policy effects such as the impact of the UK Tobacco Advertising and Promotion Ban on adolescents smoking intentions are rather indirect, through changing normative beliefs. This indirect normative pathway via the mediation of adolescents perceived smoking prevalence suggests that a policy action can inform, alter and guide individuals' perceptions about the societal norm (e.g. by reducing tobacco advertising and promotion awareness), which consequently changes the lifestyle behaviour (smoking intentions, for example). Accordingly, devoid of a policy action or intervention, individuals' involvement in risky behaviours will as well be guided by normative considerations, but most of these behaviours will be surrounded by a considerable degree of normative ambiguity. It follows that higher levels of normative ambiguity might substantially increase the risky behaviour as it is deemed the prevailing normative conduct, which consequently reduces the prospects of healthy behaviour. This becomes so because there is no clear and healthy norm to which individuals can conform (Merton, 1959). To this end, policy actions and interventions (e.g. a ban on alcohol or fast food advertising and promotion) could benefit from normative considerations and reduce people's involvement in the relevant behaviour, by removing the normative ambiguity surrounding such behaviours and clarifying and reinforce the desirable normative behaviour.

This is also true as the focus group research revealed that exposure to anti-tobacco advertising can reach the widest audience base, including socially deprived groups most at risk of tobacco use, and are strong tools for delivering messages to young people and influencing their normative considerations. Past research indicates that anti-smoking ads help both reduce smoking onset and progression to regular smoking (Johnston et al., 2005; Emery et al., 2005), probably by giving emphasis to the healthy norm. Media portrayals emphasizing the serious consequences of smoking can reinforce the healthy non-smoking norm about the negative impact of smoking and deter individuals from smoking.

The second implication from this research is that the impact of a policy action (smoke-free legislation, for example) on adult smokers' quit intentions is also indirect, through changing social normative conduct (i.e. increase perceived social unacceptability of smoking), as illustrated in the ITC Scotland/UK Study. To the extent that at post ban, the relevant norm (in this case a non-smoking directive) is focal or salient in Scotland (intervention country) rather than rest of UK (control country), increased unacceptability of smoking would be expected to be greater in the former than the latter country, possibly through media portrayals and peer communication about the implementation of smoke-free laws (Cialdini and Trost, 1998; Real and Rimal, 2007).

Comparing Scotland with the rest of the UK suggest that a law prohibiting unhealthy practices (e.g. smoking) in public places can correct existing norm about that behaviour to a greater extent among smokers from the intervention group than the control group, which in turn, influence their behavioural intent. A societal level public policy (such as smoke-free law) is hence expected to primarily influence the target's existing norm which is exerted through social interaction within groups and social

networks (Turner, 1991), as the relevant norm becomes prominent and motivation to comply turn out to be evident. As social normative change occurs through correcting the target's normative ambiguity, the contribution of public policy (i.e. smoke-free law) in shaping social normative conduct and behavioural intent in this research attest to the promise of this approach.

Thus, societal level norms derived from media depictions and regulations can collectively transform norms. For instance, a healthy eating norm can be established by clearly characterizing this desirable behaviour as the prevailing and socially approved behaviour, through media portrayals prompting healthy eating habits, and regulations restricting unhealthy consumption habits (e.g. high levels of fatty, salty and sugary foods intake). Such laws and depictions from the media inform the social environment about cues relating to what people consider socially acceptable or unacceptable normative behaviour. Through exposure to commercial advertisement and entertainment programs, a significant amount of social learning occurs, which shape the norms of what is acceptable and prevalent in society, which laws tend to reinforce, creating a gauge by which people conduct themselves.

The third implication is that understanding young peoples' perceptions of public health measures that either encourage or discourage youth smoking is critical in order to help inform and consolidate policy actions (e.g. tobacco control measures). Health policy, such as health warning labels on cigarette packs communicate the negative consequences of smoking, which probably highlights non-smoking as the prevailing norm, but this might not necessarily lead to behaviour change. The focus group study revealed this tendency as adolescents did not consider the warnings a useful measure for reducing smoking prevalence, but rather only served to inform them of associated risks. The introduction of graphic labels on tobacco products as of October 2008 in

the UK might prove more effective in denormalising smoking by motivating quitting behaviours and reducing onset. Past research indicates that graphic warnings are more effective than text-based warnings at motivating smokers to quit (O'Hegarty et al., 2006; White et al., 2008), largely by increasing awareness and being more visually attentive (Hammond et al., 2003). This approach could possibly be applied to alcoholic beverages through depiction of pictorial health warning labels of alcohol use related diseases to denormalise heavy drinking norm.

Another policy measure that can discourage adolescents from smoking is the prohibition Point of Sale tobacco displays, viewed as attractive and cool, and encouraging adolescents to smoke (Hastings et al., 2008). POS displays have been shown to yield high frequency exposure (Pollay, 2007), particularly among youth, which is a concern as 75% of adolescents in the US visit convenience stores weekly (Henriksen et al., 2004). It is therefore impossible to safeguard children from POS tobacco displays, which appear to stimulate unplanned purchases (Wakefield et al., 2008) and encourage smoking uptake (Hastings et al., 2008). Prohibiting tobacco displays, will hence protect children from POS tobacco displays and send a clear message to youth that tobacco is less normative and unattractive.

Further, monitoring access to tobacco products could restrict youth smoking. Findings from this research suggest that a ban of sales to children is difficult to enforce and the positioning of tobacco as an adult product encourages young people to attempt to purchase tobacco. Even so, the fact that the tobacco industry support a ban of sales to minors as part of their 'youth smoking prevention' campaigns is suggestive that this measure is unlikely to be effective (Sandford, 2003). Effectively tightening rules regarding sales to minors such as checking for identification is thus a necessary move to circumvent this drift.

Last, despite the findings from wave three (mid-ban) of the UK YTPS survey demonstrating that adolescent smokers' perception of smoking restrictions was associated with tobacco industry perceptions, which subsequently affected future smoking intentions; little was said about the responsibility of the tobacco industry for smoking related diseases in the group study irrespective of smoking status, age social class and gender. Although, the group study was conducted a couple of years after TAPA, this findings contradicts adolescents' views in the US about the manipulativeness of the industry (Goldman and Glantz, 1998; Dejong and Hoffman, 2000), but is somewhat understandable as anti-tobacco ads in the UK seldom inform of industry malpractices, which suggests that this is something that may be worth incorporating into future ads, and possibly another avenue for reducing youth uptake.

To conclude, denormalising behaviour can be facilitated with the formation of a clear normative conduct against the undesirable behaviour. Public policy and campaigns such as media communication, or the strategic use of regulations and media to promote social change (Wallack et al., 1993), may be a better strategy to pursue in this respect. Media is certainly a useful communication tool to effect social behaviour change. Moreover, as behavioural and attitudinal changes tend to be slow and gradual, maintaining public interest and concern requires levels of media attention that cannot be secured only by even lavishly funded public health communication campaigns. Media attention to healthy and other desirable lifestyles is far more likely to attract related policy actions that should reinforce the campaign message. In fact media advocacy seems to be particularly useful in setting processes of social change in motion when employed in conjunction with laws and other community efforts (Holder and Treno, 1997). Health advocates and researchers should however, give ample thought to use of this strategy in efforts to reduce the social acceptability of risky

lifestyle behaviours as a way of bringing about the much needed improvement in public health. To this effect, health policy actions and interventions can make a significant contribution to social efforts to curb risky health behaviours by reinforcing social norms.

