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Students speak : obtaining youth input regarding tobacco policies

Claudia Ruth Bryant
University of Tennessee

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To the Graduate Council:

I am submitting herewith a dissertation written by Claudia Ruth Bryant entitled "Students speak : obtaining youth input regarding tobacco policies." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Political Science.

Anthony Nownes, Major Professor

We have read this dissertation and recommend its acceptance:

Charles Hamilton, William Lyons, Otis Stephens

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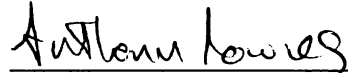
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Vice Provost and Dean of the Graduate School

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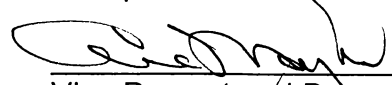


William Lyons



Otis Stephens

Accepted for the Council:



Vice Provost and Dean of
Graduate Studies

**STUDENTS SPEAK: OBTAINING YOUTH INPUT
REGARDING TOBACCO POLICIES**

**A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville**

**Claudia Ruth Bryant
May 2002**

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DEDICATION

I dedicate this dissertation with love to the memory of my grandfather, William Claude Parker, whose life and death were the inspiration behind this project.

ACKNOWLEDGEMENTS

There are a number of people who deserve special recognition for helping me to achieve this goal in my life. Most importantly, I offer my thanks to God for sustaining me over the years. I have faced obstacles during the course of completing this degree, and at other times as well, that I did not believe I would be able to overcome. Each time I did, my faith in Him has grown.

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ABSTRACT

This study evaluated youth attitudes regarding the effectiveness of a variety of smoking-prevention strategies. The attitudes of young people have largely been overlooked in the field of tobacco-control. Here, students' attitudes towards the following approaches were examined: financial disincentives to smoke; smoking prevention education based on the information deficit, affective education, and social influences models; and a variety of punishments and rewards derived from theories of compliance. Five hundred and seventy-seven middle and high school students in Knox County, Tennessee, were surveyed regarding their attitudes. Students' attitudes towards the perceived effectiveness of these strategies varied based on students' demographic characteristics. The three most significant characteristics were students' current smoking status, their race, and their income level. Current smokers indicated that the majority of approaches that are incorporated in contemporary anti-smoking efforts are very unlikely to discourage them from smoking. In particular, they indicated little support for the effectiveness of social influences-based education. Rather, smokers indicated that a variety of punishments and, in particular, a variety of rewards were the approaches most likely to deter them from smoking. The responses of black and lower income students were also notable regarding their evaluations of the effectiveness of social influences-based education. Significant numbers of students in both of these categories indicated that social influences-based education is not an effective deterrent to their smoking. Given that this has been the dominant approach used by schools for nearly 30 years, perhaps these findings help to explain why lower income students smoke at higher rates than wealthier students, and why smoking rates have been rising among black students in recent years. The major conclusions reached in this study are that 1) youth input should be incorporated into future tobacco-control efforts, 2) students positively evaluate the effectiveness of a variety of punishments and rewards derived from compliance theory, and 3) the effectiveness of social influences-based education, though politically popular, has once again been called into serious question. Other theoretical foundations underlying youth-targeted tobacco-control efforts need to be explored, including compliance theory. Regardless of their demographic characteristics, students responded most favorably to alternatives derived from this theory.

TABLE OF CONTENTS

CHAPTER		PAGE
1.	INTRODUCTION.....	1
	The Problem.....	1
	The Purpose of the Study.....	6
	The Results of the Study.....	8
	Conclusions.....	11
2.	THE HISTORY OF TOBACCO REGULATION.....	13
	A Review of Federal Tobacco Regulation.....	13
	Federal Legislation Regarding Youth Smoking.....	18
	Federal Tobacco Taxation and Its Impact on Youth Smoking.....	24
	The Role of the Federal Bureaucracy in Regulating Youth Exposure to Cigarettes.....	25
	Tennessee State Laws Regarding Youth Access to Tobacco.....	32
	Tennessee's Compliance with the Synar Amendment.....	38
	Tennessee's Compliance with the Nonsmoking Provisions of the Pro-Child Act of 1994 and the Durbin Amendment.....	40
	Tennessee's Compliance with the Curriculum Requirements of the Improving America's Schools Act.....	41
	Tennessee's Response to the <i>Best Practices</i> Funding Recommendations and the Master Settlement Agreement.....	43
	Conclusion.....	44
3.	SCHOOL-BASED DRUG USE PREVENTION.....	45
	The Theoretical Foundations for School Anti-Drug Campaigns and Curricula.....	45
	Knox County's Implementation of the CDC's Guidelines for Tobacco-Free Schools.....	53
	The Growing Concern with Reliance on Social Influences Approaches to Reduce Youth Drug Use.....	55
	The Emerging Focus on Theories of Compliance to Control Youth Tobacco Use.....	58
	Determining Effective Punishments and Rewards.....	61
	Conclusion.....	63
4.	DATA AND METHODS.....	64
	Rationale for the Survey Design.....	64

CHAPTER	PAGE
The Readability of the Survey.....	66
The Survey Administration.....	67
Conclusion.....	69
5. RESULTS.....	71
Rationale for the Inclusion of Specific Questions.....	72
Students' Attitudes Towards the Effectiveness of the Tobacco-Control Strategies.....	87
The Three Critical Demographic Characteristics Affecting Students' Receptivity to Tobacco-Control Efforts.....	95
Conclusions.....	103
6. CONCLUSIONS AND IMPLICATIONS.....	110
Summary.....	110
Findings.....	112
Conclusions.....	116
Recommendations for Policymakers and Educators.....	118
The Need for Development of Community-Sponsored Incentive Programs to Promote Smoking Abstinence.....	129
BIBLIOGRAPHY.....	132
APPENDICES.....	147
APPENDIX A.....	148
APPENDIX B.....	177
VITA.....	192

LIST OF TABLES

TABLE		PAGE
1.	Federal Taxes Per Pack of Twenty Cigarettes.....	149
2.	Penalties for Violation of the Prevention of Youth Access to Tobacco Act of 1994.....	150
3.	Tennessee's Target and Reported Rates of Sales to Minors, 1997-2002.....	151
4.	Tennessee's Rate of Tobacco Sales to 16-18 Year Old Youth as Reported for FFY 1997 and FFY 1998.....	152
5.	Size and Racial Makeup of Participating Knox County Schools.....	153
6.	Ranking of Students' Perceptions of the Effectiveness of Suggested Tobacco-Control Policies.....	154
7.	Attitudes Towards the Threat of Expulsion Based on Smoking Status.....	155
8.	Attitudes Towards the Threat of Being Sent to an Alternative School Based on Smoking Status.....	156
9.	Attitudes Towards Saliva Cotinine Testing Based on Smoking Status.....	157
10.	Attitudes Towards a CD Reward Based on Smoking Status.....	158
11.	Attitudes Towards a Movie Ticket Reward Based on Smoking Status.....	159
12.	Attitudes Towards a Clothing Store Discount Reward Based on Smoking Status.....	160
13.	Attitudes Towards a Sporting Event Ticket Reward Based on Smoking Status.....	161
14.	Attitudes Towards a Long-Term Incentive Reward Based on Smoking Status.....	162

TABLE	PAGE
15. Attitudes Towards Effectiveness of Long-Term Dangers Educational Approach Based on Smoking Status.....	163
16. Attitudes Towards the Effectiveness of Being Provided with Nicotine Replacement Based on Smoking Status.....	164
17. Attitudes Regarding the Existence of a Forbidden Fruit Effect Based on Smoking Status.....	165
18. Attitudes Regarding a Personal Decision to Smoke Based on Smoking Status.....	166
19. Likelihood of Family's Disapproval to Discourage Students' Smoking Based on Race.....	167
20. Likelihood of Teachers' Disapproval to Discourage Students' Smoking Based on Race.....	168
21. Likelihood of Friends' Disapproval to Discourage Students' Smoking Based on Race.....	169
22. Impact of Smoking on Popularity Based on Race.....	170
23. Impact of Smoking on Feelings of Maturity Based on Race.....	171
24. Likelihood of Family's Disapproval to Discourage Students' Smoking Based on Income Level.....	172
25. Likelihood of Teachers' Disapproval to Discourage Students' Smoking Based on Income Level.....	173
26. Likelihood of Friends' Disapproval to Discourage Students' Smoking Based on Income Level.....	174
27. Impact of Smoking on Popularity Based on Income Level.....	175
28. Impact of Smoking on Feelings of Maturity Based on Income Level.....	176

Chapter 1--Introduction

The Problem

Significant declines in the rate of adult smoking have been observed since the Surgeon General first reported the dangers of cigarette smoking in 1964 (Erickson, 1999). However, comparable declines in youth smoking rates have not been observed. In fact, youth smoking rates in the last two decades have actually been increasing (CDC, 1998; CDC, 1999b). Because the problem of youth smoking has become so severe in recent years, Surgeon General Joycelyn Elders focused exclusively on the issue in her 1994 report to Congress.

Young people have continued to develop smoking habits despite the fact that the sale and possession of tobacco products by youth are outlawed by the states, and have been outlawed in most states since shortly after the dawn of the twentieth century. Nevertheless, the majority of these laws have largely not been enforced (Lynch and Bonnie, 1994).

While most youth access legislation has been enacted on the state and local level, the federal government has recently become more active in this realm (Jacobson et al., 2001). Beginning in 1992, with the passage of the Synar Amendment to the Alcohol, Drug Abuse and Mental Health Administration Reorganization Act, states that receive federal grants for substance abuse and prevention programs have been required to enact and enforce laws prohibiting the sale and distribution of tobacco products to youth under the age of 18. Unless states document that significant declines in the sale of tobacco products to youth are taking place, they risk losing up to 40 percent of their federal

substance abuse funds. Synar requires states to ultimately demonstrate no higher than 20 percent noncompliance rates with these youth access laws (P.L. 102-321).

This federal requirement has led state and local governments to stringently enforce their youth access laws (Lynch and Bonnie, 1994). For example, sting operations are increasingly used to determine whether or not retailers are illegally selling tobacco products to youth. Many local communities are enacting bans on smoking in public areas where youth are likely to be present, such as malls, restaurants and sports venues. Moreover, many school districts have also adopted more stringent tobacco-control policies in recent years. Anti-tobacco curriculum requirements during particular grade levels are increasingly being adopted. Schools across the country have also banned smoking by students on campus. Many districts have also extended these bans to staff, faculty and school visitors as well, both during regular school hours, as well as during after-school activities such as sporting events on the campus.

Despite the tobacco-control policies that have been implemented and more stringently enforced in recent years, the rate at which those under the age of 18 begin smoking on a daily basis continued to increase nationwide through the 1990s, before peaking at a 19-year high in 1997 (CDC, 1998; Campaign for Tobacco-Free Kids, 2002a). The Centers for Disease Control and Prevention estimates that 3,000 young people every day adopt a daily smoking habit (CDC, 1998). These young people smoke more than 500 million packs of cigarettes each year (Prevention Alert, 1998; 1(15)). The age at which young people adopt

daily smoking habits has also fallen over the years, especially among females (CDC, 1991a). Research shows that the younger a person is when he/she adopts a daily smoking habit, the heavier a smoker that person is likely to become. This, in turn, leads to a greater likelihood that the person will develop, and potentially die from, smoking-related illnesses (CDC, 1991b). Data collected by the Food and Drug Administration indicates that one in three young people who begin smoking during adolescence will die of a smoking-related disease (Prevention Alert, 1998; 1(15)). That number increases to 50 percent among those who begin smoking before age 15 and continue into adulthood (Gostin et al., 1997).

It has been estimated that youth smoking could result in \$200,000,000,000 in future health care costs (in 1993 dollars) (CDC, 1996). Based on the current rate of youth initiation of smoking habits, an estimated 5,000,000 people currently 18 years old or younger can be expected to die eventually from smoking-related illnesses (CDC, 1998). This represents an estimated 64,000,000 years of potential life that may be lost as a result of youth smoking (CDC, 1996).

Aside from the direct costs of youth smoking that may result from their development of cancer, emphysema or heart disease, and their lost productivity resulting from these diseases, cigarettes have also been found to be a “gateway drug” for many adolescents (Wallack and Corbett, 1987; Glynn et al., 1993; Myers et al., 2000; Schwartz, 1997; Street-Muscato, 1997; USDHHS, 1994). High school seniors who have used cocaine, marijuana, other illicit drugs, or who

4

are heavy users of alcohol, are three times more likely than other young people to have also used tobacco (Glynn et al., 1993).

Because of the persistence and extensiveness of youth smoking in the United States despite laws prohibiting it, the U.S. Department of Health and Human Services has continued its pattern in its most recent edition of its Healthy People series of including tobacco use as one of its top 10 major health concerns for the United States in the next decade (USDHHS, 2000a). The Department has established a goal of reducing tobacco use to no more than 16% of the youth population by 2010. To achieve this objective, Healthy People 2010 endeavors to: reduce initiation of tobacco use among young people; increase the age of first use; increase cessation attempts by adolescents who already smoke; increase the proportion of schools that have established smoke-free environments; reduce illegal sales to minors, in part by enacting and enforcing harsher penalties for sellers; further limit the impact tobacco advertising has on young people; and increase federal and state excise taxes on tobacco (USDHHS, 2000a).

Youth Smoking in Tennessee

The Centers for Disease Control and Prevention found in a survey of Tennessee students in grades six through eight, nearly one in four students report using tobacco products (Powelson, 2001). That is nearly double the rate for the nation as a whole. While national smoking rates among youth peaked in 1997, a survey conducted by the Tennessee Department of Health in 2000 indicates that smoking rates have continued to rise among this state's young

people. Smoking rates among the state's eighth graders increased by more than eight percent between 1999 and 2000 (Tennessee Department of Health, 2000). The statistics for high school students are even worse. Nearly one in three high school students report smoking on a regular basis (Campaign for Tobacco-Free Kids, 2002b).

Results from the 2000 Tennessee Youth Tobacco Survey indicate that young people in Northeast and East Tennessee are particularly prone to adopting a smoking habit. Youth in these two regions have the highest smoking rates within the state, surpassing the state's average rate of youth smoking by nine and seven percent respectively (Tennessee Youth Tobacco Survey, 2000).

An average of 16,400 Tennessee youth under the age of 18 become daily smokers each year, and young people in the state smoke more than 18.3 million packs of cigarettes annually (Campaign for Tobacco-Free Kids, 2002b).

Tennessee has the seventh highest death rate nationally from smoking, with an estimated 110,000 Tennessee youth projected to eventually die prematurely.

At the same time, Tennessee ranks 50th out of 51 states and the District of Columbia in the amount of per capita spending that is allocated by the state for tobacco-control programs. For the 2001 fiscal year, none of Tennessee's portion of the Master Tobacco Settlement funds, totaling \$150.9 million for the year, was allocated by the state legislature for tobacco prevention programs (Campaign for Tobacco-Free Kids, 2002b). Likewise, none of its \$560 million award for the 2002 fiscal year was allocated to tobacco-control either (Nelson, 2001b).

The Purpose of The Study

Given the significance of the smoking problem within the state, and the limited funds that are being spent to control it, it is important to ensure that the funds that are allocated are used in the most effective manner. This study explores youth attitudes regarding which policies students believe would be most likely to prevent them from smoking cigarettes.

This is an important question to ask not only in terms of directing resources to the policies and programs where students believe they might do the most good, but it also fills a gap in the literature on tobacco-control policies. Extensive research has been conducted to examine from the perspective of policy-makers the policy-making process regarding tobacco-control legislation (Fritschler, 1983; Jacobson et al., 1993; Jacobson and Wasserman, 1997; Rabin and Sugarman, eds., 1993; Rogers et al., 1993; Samuels et al., 1992; and Samuels and Glantz, 1991). This research has sought to explain the political process through which tobacco-control legislation is shaped and enacted.