8.5 Limitations and Suggestions for Future Research

Like all research, this thesis has limitations. These caveats and recommendations for future research are presented in this section. The limitations and suggestions are classified into quantitative methods (i.e. ITC Scotland/UK and the UK YTPS) and qualitative methods (focus group discussion).

8.5.1 ITC Scotland/UK Study

The hypothesized model as shown in figure 4.1 did not include moderator variables (i.e. general demographic information), which may have impacted upon the findings, although no significant gender differences was found in additional analyses. The failure to include other potential mediating variables (e.g. reduced opportunity to smoke in the workplace, dislike of smoking outside, associated mass media campaigns and unpaid media coverage) may have similarly impacted upon the findings, and the absence of other normative constructs weakened the explanatory power of the model. Additionally, a relatively small sample size was employed as a result of the low response rate, and almost half the sample was lost to attrition at follow-up, which is slightly higher than with other research (Albers et al., 2007). Furthermore, the study found significant differences between respondents and non-respondents in terms of age, with smokers aged 25 to 54 more likely to dropout. This may have impacted upon the results although past research reporting similar response

bias in terms of age suggests that this does not affect the conclusions drawn from these studies (Benfante et al., 1989; Forthofer, 1983; Heilbrun et al., 1991). Despite these limitations, the use of a longitudinal design allowed appropriate assessment of the influence of a population-level policy measure (smoking ban) on quit intentions via a suitable general mediator (unacceptability). Longitudinal designs can overcome many of the problems associated with cross-sectional research and allow causality to be demonstrated, permitting valuable insights into the pathways involved in behaviour change.

8.5.2   UK YPTS Survey

Likewise, a number of limitations may have impacted upon the findings of the UK YTPS survey (see figure 4.2) which assessed impact of the TAPA prior to, during, and after the ban, e.g. cross-sectional research does not permit causality. The use of a longitudinal design would have been preferable, although the YTPS still provides a long-term monitor of adolescent tobacco marketing awareness and smoking intentions. A second limitation is the use of quota sampling rather than random sampling, although importantly youth smoking prevalence in the YTPS is very similar to that found in national surveys (Brown and Moodie, 2009). Nevertheless, future research employing random sampling, i.e. probability sampling procedure would be a preferred method given that results from random sampling are mostly representative of the target population.

Third, another probable drawback is that variation in smoking status might affect intention. Nonetheless, as the TAPA impact both smokers and non-smokers' normative beliefs and intentions to smoke, this study (i.e. using the TNSB model) focussed on assessing the influence of the TAPA on the entire youth population's

intentions via normative beliefs. This seemed appropriate given the fairly small sample size and small number of smokers. Future research, with a larger sample, could explore these issues in greater depth.

Fourth, a potential limitation is the assessment of intentions in the UK YTPS surveys. Although intentions are a widely used construct that can be considered a reasonable proxy for actual behaviour (Sheeran and Abraham, 2003; Rimal and Real, 2005), including smoking behaviour (Sussman et al., 1987; Wakefield et al., 2004), this is not always the case. For instance, longitudinal research has found that not all current smokers or never smokers, even those that make a firm intention to smoke in the future, do so (Abroms et al., 2005; Stanton et al., 2005), with this failure to predict subsequent behaviour alluded to as the intention-behaviour gap (Ajzen and Madden, 1986; Sheeran, 2002). Intentions may not necessarily predict actual behaviour given that as time elapses individuals may be exposed to extenuating factors, such as a change in friends, social milieu or normative expectations, which cause them to change their beliefs and intentions (Chatzisarantis et al., 1997; Armitage and Conner, 2001). However, the vast body of evidence supporting the intention-behaviour link suggests that these potential caveats do not undermine the validity of the present findings. It is recommended that future studies should consider measures that capture smoking behaviour as well as intention to smoke in the near future.

Likewise, assessment of 'liking' to advertising and 'image' advertising may have increased the predictive strength of the study findings. Another limitation is the failure to examine other normative measures or instruments (constructs) such as ego involvement (Lapinski and Rimal, 2005), peer and parental influence (Chassin et al., 1986) and peer communication (Bandura, 1986) to improve variance on intentions. Peer communication, in particular, is a mechanism for the propagation of normative

information, irrespective of its accuracy. In respect to the policy measure examined, having information on peer communication would have helped provide a more thorough understanding of the moderating role that tobacco marketing has on young people's normative beliefs via peer communication.

Comparable with the caveats of the UK YTPS survey as illustrated in figure 4.2, the data used in the hypothesized models to assess: (a) smokers and non-smokers' association with future smoking intentions (see figure 4.3), and (b) perceptions of smoking restrictions on intentions through youth smokers normative domains (see figure 4.4), were cross-sectional, therefore causal relationship could not be inferred. Again, the models did not account for gender and age differences, though previous research has found normative influences to extend across gender, regardless of smoking status (Sussman et al., 1988), but the small cell sizes prohibited further investigation.

A final limitation is use of single items to measure perceived acceptability (i.e. sibling approval) and perceived risk from smoking suggests that the study may not be tapping into all facets of these normative domains. Future research would benefit from the use of multi-item measures assessing not just sibling, but also parent and peer beliefs, acceptability and approval of smoking, and also the broad range of physical and social harmful effects that accompany smoking, rather than just assessing the time for health risks to become evident. Research is also necessary to examine whether similar findings are evident for other measures of the normative domains not used in this study. Although the UK YTPS investigates intentions to smoke among youth (i.e. current, tried and never smokers), longitudinal research has found that not all current smokers, tried, or never smokers, even those that make a firm intention to smoke in the future, do so (Abroms et al., 2005; Stanton et al., 2005). Nonetheless, empirical

evidence supporting the intention-behaviour link attests that these potential limitations do not undermine the validity of the present findings, which substantiate studies on normative prevention approaches and tobacco policies influences that have led to a reduction in smoking rates.

8.5.3 Focus Group Discussion

Despite the merits of focus group research, as with all research methods the group discussions are not without limitations. Unlike quantitative studies or one-to-one interviewing, the researcher had less control over the data produced (Morgan 1998). This is because the researcher had to allow participants to talk to each other, ask questions and express doubts and opinions, while having very little control over the interaction other than generally keeping participants focused on the topic.

Another limitation was the difficulty in recruiting a representative sample which reduces confidence in making generalization about the entire population. However, on account that this thesis adopted a mixed method approach, the group discussion is deemed appropriate as it throws light on findings of the quantitative study. Finally, focus groups are not entirely confidential or anonymous since the material is shared with group participants. As such the focus group method might have discouraged some people from trusting others with sensitive or personal information.

8.6   Summary of key contributions to knowledge

Incorporating both quantitative and qualitative methods has enabled the detailed examination of several tobacco policy measures that impact social norms and smoking behaviour. This richness of the data and its subsequent interpretation would not have resulted in the uncovering of such a variety of typologies, if a single approach was employed.

Investigation of the ITC Scotland/UK study shed light on how a comprehensive smoke-free law that cover, without exception, an entire nation (i.e. the legislation covers all of Scotland, with no local level regulatory variations) can increase a nationally representative sample of adults smokers' perceived social unacceptability of smoking, which, in turn, is associated with quit intentions at follow-up, in both countries. Past research assessing the direct link between smoking restrictions and reduced prevalence and quit behaviours tend to focus on local smoke-free regulations, which were weak in the vast majority of towns (87%), and consequently could not find effect on cessation at follow-up (Albers et al., 2007).

This research has demonstrated that using the rest of the UK as a control group, comparisons can be drawn with these countries that have, aside from smoke-free laws, an identical tobacco control policy to Scotland at the time of the study. Consistent with the Focus Theory of Normative Conduct, evaluation of the two countries comparatively has shown that perceived social unacceptability of smoking was to some extent higher in Scotland than rest of the UK at follow-up, and these were consequently associated with quit intentions in both countries. The strength of a legislation to heighten socially desirable normative conduct is demonstrated, with corresponding intentions to quit in the intervention as well as the control nation, possibly on account of media depictions, peer communications and social interactions. Health campaigns intended to promote strong anti-smoking norms in media can benefit from introducing smoke-free legislations, with additional incentive of preventing passive smoking and making smoking less normative.

The research showed however that the differences in intentions between the countries were not significant, probably because the follow-up survey, conducted approximately one year after the ban, is somehow slightly early to assess differences

in intentions as a consequence a ban. Further follow-up surveys are recommended in this regard to assess the trend in quitting behaviours between and within countries, and examine whether these are associated with tobacco policies and normative beliefs. Tobacco denormalisation has been conceptualised as encompassing efforts to change social norms of smoking (descriptive and injunctive smoking norms) and expose the tobacco industry mal-practises, and establish social normative behaviour. Future research using tobacco industry perceptions and possibly a descriptive norm as additional normative mediators, aside from unacceptability, would be of value to examine whether smoke-free legislation influences quitting partly via the creation of less favourable industry perceptions and reduced perceived prevalence.

The examination of the UK YTPS surveys also showed the paucity of research assessing the impact of tobacco marketing awareness on adolescents' smoking intentions via normative influences. This research has demonstrated that tobacco marketing awareness on adolescents' smoking intentions is guided by normative considerations. The thesis has revealed that theoretical normative frameworks, such as the TNSB, FTNC and SNA, can be expanded to examine distal and societal level influences (e.g. psychosocial mediators and tobacco marketing awareness). It is suggested that research assessing the impact of pro-smoking and anti-smoking advertising as explanatory media constructs on intentions would be of value. Previous research affirming that policy or campaign's potential effect on behaviour change is motivated by normative considerations, suggest that health interventions that incorporate socially normative messages can influence healthy behaviours, but proper assessment of the problem behaviour is needed to design an appropriate norm-based intervention so as to avoid negative consequences.

The findings from the group discussion showed that smoke-free legislation and anti-smoking ads influence perceptions of prevalence, acceptability and smoking behaviour. Again, the findings that young people support the smoke-free legislation are comparable with the ITC Scotland study which revealed that support for the ban had increased at follow-up in both countries. Examination of POS displays and health labels from this group study have demonstrated that whereas the former was perceived as 'cool' and encouraging smoking among youths the latter was mainly considered as 'just words'. These findings add to the literature which shows that prohibiting POS displays and introducing pictorial labels on cigarette packs will likely increase noticeability and discourage smoking.

It is recommended that future research drawn from findings of the UK YTPS surveys include the use of multi-item measures assessing not just perceived sibling disapproval, but also perceived peer and parental disapproval of smoking. Additionally, random sampling (probability sampling) designs and longitudinal surveys rather than random quota sampling and cross-sectional studies are desirable methods that should be considered in future surveys. Research is also necessary to examine whether similar findings are evident for measures such as peer selection, socialization, communication effect and other self-esteem variables not used in this study.

In conclusion, this research has examined a mechanism underlying how policy impacts social norms and health behaviour change which has not been previously rigorously investigated from both theoretical and practical perspectives. Health campaigns and policy actions driven mainly by the damaging health effects of smoking and the like require an all encompassing approach that integrates normative messages into a range of such interventions to reduce problem behaviour.

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YOUNG PEOPLE'S PERCEPTIONS OF TOBACCO POLICIES AND SMOKING

INFORMATION SHEET

What is the study about?
This study forms part of a PhD degree regarding young people's awareness, experience and opinions of smoking and how tobacco policies influence these views. We are interested in young people's views about different policies such as smoking bans and bans on tobacco advertising. The findings will provide valuable insight into teenagers' smoking behaviours and to help develop policy with regards to smoking and public health. We are not working with any commercial organisations and the research will not be used for any commercial purposes.

What will the study involve?
The study will involve discussion groups that will take place in Glasgow and Edinburgh. The discussion groups will comprise young people aged 11-16 years. Each group will consist of around 5 young people of similar ages: 11-12, 13-14, and 15-16 years.

What will happen if I agree to let my child participate?
Your child has been invited to take part in this discussion group. If you agree to let them participate, they will take part in a group discussion involving 4 or 5 other teenagers. The group will be held at an informal venue such as a local hall or community centre and will be conducted by an academic researcher from the University of Stirling for his doctoral degree. The discussion will last approximately one hour. The discussion may be tape recorded, but your child will never be named or identified.

How does my child participate?
If you would like your child to take part in a discussion group then please complete and return the consent form provided.

What if I change my mind?
Your child is not obliged to participate in this study and can choose to opt out at any time.

What do I get in return?
If your child takes part in a group discussion, they will receive a cash gift (slightly more for those aged 15-16).

Who can I contact for further information?
Georgina Cairns
Research Coordinator
Institute for Social Marketing
University of Stirling & Open University

ISM Institute *for* Social Marketing
A collaboration between the University of Stirling and The Open University

The Centre for
Tobacco Control Research
core funded by
CANCER RESEARCH UK

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RESEARCH ON YOUNG PEOPLE'S RESPONSES TO TOBACCO POLICY

Recruitment Questionnaire

Winter 2008

Recruiter……………………… *Date* ………………………………………

Hello / good evening etc, my name is ………I am doing some research on behalf of University of Stirling about young people's perceptions and experiences of tobacco regulations. Can you help me by answering a few quick questions?

[NB. Please ensure that respondent has answered all of the questions below, prior to recruitment]

PROFILE

Sex: Male   [   ]   **Age**: 11-12   [   ]

              Female   [   ]   13-14   [   ]

                                                      15-16

                                              Actual age: …………………………………...