Other scholars have also begun to investigate perceptions of tobacco laws from the perspective of tobacco retailers (Comerford and Slade, 1994; Cummings et al., 1996; Glantz, 1993, Schensky et al., 1996; Street-Muscato, 1997; and Wildey et al., 1995). These researchers have focused on determining how likely particular policies are in deterring retailers from selling tobacco products to those who are underage.

The present research seeks to expand the earlier research by evaluating youth opinions about the effectiveness of a variety of tobacco-control policies.

Input from young people themselves regarding tobacco-control policies has to this point been a largely untapped resource, which anti-tobacco advocates may find to be an important asset in planning and implementing future policies.

This research also incorporates an alternative theoretical framework from that which has traditionally dominated the study of youth smoking. The vast majority of research on youth smoking over the last 20-25 years has been based upon social psychological theories and curricula that attempt to deter youth smoking by teaching young people how to become aware of and how to resist the social pressures to smoke (Peterson et al., 2000). However, in a recently completed 15-year study of this approach, referred to as the social influences approach, no evidence was found that it has any long-term deterrent effect on youth smoking.

Rather than utilizing the traditional social psychological theories that have dominated previous youth smoking research, Street-Muscato (1997) instead evaluates retailer obedience to youth access laws from a rational choice perspective based on theories of compliance and deterrence. This approach has traditionally been used in the study of illicit drug use control (MacCoun, 1993). Oregon tobacco retailers were surveyed to determine their opinions on which punishments and rewards they believed would make them most likely to enforce youth access restrictions. In the current study, youth attitudes regarding the traditional approaches to smoking deterrence are examined. In addition, the compliance and deterrence strategy is also applied to students to explore which

8

punishments and rewards are most likely, in their opinions, to prevent their use of cigarettes.

Middle and high school students in Knox County, Tennessee were surveyed on a variety of subjects relating to the issue of youth access to cigarettes. Topics addressed in the survey included: their attitudes towards the effectiveness of financial disincentives to smoke; their attitudes towards the effectiveness of school-based approaches, including information deficit-, affective education-, and social influences-based instruction; their attitudes towards the effectiveness of a series of positive punishments for smoking; their attitudes towards the effectiveness of a series of positive reinforcements for not smoking; and their general attitudes regarding tobacco use. In addition, in order to allow for comparisons of students' responses to be made, students were asked a series of demographic questions, including whether or not they or their immediate family members smoke cigarettes.

The Results of the Study

Overall, at least a slight majority of all students believed that each of the approaches they evaluated would probably or definitely prevent them from smoking. However, students indicated that two approaches would be most effective in *definitely* preventing a majority of them from smoking: receiving rewards for not smoking and being punished for smoking. A majority of students also indicated that two other policy options would definitely deter them from smoking: being fined \$50 if they were caught with tobacco and learning about

the long-term dangers of smoking through the information-deficit model of education.

Moreover, students expressed only modest support for the certain effectiveness of several vital aspects of contemporary tobacco-control efforts. For example, less than half of students believed that learning in school about the short-term dangers of smoking would definitely prevent them from smoking. For nearly 30 years, this has been an important element of social influences-based drug use prevention education within schools. In addition, barely one-third of students believed that being sent to detention would definitely deter them from smoking. This is a punishment commonly used by most schools when students are caught smoking.

Several significant differences were noted in students' evaluations of the effectiveness of the policies based on their demographic characteristics. The three most significant findings from this research deal with the impacts students' current smoking status, their race, and their income level have on their appraisals of tobacco-control efforts.

Nonsmokers indicated that they would probably be deterred from smoking by a variety and/or combination of approaches. As makes perfect sense in light of the fact that they already smoke, smokers, on the other hand, rated the majority of commonly used tobacco-control strategies as unlikely to deter them from smoking. Specifically, a majority of current smokers indicated that neither anti-smoking legislation nor exposure to social influences-based education would deter them from smoking.

Instead, current smokers reported that they would respond favorably to information deficit-based education. A majority of them reported that they would definitely or probably be deterred from smoking by learning about the long-term dangers of cigarette use. In addition, they also indicated that their smoking could be deterred if they were aided in their efforts to quit by having access to nicotine replacement products. Even more significantly, a majority of current smokers indicated that they would be most likely to be deterred from smoking by receiving the most severe punishments for smoking and by receiving prizes for not smoking. In fact, a larger percentage of smokers responded favorably to the idea of receiving incentives for not smoking than any other policies addressed in the survey. Approximately two out of three smokers indicated that they would definitely or probably be persuaded to abstain from tobacco use if they were eligible to receive several of the rewards described in the survey, including clothing discounts and large prizes such as TVs, CD players, and video games.

The significance of the findings based on students' race and income level also cannot be underemphasized. Black and lower income respondents in this study issued a grave indictment of social influences-based drug use prevention education. Significant portions of students within each of these categories asserted that they would be very unlikely to abstain from smoking simply because significant others in their lives expressed disapproval of the habit. In addition, students within these two groups were also much more likely than their classmates to indicate they believed that smoking makes them more popular among their friends and that it makes them feel more mature.

Given the fact that communicating the social undesirability of smoking is a significant element of the social influences approach that has dominated school anti-tobacco curricula in recent decades, perhaps these findings help to explain why smoking rates are generally higher among lower income students than among wealthier students, and why smoking rates among black students have been increasing in recent years.

Conclusions

Three critical findings emerged from this research. First, in general, greater attention needs to be paid to incorporating youth attitudes into the design of youth-targeted tobacco-control efforts. In particular, students indicated that a variety of punishments and rewards derived from compliance theory would be likely to discourage them from smoking. Second, this finding also indicates a need to further expand the application of compliance theory to youth-based smoking prevention efforts. Students themselves, and in particular, those who are the most difficult to persuade with anti-smoking messages--current smokers--indicated that there are approaches based on compliance theory that might be implemented that could deter them from smoking. In particular, attention should be paid to developing community-based pilot programs that offer students incentives for not smoking. The perceived effectiveness of individual rewards varied among students. However, all students were most likely to view the receipt of rewards for not smoking as the most effective approach to deterring them from using cigarettes, regardless of any demographic characteristic, including their current smoking status.

12

Third, the effectiveness of social influences-based drug use prevention education was once again called into serious question by the results of this study. Current smokers are not persuaded to abstain as a result of education based on this approach, and in particular, black and lower income students are very likely to reject it as well. While programs based on this theoretical foundation are and have been popular with educators and policy makers for decades, the evidence from study after study simply does not indicate that it is an effective approach. It is long since time that alternative theoretical frameworks, including compliance theory, are examined. Resources that are poured into social influences-based programs by federal, state, and local governments perhaps could be spent more effectively on programs developed from other theoretical perspectives. This is an issue that at least deserves to be explored with an open mind.

Chapter 2--The History of Tobacco Regulation

Despite the vital role that tobacco has played in the world over the centuries (see Fairholt, 1968; Lehman Brothers, 1955), the health hazards of its use have been suspected for nearly 400 years (USDHHS, 1989). For nearly 100 years, attempts have been made, with varying success, to regulate tobacco as a commercial product in the United States.

A Review of Federal Tobacco Regulation

As evidence of the negative health effects of smoking have continued to mount, health advocates have begun pressuring political leaders to take action to protect the nation's health. Between June 1961 and July 1962, consultations took place among the White House, the Surgeon General, and health advocates regarding the formation of a commission to study the health consequences of smoking. By November 1962, the Surgeon General's Advisory Committee on Smoking and Health was formed. Over the next 13 months, the 10-member committee reviewed over 7,000 publications pertaining to smoking and health. The Committee's final report, referred to as the Surgeon General's Advisory Committee on Smoking and Health (or the first Surgeon General's Report on Smoking and Health) was released on January 11, 1964 (USDHHS, 1989). The report concluded that smoking is causally related to lung cancer. The Advisory Committee concluded, "Cigarette smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action" (USDHHS, 1989).

The Federal Trade Commission was the first government entity to initiate “remedial action” as a result of the Surgeon General’s Report. The FTC attempted as early as the 1930s to regulate the content of tobacco advertisements. By 1955, it had established with cigarette companies *voluntary* guidelines that prohibited advertisers from implying that doctors endorsed smoking or that one brand of cigarette as opposed to another would promote good health (USDHHS, 1989).

With the release of the 1964 Surgeon General’s Report, the FTC proposed stricter regulations. It promulgated a rule requiring that warning labels be included on tobacco packages and in tobacco advertisements. The warning labels that the FTC required were to specify that cigarette smoking is dangerous to one’s health and that death from cancer and other diseases could result from their use (Fritschler, 1983). Package warnings were to take effect by January 1965, and advertising restrictions were to begin that June.

However, due largely to the efforts of tobacco-state legislators, Congress preempted the implementation of the FTC’s regulations by passing the Federal Cigarette Labeling and Advertising Act of 1965. The Act prevented the FTC from regulating the tobacco industry for four years, and instead of the FTC-proposed warning, required a milder, congressionally-approved health warning to be placed on cigarette packages and in advertisements: “Caution: Cigarette Smoking May Be Hazardous to Your Health” (Fritschler, 1983).

The FTC’s attempted regulation of cigarette advertising in the 1960s demonstrates the ambivalence legislators have felt over the years towards the

issue of tobacco regulation. Moore et al. (1994), Goldstein et al. (1997), Luke et al. (2000), and others have acknowledged the ability of tobacco state representatives and the tobacco industry, through campaign donations and other forms of political persuasion, to block tobacco-control legislation. A number of examples demonstrate the effectiveness of the tobacco lobby at blocking regulation efforts.

As early as 1890, tobacco was listed in the *U.S. Pharmacopoeia*, an official listing of drugs that is published by the federal government. By 1905, however, tobacco had been removed from the list of drugs as a result of pressure from tobacco-state legislators. Without the removal of tobacco from the list of drugs, these legislators would not have supported passage of the Food and Drug Act of 1906, which led to the creation of the FDA. By excluding tobacco from the *Pharmacopoeia*, the FDA was denied automatic authority to regulate tobacco and tobacco products (Fritschler, 1983).

The existence of tobacco subsidies in the United States further demonstrates the ambivalence associated with tobacco's status as a matter of public policy. Despite mounting evidence on the suspected link between tobacco and health problems, the U.S. Department of Agriculture established tobacco price support and quota programs in 1933 (Fritschler, 1983). As the evidence continued to mount over the next 35 years as to the causative role tobacco use plays in the development of disease, tobacco-state legislators continued to bring in federal funds for these programs, at an average cost per year of \$49,000,000 (Gray, 1995). Federal funding of these programs continues today, despite the

fact that during the mid-1990s, the federal government took steps to allow the FDA to regulate cigarettes in the hopes of lowering smoking rates.

The legislative history of the Public Health Cigarette Smoking Act of 1969 also demonstrates the ambivalence legislators have felt towards the issue of tobacco regulation. The Act prohibits cigarette advertising on any medium regulated by the Federal Communications Commission; i.e., radio or television (Roemer, 1982). While this prohibition may appear initially to be a victory for anti-tobacco advocates, the history behind the legislation reveals a much more complicated political scenario.

Between 1965 and 1969, when the Federal Cigarette Labeling and Advertising Act preempted the FTC from regulating the tobacco industry, the FCC began regulating cigarette advertising on its own. Based on the Fairness Doctrine, it required any broadcast medium that sold advertising time to cigarette companies to also provide reasonably comparable amounts of free air time to health groups for ads describing the risks associated with smoking. These anti-smoking ads have been credited with contributing to the decreases in smoking rates that were noted by 1968. With the passage of the Public Health Cigarette Smoking Act in 1969 and the ensuing ban on broadcast advertising of cigarettes, the mandated free broadcasting of anti-smoking messages which had been provided under the Fairness Doctrine also came to an end. Tobacco sales went up by three percent after the advertising ban went into effect in 1971. Rather than being fought by the tobacco industry, the law was actually well received, because it meant an end to compulsory anti-tobacco ads (Fritschler, 1983).

A 1981 report by the Federal Trade Commission again focused attention on the practices of tobacco advertisers. It noted that in a majority of tobacco ads that had been used since the broadcast advertising ban took effect, such as magazine and billboard ads, the dominant themes put forth linked smoking with “youthful vigor, good health, good looks, and personal, social and professional acceptance and success” (USDHHS, 2000b).

In response to this report, Congress enacted the Comprehensive Smoking Education Act of 1984 (Public Law 98-474) (USDHHS, 2000b). The law requires that a series of four rotating warnings, rather than the one continual warning that was authorized under the Federal Cigarette Labeling and Advertising Act of 1965, be printed on cigarette packages and be used in advertisements:

1. SURGEON GENERAL’S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema and May Complicate Pregnancy
2. SURGEON GENERAL’S WARNING: Quitting Smoking Now Greatly Reduces Serious Risks to Your Health
3. SURGEON GENERAL’S WARNING: Smoking by Pregnant Women May Result in Fetal Injury, Premature Birth, and Low Birth Weight
4. SURGEON GENERAL’S WARNING: Cigarette Smoke Contains Carbon Monoxide (Dumas, 1992).

However, the 1984 labeling law, like earlier tobacco-control efforts, constitutes less than a total victory for anti-tobacco activists. All of the warnings that were adopted are significantly weaker than those that were originally proposed by the FTC. None of the labels that were authorized in the law address

tobacco's addictive nature or the role it plays in miscarriages, nor do they require the listing of all toxic components in cigarettes (USDHHS, 2000b).

While these warnings have been found to be adequate as a matter of law relative to the 1984 statute, they have been shown to be inadequate in terms of deterring smoking. Warning 3 has even been found to potentially contribute to *higher* rates of smoking (Dumas, 1992). Many women of lower socioeconomic status have interpreted potential "low birth weight" outcomes to be a positive situation, assuming the phrase indicates that they would gain less weight during their pregnancies if they smoked.

The airline-smoking ban instituted in 1987 continues the pattern of only partial victories for anti-smoking activists. The smoking ban as originally imposed in 1987 only applied to flights of two hours or less and was to be in force for only two years (Pytte, 1989). It took another two years, years marked by intense political opposition, including a Senate filibuster of the measure, to extend the ban permanently and to broaden its applicability to flights of longer duration. Final passage of the measure again did not result in a total victory for anti-smoking activists, however, as flights of six hours or longer to Hawaii and Alaska were exempted from the requirement.

Federal Legislation Regarding Youth Smoking

The vast majority of federal action dealing with tobacco-control has focused on general regulation of tobacco and its derivative products. In 1987, with the institution of a smoking ban on commercial airlines, the federal government began to focus on protecting specific groups from the dangers posed

by tobacco exposure. In 1992, Congress again turned its attention to preventing tobacco exposure by a specific group, this time young people. The four most significant efforts on the federal level to limit youth exposure to the dangers of tobacco use came about as a result of the Synar Amendment of 1992, the Lautenberg Amendment/Pro-Children Act of 1994, the Durbin Amendment to the Improving America's Schools Act of 1994, and the Master Settlement Agreement of 1998.

The Synar Amendment

The Synar Amendment was the first piece of federal legislation to address the issue of youth exposure to tobacco products. Representative Mike Synar (D-OK) sponsored an amendment to the 1992 Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) Reorganization Act (Congressional Record, 1992). Under Section 1926 of that Act (Public Law 102-321), states are required to reduce tobacco sales to minors by adopting and enforcing laws preventing the purchase of tobacco products by anyone under age 18. While the Synar Amendment directly addresses only the rate of youth *purchase* of tobacco products, its implicit goal is to reduce youth *smoking* rates (USDHHS, 1998).