Occupation of Chief Income Earner: ....

Social Class: ABC1   [   ]

                      C2DE   [   ]

Q2   Which of the following best describes you?
         (Please tell me the letter which matches your answer)

         SHOWCARD

I have never smoked a cigarette before [ ]   X   Recruit as 'Non Smoker' for all ages

I have tried a cigarette in the past, but [ ]   Y   Recruit as 'Smoker' for 11-14 years
                                                     Recruit as 'Non Smoker' for 15/16 years
I do not smoke now

I smoke one or more cigarettes a week [ ]   Z   Recruit as 'Smoker' for all ages

[ ]

IF RESPONDENT MEETS QUOTA CRITERIA:

If your parent or main carer gives permission, can you help us by taking part in a research study? We would like to invite you to take part in a discussion group with about 5 other young people to discuss your opinions on the restrictions on smoking and advertising of cigarettes and other tobacco products.

The group discussion will take place at ……. on …….. .You would be offered a small cash gift to cover any expenses for attending. We will need your parent/carers written consent before you can take part.

            Yes   [ ]

            No   [ ]

            ### *Contact Details*

   First name: …………………Surname: ……..………………………..…………….

   Address: ……….…………………………….……………………………………….

   ……………………………………………………………………………………….

   Tel no (home and mobile)…………………………………………………………

ISM Institute *for* Social Marketing
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core funded by
CANCER RESEARCH UK

Tobacco Use Prevention Discussion Guide

Introduction
(5 minutes)
Purpose: general introduction and warm-up.

- Introduce myself and observer
- Explain open discussion – not questionnaire
- Clarify purpose of research (looking at *views about of smoking* and *ban on tobacco ads*)
- Introduce tape recorder
- Confidential

Famous People/Celebrities

Task- go through pictures

SHOWCARDS A – Smoke Regularly, Have Tried Smoking, Never Smoked.

Sort into ones they think smoke regularly/ don't
Note how many they attribute the smoking pile/non-smoking pile.
- Explore what makes them think that certain ones smokes / don't smoke, how did they make their judgement etc.
- Why they think that he/she smokes?
- Will most/ a few of his/her friends smoke?
- What brands would these people smoke?

PERCEIVED BEHAVIOUR/CHARACTERISTICS OF THEIR AGE (Possibly repeat for parents' age)

SHOWCARDS B – None to All

- How many people your age … (Probe, how **often** and **why**… What did they think other people thought of them, where **only for smoking questions**?)
- Eat chocolate or sweets most days
- Has a smoker living in their house
- Are overweight
- Play football
- Have tried smoking a cigarette
- Smoke at least one cigarette per week.
- Shop at Tesco/M & S

PERCEIVED PEER PREVALENCE – charts

SHOWCARDS C – Number in ten who think smoke/don't smoke

- How many 13 and 1 5year olds they think smoke at least one cigarette per week?
- Again what makes them think that.

Use Personification – get them to picture, in their minds, the group who smoke and describe them: why do they think that they smoke, what are they like, where would they smoke, what brand smoked, would they enjoy being in their company, what do they look like, how are they dressed, what films would they like etc **(repeat for non-smoking group)**.

GENERAL

On the whole, do you think people are encouraged to smoke these days or discouraged.
Thinking about everything that you come across each day….Go to shops……Go to Restaurants, Pubs, Bars….Watch TV……Listen to radio……..watch films…..

…….Are people encouraged or discouraged to smoke?
- What do you feel about labels on packs?
- How does the labels make you feel about smoking?
- What do you think other people think about the label on cig packs?
- Do you think labels on pack will increase or decrease no. of cigs smoked?

Do you consider smoking acceptable/unacceptable (among sibling, parents age, society)

Is it easy or difficult for people to smoke these days? What makes it easy/difficult.

FEELINGS ABOUT SMOKING

How do you feel about people smoking near them (standing at bus stop, being indoors , home).
How often have people smoke near them.
Are there places/situations where would mind/not mind.

How do you feel about:
- Being in a car with someone who is smoking.
- Is it acceptable/unacceptable to smoke in a car?

THANK YOU. END

Survey Instrument
ITC Scotland/U.K. Survey: Wave 1
December 3, 2004

I2 Q#	VarName	Introduction

1 (M3)		**PROGRAMMER NOTE:**
		 6M Anchor = [early/middle/late]
		 for interviews taking place during first 10 days of month = "Early"
		 for interviews taking place during days 11-20 of month = "Middle"
		 for interviews taking place during days 21- end of month = "Late"
		 1M Anchor = "[CURRENT MONTH – 1] [CURRENT DAY OF MONTH]"
		 LSD = Month and Year of last survey date
		 QD = Quit date in months to be calculated for respondents with smoking status 4-6 on I1
		    -For I1 respondents, quit date will be drawn from I1 Q.10 or Q.11+ LSD
		    -For P2 respondents, quit date will = LSD

2 (M3)		Hello, could I please speak to [respondent name]?

3 (M3)	Hello, I'm calling from [Survey firm] regarding the phone survey on smoking that you completed about 12 months ago. You may recall that the survey is being conducted by an international group of universities and research institutions in four countries. We are calling to ask whether you would be willing to answer the follow-up survey that would take about 45 minutes.
	 We sent out a letter to update you on the follow-up survey, including a [cheque/voucher] for your participation in this follow-up survey. Did you receive the letter and [the cheque/voucher?]
	        01- YES GO TO Q.4
	        02- No See Below
	 I'm very sorry. Our mailing service sent out the letter with the cheque/voucher on [day letter was sent]. We fully intended for the cheque/voucher to get to you by today and we would like you to answer the survey today, but if you feel more comfortable waiting until you receive the cheque/voucher before you answer the survey, we could schedule the survey in a few days time. Would you answer the survey now or would you like to wait until the letter arrives?
	 01 – Answer the survey now. **GO TO Q.2a**
	 02 – Wait **Confirm address, reschedule call for one week**

4
(M3)
	As with the last survey, your answers to this survey will be kept <u>absolutely</u> confidential. All personal information, including your name and address, will be kept <u>strictly </u>confidential and will not be shared with any person or group that is not associated with this survey.
	
	Would you be willing to spend about 45 minutes to answer the survey?
	
	       01 – Yes, complete now **GO TO Q.7**
	       02 – Yes, but at another time **Reschedule**
	       03 – NO **GO TO Q.5**
	  See Help Screen for questions about 6 month follow-up surveys/re-contacts

5
(M3)
	When would be a more convenient time to complete the survey?
	01 – **Reschedule**
	02 – No **See below**
	        If no: We understand how you feel. We really appreciate your
	        participation in the first survey. The difference between this and most
	        other surveys is this is an international research project and we are
	        talking to the same people a number of times to better
	        understand what affects their opinions and smoking behaviour. This is
	        why your participation is so important to us.
	        Can we just start with a few questions and see how it goes?
	             01 – Yes **GO TO Q.7**
	             02- No **GO TO Q.6**
	If hesitates: Say "Or would another time be better?" If yes reschedule.
	
	If Necessary, See Help Screen for additional background information.

6 (M3)	Sorry to have bothered you, thank you for your time. **Terminate call**

7 (M3)	Thank you very much for agreeing to participate in our survey. Before we begin, I'll mention that some of the questions ask you about the last 6 months: that means any time from **[6M Anchor]** until now. Other questions ask you about time since the last survey, about [LSD]. Also, you might recognize some of the questions from the last survey. For these questions we are interested in what may or may not have changed since the last time we spoke. Finally, if there is any question you do not wish to answer, just let me know and we will skip it and go on to the next. Let's begin
(M3)	**Interviewer Training Note: Q8-Q20 Skips/Refusals** If a respondent skips/refuses, etc. any question between q.8 and q.20, please have the interviewers give the following script: "I'm sorry, but this is an essential question that will help us to skip any unnecessary questions later in the survey- if at all possible, we'd ask you to try to answer the question." If they don't/can't provide an answer than we need to assign them a smoking status code based on q.9. If they are still smoking at q.9, we need to assign them a unique code (e.g. 11). This code will be equivalent to smoking status 1. I.e. we will simply err on the side of caution and ask them all the questions for daily smokers. If Q.9=2 (not smoking) then we need to assign them another unique code (e.g.44) that will be equivalent to smoking status 4. In other words, we will treat them as a participant who quit in the last month. If a respondent refuses to answer q.9 (highly unlikely), even after the conversion script above, then we need to say: "As you know this is a survey on smoking and we will need to determine whether you are currently smoking in order to proceed with the survey." If they refuse again, then we need to assign them a new refusal disposition code of 282 (please see revised list attached) and terminate.

I2 Q#	Code	Smoking Behaviour
8 (M3)	bQA331	**If I1 status=4-6, GO TO Q.9. If smoking status=1-3 at I1 ask:** Have you made any attempts to stop smoking since we last talked with you in [insert **LSD**]? 01 – Yes 02 – No **GO TO Q.20**
9 (M3)	bQA336	**Programmer Note: Ask bit in curly brackets if I1 Status=4-6:** { Last time we spoke to you in [I1 date] you had ~~just~~ quit smoking.} Are you back smoking or are you still stopped? 01 - Smoking **GO TO Q.12** 02 – Still Quit **If I1 status=4-6 ask Q.10, else skip to Q.11**

10 (M3)	bQA341	So you have quit smoking since [**QD**]- is that correct? 　　　　01 – Yes **see below** 　　　　02 – No **GO TO Q.11** **If YES, set Q.11 to date from last interview date & GO TO Q.16**
11 (M3)	bQA441a bQA441bbQA441c **OR** bQA456a bQA456b bQA456c	When did you quit? 　　　　01 – Days Enter Number 　　　　02 – Weeks Enter Number 　　　　03 – Months Enter Number OR ___ day ___ month (day not required if **not** current or immediate past month) ___ year Programmer Note: If time quit is 3 months or more, SKIP TO Q.13
12 (M3)	bQA551a bQA551b bQA551c bQA551d	What is the longest time that you stayed smoke-free since [**LSD**] **If I2 Q.9=2add:** "including your current quit attempt." 01 – Hours (enter number) 02 – Days (enter number) 03 – Weeks (enter number) 04 – Months (enter number) **IF Q.12<24 hours GO TO Q.20**

13 (M3)	bQA561 bQA563	In total, how many times have you tried to quit smoking since [**LSD**], [If Q.9=2, add: "including the current attempt"]? [If Q.9=1 and I1 status=4-6, add: "excluding your attempt that began on [**QD**]?"] [enter number]
14 (M3)	bQA661a bQA661bbQA661c **OR** bQA666a bQA666b bQA666c	**Programmer Note: Ask only if Q9=1 Else skip to Q.15** How long ago did your [If Q.13>1 add: "most recent"] quit attempt end? 01 – Days ago (enter number) 02 – Weeks ago (enter number) 03 – Months ago (enter number **OR**: ___day ___ month (allow early/mid/late in previous month or before) ___year
15 (M3)	bQA671	**If Q.13 > 1 ask:** On your <u>most recent</u> quit attempt, did you stop smoking suddenly or did you gradually cut down on the number of cigarettes you smoked? **If Q.13 = 1 ask:**

		Did you stop smoking suddenly or did you gradually cut down on the number of cigarettes you smoked?
		01 – Stopped suddenly
		02 – Cut down gradually
16 (M3)	bQA701	IF Q.9 = 1 GO TO Q.20
		If Quit less than or equal to one month (4 weeks) ask:
		Have you had any cigarettes, even a puff, since you quit smoking?
		01 – Yes GO TO Q.17
		02 – No GO TO Q.21
		If quit > 1month ask:
		Have you had any cigarettes, even a puff, in the last month?
		01 – Yes GO TO Q.17
		02 – No **GO TO Q.21**

17 (M3)	bQA706	**Was this a slip-up or are you still allowing yourself the occasional cigarette?**
		01 – Slip up GO TO Q.21
		02 – Allow **GO TO Q.18**
18 (M3)	bQA711	How often have you allowed yourself a cigarette? (read) 01 – Daily **GO TO Q.19** 02 – Less than daily, but at least once a week **GO TO Q.19** 03 – Less than weekly, but at least once month **GO TO Q.19** 04 – Less than monthly **GO TO Q.21**
19 (M3)	For the purposes of the survey, we will be considering people who smoke at least once a month to be smokers. If Q.18 =1 If Q.18= 2 If Q.18= 3 **GO TO Q.21**	
20 (M3)	bFR301 bFR306	The last time we spoke to you in **[LSD]** you said that you smoked **[Insert I1 smoking status code-i.e. daily/weekly/monthly]** Do you still smoke **[insert I1 code: i.e. daily/less than daily but at least once a week/Less than once a week, but at least once a month/]?** 01 – Yes **GO TO Q.21** – No **see below** a. If I1status = 1 ask: Are you now smoking at least once a week, or less than once a week but at least once a month? 02 – Weekly 03 – Monthly **GO TO Q.21**

<table>
<tr><td></td><td></td><td>b. If I1status = 2 ask: Are you now smoking daily or are you
      smoking less than once a week but at least once a month?
01 – Daily
 03 –Monthly
<div align="center">GO TO Q.21</div>c. If I1status = 3 ask: Are you now smoking daily or less than daily
      but at least once a week?
01 – Daily
02 – Weekly
GO TO Q.21
     Interviewer Note: If Respondent says they have quit, say: "Can
       I please check your answer to an earlier question....." and route
       them back to q.8</td></tr>
</table>

25 (M3)	bFR321 bFR326	Last time we spoke, you told us that you smoked [insert I1 Q.25 answer]. Is this still the case?
		     01 – Yes **CODE as appropriate**
		     02 – No **Ask which of other two options, below**
		01 – Factory-made only **GO TO Q.27**
		02 – Roll-your-own only **GO TO Q.27**
		03 – Both **GO TO Q.26**