To ensure compliance with the laws, states must conduct random, unannounced inspections of tobacco outlets using a probability sample design to ensure that non-compliance figures will be representative statewide. The findings from these compliance checks must be reported to the Secretary of Health and Human Services annually. Beginning in 1997, states were required to report their "baseline" rates of non-compliance. They were also required to

negotiate interim targets and a final date for achieving non-compliance rates of no more than 20 percent.

Methodological discrepancies between Pre- and Post-Synar surveys of non-compliance rates prevent direct comparisons of results (USDHHS, 1998). However, data from jurisdictions across the country provide a preliminary idea of how extensive non-compliance has been in the past. Within communities that had already imposed youth-purchase restrictions before Synar was implemented, young people were able to purchase tobacco products in 60 to 90 percent of their attempts (USDHHS, 1998).

Synar requires states to reduce their sales-to-minors rates to no more than 20 percent by Federal Fiscal Year 2003, or they risk losing up to 40 percent of their federal Substance Abuse Prevention and Treatment (SAPT) block grant funds, beginning with the Fiscal Year 1997 grant applications. The SAPT grant distributes about \$1.3 billion nationwide each year (Noah and Hwang, 1995). When baseline rates of non-compliance were reported in 1997, rates ranged from 7.2 percent to 72.7 percent, with a median rate of 40 percent.

All states have now enacted laws preventing youth purchase of tobacco products (USDHHS, 1998). However, several factors influence the likelihood that states will be able to comply fully with other elements of the Synar regulations, including the meeting of specified targets for reducing illegal sales to minors. First, Synar does not mandate that particular penalties be imposed on vendors who are found selling to minors. Therefore, tremendous discrepancies exist around the country in the penalties that are assessed. Second, the Synar

legislation does not provide any federal funds to be used for enforcement of its regulations. For instance, many states have been forced to use volunteers to conduct the federally mandated inspections (USDHHS, 1998).

The Lautenberg Amendment/The Pro-Children Act of 1994

The "Goals 2000: Educate America Act" of 1994 (P.L. 103-227) addressed broad-based efforts to improve the quality of public education throughout the United States by, among other things, establishing voluntary curriculum content and student performance standards, encouraging parental involvement in schools, and by addressing issues of school safety (P.L. 103-227). Part C, Section 1041 of that act, referred to as the Lautenberg Amendment or the "Pro-Children Act of 1994," addressed the issue of school safety in terms of children's exposure to environmental tobacco smoke.

Introduced by Senator Frank Lautenberg (D-NJ), this portion of the Act requires any facilities which provide routine or regular children's services to individuals under the age of 18, and which are financed directly or indirectly by the federal government, to establish a nonsmoking policy within their premises. The Act in no way preempts harsher restrictions on the state or local level, but at a minimum established nonsmoking policies in health clinics, day care centers, preschool through secondary educational facilities, and libraries. In addition, all federal agencies that provide any or all of these types of services to children, whether directly or through contracts with independent providers, are also required to implement the nonsmoking regulation (P.L. 103-227).

Violation of the regulation is punishable by a fine of up to \$1,000 per incident, to be assessed by the Secretary of Health and Human Services. Each day the violation continues constitutes a separate violation. Accumulated fines may not exceed the amount of federal dollars that the institution has received during the fiscal year in which the violations occurred (P.L. 103-227).

The Durbin Amendment to The Improving America's Schools Act of 1994

Like the Pro-Children Act of 1994, the Improving America's Schools Act of 1994 imposes a smoke-free requirement on any school receiving federal funds through the Department of Education. The same terms exist regarding what constitutes a violation of the policy, and the fines that may be assessed to violators are the same under both laws.

The most important difference between the two acts is that the Improving America's Schools Act went a step further than the earlier Act in addressing the influence of tobacco on children. The Durbin Amendment requires schools to address tobacco use on an equal basis with illicit drugs in their prevention, early intervention, rehabilitation, and education programs. As the bill was originally proposed, only education was to be incorporated in schools' tobacco-control efforts.

The Master Settlement Agreement of 1998

The most far-reaching attempt to regulate smoking, and particularly youth smoking, resulted from the tobacco settlement of 1998. Beginning in 1994, state Attorneys General initiated lawsuits against the tobacco industry to recover

Medicaid funds their states had spent on health care costs associated with the smoking-related illnesses of their citizens (Tubbesing and Wilson, 1999).

Although the initial attempt to reach a “global settlement” with the tobacco industry failed to get the necessary approval from Congress, by November 1998, the Attorneys General successfully renegotiated a settlement with the tobacco industry. The revised agreement, commonly referred to as “the master settlement agreement,” addresses several major issues: advertising; youth access; tobacco industry lobbying; industry contributions to anti-smoking campaigns; and financial compensation to the states. While the MSA addresses a variety of issues related to reducing smoking in general, it takes particular aim at reducing youth smoking.

In particular, the settlement bars tobacco companies from advertising their products to young people, for example, through the use of cartoon characters such as the once-popular “Joe Camel,” and restricts the display of company logos on certain types of products such as shirts or backpacks. In addition, the settlement prevents industry sponsorship of events where youth are likely to be participants or to be in attendance in significant percentages. The settlement addresses youth access by preventing the give-away of free samples in locations where youth may be present, and it prevents the giving of free gifts in exchange for the purchase of cigarettes. In terms of lobbying, the settlement prevents the tobacco industry from lobbying against proposed restrictions on advertising on school grounds, and it prevents the industry from challenging state or local tobacco-control laws that were enacted before June 1, 1998. In addition, the

settlement also requires tobacco companies to contribute almost \$1.6 billion over 10 years to youth anti-smoking campaigns. Most significantly, the agreement requires the tobacco industry to implement a media campaign aimed at deterring youth smoking (USDHHS, 2000b).

The MSA authorizes financial compensation to the states. The 46 participating states will share in \$246 billion, to be allocated annually from 2000 until 2025 (Tubbesing and Wilson, 1999). Each state's share of the settlement funds is determined through a formula, and the individual state legislatures have final discretion in determining how their state's share will be spent. While the Attorneys General now argue vehemently that this was their intention, there are no specific requirements included in the agreement that require a state's funds to be spent for anti-smoking or other health care initiatives.

Settlement awards for the participating states range from a high of more than \$25 billion each for California and New York to a low of \$486.5 million for Wyoming. Tennessee's share of the master tobacco settlement is \$4,782,168,127.09 (Wilson, 1999).

Federal Tobacco Taxation and Its Impact on Youth Smoking

Numerous economists and other researchers have noted that increasing the price of cigarettes leads to substantial reductions in smoking (CDC, 1999; Glynn et al., 1993; Lantz et al., 2000; Lewit et al., 1997; USDHHS, 2000b; and Warner, 2001; Yach and Ferguson, 1999). High prices deter youth from initiating the habit and encourage adult smokers either to quit completely or reduce the number of cigarettes they smoke per day.

Several studies have estimated the impact various tax increases would have on the number of young people who choose not to smoke. Estimates indicate that a conservative tax of 32 cents per pack would prevent 800,000 youth from smoking. Researchers estimate that a more significant tax of \$1.50 per pack would cut in half the number of young people who smoke (USDHHS, 2000b). It has been estimated that a tax of \$2.00 per pack would decrease youth smoking by two-thirds (Yach and Ferguson, 1999).

Table 1 indicates the rate of federal cigarette taxes since 1951¹. Despite the fact that these tax increases were not imposed in a specific attempt to reduce youth smoking, they have nevertheless had that effect. Harris (1987) found that the eight-cent tax increase in 1983 deterred 600,000 young people from smoking (USDHHS, 2000b).

The Role of the Federal Bureaucracy in Regulating Youth Exposure to Cigarettes

Aside from the handful of laws relating to youth smoking that have been enacted by Congress, the federal government's primary role in regulating youth access and exposure to tobacco has been achieved by providing funding and technical assistance to states and localities through its various agencies (USDHHS, 1998). Three agencies of the federal bureaucracy have been critical in this endeavor: the Substance Abuse and Mental Health Services Administration (SAMHSA); the National Cancer Institute; and the Centers for Disease Control and Prevention. The Food and Drug Administration has also been actively involved in tobacco-control efforts. However, whereas the other

¹ See Appendix A for all tables.

agencies of the bureaucracy have adopted primarily an advisory role, the FDA has adopted a far more assertive stance regarding tobacco regulation.

The Substance Abuse and Mental Health Services Administration (SAMHSA) and Synar Enforcement

The Substance Abuse and Mental Health Services Administration (SAMHSA), a public health agency within the U.S. Department of Health and Human Services, has become a significant actor in the realm of tobacco-control since the passage of the Synar Amendment. SAMHSA is the federal agency that was given the authority to enforce the Synar Legislation (USDHHS, 1998). On January 19, 1996, SAMHSA released its final rule (45 CFR Part 96) under which the Synar Amendment is administered, including sampling requirements that must be fulfilled and deadlines for states' meeting of interim targets showing reductions in youth sales rates.

In addition to formalizing the rules under which the law is put into effect, SAMHSA has the responsibility of helping states meet the requirements of the Synar legislation. In order to help states effectively implement the Synar legislation, SAMHSA has held national technical assistance meetings and regional workshops for state tobacco-control officials. In addition, it has worked independently and in consultation with other agencies of the federal government, including the Centers for Disease Control and Prevention, to develop instructional materials designed to help states effectively enforce the legislation (USDHHS, 1998). These materials include information regarding how states can: design and implement a scientifically valid random sample of tobacco

retailers; train and involve minors in non-compliance checks; enact local and state youth access laws and assist law enforcement officers in effectively enforcing those laws; incorporate media and community involvement in efforts to reduce youth access; train merchants regarding youth access laws; and overcome barriers states are likely to face as they attempt to enforce the Synar legislation (USDHHS,1998).

The Centers for Disease Control and Prevention

The Department of Health and Human Services' Centers for Disease Control and Prevention is the lead federal agency charged with protecting the health and safety of citizens. The CDC plays a critical role in the area of youth smoking prevention. The CDC acts as an important advisor to educators on matters of youth health and substance abuse. In its 1994 *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction*, discussed below, the CDC specified necessary elements that should be incorporated into effective school-based anti-tobacco programs.

The agency's "Research to Classroom" project assesses the effectiveness of tobacco-control programs that are being implemented around the country. When the CDC identifies effective programs, information on the programs is distributed to state and local health officials. Two such tobacco-control programs that have been identified as effective by the CDC are *Project Towards No Tobacco Use* (Project TNT) and *Life Skills Training*. These programs are also discussed in greater detail below. While the CDC can make recommendations

as to the effectiveness of programs, the decision to adopt a particular curriculum lies with local officials in each community (USDHHS, 2002b).

In 1999, the CDC released its *Best Practices for Comprehensive Tobacco Control Programs* guide. *Best Practices* incorporates a variety of elements in order to create comprehensive tobacco-control programs within communities. It addresses nine components:

1. Community programs to reduce tobacco use including: efforts to get youth involved in tobacco-control campaigns; establishing partnerships with local tobacco-control organizations; conducting educational programs within communities; promoting the adoption of mandated or voluntary clean indoor air guidelines; restricting access to tobacco; providing treatment options for those who already use tobacco.
2. Chronic disease programs to reduce the burden of tobacco-related diseases such as cardiovascular disease, asthma, and oral cancer. It also recommends the establishment of cancer registries within communities.
3. School programs, specifically the implementation of the policies recommended in the agency's *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction* document.
4. Enforcement of youth access laws and clean indoor air policies in conjunction with the Food and Drug Administration and the Substance Abuse and Mental Health Services Administration.
5. Statewide programs such as grants that provide technical assistance to local communities in the areas of program evaluation, media advocacy, implementation of smoke-free policies, and reduction of youth access to tobacco.
6. Counter-marketing efforts on the state and local level that increase the proportion of pro-health messages that are disseminated through radio, television, billboards and print advertisements. *Best Practices* also calls for increased public relations efforts by health activists through the use of press releases and the sponsorship of local events and health promotion activities. It

also recommends that health organizations make efforts to replace tobacco industry sponsorship of community events.

7. Cessation programs including access to medical providers and counselors through telephone hotlines, and coverage for proven nicotine-replacement drug therapies through private and state-sponsored health insurance programs. *Best Practices* recommends that these services be provided at minimal cost to ensure that all citizens have access.
8. Surveillance and Evaluation--Surveillance involves monitoring tobacco-related behaviors, attitudes and health outcomes at regular intervals. Program evaluation links state and local efforts with the results indicated through surveillance.
9. Administration and Management resources to be used for coordination of programs among state and local agencies and monitoring of existing programs.

The guide specifies optimal levels of state-specific funding in each of the program areas. The CDC recommends that funds for these programs come from state-imposed excise taxes on cigarettes (CDC, 1999).

The National Cancer Institute

The National Cancer Institute plays a vital role in efforts to reduce youth tobacco use. Over the years, the NCI has supported almost 100 controlled intervention trials aimed at reducing smoking rates; 24 of these focused specifically on the issue of youth smoking prevention (USDHHS, 1994). Over 10 million people in 33 states have been involved. Two of the most well known of these efforts are the ASSIST program and the COMMIT program.

The NCI's ASSIST (American Stop Smoking Intervention Study for Cancer Prevention) program has been implemented in 17 states across the United States since 1991. ASSIST attempts to achieve its objective of reducing tobacco

use through comprehensive and integrated community-wide programs including media advocacy (USDHHS, 2002b).

Of particular importance to ASSIST members is the issue of reducing tobacco use among high-risk groups, including young people. In this regard, reducing minors' access to tobacco products is a major goal of the coalitions. An early evaluation of the effectiveness of the ASSIST program indicates that per capita cigarette consumption is about seven percent lower in ASSIST than non-ASSIST states, as a result of the program (USDHHS, 2002b). Estimates indicate that ASSIST has the potential to save as many as 1.2 million lives (USDHHS, 1994). The majority of these lives saved would be the direct result of ASSIST's efforts to prevent young people from initiating a smoking habit.

From 1986 through 1994, the NCI also sponsored the COMMIT program (Community Intervention Trial for Smoking Cessation) (USDHHS, 1994). COMMIT was a comprehensive, community-based program aimed at persuading current adult heavy smokers to quit by providing them with cessation resources and by changing the social norms in their communities regarding the acceptability of smoking.

Despite the fact that post-intervention data collected in 1993 and 1994 indicate that the program failed in its objective of reducing use among heavy smokers, the surveys that were conducted as a part of the program have provided valuable information regarding youth smoking patterns (USDHHS, 2002b). The surveys explored the questions of how young people obtain cigarettes, despite the existence of laws against youth purchase, and what adults

view as the appropriate means by which to restrict youth access (USDHHS, 1994).

The Food and Drug Administration's Regulation of Tobacco

While the CDC and the NCI have addressed the issue of youth smoking from a research-based advisory perspective, the Food and Drug Administration has taken steps in recent years to actively regulate youth access to tobacco products. In August 1995, the FDA ruled that nicotine is a drug and that cigarettes are drug-delivery devices under the terms of the Food, Drug, and Cosmetic Act of 1938 (FDCA) (USDHHS, 2002b).

Accordingly, the FDA issued a proposed rule allowing it to regulate youth access to tobacco products. The rule established a minimum age for purchase of tobacco products, limited modes of sale and advertising of tobacco products, and required the tobacco industry to fund smoking prevention campaigns for children (USDHHS, 2002b).

Brown & Williamson Tobacco Corporation, Liggett Group Inc., Lorillard Tobacco Corporation, Phillip Morris, and R. J. Reynolds Tobacco Company filed suit to prevent implementation of the rule, arguing that the FDA lacked jurisdiction to regulate tobacco (USDHHS, 2002b). The Supreme Court ruled in March 2000 that Congress had created a "distinct regulatory scheme" for tobacco that precluded "any role for the FDA" in its regulation (*Food and Drug Administration v. Brown & Williamson* 529 U.S.____ (2000)).

With the Court's decision in *FDA v. Brown & Williamson*, agency regulation of tobacco products came to an end. FDA regulation of tobacco

products is now feasible only through amending the FDCA to specifically allow it. In February 2001, Tom Harkin (D-IA) and four other senators introduced legislation, the Kids Deserve Freedom from Tobacco Act of 2001, to amend the FDCA (*The Nation's Health*, 2001). The bill was referred to the Senate Health, Education, Labor and Pension Committee in February 2001. No further action has been taken on it (Thomas Legislative Information, 2002).

Tennessee State Laws Regarding Youth Access to Tobacco

In response to Congress' actions in the early 1990s requiring states to enact and enforce laws regulating youth access and exposure to tobacco products, the Tennessee legislature passed two significant laws. The Prevention of Youth Access to Tobacco Act of 1994 was Tennessee's response to the Synar Amendment. The Children's Act for Clean Indoor Air was the state legislature's response to the Pro-Child and the Improving America's Schools Acts of 1994.

However, just as important as the laws that have been enacted by the legislature are the tobacco-control laws that have not been enacted. Tennessee lags behind other states in several areas, including the amount of excise tax it imposes for the purchase of tobacco products, its licensing requirements for tobacco vendors, and how it has thus far spent its share of the Master Settlement Agreement.

The Prevention of Youth Access to Tobacco Act of 1994

In June 1989, the legislature enacted a law establishing a minimum age of 18 for the purchase of tobacco products. The law made it illegal for anyone under the age of 18 to purchase or possess tobacco products, though use was

not specifically prohibited (TN Code 39-17-1504, 39-17-1505). Business owners who violated the law by selling tobacco to underage youth could be charged with a Class C misdemeanor, carrying penalties including receipt of a warning letter and/or the imposition of a fine.

However, the law also contained several areas of weakness. Minimum and maximum allowable fines for violators were not specified until 1993, when limits were set at \$0 and \$1,500 respectively (TN Code 39-17-1509). In addition, no penalties were put in place regarding underage buyers. The most significant weakness, however, was that no agency was specified to have enforcement authority over the legislation. While a tobacco-control law was technically enacted in 1989, it lacked necessary provisions to make it meaningful. In 1997, when the state reported to SAMHSA its baseline sales-to-minors rate (62.9%) following the enactment of the Synar regulations, it became clear that Tennessee, like so many other states, was not actively enforcing an effective law.

Following the passage of the Synar Amendment, the state legislature strengthened the provisions of the original youth access law by enacting the Prevention of Youth Access to Tobacco Act of 1994. The revised law maintains many of the same provisions as the original legislation: minimum age of 18 required for purchase; requirement that photo ID be presented by anyone younger than 27; prohibition on purchase and possession by minors, though use is not addressed; requirement that signs indicating a minimum age for purchase be posted in businesses; and establishment of a Class C misdemeanor charge

and fines comparable to the 1993 law for business owners who violate the provision. Table 2 indicates the maximum fines that can be imposed on violators of the law. Owners, managers or store employees may all be fined if tobacco is sold illegally (TN Code 39-17-1509).

The 1994 law incorporates several significant additions to the 1989 law. First, it establishes civil penalties for possession of tobacco by young people. They may face fines ranging from \$10 to \$50 dollars, and those violating the law twice or more in one year may be required to perform up to 50 hours of community service (TN Code 39-17-1505). These provisions do not apply to youth who are assisting law enforcement officers in conducting compliance checks (TN Code 39-17-1505, 39-15-413).

In addition, the law prohibits the sale of tobacco products through vending machines, although several exemptions were included (TN Code 39-17-1507). The most significant change in the 1994 law is that it specified an agency to oversee enforcement of the legislation, the Department of Agriculture. The Department is required to conduct random, unannounced inspections of businesses where tobacco is sold to monitor their compliance with the law. The results of these reports are submitted annually to the Secretary of the Department of Health and Human Services, under the provisions of the Synar Amendment (TN Code 39-17-1509).

The Children's Act for Clean Indoor Air

In 1995, following the enactment by Congress of the Pro-Child and the Improving America's Schools Acts of 1994 which require the establishment of

smoke-free environments where children are present, the Tennessee legislature approved the Children's Act for Clean Indoor Air. The law prohibits smoking in areas where children are likely to be in attendance: public child care centers; community centers; group care homes where children reside; health care facilities; museums; public and private kindergarten through secondary classrooms; residential treatment centers for youth; youth development centers and facilities; zoos; and school grounds (TN Code 39-17-1604). Restrictions were added in 1997 to address home-based day care centers, but they impose no penalties on violators and have no authority designated for enforcement (S.T.A.T.E., 2002a).

All employees of these institutions, except teachers, may smoke within designated areas of their buildings provided children do not have access to those areas, and after children have left the facility. Teachers may only smoke outside of the buildings of non-residential schools, and they must be at least 50 feet away from any entrance. Adults are permitted to smoke on school grounds after school hours, but not while sitting in the bleachers when attending a sporting event or when in a public restroom within the school (TN Code 39-17-1604).

Each of the facilities listed is required to prominently post "No Smoking" signs throughout the building. Schools must post signs at sporting events indicating that, "Smoking is prohibited by law in seating areas and in restrooms" (TN Code 39-17-1605).

Institutions that violate the provisions of the law or fail to take reasonable steps to enforce it commit a Class B misdemeanor. Any law enforcement officer

may issue a citation, and if found guilty, the institutions are subject to fines of up to \$500; the individual smoker is not penalized (TN Code 39-17-1606).

Perhaps as important as the areas that are covered under the Act are the areas that are not designated as smoke-free. The Tennessee legislature has not enacted any legislation that would establish smoke-free facilities in malls, grocery stores, restaurants, enclosed arenas, public transportation, or hotels and motels (S.T.A.T.E., 2002b, S.T.A.T.E., 2002c).

Tennessee's Excise Tax on Cigarettes

As of July 2000, state excise taxes on cigarettes ranged from a high of \$1.11 per pack in New York to a low of 2.5 cents in Virginia, with the average being 41.9 cents (CDC, 2002b). In 1971, Tennessee established a tax of 6.5 mills (one-tenth of a cent) on each cigarette, or 13 cents for a pack of 20 (TN Code 67-4-1004). The tax rate has not been adjusted since 1971 (S.T.A.T.E., 2002d). Tennessee's tax ranks as the 45th smallest out of 51, including the District of Columbia (CDC, 2002b).

Licensing Requirements in Tennessee

As efforts to control youth access to tobacco have increased, attention has turned to the issue of licensing tobacco retailers. There are several rationales to support licensing requirements: increasing retailer compliance; facilitating inspections of retailers; and financial rewards.

Many tobacco-control activists contend that if retailers are required to have a license in order to sell tobacco products, their fear of losing that license

as a result of selling to youth illegally will encourage them to faithfully enforce youth access laws (USDHHS, 2002b).

Further, tobacco-control activists argue that licensing has become particularly important since the enactment of the Synar legislation. They contend that the Synar Amendment's regulation that states conduct random, unannounced inspections of tobacco outlets, using a probability sample design, is readily fulfilled when states have a complete, up-to-date list of all tobacco retailers in the state. Such a sampling frame can be compiled from licensing applications. The absence of this type of sampling frame in the early years of Synar's enforcement has caused difficulty for many states as they have attempted to randomly inspect retailers, without having a complete listing of all the retailers in the state (USDHHS, 1998).

The final reason activists support the establishment of licensing requirements is that the fees collected when licenses are issued could be used for enforcement activities and retailer education (USDHHS, 2002b). Nine states that require licensing of tobacco retailers allocate at least some portion of revenues derived from fines, fees, or taxes for enforcement activities (USDHHS, 1998). With an appropriately determined fee schedule, youth access enforcement programs could become entirely or significantly self-sustaining.

Despite the fact that tobacco manufacturing distributors, warehouses, and wholesale dealers in the state are required to obtain a license to do business, Tennessee does not require licensing of either over-the-counter tobacco sales or vending machine sales (TN Code, 67-4-1015, S.T.A.T.E., 2002f, S.T.A.T.E.,

2002g). Thus, the threat of license revocation for violating the state's youth access law is a moot point. Localities in the state are preempted from establishing such licensing requirements.

The Issue of Preemption in Tennessee

Licensing requirements are only one area where local action is preempted by the state. In Section 1551 of the Prevention of Youth Access to Tobacco Act of 1994, the legislature preempted "*the entire field* of legislation concerning the regulation of tobacco products" (emphasis added, TN Code 39-17-1551).

Preemption clauses prevent local tobacco-control ordinances from being more stringent than the State laws governing those issues. As Jacobson and Wasserman (1997) have noted, preemption statutes have proven to be a very effective means by which the tobacco industry has been able to block tobacco-control legislation. The industry tends to be more powerful on the state level than on the local level. By gaining support for statewide preemption statutes, it is able to avoid having to fight multiple battles on the local level that it might lose.

Tennessee is one of 20 states that have preemption clauses in their tobacco-control laws (USDHHS, 1998). If the state legislature has imposed weak restrictions, or none at all, regarding any area of tobacco policy, localities are prevented from doing so on their own.

Tennessee's Compliance with the Synar Amendment

With a baseline non-compliance rate of 62.9 percent in 1997, Tennessee had the fourth highest rate of illegal tobacco sales to minors of any of the states

(USDHHS, 1998). Table 3 indicates Tennessee's interim target rates and its actual reported rates of non-compliance since 1997.

The Prevention of Youth Access to Tobacco Act of 1994 and the increased focus on enforcement to which it has contributed appears to have had a positive impact on the rate of sales to minors in Tennessee. Non-compliance rates have fallen by more than half since 1997. Nevertheless, these figures do indicate that work remains to be done. The sales-to-minors rate actually increased between 1999 and 2000, and the state missed its 2001 target rate by more than one percent.

Moreover, as DiFranza (1999, 2000, 2001) notes, the data reported to the Department of Health and Human Services under the terms of the Synar Amendment may not accurately reflect the true extent of youth access to tobacco products. Department guidelines specify that youth involved in compliance checks must be between the ages of 14 and 17. However, DiFranza contends that evaluating sales rates to youth specifically between the ages of 16-18 is a more effective way to determine how much tobacco is actually available to young people, because retailers are more likely to sell to older-looking youth. DiFranza contends that noncompliance rates of 10 percent among buyers in the 16-18 year old age bracket are necessary to significantly reduce the availability of tobacco to minors (2001).

In his analyses of states' compliance with the Synar regulations, DiFranza employs this harsher standard of evaluation. Table 4 indicates Tennessee's rate

of compliance with the Synar regulations for fiscal years 1997 and 1998 using DiFranza's more stringent standard.

In 1998, older youth were twice as likely as their younger counterparts to be able to purchase tobacco products illegally. Whereas the data reported to the Secretary for fiscal years 1997 and 1998 show a decline in youth purchase rates, by DiFranza's standard, youth sales increased by almost 10 percent between these two years. Based on DiFranza's data, Tennessee had the eighth highest rate of illegal sales in 1997. In 1998, the state had the highest rate of non-compliance of any of the 50 states or the District of Columbia. Among the 59 states and territories ranked in the study, only the Marshall Islands and Palau had higher rates of non-compliance among 16-18 year old buyers in 1998 (DiFranza, 2001).

Tennessee's share of the Substance Abuse Prevention and Treatment grant, which is dependent on its compliance with Synar, was \$25,999,363 in fiscal year 2000. Despite the fact that sales rates have increased and the state missed its target rate in the last fiscal year, in fiscal year 2001, the amount rose to \$28,299,310 (SAMHSA, 2001b).

Tennessee's Compliance with the Nonsmoking Provisions of the Pro-Child Act of 1994 and the Durbin Amendment

Both the Pro-Child Act and the Durbin Amendment of the Improving America's Schools Act of 1994 require schools to establish smoke-free policies as a condition of receiving federal education funds. In a Tennessee Department of Education 2000 survey of principals and teachers in the state, 99 percent of

middle schools reported having a smoking ban for students (Tennessee State Department of Education, 2000). This ban covers school buildings, school grounds, and school buses or other vehicles that are used to transport students; in 98 percent of the schools surveyed, the ban also extends to off-campus, school-sponsored events.

In 78 percent of the middle schools surveyed, faculty and staff are also prevented from smoking. These percentages can reasonably be expected to be lower due to two factors: middle school students are under the legal age for purchase and possession of cigarettes, but teachers are not; and the Tennessee Children's Act for Clean Indoor Air allows teachers to smoke on school grounds, outside the building, and at a specified distance from any school entrance.

Results were similar for the high schools in the state that were surveyed. All high schools reported having bans on student smoking. These bans covered school buildings, school grounds, and school buses and other vehicles. In 96 percent of the high schools surveyed, students are also prohibited from smoking at off-campus, school-sponsored events. Seventy-seven percent of the high schools surveyed reported having bans on teacher and staff smoking (Tennessee State Department of Education, 2000).

Tennessee's Compliance with the Curriculum Requirements of the Improving America's Schools Act

In addition to requiring smoke-free facilities in schools, the Durbin Amendment to the Improving America's Schools Act also addresses anti-drug curriculum requirements within schools receiving federal funds. It requires

prevention, early intervention, rehabilitation, and education regarding tobacco use to be addressed by schools, just as they address these topics regarding illicit drug use. The Tennessee Department of Education establishes curriculum standards for students in grades K-12 regarding issues of health education (Tennessee Department of Education, 2001).

The state's middle school curriculum addresses the effects of tobacco use through discussion of several health-related topics: disease prevention, including heart disease, cancer, stroke, and asthma; emotional/social/mental health; and substance use and abuse. Through a discussion of the emotional/social/mental health influences on a person's health, students are taught about the importance of establishing skills to cope with feelings appropriately, including techniques for stress management. Within this framework, the issue of peer pressure is also discussed with students.

Through a discussion of substance use and abuse, students are taught how to practice refusal skills if they are exposed to peer pressure to use tobacco products. In addition, they are informed about school and community treatment and intervention resources that are available to students who use or abuse tobacco.

Tennessee's high school students are exposed to a similar, but more specific, age-appropriate tobacco curriculum than middle school students. In particular, high school students learn about both the short-term effects and long-term effects of smoking and passive smoking. Specifically, students learn about the effects of tar, nicotine and carbon monoxide on the body. High school

students discuss the issue of advertising appeal and how that encourages them to smoke. In addition, high school students are taught the importance of their position as role models in preventing younger students from smoking.

Tennessee's Response to the *Best Practices* Funding Recommendations and the Master Settlement Agreement

Legislation is only one element in the struggle to control the negative effects among citizens of tobacco exposure. Communities must also devote resources to efforts designed to promote awareness of the dangers and to help those who are already addicted to tobacco products. In order for the state to adequately address all nine program elements that were set forth in the *Best Practices* guidelines, the CDC has recommended that Tennessee allocate between \$32,233,000 and \$89,079,000 annually to tobacco-control efforts. That results in per capita spending of between \$6.00 and \$16.59 annually (CDC, 1999).