26 (M3)	bFR331	For every 10 (ten) cigarettes you smoke, about how many are roll-your-own? |_____|_____| **NUMBER** **GO TO Q.27**
27 (M3)	bFR411	**Programmer Note: Ask only if smoking status=1-2. If smoking status=3-6 GO TO Q.31** *Programmer Note: If [I1 Q.27 =2 or I1 Q.28=2 GO TO Q.28]* Are you still employed outside the home? 01 – Yes **GO TO Q.29** 02 – No **GO TO Q31**
28 (M3)	bFR416	Are you currently employed outside the home? 01 – Yes **GO TO Q29** 02 – No **GO TO Q31**
29 (M3)	bFR431	Is there any difference between the number of cigarettes you smoke during a workday and the number you smoke during a non-working day? 01 – Yes **GO TO Q.30** 02 – No **GO TO Q.31**

30 (M3)	bFR441 bFR446	Q.30a On average, how many cigarettes do you smoke on a workday? **PROBE FOR PRECISE NUMBER** _____ **Interviewer Notes: If less than one/day, enter 0.** **If range given and can't give a specific number, then enter mid-point.** Q.30b On average, how many cigarettes do you smoke on a non-working day? **PROBE FOR PRECISE NUMBER** _____ **GO TO Q.31** **Interviewer Notes: If less than one/day, enter 0.** **If range given and can't give a specific number, then enter mid-point.**
31 (M3)	UK bBR331 bBR331o Ireland bBR351 bBR351o	What brand of [cigarettes/ roll-your-own cigarettes] do you smoke more now than any other? DO NOT READ…CODE ONE BRAND ONLY…INT. NOTE: PROBE FOR WHETHER RESPONDENT SMOKES REGULAR, LIGHT, EXTRA LIGHT ETC. AND SIZE WITHIN THEIR BRAND **Insert Brand Lists for UK and Ireland** **At end of sequence**: So you smoke [brand name, strength, size, etc.?—as listed on the screen]. **Verify with respondent.**
31a (M3)	bBR355 Note change to varnames	**Programmer Note:** bring up brand name from I2 Q.31 underneath Q.31 brand name **Interviewer Note:** If W2 brand is the same as Q.31 brand enter 01 If W2 brand at all different (or uncertain), enter 02
31b (M3)	bBR405	Without looking at the pack, can you tell me the tar level of that brand?" [enter]

31c (M3)	bBR601	**Programmer Note:** Ask only for designated brands, All others SKIP TO Q.34 **If replacement brand and smoked from same brand family at Baseline:** Is [Q.31 brand] that the same as [I1 brand] but with a different name? 01 – Yes **Go to Q.37** 02 – No **Go to Q.32**
32 (M3)	bBR401	Is [Q.31 brand] a light-mild cigarette or is it a regular strength brand**?** 01 – Light/mild **GO TO Q.33** 02 – Regular brand **GO TO Q.34**
33 (M3)	bBR411 bBR413 bBR415 bBR417	How did you determine that the cigarette was light, mild or low tar? (Read) 01 – Yes 02 – No a. From the words or description on the front of the pack b. From the tar levels or information on the side of the pack c. From the design or color of the pack d. The shopkeeper or sales assistant told you

34 (M3)	bBR501a
	 bBR501bbBR501cbBR501dbBR501e bBR501f
		Programmer Note: If Q.31a =01 Go to Q.37
		 About how long have you been smoking [Q.31 brand]?
		       01 – Days Enter Number
		       02 – Weeks Enter Number
		       03 – Months Enter Number
		       04 – Years Enter Number
		       05 – More than 10 years
		       06 – Since last survey
		 Interviewer note:
		 If the respondent replies "don't know" or isn't sure, ask: "Would that be before [**LSD**]?" and select option 6
		 If the respondent gives a specific time longer than 10 years, select option 04 and enter specific number.
		 Programmer Note: If Q.34> 12 months, Go to Q.37

35 (M3)	bBR611 bBR616 bBR621 bBR626 bBR636 bBR641	In choosing [Q.31 Brand], was part of your decision to smoke this brand based on any of the following: 01 – Yes 02 – No a. The listed tar and nicotine levels for the brand? b. It may not be as bad for your health? c. **If Q.8 = 1 ask**: As a way to help you quit? d. The price? e. How they taste? f. How satisfying they are?

I2 Q#	Code	Smoking Behaviour, continued
37 (M3)	bSB021a bSB021b	**Programmer Note: Ask only if Smoking Status=1** How soon after waking do you usually have your first smoke? (Do not read) 01 – minutes [enter] 02 – hours [enter] ** **Note: Respondent can answer with one time unit or both.**
38 (M3)	bSB026a bSB026b	**Programmer Note: Ask only if Smoking Status=2-3** On days that you smoke, how soon after waking do you usually have your first smoke? (Do not read) 01 – minutes [enter] 02 – hours [enter] ** **Note: Respondent can answer with one time unit or both.**
38a (M3)	bSB031	Do you consider yourself addicted to cigarettes? Would you say… (read) 01 – Not at all 02 – Yes–somewhat addicted 03 – Yes–very addicted

39 (M3)	bSB041 bSB041q	**Programmer Note: Ask only if Smoking Status=4-6**
		 How hard is it to go without smoking for a whole day? (read)
		        01 – Not at all hard
		        02 – Somewhat hard
		        03 – Very hard
		        04 – Extremely hard
		        GO TO Q.40
		 Programmer Note: Ask only if Smoking Status=1-3
		 How hard would you find it to go without smoking for a whole day? (read)
		        01 – Not at all hard
		        02 – Somewhat hard
		        03 – Very hard
		        04 – Extremely hard
		        GO TO Q.41

40 (M3)	bSB051	**ASK only if Smoking Status=4–6** How often do you get strong urges to smoke?

		01 – Never 02 – Less than daily 03 – Daily 04 – Several times a day 05 – Hourly or more often

45
(M3)
	bSB203
	bSB203q
	bSB205
	bSB205q
	bSB207
	bSB207q
	bSB209
	bSB211
	bSB211q
		The following questions ask you about how often you've had certain thoughts <u>in the last month</u>, that is, since **[1M Anchor]**. For each question, please answer using (read)
		      Never
		      Rarely
		      Sometimes
		      Often
		      Very Often
		In the last month—since **[1M Anchor]**, how often, if at all, did you :
		b. Smoker: Think about how much you enjoy smoking.
		Quitter: Think about how much you enjoyed smoking.
		c. Smoker: Think about the harm your smoking might be doing to you?
		  Quitter: Think about the harm your smoking might have been doing to you if you were still smoking?
		d. Smoker: Think about the harm your smoking might be doing to other people?
		Quitter: Think about the harm your smoking might have been doing to other people if you were still smoking.
		e. Think about the bad conduct of tobacco companies?
		f. Smoker: Think about the money you spend on smoking
		Quitter: Think about the money you used to spend on smoking.