For fiscal year 2001, Tennessee spent a total of \$1,389,207 on tobacco-control programs. This works out to four percent of the *Best Practices* low-end funding recommendation and two percent of the high-end recommendation. Per capita funding is \$0.24, placing Tennessee 50th out of 51, including the District of Columbia, in the amount that is spent by the states to control tobacco use (CDC, 2001b). The entirety of the funds that were spent in 2001 came from a grant by the CDC's Office on Smoking and Health, as part of the National Tobacco Control Program. The funds were given to the state health department to help the state reduce the health and economic burden of tobacco use. The state

allocated no revenue to tobacco-control efforts from the state tobacco tax, the general fund, or the Master Settlement Agreement award.

In 2000, the Tennessee legislature enacted a law creating two trust funds: the Tobacco Indemnification and Community Revitalization fund and the Health Care Improvement and Education Account (TN Code 9-4-5501). Fifty percent of the annual MSA settlement award is deposited into each account. However, the general assembly makes the final determination as to how those dollars will be spent. The state's portion of the settlement award in 2001 was \$150.9 million (Campaign for Tobacco-Free Kids, 2002b). Nothing was allocated to tobacco-control efforts (CDC, 2001). The state's portion of the settlement for the 2002 fiscal year is \$560 million. The legislature used those funds to compensate for the state's nearly-\$1,000,000,000 budget deficit; as was the case in the 2001 fiscal year, none of the settlement funds were allocated to tobacco-control efforts for fiscal 2002 (Ferrar, 2001; Gott, 2001; Nelson, 2001b).

Conclusion

This chapter has examined the issue of tobacco regulation in general. In particular, it has focused on federal and state laws that have been enacted to limit youth access to tobacco products. The roles of federal, state and local agencies in carrying out these laws have been examined. In addition, Tennessee's compliance with the federal laws dealing with youth tobacco access has been examined in depth.

Chapter 3--School-Based Drug Use Prevention

The Theoretical Foundations for School Anti-Drug Campaigns and Curricula

Because the vast majority of smokers initiate the habit before they reach the age for high school graduation, schools have become the focal point in efforts to reduce youth smoking. This importance is reflected clearly by the fact that both federal and state laws have been enacted in recent years that require schools to be smoke-free. However, well before such laws were enacted to enforce smoking restrictions on campus, schools were given the task of trying to teach young people to avoid cigarette use willingly. School-based programs are the most accessible, cost-effective way to reach young people (Huang et al., 2000).

The Information Deficit Model

Since the 1960s, schools have incorporated information into curricula that was designed to deter young people from experimenting with or using alcohol, tobacco and other drugs (ATODs) (Orlandi, 1996). The earliest technique, based on the information deficit model, was to teach young people the dangers of drug use (Lantz et al., 2000; Paglia and Room, 1999; USDHHS, 1994). The underlying assumption was that young people lacked this information, but that once they learned and understood the facts, they would avoid use. Through pamphlets, books, posters, films, and lectures, students were taught to fear the dangers that could result from ATOD use.

However, by the late 1970s, researchers had determined that programs based on this model did not deter young people from smoking or using other drugs. The messages were not salient with young people because these early efforts focused on the long-term dangers of use; young people are much more likely to adopt a short-term perspective. Knowledge regarding the dangers of drug use did increase, and some change in attitudes towards the acceptability of drug use was even noted. However, behavior regarding drug use did not change (Orlandi, 1996).

The Affective Education Model

Educators and theorists reasoned that the information deficit model also failed to deter smoking and drug use because it did not take into account that personal characteristics can influence how one processes information about the risks of drug use. These personal characteristics include one's values, beliefs, and perceived norms. By the mid-1970s, with the rise in prominence of the affective education model, schools began to focus on psychological explanations as to why youth would use ATODs (USDHHS, 1994).

Asserting that use was the result of students experiencing low self-esteem or lacking adequate communication or decision-making skills, school anti-drug efforts began to focus on improving students' self-perception (USDHHS, 1994). However, the revised anti-drug programs based on this model also failed to demonstrate that they deterred youth smoking and drug use. Research over the last 20 years has confirmed initial findings that there is little correlation between likelihood of using drugs and one's self-esteem (Clayton et al., 1996a).

The Social Influences Approach

Beginning in the late 1970s and continuing throughout the 1980s, researchers began to focus on the social influences that could affect a young person's decision to smoke (USDHHS, 1994). Several variants of social influences-based programs have developed over the years. However, the common thread these approaches share is a focus on the psychological effects other people have in determining an individual's behavior regarding drug use (Sussman, 1989).

Based on social, psychological and behavioral theories, in particular McGuire's (1969) early work in the area of social inoculation, researchers attempt to establish in young people anti-drug norms and give them the necessary skills to resist pressures to use drugs. Social inoculation is based on the premise that if students are exposed to mild pressures to use drugs in a comfortable setting and learn how to resist those pressures, they will be able to resist those same pressures in other settings as well.

Curricula based on the social influences approach address several critical factors that have been linked to youth tobacco use (USDHHS, 1994). First, they address the misperception that most people smoke. Second, they attempt to counter the belief held by many young people that using tobacco and other drugs increases one's social standing. Whereas the early anti-drug programs focused on the long-term health consequences of drug use, anti-tobacco curricula based on the social influences approach expose students to the short-term social and physiological effects of smoking, such as alienating non-smoking friends and the

staining of one's teeth (USDHHS, 1994). Third, they make students aware of the influence tobacco advertising has on their choice to smoke. Fourth, they help students learn appropriate techniques to resist tobacco use, even if friends or siblings do use tobacco. Through role playing and group discussions, students are taught the assertiveness, decision-making and communication skills that are necessary for them to resist the advertising and peer pressure to smoke. Anti-drug campaigns based on the social influences approach continue to be the most widely used anti-drug curricula today (USDHHS, 1994).

DARE as a model for social influences-based tobacco use prevention programs

Perhaps the best-known example of an anti-drug use curriculum based on the social influences approach is Drug Abuse Resistance Education (DARE). Begun during the 1983-84 school year in Los Angeles, DARE has become the most widely distributed school-based drug abuse prevention program in the world (Clayton et al., 1996a). Its purpose is to prevent substance abuse among school children, including abuse of tobacco, alcohol and illicit drugs. Eighty percent of all school districts in the United States use the program, and it reaches 36 million students each year (Miller, 2001).

The DARE curriculum was developed in conjunction with the Los Angeles Unified School District and the Los Angeles Police Department. Unlike most school-based prevention programs, DARE is taught by specially trained, uniformed police officers, rather than teachers. In its original form, the program was divided into 17 lessons. The goal is to teach children how to recognize and resist social pressures to use drugs by enhancing their self-esteem, decision

making, coping, assertiveness and communication skills, and by demonstrating that positive alternatives to drug use exist. Since 1992, additional lessons have been added to the DARE curriculum to include an expanded focus on deterring youth from using tobacco products (Clayton et al., 1996a). Though originally targeted to fifth and sixth grade students, it has now been expanded to cover kindergarten through third-graders, middle-school students, and high school students (Kochis, 1995).

It is estimated that \$750 million is spent on DARE each year in the United States (Ennett et al., 1994). Moreover, DARE is the only school-based prevention program that has been singled out by the federal government for mandated funding by the states. A 1990 amendment to the 1986 Drug Free Schools and Communities Act requires that state governors spend 10 percent of their allocations of federal education dollars to fund DARE within their states. In addition, the Bureau of Justice Assistance within the Department of Justice, as well as private corporations on the local and national level, have provided funds for the establishment of DARE programs and training within communities (Clayton et al., 1996a).

The CDC's model school program to prevent tobacco use

In developing its *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction* report, the CDC relied heavily on the prevailing data demonstrating the effectiveness of social influences-based programs of drug deterrence. The *Guidelines* pinpoint seven elements that must be incorporated into model schools' anti-tobacco programs:

1. Establishment and enforcement of “no-tobacco” policies for all students, staff, and visitors during school-related activities. This involves not simply establishing a no-smoking policy, but also extends to banning tobacco advertising on school grounds and at school-sponsored events, requiring anti-tobacco instruction for all students, and providing programs for students and staff who want to stop using tobacco products.
2. Providing instruction about the short- and long-term physical and social effects of tobacco use, social influences on tobacco use, peer norms regarding tobacco use, and refusal skills.
3. Providing tobacco-use prevention education for students in kindergarten through 12th grade. Instruction during the middle school years should be especially intensive and should be reinforced in high school.
4. Providing program-specific training for teachers.
5. Encouraging parent and family involvement to support the school-based program, for instance, by inviting parent/family input in the planning of the tobacco program.
6. Supporting cessation efforts among students and staff who use tobacco, including self-help, peer support and community cessation programs. These resources may be provided directly by the school, or the school may refer interested participants to community organizations that provide such services.
7. Regularly assessing the effectiveness of the tobacco-use prevention campaign (CDC, 1994).

Elements of the social influences doctrine can clearly be seen in terms of model schools' attempts to create a nonsmoking norm within the school setting, and in the teaching of skills throughout one's school career that are necessary to resist social pressures to smoke.

Project Towards No Tobacco Use (Project TNT)

Project TNT is one of the two anti-tobacco programs designated as effective by the CDC's "Research to Classroom" project. It is based on social

influences curriculum and is targeted specifically to seventh grade students (CDC, 2002b). It incorporates 10 core lessons that are ideally taught over a two-week period, although they can be taught over a four-week period. Each lesson is 40-50 minutes in duration and focuses on three key factors. First, it makes students aware of social information that encourages young people to smoke by addressing topics such as the role of advertising in tobacco use and the distorted image that is portrayed that “everyone smokes.” Secondly, students are taught skills that will help them resist the pressure to use tobacco as a means of achieving peer approval. Finally, students are taught about the risks tobacco use could have in their own lives, including the risk of developing an addiction to tobacco. Following their initial exposure to the program in seventh grade, students are then given two follow-up or “booster” sessions in eighth grade.

A total of 6,716 students from 48 middle schools were involved in the CDC’s trial of the Project TNT curriculum. Initial results from follow-ups of students who were taught the curriculum have been encouraging. Two years after students in experimental groups were exposed to the program, smoking initiation rates were 26 percent lower than among students in the control group. Students in the experimental groups reduced their weekly or more frequent cigarette smoking by 60 percent (CDC, 2002b).

Life Skills Training

Life Skills Training differs in several ways from Project TNT. First, Project TNT focuses exclusively on preventing tobacco use among young people; LST addresses tobacco use prevention, but also alcohol and marijuana use

prevention (CDC, 2002c). Second, while still based on the social influences approach, LST also incorporates components devoted to increasing self-esteem, self-confidence, autonomy, and assertiveness (USDHHS, 1994). It is reasoned that individuals will respond differently to the social pressures to use drugs, based on personal characteristics, including their levels of self-esteem and their abilities to deal with anxiety.

LST is primarily taught to students in grades six through nine. It consists of 15 class sessions in the first year of the program, 10 sessions in the second year, and five classes in the third year (CDC, 2002c). Like other social influences approaches, LST is designed to teach young people skills that will help them resist direct pressures to smoke or use other drugs. Students are given facts regarding current prevalence rates among their peers, to reinforce that drug use is not the norm, and teachers try to instill in students attitudes that will encourage them to reject drugs when they are offered. In addition, to help them resist indirect pressures to smoke or use drugs, the program incorporates elements designed to help students enhance their self-esteem and self-confidence and deal effectively with the anxiety that can result from exposure to social situations (USDHHS, 1994).

Studies evaluating the effectiveness of LST have provided encouraging results. In the largest study to date, almost 6,000 students received either the LST program or the traditional tobacco curriculum. Among students exposed to the LST curriculum, use of tobacco, alcohol, and marijuana one or more times

per month was down by 44 percent over students in the control group (Botvin, 2000).

Knox County's Implementation of the CDC's Guidelines for Tobacco-Free Schools

Knox County schools have not established the comprehensive no-tobacco policies called for in the CDC's *Guidelines*, particularly in terms of tobacco use by school personnel. Instead, the county complies with the provisions of the state's clean indoor air law, which allow school personnel to use tobacco products outside school facilities and outside the view of students (Knox County Schools, 2001a). School personnel are not allowed to use tobacco when directing student activities or when present at such events, even if those events are held after school hours. Field trips and athletic events at locations away from the school are included in this ban. Despite the restrictions on staff and faculty smoking, researchers argue that the lack of a comprehensive ban on smoking by staff and faculty in a school setting sends a mixed message to students that the habit is not as bad as they are taught it is (Office on Smoking & Health, 1990). Scholars have noted that, "[P]revention efforts are more likely to take root in a social milieu unambiguously favoring abstinence . . . than when cultural messages are mixed and inconsistent" (Wallack and Corbett, 1987.)

In addition to not completely banning staff and faculty smoking on campuses, the county's drug-free workplace requirements do not specifically address the issue of tobacco use by school personnel (Knox County Schools,

2001b). This includes not specifically mentioning tobacco cessation programs as a covered expense under the county's group medical insurance plan.

In compliance with the Synar Amendment and the state's youth access law, the county does ban the possession and use of tobacco products by students on school premises and on school buses during school hours (Knox County Schools, 2001c). No distinction is made between underage students and those who have reached the legal age for purchase and possession of tobacco products.

Students who violate the no-tobacco policy are referred to the school principal for disciplinary action, including in-school suspension, detention, or referral to an outside agency. Repeated violation of the policy may result in the student being suspended, being expelled, or being sent to an alternative school (Knox County Schools, 2001e).

In addition to establishing a no-tobacco policy for all students, the county's Board of Education has also established an instructional requirement pertaining to tobacco education (Knox County Schools, 2001c). The Assistant Superintendent for Curriculum and Instruction in Knox County is charged with developing the curriculum to be implemented in the county's elementary, middle and high schools (Knox County Schools, 2001d). Knox County follows the same curriculum guidelines that are established by the State Board of Education. All schools in the county expose students to an anti-tobacco curriculum. Both of the CDC's recommended curricula, Project TNT and Life Skills Training, are utilized

as the basis of anti-tobacco curriculum for the county's middle and high school students.

The Growing Concern with Reliance on Social Influences Approaches to Reduce Youth Drug Use

DARE is the most widely research-evaluated school-based prevention program in the United States. Several studies that have been conducted over the years have followed both DARE and non-DARE students for as long as four to five years following exposure to the program (Clayton et al., 1996b). Despite DARE's popularity, the studies show that there is no long-term difference in drug use rates between DARE and non-DARE students (Kochis, 1995). DARE researchers point out, in fact, that drug use began to rise significantly among eighth to 12th graders between 1992 and 1994. It is this cohort of students who would have been exposed first to the DARE curriculum beginning in the mid-1980s (Clayton et al., 1996a).

Exposure to the program does seem to affect students' knowledge levels and attitudes towards drugs, but even these effects diminish over time. Researchers have expressed concern over DARE's focus on incorporating lessons to improve students' self-esteem. The literature on youth drug use indicates that there is little correlation between likelihood of using drugs and one's self-esteem. Even if the lessons improve self-esteem, researchers argue there is little reason to believe that change would be translated into a decreased likelihood of using drugs (Clayton et al., 1996a).

Because evaluations of the program have consistently failed to demonstrate its effectiveness, in 2000 Congress mandated that DARE could no longer be funded through the U.S. Department of Education's Safe and Drug-Free Schools program; funds awarded by this program total \$644 million a year (Sack, 2001). In response to the growing disenchantment with DARE, in February 2001, program organizers announced an overhaul of the current curriculum.