46a (M3)	bSB221	**Programmer Note: If Smoking Status =5-6 SKIP TO Q.47** In the last month—since [1M Anchor], have you [AUS/UK=stubbed] [CAN/US/=butted] out a cigarette before you finished it because you thought about the harm of smoking? 01 – YES **GO TO Q.46b** 02 – NO **GO TO Q.47**
46b (M3)	bSB226	Was that once, a few times, or lots of times? 01 – Once 02 – A few times 03 – Lots of times

I2Q#	VarName	Warning Labels
50	bWL201	**In the last month, that is, since** [1M Anchor]**, how often, if at all, have you noticed the warning labels on cigarette packages?** READ 01 – Never 02 – Rarely 03 – Sometimes 04 – Often 05 – Very often
51	bWL211	**In the last month, how often, if at all, have you read or looked closely at the warning labels on cigarette packages?** READ 01 – Never 02 – Rarely 03 – Sometimes 04 – Often **05 – Very often**
52	bWL411	**To what extent, if at all, do the warning labels make you think about the health risks of smoking? READ** 01 – Not at all 02 – A little 03 – Somewhat 04 – A lot

53	bWL421 bWL431	Programmer Note: If smoking status=1-3 ask: **To what extent, if at all, do the warning labels on cigarette packs make you <u>more </u>likely to quit smoking? READ** 01 – Not at all 02 – A little 03 – Somewhat 04 – A lot Programmer Note: If smoking status=4-6 ask: **To what extent, if at all, do the warning labels on cigarette packs make you <u>more </u>likely to stay quit? READ** 01 – Not at all 02 – A little 03 – Somewhat **04 – A lot**
54	bWL441	**In the last month, have the warning labels stopped you from having a cigarette when you were about to smoke one?** **Would you say:** READ 01 – Never 02 – Once 03 – A few times 04 – Many times

I2Q#	VarNames	ETS/Smoking Restrictions, Continued
143	bET542	In the last 6 months—since **[6M Anchor]**—how often have you taken a public bus? 01 – More than once a week **GO TO Q.143a** 02 – About once a week **GO TO Q.143a** 03 – About once or twice a month **GO TO Q.143a** 04 – Less often than once a month **GO TO Q.143a** 05 – Never **GO TO Q.143b**
143a	bET544	The last time you did so, was there smoking inside the bus? 01 – YES **GO TO Q.143** 02 – NO **GO TO Q.143**
143b	bET545	**ASK ONLY IF SMOKING STATUS=1-3** Did <u>you </u>smoke inside the bus during your last trip? 01 – YES 02 – NO
144	bET552	In the last 6 months—since **[6M Anchor]**—how often have you visited an enclosed shopping centre or shopping mall? 01 – More than once a week **GO TO Q.143a** 02 – About once a week **GO TO Q.143a**

		03 – About once or twice a month **GO TO Q.143a** 04 – Less often than once a month **GO TO Q.143a** 05 – Never **GO TO Q.143b**
144a	bET554	The last time you did so, was there smoking inside? 01 – YES **GO TO Q.144b** 02 – NO **GO TO Q.145**
144b	bET555	**ASK ONLY IF SMOKING STATUS=1-3** Did <u>you </u>smoke inside during your last visit? 01 – YES 02 – NO

145	bET621	**IF Q.17 = 2 (do not work outside home) GO TO Q.147** Which of the following best describes the smoking policy where you work: 01 – Smoking is <u>not allowed </u>in <u>any </u>indoor area 02 – Smoking is allowed only in <u>some </u>indoor areas 03 – Smoking is allowed in <u>any </u>indoor areas
145a	bET634	In the last month, have people smoked in indoor areas where you work? 01 – YES 02 – NO
146	bET635	**ASK ONLY IF SMOKING STATUS=1-3** In the last month, have <u>you </u>smoked in indoor areas at work? 01 – YES 02 – NO
147	bET701 bET703 bET702 bET704 bET706 bET707 bET708 bET705 bET709 bET710	For each of the following public places, please tell me if you think smoking should be allowed in all indoor areas, in some indoor areas, or not allowed indoors at all? 01 – All indoor areas 02 – Some indoor areas 03 – Not allowed indoors at all a. Hospitals b. Workplaces c. Public buses d. Trains e. Major railway stations f. Restaurants and cafés g. Fast food outlets e. Drinking establishments (e.g. pub or bars) h. Enclosed shopping centres and shopping malls i. Covered stands in football grounds

147a	bET851	**ASK ONLY OF IRELAND RESPONDENTS:**
	bET853	I'm going to read a list of things that you may or may not have done to
	bET855	adjust to the smoke-free law. Please answer YES, NO, or NOT
	bET857	APPLICABLE for each.
	bET859	01 – YES
	bET871	02 – NO
	bET873	03 – NOT APPLICABLE
	bET875	
	bET877	Programmer Note: If smoking status=4-6 ask:
	bET879	a. Did the smoke-free law make you more likely to quit smoking?
	bET881	b. Has the law helped you stay quit?
	bET883	
		c. Has it made you more likely to use stop-smoking medications like the nicotine patch or gum?
		d. Have you avoided going to pubs because of the law?
		e. Have you avoided going to restaurants because of the law?
		Programmer Note: If smoking status=1-3 ask:
		a. Has the smoke free law made you more likely to quit smoking?
		b. To cut down on the number of cigarettes you smoke?
		c. To go outside to smoke when at a pub or restaurant?
		d. To use stop-smoking medications like the nicotine patch or gum?
		e. Have you avoided going to pubs because of the law?
		f. Have you avoided going to restaurants because of the law?
		g. Have you traveled out of the country to a place so that you could smoke indoors?
147b	bET888	Do you support or oppose total ban on smoking inside pub? (READ)
		01 – Strongly Support
		02 – Support
		03 – Oppose
		04 – Strongly Oppose
147c	bET889	**ASK ONLY OF IRELAND RESPONDENTS:**
		Overall, would you say that the bans on smoking in public places such as pubs has been a good thing or a bad thing. (READ)
		01 – Very Bad
		02 – Bad
		03 – Good
		04 – Very Good

I2Q#	VarNames	Beliefs About Quitting
128		Now we would like to ask you some questions on any <u>thoughts</u> you might have had about quitting smoking.
129	(M3) bBQ111 bBQ116 bBQ119	Programmer Note: If smoking status=1-3 ask: <u>If</u> you decided to give up smoking completely in the next 6 months, how sure are you that you would succeed? **READ** 01 – Not at all sure 02 – Slightly sure 03 – Moderately sure 04 – Very sure 05 – Extremely sure Interviewer note: Respondent does not need to be intending to quit to respond. Emphasize "if" in wording. Programmer Note: If smoking status=4: You said earlier that you are currently attempting to quit. How sure are you that you will succeed in quitting smoking for good at this attempt? READ 01 – Not at all sure 02 – Slightly sure 03 – Moderately sure 04 – Very sure 05 – Extremely sure Programmer Note: If smoking status=5-6: How confident are you that you will remain a non-smoker? READ 01 – Not at all sure 02 – Slightly sure 03 – Moderately sure 04 – Very sure 05 – Extremely sure

| 131 | bBQ141
bBQ146
bBQ150v | a. Are you planning to quit smoking: **READ**
      01 – Within the next month? **GO TO Q.131b**
      02 – Within the next 6 months? **GO TO Q.132**
      03 – Sometime in the future, beyond 6 months? **GO TO Q.132**
      04 – Or are you not planning to quit? **GO TO Q.132**
b. Have you set a firm date?
      01 – YES
      02 – NO
Derived : Intention to quit |