The major changes in the program include narrowing the program's focus from kindergarten through high schools students to a more specific focus on middle school students (Miller, 2001). In addition, the teaching techniques employed by DARE officers have also been revised. Topics such as conflict resolution have been deleted to allow for more of a focus on the social, legal and medical consequences of drug use and the development of resistance skills such as communication, decision-making, assertiveness, and refusal strategies. The formerly didactic style of information presentation has been abandoned in favor of role-playing and more realistic scenarios young people are likely to encounter.

The modified DARE program is currently in the first year of a 4-year, 6-city, 80-school district evaluation. If the revised curriculum appears to be more effective than the traditional curriculum, the new curriculum will be implemented across the country. In the interim, the revised curriculum will be employed in the experimental cities and the traditional curriculum will continue to be used in all other areas (Sack, 2001).

Recently, tobacco-control researchers have also begun to question the effectiveness of social influences-based programs targeted specifically to smoking deterrence. While Project TNT and Life Skills Training have yielded positive results in initial follow-up studies, a recently concluded longer-term study has called into serious question whether the social influences approach is effective. Project TNT incorporates two-year follow-up of participants, examining their rate of tobacco use again in ninth grade (CDC, 2002b). The longest follow-up to date of LST participants is six years, examining students' rates of tobacco use as they come to the end of 12th grade (Botvin, 2000).

The Hutchinson Smoking Prevention Project is a recently completed 15-year study that incorporated grade three through 12 smoking prevention education that was based on the social influences approach (Peterson et al., 2000). The program incorporated the essential elements of school-based anti-smoking campaigns, as specified by both the National Cancer Institute and the Centers for Disease Control and Prevention in its *Best Practices* guide: development of skills that are necessary for identifying social influences to smoke, including advertising and peer influences; development of skills for resisting these pressures; information for correcting misleading perceptions about tobacco use, including the proportion of the population who smoke, and efforts to promote smoke-free social norms. In addition, the Hutchinson program attempted to motivate students to want to be smoke-free, it attempted to promote students' self-confidence that they have the abilities to resist pressures to smoke, and it incorporated support from families to establish smoke-free norms. In the

experimental high schools, self-help and motivational materials encouraging current smokers to think about quitting were also placed in public areas such as the schools' libraries.

Unlike evaluations of Project TNT and LST which both survey students after exposure to the program, but while they are still in school, the post-exposure follow-up of participants in the Hutchinson study examined tobacco use patterns both immediately after completion of the program and two years following its completion, after students had left the school setting (Peterson, 2000). The Hutchinson findings indicated there were no statistically significant differences in daily smoking rates between students in the 20 control districts and students in the 20 districts that did receive the program. The lack of statistically significant differences in daily smoking rates applied in both the 12th grade follow-up and in the two-year post-graduation follow-up. In addition, no differences between the control and experimental groups were found in terms of extent of current smoking, in the cumulative amount smoked, or in the age of smoking onset.

The Emerging Focus on Theories of Compliance to Control Youth Tobacco Use

As the authors of the Hutchinson study point out, the apparent failure of the social influences approach to deter youth smoking necessitates a focus on new theories and the development and evaluation of new programs based on those theories (Peterson et al., 2000). One such theoretical foundation that is emerging in the area of youth tobacco use prevention is the field of compliance.

The theory of compliance is based primarily on the work of Langbein and Kerwin (1985), Braithwaite (1989), Braithwaite and Makkai (1991), and Sigler and Murphy (1988).

Compliance theory asserts that people comply with rules and laws because the perceptions of benefits outweigh the costs of non-compliance (Langbein and Kerwin, 1985). These benefits may be either tangible, such as monetary rewards, or intangible, such as acquiring an aura of prestige or developing a positive reputation among others.

Braithwaite (1989) has asserted that fear of being shamed leads to compliance with rules and regulations. He contends that the impact of shaming is particularly pronounced in interdependent societies, including schools, and among people of particular ages, especially those in the mid-teens to mid-twenties.

Braithwaite and Makkai (1991) have further extended the theory by taking into account the probability that non-compliance will be uncovered and the severity of the penalties that will be imposed if non-compliance is detected. Where the probability of detection and the severity of penalties are low, non-compliance will be high; where the probability of detection and the penalties are high, non-compliance will be low.

Sigler and Murphy (1988) assert that programs based on compliance theory should incorporate both punishments for non-compliance with rules and regulations as well as rewards for following those rules. They contend that the focus should not be on the rules and regulations *per se*, but instead, should be

directed to developing effective strategies for eliciting the kinds of behaviors that are desired.

To this point, compliance theories relating to the issue of tobacco-control have been used primarily to explain retailers' likelihood of selling tobacco products to underage youth (Biglan et al., 1995, O'Grady et al., 2000, and Street-Muscato, 1997). These scholars have found that several factors increase the likelihood that retailers will comply with youth access laws: mobilization among community members regarding the issue; increased merchant education; tangible rewards for retailers who comply with youth access laws; positive publicity for retailers who refuse to sell to young people; providing feedback to retailers regarding their compliance rates; and increased enforcement of tobacco access laws.

Rather than focusing on ways to teach young people to resist pressures to smoke as the social influences approach does, youth-targeted anti-tobacco programs based on theories of compliance would instead attempt to deter youth smoking from a rational choice perspective. Incentives and punishments would be developed that make the rewards of non-smoking and the penalties for smoking greater than any perceived rewards of smoking.

While this approach has been used primarily with tobacco retailers, at least two school-based programs have been implemented in recent years to encourage smoking abstinence among students through positive reinforcement. As a part of the state's Tobacco Use Prevention Education (TUPE) program, California schools provide students the opportunity to attend special activities

including theater performances to reward them for not smoking (Southwest Regional Laboratory, 1993). Project SHOUT (Students Helping Others Understand Tobacco) allows seventh and eighth grade students the opportunity to earn prizes donated by local businesses if they agree not to smoke (Glynn, 1994).

Determining Effective Punishments and Rewards

Street-Muscato (1997) has found that the most efficient way to devise effective rewards and penalties for tobacco retailers is to ask them which rewards would encourage them to enforce youth access laws and which punishments would discourage them from violating the laws. The present study is groundbreaking because young people themselves are surveyed in order to uncover their attitudes regarding effective youth access policies. Previous research has shown that anti-smoking initiatives are most effective when students are involved in the creation and implementation of the programs (Ellis, 1980; Bay-Borelli, 1981; National Collaboration for Youth, 1984; California State Department of Education, 1991; Schwartz, 1997; Black et al., 1998; Paglia and Room, 1999). Nevertheless, young people are not routinely surveyed about their attitudes towards tobacco-control policies, nor are their views routinely incorporated during the development of tobacco-control programs.

Rather, young people are most often surveyed regarding the extensiveness of their use of tobacco products. This approach to incorporating youth survey data is exemplified by the CDC's Youth Risk Behavior Survey, which on a biennial basis explores with young people issues such as their age at

their first use of tobacco, the frequency and extent of their use, and the sources from which they obtain tobacco products (CDC, 2002d).

In fact, only one study to date (Unger et al., 1999) has examined youth perceptions of smoking policies. Moreover, it only measured students' awareness of policies and their approval or disapproval of those policies. It did not ask students their attitudes regarding what would constitute effective strategies to prevent smoking.

This is the approach employed in the present study. In order to gather information regarding student attitudes regarding the effectiveness of traditional approaches to tobacco use prevention education and the potential effectiveness of implementing programs based on theories of compliance, middle and high school students in Knox County, Tennessee are surveyed. Their responses will provide insights into which, if any, of the traditional approaches students themselves believe are effective in deterring their own use of cigarettes.

In addition, their answers will provide insight for the first time into which rewards and punishments from the perspective of compliance theory students believe would be effective in deterring their use of cigarettes. Based on their responses to the survey questions, educators will have a better idea of which strategies are effective at reducing youth tobacco use, and which, if any, strategies might be more effective than those that are currently being implemented. In particular, if students respond positively to the alternatives suggested regarding rewards for not smoking, new programs of positive

reinforcement may be developed that may encourage students to abstain from tobacco use.

Conclusion

This chapter has examined the theoretical underpinnings of school-based drug prevention programs. The evolution of dominant theories, from the initial information deficit model, to the affective education model, and finally the social influences model, has been explored. Relevant drug use prevention and anti-smoking programs that are based upon these theories have been discussed in detail. Knox County Schools' implementation of these programs has also been examined. The growing concern over the effectiveness of these programs and the theory upon which they are based has been discussed. In addition, an alternative theoretical framework, compliance theory, has been presented and justified, and its implications have been discussed in terms of youth smoking control efforts.

Although adult attitudes towards tobacco policies, including youth access policies, have been studied extensively, the opinions of young people themselves have been overlooked. Only one study to date (Unger et al., 1999) has examined youth attitudes towards smoking policies. Moreover, the students surveyed in that study were asked only about their levels of awareness of various tobacco laws, and whether or not the students approved of those policies. Here I take a different approach, by actively seeking out youth attitudes regarding the policies students believe will deter them from smoking cigarettes.

Rationale for the Survey Design

My survey questions are derived from an extensive review of the education, drug abuse prevention, and smoking prevention literature. The survey asks 40 questions designed to tap students' attitudes regarding the effectiveness of various tobacco-control efforts. Questions are designed to evaluate students' opinions regarding how effective young people perceive the following approaches to be in deterring them from smoking: financial disincentives; information deficit-, affective education-, and social influences-based instruction; and compliance-based positive punishment and positive reinforcement.

Students are asked to rate the likelihood that policies derived from these approaches would be effective in deterring their own personal use of cigarettes. Despite the fact that young people's attitudes have not been explored regarding the most effective approaches to controlling youth smoking, there is a long-standing rationale for their inclusion in the design and implementation of anti-

tobacco policies. Previous research has shown that anti-smoking initiatives are most effective when students have a voice in determining which policies are adopted and how they will be enforced (Ellis, 1980; Bay-Borelli, 1981; National Collaboration for Youth, 1984; California State Department of Education, 1991; Schwartz, 1997; Black et al., 1998; Paglia and Room, 1999). By conducting a survey of students, a large amount of data regarding their attitudes towards particular policies can be collected with minimal cost or class disruption.

The survey is divided into six sections. Section A addresses student attitudes towards two financial influences associated with reduced youth purchase and possession of cigarettes: fines and excise taxes. Section B examines student attitudes regarding the effectiveness of two school-based educational approaches: the traditional information deficit approach that schools have employed in their anti-drug campaigns for more than 30 years, and social influences-based education that has emerged over the last 20-25 years. Sections C and D evaluate student attitudes towards policies of positive punishment and positive reinforcement that are designed to encourage compliance with tobacco policies. Section E examines students' general attitudes regarding cigarette use, including whether or not the existence of laws preventing youth access effectively prevent students' use of cigarettes. Section E also further examines the impact of affective education- and social influences-based education on students' decisions whether or not to smoke. It explores the impact of significant others' opinions about smoking, including family members, teachers and friends, and examines how those opinions influence whether or not

a student decides to smoke. Exploring the impact of social norms on a young person's decision to smoke is a major component of the social influences approach. To allow for comparisons, Section F concludes by asking students basic demographic questions.

The Readability of the Survey

The survey was evaluated before its administration to ensure that it would be appropriate for all students in the target population. Readability was evaluated using the readability statistics function of the Microsoft Word software package. The software package provides two measures of a document's reading level--the Flesch Reading Ease score and the Flesch-Kincaid Grade Level score. The Flesch Reading Ease score rates text on a 100-point scale; the higher the score, the easier the document is to understand. Most standard documents should have a score of 60-70 (Microsoft Word Software Documentation). The Flesch Reading Ease score for the survey is 82.7, indicating that it is generally easy to read.

The Flesch-Kincaid Grade Level score rates text on a U.S. grade-school level. A grade of 8.0 indicates an eighth grade student can understand the material; a score of 10.0 indicates a tenth grade student can understand it (Microsoft Word Software Documentation). The Flesch-Kincaid Grade Level score for the survey is 3.9, which indicates that it is appropriate for those with a fourth-grade reading level and higher. Educators recommended a reading level no higher than fourth grade to ensure that even the youngest students--sixth graders--would be able to understand the survey.

The Survey Administration

A multistage sampling technique was employed in the administration of the survey (Henry, 1990). The first step in the administration process was the selection of the schools that would participate. A list of all the middle and high schools in Knox County was compiled from the school system's web page. Knox County has 26 middle and high schools--14 middle schools and 12 high schools. Two vocational/technology schools were excluded from the study because they are affiliated with and located adjacent to existing high schools. Students enrolled at the two high schools may attend special classes at the technology/vocational schools but they are technically students of their respective schools.

Information packets were sent to each of the middle and high school principals. Each packet included the following information: a copy of the authorization letter from the school system's Coordinator of Research and Evaluation granting me permission to contact school administrators; a packet of supporting information addressing the rationale and explanation of the proposed study; a copy of the survey; and a copy of the parental consent letter that would be distributed to parents by way of the students. The authorization letter, the basic form letter that was sent to each principal, the supporting information, the survey, and the parental consent letter are all included in Appendix B.

Of the 26 schools in the county, two principals rejected the request and five approved it, including two middle school principals and three high school principals. The principals of the remaining schools did not respond to the

request. Of the five schools that responded favorably to the request, four were selected for participation in the study, including two middle schools and two high schools. Knox County school policies prohibit the specific reporting in this research of the names of the participating schools. However, Table 5 provides general information regarding the size and demographic breakdown of the school system and each of the participating schools.

The second step in the process of selecting students to survey involved the selection of particular classrooms to enter. The principals of the participating schools provided the names of teachers who were willing to give up class time in order for their students to participate in the study. A total of 14 middle school classes and 16 high school classes were included in the sample.

Two weeks before the survey administration, students in each of the participating classrooms were given a parental consent letter informing their parents of the upcoming survey and asking for their permission for their child to participate. On the day of the survey administration, before distributing the survey to students, I verified that each participating student had his/her parents' permission to be involved.

Before distributing the surveys, I explained to the students the following aspects of the survey: the purpose of the study; that students had a right to refuse to complete the survey, without penalty, (even if their parents had granted their permission for them to participate); that the answers they were about to give would be completely anonymous and confidential; and the instructions for completing the survey. This information is also included within the text of the

survey itself. The teacher and I instructed students not participating in the survey to read or work quietly at their desks while their classmates completed the survey.

Forst (1999) has found that under conditions of confidentiality and anonymity, adolescents' self-reported tobacco use is accurate when later measured against cotinine levels in their saliva. Cotinine is a chemical present in the saliva of smokers. To ensure the anonymity of the surveys, students were specifically instructed not to put their names on any of the pages of the survey. The confidentiality of the survey was reinforced for students by reminding them that their parents, their friends, and school officials, including their teachers, would never see their answers. After asking if there were any questions about the administration process and answering all questions that were asked, I distributed the survey. The teacher in each classroom worked at his/her desk and was not involved in the survey administration in any way. I monitored the students as they completed the survey, to ensure that students were not looking at others' answers, and collected the surveys when all students were finished.

A total of 577 surveys were collected. Of this number, 497 were complete and 80 provided partial data. The data were analyzed using the SPSS statistics software package.

Conclusion

This chapter has addressed the methods employed in the data collection phase of this study. I have discussed how previous research in the areas of drug use prevention, education, and smoking prevention influenced my survey design.

70

In addition, I discussed the steps that were taken to ensure that every student involved in this study was able to read and understand the survey. I also discussed the steps that were involved in selecting the specific schools and classrooms to enter. Finally, I also addressed the steps that I took within each classroom to guarantee the confidentiality and anonymity of students' answers in an effort to ensure their responses would be reliable.