I2Q#	VarNames	Beliefs About Quitting, Continued
132	bBQ201 bBQ203 bBQ207 bBQ209 bBQ211 bBQ213 BA217 bBQ221 bBQ227 bBQ229	**If Q.131a = 4:** Even though you mentioned that you are not currently planning to quit, in the past 6 months, have each of the following things led you to think about quitting, not at all, somewhat, or very much: **If Q.131a = 1, 2, or 3:** In the past 6 months, have each of the following things led you to think about quitting, not at all, somewhat, or very much: 01 – Not at all 02 – Somewhat 03 – Very much a. Concern for your personal health? b. Concern about the effect of your cigarette smoke on non-smokers? c. That society disapproves of smoking? d. The price of cigarettes? e. Smoking restrictions at work? f. Smoking restrictions in public places like restaurants <u>or</u> bars (cafes <u>or </u>pubs)? g. Advice from doctor, dentist, or other health professional to quit? h. Free or lower-cost stop-smoking medication? i. Warning labels on cigarette packages? j. Setting an example for children?
133	bBQ301	How much do you think you would benefit from health and other gains if you were to quit smoking permanently in the next 6 months? **READ** 01 – Not at all 02 – Slightly 03 – Moderately 04 – Very much 05 – Extremely

I2Q#	VarNames	Psychosocial—Beliefs About Smoking
148		Please tell me whether you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree with each of the following statements. 01 – Strongly agree 02 – Agree 03 – Neither agree nor disagree 04 – Disagree 05 – Strongly disagree
149	bPS211	**Smoking Status=1-3:** You enjoy smoking too much to give it up. **Smoking Status=4-6:** You enjoy smoking too much to give it up for good
150	bPS213	Your cigarette smoke is dangerous to those around you. **New Wording:** Cigarette smoke is dangerous to non-smokers
151	bPS215	If you had to do it over again, you would not have started smoking.
159	bPS231	There are fewer and fewer places where you feel comfortable about smoking
160	bPS233	Society disapproves of smoking
161	bPS235	**Smoking status 1-3:** Smoking makes it easier for you to socialize. **Smoking status 4-6:** Smoking makes it easier to socialize.
169	bIN215	Tobacco companies can be trusted to tell the truth about the dangers of their products.
170	bIN219	Tobacco companies have tried to convince the public that there is little or no health risk from second-hand smoke.
180	bPR313	**How worried are you, if at all, that smoking will damage your** **health in the future?** READ **01 – Not at all worried** **02 – A little worried** **03 – Moderately worried** **04 – Very worried**
189	bDI241	Of the five closest friends or acquaintances that you spend time with on a regular basis, how many of them are smokers? Record number: _____

190	bDI301	What is your overall opinion of smoking? Is it: **READ** 01 – very positive 02 – positive 03 – neither positive nor negative 04 – negative 05 – very negative

Q#	Demographics
Finally, to make sure we have interviewed a true cross-section of people, I'd like to ask you a few questions about yourself. Please be assured that all your responses will be kept entirely confidential.	

~~191 New~~	Are you married, separated, divorced, widowed, common-law, or single?
	         01 – Married
	         02 – Separated
	         03 – Divorced
	         04 – Widowed
	         05 – Common Law
	         06 – Single

~~192 New~~	What is the highest level of formal education that you have completed? **DO NOT READ** **RMR Note: Insert appropriate UK categories for both Ireland and UK**
~~193a~~	Are there any children under the age of 18 currently living in your household? 01 – YES **GO TO Q.193b** 02 – NO **GO TO Q.194**
~~193b~~	How many children under the age of 18 are currently living in your household? Enter number: _____ If Number = 1 **GO TO Q.193c** If Number > 1 **GO TO Q.193d**
~~193c~~	Is this child: **READ ALL, SELECT ONE** 01 – under the age of 1? If **YES**: How many months old? ____ mos. 02 – Between 1 and 5 years old? 03 – Between 6 and 12 years old? or, 04 – Between 13 and 17 years old? **GO TO Q.194**

193d	**Interviewer Note: Ask each question below, until total is reached:** a. How many are under the age of 1? _____ [enter] If Number = 1: How many months old is that child? _____ mos. If Number > 1: How many months old is the <u>youngest</u> child? _____ mos. b. How many are between 1 and 5 years old? _____ [enter] c. How many are between 6 and 12 years old? _____ [enter] d. How many are between 13 and 17 years old? _____ [enter] **GO TO Q.193g** **Programmer Note: Please program to ensure that a+b+c+d = number of children in Q.193b, else bring up Interviewer note to check numbers**
193g	**RMR Note: keep same racial / ethnicity question for UK. For Ireland, see below:** What is your nationality? 01 – Irish 02 – Other **(Specify)** **IF RESPONDENT ASKS WHY THIS IS NECESSARY, SAY:** **"Because it is important for us to determine whether our respondents as a group are a representative sample of smokers in Ireland/the U.K."**
193h	**Programmer Note: Same income question for both countries. U.K.: £; Ireland: Euros.** Which of the following categories best describes your annual household income, that is the total income before taxes, or gross income, of all persons in your household combined, for one year? 01 – Under 10,000 02 – 10,000 to 29,999 03 – 30,000 to 44,999 04 – 45,000 to 59,999 05 – 60,000 to 74,999 06 – 75,000 to 99,999 07 – 100,000 to 149,999 08 – 150,000 and over

Q#	Ending Script

194	That is all the questions we have for today- thank you for your help. As I mentioned to you earlier, we will be sending you [payment for this country]. In order for us to send you the [payment for this country], I need to have your name and the address where you receive your mail **Make sure that spelling is correct: repeat address back to respondent to verify.** 01 – SPECIFY ADDRESS: _____ 02 – NO **see below** **RELUCTANT TO GIVE ADDRESS** You don't have to provide your address to participate in the study- we only use the mailing information to send you the voucher(s) for [any Dunnes store/any Boots shop] and a thank you letter. If you decide that you would like to receive the voucher(s) and thank you letter, I'd like to emphasize that <u>any </u>personal information you provide is kept <u>strictly </u>confidential and is not shared with any other person, group, or marketing firm.

You should receive your voucher(s) within a few days. In case you have not received the voucher(s) by next week, please call us at this toll-free number [give toll-free number]. Thank you again for all your help with the study. If you have any questions, please contact us at [INSERT CONTACT INFO].