Chapter 5--Results

Students' attitudes towards specific tobacco-control approaches as well as their general attitudes towards cigarette use were evaluated. The strategies that were evaluated can be grouped into four types: financial disincentives; school-based approaches, including information deficit-, affective education-, and social influences-based instruction; positive punishment to promote compliance; and positive reinforcement to promote compliance. Students were also queried regarding their general attitudes towards smoking to further tap into their appraisals of the effectiveness of the various approaches. The rationale for including each question in the survey is discussed below. The policies are ranked according to how likely students believed each approach would be in deterring them from smoking. In order to allow for more meaningful analysis, students' attitudes towards the policy options were analyzed in terms of students' demographic characteristics including their gender, race, income level, grade level, and current smoking status. In addition to standard demographic characteristics, the impact on students' attitudes of knowing someone who has developed a smoking-related illness was also examined. The influence of these demographic characteristics on students' attitudes regarding the effectiveness of the approaches is summarized. Attitudinal differences based on the three most significant demographic characteristics are discussed in detail.

Rationale for the Inclusion of Specific Questions

The Demographic Questions

Many of the demographic questions asked of students in Section F of the survey were modeled on standard questions asked in the Youth Risk Behavior Survey, a biennial survey of youngsters' health behaviors conducted by the CDC (CDC, 1999b). These questions include Question 1, age; Question 2, grade level; Question 3, gender; and Question 4, race.

Both age and grade level are significant factors influencing the likelihood that a student has or has not smoked cigarettes. Smoking most commonly begins in sixth or seventh grade, when students are 11 to 13 years old (Glynn, 1994).

Among students who participated in the survey, statistically significant differences were noted in their smoking behaviors based on their age and grade level. Respondents ranged in age from one 10-year old student who did not smoke to one 19-year old who also did not smoke. There was an overall steady increase in smoking rates as students aged. Almost 4 percent of 11-year olds in the study reported already being smokers. Rates peaked among 15-year olds, with more than 33 percent reporting being smokers. Smoking rates leveled off among 16- and 17-year olds, with 27 percent and 27.5 percent respectively having reported that they smoked. But the smoking rate rose again among the 18-year olds in the study; among students in this age bracket, 31.3 percent reported that they smoked.

The statistically significant increase in smoking rates based on age was mirrored when analyzed in terms of students' grade levels. Reported rates of smoking increased significantly through the middle school grades and into high school. Among sixth graders, 4.7 percent reported smoking, compared to 14.9 percent of seventh graders. Rates again increased dramatically between ninth and tenth grade, where 17.6 percent and 37.7 percent of students respectively reported smoking. The middle school respondents' overall smoking rate was comparable to the rate of smoking reported by Knox County middle school students in the 2000 Tennessee Youth Tobacco Survey--10.9 percent compared to 10.7 percent. The high school respondents' smoking rate was lower than reported by Knox County high school students in the 2000 survey--25.6 percent compared to 33.8 percent (Tennessee Department of Health, 2000).

Traditionally, males have had significantly higher smoking rates than females. Differences in smoking rates of almost 10 percent between boys and girls are common (CDC, 1991a). Nevertheless, there is increasing concern over the smoking habits of young females. While the age of smoking initiation has declined for all young people in recent years, the decline has been particularly dramatic among females (CDC, 1991b). Among respondents in the survey, a larger percentage of females reported smoking (22 percent compared to 16.8 percent for males), but the difference was not statistically significant ($p = .118$).

Race has been found to be a significant factor associated with tobacco use and the effectiveness of tobacco use prevention programs. While white students are generally more likely to smoke than their black counterparts,

smoking rates among black students have been rising in recent years.

Traditional anti-tobacco campaigns have also tended to be most effective with white, middle class young people (Schwartz, 1997). Further complicating efforts to reduce smoking rates among minority youth is the fact that these young people tend to be exposed to tobacco advertising even more than white youth. Minority-targeted magazines receive disproportionately more tobacco advertising than magazines targeted to other audiences (Schwartz, 1997).

Researchers have found that anti-tobacco campaigns can be successful within minority groups, but the messages must be targeted to the audience in ways that will appeal to them (National School Safety Center, 1988; Cella et al., 1992; Glynn, 1994). For example, delivering anti-smoking messages through rap music and plays using street vocabulary have been found to be successful approaches to deterring minority youth from smoking.

White respondents in the survey were 7.5 percent more likely than black respondents to be smokers. However, this difference in smoking rates was not statistically significant ($p = .249$).

Question 5 examines the impact of socioeconomic status on a student's smoking status. Smoking is more common among those of lower socioeconomic status (Swan et al., 1991; Lynch and Bonnie, 1994; Lloyd and Lucas, 1998). SES was evaluated by asking students if they receive free or reduced price school lunches. This indicator of SES was used as a proxy measure of parents' socioeconomic status because a child's receipt of lower-priced lunches is linked to the parents' income. Younger students in particular who were participating in

the survey may not have had an accurate idea of how much money their parents earn annually. However, those students would have been more likely to know whether or not they receive free or reduced price lunches in their school cafeteria.

Among respondents in the study, wealthier students were actually slightly more likely to be smokers than were lower income students (20 percent compared to 17.9 percent). However, this difference in smoking rates was not statistically significant ($p = .644$).

Question 6, referring to students' smoking status, was also modeled on the Youth Risk Behavior Survey pattern. Students were asked if they had smoked in the last 30 days, and if so, how many cigarettes they had smoked. Overall, 19.4 percent of respondents in the study reported smoking within the last 30 days. Among those students, they reported having smoked between one and 2400 cigarettes (two cartons per week for the past month) within the last 30 days. The average number of cigarettes smoked by these students within the past month was 23.

Questions 7 and 8 examine the influence of parents' and siblings' smoking behavior on students' decisions to smoke. Parental and sibling smoking have both been found to positively influence the likelihood that a young person will smoke (Lloyd and Lucas, 1998). Parental and sibling smoking were both statistically related to increased youth smoking among survey respondents. Among students whose parents smoke, 32.8 percent reported smoking, compared to 11.3 percent of children whose parents do not smoke. Students

who have siblings who are smokers were three times more likely to smoke than students whose siblings do not smoke (38.1 percent compared to 12.7 percent).

Question 9 asks students whether or not they know anyone who has experienced health problems as a result of smoking. Unger et al. (1999) have found that as students become increasingly aware of the dangers of smoking, their awareness of and support for anti-tobacco laws increases. Among respondents in the study, knowing someone who has been diagnosed with a smoking-related illness was statistically unrelated to the likelihood that students themselves were smokers. Among those who know someone with a smoking-related illness, 80.9 percent reported not smoking, compared to 78.0 percent of students who do not know anyone with a smoking-related illness ($p = .513$).

Section A: Financial Disincentives to Prevent Youth Smoking

As scholars have noted, Woodridge, Illinois has become a model for its active, comprehensive, and successful enforcement of its tobacco-control laws (Jason et al., 1991; Jacobson and Wasserman, 1997; and Rigotti, 2001). Unlike most jurisdictions, Woodridge officials fine not only storeowners and employees who sell cigarettes to young people, but also the young people themselves who are caught possessing cigarettes. Youth found in possession of tobacco products are fined \$25, whether or not they have actually used the products. The active enforcement of the laws and the imposition of youth fines have reduced illegal tobacco sales rates in the town from 70 percent of attempts to three percent.

Like Woodridge, Suffolk County, New York also imposes fines on youth for possession of tobacco products. Youth are fined \$50 if they are caught in possession of tobacco products (Jacobson and Wasserman, 1997). Questions 1 and 2 in Section A examine students' attitudes regarding whether or not \$25 or \$50 fines would be likely to deter them from using or possessing cigarettes.

Extensive research indicates that increasing the tax on cigarettes significantly reduces the rate at which people smoke (CDC, 1999; Glynn et al., 1993; Lantz et al., 2000; Lewit et al., 1997; USDHHS, 2000; and Warner, 2001; Yach and Ferguson, 1999). This deterrent effect is particularly significant for young smokers, because the young typically have considerably less disposable income than older, working adults. Question 3 in Section A explores the extent to which students perceive that a \$2-per-pack tax would deter their use of cigarettes. It has been estimated that such a tax would decrease youth smoking by two-thirds (Yach and Ferguson, 1999).

Section B: The Information Deficit- and Social Influences-Based Approaches to Preventing Youth Smoking

Questions 1 and 2 in Section B examine students' perceptions of the effectiveness of education regarding both the short- and long-term health dangers of tobacco use. The earliest approach schools employed in anti-drug campaigns, based on the information deficit model, was to educate students about the long-term risks to a person's health that could result from drug use (Lantz et al., 2000; Paglia and Room, 1999; USDHHS, 1994). With the failure of this early effort to reduce drug use, schools began to focus instead on making students aware of the short-term, more immediate dangers of drug and tobacco

use. Addressing the short-term dangers of cigarette use is a vital element of the social influences approach. In its Model Schools program, the Centers for Disease Control and Prevention recommends that both elements be incorporated into schools' curricula (CDC, 1994). Currently, the Knox County school system incorporates both elements in its tobacco use prevention curricula.

Question 3 explores whether students believe their own personal involvement in designing and implementing their schools' anti-smoking policies would cause them to be more willing to abide by those policies. Previous research has shown that anti-smoking initiatives are most effective when students are involved in the creation and implementation of the programs (Ellis, 1980; Bay-Borelli, 1981; National Collaboration for Youth, 1984; California State Department of Education, 1991; Schwartz, 1997; Black et al., 1998; Paglia and Room, 1999). In particular, social influences-based drug prevention programs heavily stress the need for students to work in conjunction with teachers to deliver anti-drug messages to classmates and to serve as peer educators with younger students (Miller, 2001).

Question 4 explores the perceived effectiveness of schools providing smoking cessation aids to students who currently smoke but wish to quit. Provision of such services to smokers was incorporated into the 15-year Hutchinson Smoking Prevention Project (Peterson, 2000). It is also a vital element in both the CDC's Model Schools program as well as its *Best Practices* recommendations (CDC, 1994, 1999). In addition, the National Cancer Institute

has encouraged the provision of cessation resources to smokers through its COMMIT program (USDHHS, 1994).

It should be noted here that Question 4 concerns student attitudes regarding the effectiveness of schools providing a nicotine patch, rather than other cessation devices such as nicotine gum. The question was intentionally phrased in this way to avoid biasing the results for this question. Students might have been more likely to say that nicotine gum would help them stop smoking, based simply on the fact that students might think that they would then have permission to chew this gum during school hours, a practice that is routinely forbidden in schools.

Section C: Positive Punishment to Encourage Compliance

School systems across the country have instituted a variety of penalties in their attempts to reduce tobacco use by students. The questions posed in Section C of the survey evaluate student attitudes towards the most common punishments implemented by schools to enforce their tobacco policies. In addition, student attitudes regarding the perceived effectiveness of one potential enforcement mechanism were also examined. The objective of this portion of the survey was twofold: 1) to evaluate students' perceptions of the effectiveness of commonly used punishments, and 2) to explore from the perspective of compliance theory young people's attitudes about which penalties would be severe enough to encourage them to comply with tobacco-control policies.

The most basic penalty utilized by a majority of schools is to notify parents when their children are found using or possessing tobacco products on campus

(US Department of Education, 1989). This technique is aimed both at increasing the parents' awareness of the child's behavior, and at increasing parental pressure on the student not to smoke. Parental support, opposition, or apathy regarding his/her child's smoking behavior is a critical influence in explaining youth tobacco use (Paglia and Room, 1999).

In terms of school-based punishments, educators favor sending students to detention, particularly for initial offenses (US Department of Education, 1989). Among the most severe penalties, which are typically reserved for repeat offenders, are suspension, expulsion, and sending students to alternative schools (National School Safety Center, 1988; US Department of Education, 1989; California State Department of Education, 1991, Tompkins et al., 1999; Unger et al., 1999). Knox County school officials may impose any of these penalties on students as the frequency of a student's violations dictates (Knox County Schools, 2001e; Knox County Schools, 2001f).

In recent years, school systems also increasingly have imposed drug testing requirements on students in an effort to more effectively enforce schools' drug prevention policies (*Vernonia School District 47J, Petitioner v. Wayne Acton, et ux., etc.*, (1995)). Although the Supreme Court has not directly addressed the issue of drug testing in terms of tobacco use, it has affirmed the right of schools to require urinalysis to test for alcohol and illicit drug use by students (*Vernonia School District 47J, Petitioner v. Wayne Acton, et ux., etc.*, (1995); *Hedges v. Musco*, (2000)). The Court has found that such tests do not violate Fourth Amendment guarantees against unreasonable search and seizure

because the policies are targeted to children who are in the “temporary custody of the State as schoolmaster” (*Vernonia School District 47J, Petitioner v. Wayne Acton, et ux., etc.*, (1995)). Such searches are allowed based on “reasonable grounds” that students are violating the schools’ drug policies (National School Safety Center, 1988; US Department of Education, 1989).

Knox County students are informed in writing at the beginning of each school year or at the time of their enrollment that they are subject to drug and alcohol testing during the school year if there is reasonable cause to believe that they have violated school policies regarding drug or alcohol use (Knox County Schools, 2001g). The principal of each school has the authority to order a student to undergo a drug test. If students refuse, they will be suspended. If the test is taken and the results come back positive, the student is suspended as well.

One option potentially open to schools attempting to enforce their no-tobacco policies among students is to test students’ saliva for cotinine. Cotinine is a chemical present in saliva for up to 40 hours after a person has smoked a cigarette (Komro et al., 1993). The collecting of saliva samples to test for its presence is already a commonly used technique to confirm the accuracy of students’ self-reported use (Peterson et al., 2000). Like urinalysis to test for alcohol and illicit drug use, schools could potentially implement cotinine testing in an effort to enforce their anti-smoking policies.

Section D: Positive Reinforcement to Encourage Compliance

Recently, the use of positive reinforcement has emerged as a tool for increasing compliance with tobacco access laws. While this approach has been used primarily with tobacco retailers, at least two school-based programs have been implemented in recent years based on positive reinforcement to promote smoking abstinence among students. As a part of the state's Tobacco Use Prevention Education (TUPE) program, California schools provide students the opportunity to attend special activities including theater performances to reward them for not smoking (Southwest Regional Laboratory, 1993). Project SHOUT (Students Helping Others Understand Tobacco) allows seventh and eighth grade students the opportunity to earn prizes donated by local businesses if they agree not to smoke (Glynn, 1994).

Section D examines students' attitudes towards a variety of rewards that could be offered to encourage students not to use cigarettes. Given the fact that such programs of positive reinforcement for students are a fairly recent development in youth access efforts and have not been widely implemented, most of the rewards addressed in this section were modeled on reinforcements that have been offered to tobacco retailers. Biglan et al. (1995) have found that in cities where gift certificates are presented to tobacco retailers when they refuse to sell to young people, illegal sales rates in those cities have declined by 30 to 45 percent. The gift certificates are provided by local businesses, including restaurants.

Questions 2 and 5 are modeled on the TUPE program and ask students their attitudes regarding the potential effectiveness of receiving free movie or sporting events tickets in deterring their use of cigarettes. Questions 1, 3, and 4 are modeled on research dealing with tobacco retailers. These questions ask students their attitudes regarding the potential effectiveness of receiving coupons or free merchandise from businesses that young people are likely to frequent: music stores; restaurants; and clothing stores.

Question 6 was included in order to test a common assumption regarding programs of positive reinforcement: that rewards must be provided frequently and immediately if positive reinforcement is to be effective (Johnson, 1986). Instead, Question 6 asks students their attitudes towards the effectiveness of a program that offers the opportunity to receive larger rewards than the other incentives discussed in this portion of the survey. These potential rewards include CD players, video games, and TVs. However, in order to qualify for these rewards, students would have to demonstrate their smoking abstinence over an extended period of time.

Section E: Students' General Attitudes Towards Tobacco And The Psychological and Social Influences Regarding Its Use

In the final section of the survey, students were queried regarding their general attitudes towards tobacco use, including their motivations to smoke, and how they decide whether or not to smoke. Questions 1a through 1c explore youth attitudes regarding the likelihood that they would get in trouble if they were caught smoking cigarettes at home, at school, or in a public place, such as a mall. As Maccoun (1993) notes, the certainty that punishment will be imposed

has a greater deterrent effect on negative behavior than even the severity of potential punishments.

Questions 2a and 2b explore student attitudes regarding the impact of youth access tobacco laws. Scholars are particularly troubled by two aspects of these laws: their general lack of influence in reducing the availability of tobacco products to young people; and the potential that the mere existence of laws preventing young people from possessing and using tobacco products will create in youth a “forbidden fruit” effect increasing their desire and efforts to use tobacco.

Scholars have found that despite the fact that tobacco-control laws technically exist within communities, most young people still have fairly easy access to tobacco products, which results in continued youth smoking (Jacobson and Wasserman, 1997; Rigotti et al., 1997; Paglia and Room, 1999). They argue that this is the case for one or both of two reasons: many communities tend not to see tobacco control as a vital function and therefore do not enforce laws (Biglan et al., 1995); and in areas where laws are enforced, actors within the judicial system are reluctant to impose the required penalties on violators because officials believe the penalties are too harsh relative to the violation that was committed (Feighery et al., 1991; Maccoun, 1993; Jacobson and Wasserman, 1997). Question 2a asks students whether or not they believe the existence of youth access laws in Tennessee would make it more difficult for them to get cigarettes if they wanted them.

Question 2b examines student attitudes regarding the existence of a “forbidden fruit” effect. Maccoun (1993) contends that imposing restrictions on a behavior such as smoking can increase a person’s desire to engage in that behavior for one or more of three reasons. First, the existence of restrictions on a behavior makes the behavior appear more attractive. Because only portions of society are allowed to smoke, those that are prevented from doing so feel deprived of a right others enjoy. Second, by limiting the availability of tobacco products, the perceived quality of those products may be increased, because scarcity is often associated with quality. Finally, restrictions on smoking rights may encourage those who seek risks to attempt to smoke just to see if they can get away with it. Question 2b asks students whether or not the existence of youth access restrictions on cigarettes increases their desire to try them.

Unger et al. (1999) have found that student attitudes regarding anti-tobacco policies vary dramatically based on students’ smoking status. Question 3 asks students whether or not they believe young people under the age of 18 should be allowed to smoke cigarettes legally.

Scholars argue that one aspect of tobacco use by both young people and adults that has not been adequately addressed in prevention efforts is the fact that such use can be a fun, enjoyable experience for many (Paglia and Room, 1999; Unger et al., 1999). Other scholars argue that use may result from young people’s efforts to increase their self-esteem or coping abilities (Lantz et al., 2000). This is a major theme underlying the affective education model to substance abuse prevention. Question 4 explores student attitudes regarding

the perceived personal rewards of smoking by asking whether they believe they would smoke cigarettes if there were no regulations preventing them from doing so.

Questions 5a through 5c explore the impact of informal social norms on students' smoking behavior. Scholars have long noted the impact significant others' attitudes towards smoking can have on the likelihood that a person will adopt the habit (Mettlin, 1973). The importance of social influences in determining whether or not a young person will smoke is at the heart of the social influences approach that has dominated school curricula for the last 25 years (Sussman, 1989; Clayton et al., 1996a; Botvin, 2000; CDC, 2002b).

As Maccoun (1993) notes, the ability one has to influence the behavior of another person varies directly with the strength of the bond between the individuals. Therefore, Question 5 was broken into three parts to evaluate the impact family members', teachers', and friends' opinions about smoking have on influencing a student's decision to smoke. Biglan et al. (1996) have noted the importance of friends and parents in deterring youth smoking.

The influence of teachers' attitudes towards tobacco cannot be underestimated. Because they are the primary source of school-based anti-tobacco education for students, they are critical in determining whether or not students will believe anti-tobacco messages. The likelihood of students accepting anti-tobacco messages is influenced by the teacher's credibility, expertise, and trustworthiness in the eyes of the student (Johnson, 1986).

Questions 6 and 7 explore youth attitudes regarding the idea that smoking helps young people fit in with their classmates and makes them feel more grown up. Both assertions are widely refuted in school-based social influences anti-tobacco programs, which instead attempt to demonstrate to students that only a minority of their classmates as well as a minority of the adult population smoke (Schwartz, 1997).

Students' Attitudes Towards the Effectiveness of the Tobacco-Control Strategies

Overall a majority of students asserted that each of the suggested policies would definitely or probably deter them from smoking. Table 6 ranks the policies from most to least effective regarding students' perceptions of the policies' overall likelihood of deterring them from smoking. Responses are broken down further to indicate what percentage of students indicated that each policy would definitely prevent them from smoking and what percentage indicated that the policies would probably prevent them from smoking. The total number of students evaluating each policy is also provided.

The positive reinforcement approach of rewarding nonsmokers with large prizes was the policy seen by the greatest percentage of students as being an effective deterrent to their smoking. Eighty-seven point seven percent of students believed their participation in an ongoing rewards program would definitely or probably deter them from smoking. However, this policy option ranked third when examined in terms of definite deterrence, with 67.5 percent of students indicating that their participation in such a program would definitely prevent them from smoking. The positive punishment options of being sent to an

alternative school and of being expelled ranked first and second in the likelihood of definitely preventing student smoking. Nearly three out of four students indicated that being sent to an alternative school would definitely prevent them from smoking. Almost 71 percent indicated that being expelled would definitely deter them from smoking.

The positive punishment alternative of sending students to detention if they are caught with cigarettes was the option with the weakest overall support, with 61.5 percent of students believing it would definitely or probably deter them from smoking. Moreover, fewer than four in 10 indicated that this punishment would definitely prevent them from smoking.

A majority of students indicated that they are amenable to a variety of the approaches that were presented to them. Positive punishment and positive reinforcement to promote compliance were the two types of approaches that students evaluated as most likely to definitely prevent them from smoking. Within each category, a majority of students responded favorably to five of the six policy alternatives that were offered. Only one punishment option--being sent to detention--and one reinforcement option--being eligible to receive restaurant gift certificates--resulted in less than a majority of students indicating that the approach would definitely deter them from smoking. More than six in 10 students also indicated that they would definitely not smoke if they were taught about the long-term dangers of smoking through the information deficit educational model. In addition, a majority of students also indicated that they would definitely abstain

from smoking if they were susceptible to a \$50 fine for possessing or using tobacco products.

Students' attitudes regarding the effectiveness of the approaches were analyzed to determine what, if any, impact students' demographic characteristics have on their views towards tobacco-control policies. Statistically significant differences are defined as those with probability levels of 0.01 or lower. The demographic characteristics that were examined were gender, race, income level, grade level, and current smoking status. In addition, responses were also analyzed to determine whether or not knowing someone who has been diagnosed with a smoking-related illness influences their appraisals of tobacco-control alternatives.

The Impact on Students' Attitudes of Knowing Someone With a Smoking-Related Illness

Overall, knowing someone with a smoking-related illness was not a significant factor influencing students' attitudes towards tobacco-control policies. In only one instance--on the question of whether or not the existence of tobacco-control laws encourage students to try tobacco--did statistically significant differences in attitudes emerge between students who do and do not know someone ill as a result of smoking. Knowing someone with a smoking-related illness appears to significantly dispel notions among students that cigarettes are a "forbidden fruit." Students who know someone with a smoking-related illness were nearly 15 percent less likely than other students to believe that the existence of such laws encourages them to want to try smoking.

The Impact of Gender on Students' Attitudes

Overall, gender was also not a significant factor influencing students' attitudes towards the effectiveness of the various policies. Statistically significant differences were noted in males' and females' responses only in terms of their appraisals of the effectiveness of two of the positive reinforcement rewards. A smaller percentage of females compared to males believed that either a CD reward or a sporting event ticket reward would definitely prevent them from smoking. Most importantly, however, a majority of students of both genders still believed that they would definitely be deterred from smoking if they had access to such rewards. Among females, 57 percent believed they would definitely be deterred from smoking by having access to CDs, compared to 64.9 percent of males ($p = .008$). On the issue of a sporting event ticket reward, 50 percent of females, compared to 63 percent of males, believed that such a reward would definitely prevent them from smoking ($p = .001$).

The Impact of Grade Level on Students' Attitudes

Statistically significant differences were noted in students' attitudes towards most of the tobacco-control policies based on students' grade levels. I will summarize here as briefly as possible the attitudinal differences that were noted among middle school and high school students.

Significant differences in attitudes towards the financial disincentives were noted between students of different grade levels. Middle school students were much more likely than high school students to believe that the financial disincentives would definitely prevent them from smoking. A majority of middle

school students indicated they would definitely be deterred from smoking by each of the specified policies; in each of the policy areas, only a minority of high school students indicated they would definitely be deterred. This finding may be explained by the fact that younger students would typically be expected to have less disposable income than older students who perhaps work a part-time job.

Statistically significant disparities in students' attitudes towards the threat of school-based punishments were also related to grade level differences. Younger students tended to see the threat of punishments as a more effective deterrent than older students. However, these differences of opinion mask a more important finding--overall, both middle and high school students indicated that a variety of punishments would definitely deter them from smoking. A majority of both middle and high school students believed that they would be very likely to get in trouble if they smoked at school (68.8 percent compared to 59.5 percent). Moreover, only in terms of two punishments--being sent to detention and being forced to provide a saliva test--did less than a majority of students in either grade level indicate that they would definitely be deterred from smoking. Fewer than one in three high school students, compared to more than 53 percent of middle school students, indicated that the threat of being sent to detention would definitely discourage them from smoking ($p < .001$). Almost six in 10 middle school students, compared to only 48 percent of high school students, believed that being forced to provide a saliva sample would definitely discourage them from smoking.

Likewise, statistically significant differences in specific opinions emerged among middle and high school students in terms of programs of positive reinforcement. Larger percentages of middle school students than high school students indicated that access to the rewards would definitely prevent them from smoking. Again, however, the more important finding is that a majority of students in both grade levels responded positively to the prospect of being involved in a reward program. A majority of students in both middle school and high school indicated that being eligible to receive each reward, with the exception of a restaurant gift certificate, would definitely persuade them not to smoke.

The most intriguing differences in students' appraisals of the effectiveness of tobacco-control strategies relate to the educational approaches that are used by schools today. Middle school students, *at least on the surface*, appear to be more receptive to elements of the social influences approach than high school students. Middle school students were significantly more likely than high school students to indicate that each of the following approaches would definitely deter them from smoking: learning about the short-term dangers of tobacco use (58 percent of middle school students compared to 36 percent of high school students, $p < .001$); working with school officials to develop smoking policies (55 percent of middle school students compared to 33 percent of high school students, $p < .001$); and having access to nicotine replacement products (43 percent of middle school students compared to 33 percent of high school students, $p = .008$).

High school students, on the other hand, indicated greater receptiveness to the information deficit model. More than half of high school students indicated that they would be receptive to learning about the long-term dangers of smoking through this model. On the other hand, only one in three high school students indicated that they would definitely be dissuaded from smoking as a result of their exposure to social influences-based educational approaches.

Even more intriguing than the differences in attitudes among middle and high school students is the fact that discrepancies exist in middle school students' responses. While middle school students' attitudes indicate receptiveness to the techniques of social influences-based education, closer examination of their beliefs indicates this approach still may not influence their behaviors.

The anti-smoking messages that are delivered to students through social influences-based education--that smoking is not socially acceptable, that most people do not smoke, and that smoking will not improve one's status--do not appear to be significantly influencing the perceptions that many middle school students have about smoking. It is these perceptions that influence whether or not a student will choose to smoke. One in four middle school students indicated that they would smoke even if their family members or teachers disapproved compared to only 8.7 percent and 17.8 percent of high school students respectively ($p < .001$, $p = .005$). Middle school students were even two and a half times more likely than high school students to indicate that they would

smoke even if their friends disapproved; 22 percent of middle school students compared to 8.7 percent of high school students held this belief ($p < .001$).

Moreover, middle school students were also two and 2.5 times more likely respectively than high school students to indicate that they believed smoking would make them more popular among their friends and that it would make them feel more mature. Among middle school students, 10.7 percent indicated that smoking would make them more popular among their friends, compared to only 3.6 percent of high school students ($p < .001$). More than 15 percent of middle school students, compared to only 6.4 percent of high school students, indicated that smoking would make them feel more grown up ($p < .001$).

Several significant findings emerge from this analysis regarding the impact of grade level on students' attitudes. First, younger students' smoking behaviors may be more effectively controlled through the use of financial disincentives than for older students. This may be a function of how much disposable income these young people have. Second, while the threat of punishments may be a slightly more effective smoking deterrent among middle school students than high school students, punishment is a viable option for students in both age brackets. Third, and similarly, younger students may be slightly more receptive to the idea of receiving rewards for not smoking, but older students as well indicated that they would respond favorably to such a program. Finally, a fourth critical finding is evident from this study: the social influences approach to drug use prevention education does not appear to be particularly salient with either group of students. Middle school students appear to be receptive to its *techniques*, but many do not

appear to internalize its *teachings* in ways that will influence their smoking behavior. Moreover, significant numbers of high school students reject the approach outright. Their rejection of the approach and its teachings is reflected in the fact that almost one in five indicated that they would smoke if there were no laws against them doing so.

The Three Critical Demographic Characteristics Affecting Students' Receptivity to Tobacco-Control Efforts

The findings of this research indicate that the three most important demographic factors affecting students' appraisals of tobacco-control efforts are their current smoking status, their race, and their income level. The most significant findings regarding each characteristic are discussed below.

The Impact on Students' Attitudes of Their Current Smoking Status

Several findings from this research are noteworthy regarding the impact of students' current smoking status on their appraisals of the effectiveness of tobacco-control efforts. First, as makes perfect sense based on the fact that they already engage in the activity, current smokers offered little support for the effectiveness of traditional tobacco-control approaches. In fact, in no instance did a majority of smokers indicate that any of the approaches would definitely deter them from smoking. A majority of nonsmokers, on the other hand, indicated that reliance on a number of approaches--from fines to various educational techniques to punishments and rewards--would be effective methods of encouraging them to continue abstaining from smoking.

A second and related significant finding that emerged from this research is that current smokers indicated that there are approaches that could be implemented that probably would deter them from smoking. When “probable” smoking deterrence was taken into account, smokers were particularly receptive to two types of policies: compliance-based punishments and compliance-based rewards. As Tables 7-9 indicate, at least half of smokers reported that the threat of receiving three of the positive punishments--being expelled (51.9%), being sent to an alternative school (59%), and being required to provide a saliva sample (50%)--would definitely or probably deter them from smoking.

Smokers indicated even greater receptivity to programs of positive reinforcement for not smoking. As Tables 10-14 indicate, a majority of current smokers indicated they would definitely or probably abstain from smoking if they were eligible to receive five of the six positive reinforcement rewards--free CDs, free movie tickets, clothing store discounts, sporting events tickets, and large prizes. The only reward that a majority of smokers indicated would not dissuade them from smoking was the restaurant gift certificate reward.

In particular, two of these findings are especially noteworthy. As Tables 12 and 14 show, almost two out of three current smokers indicated that they probably or definitely would abstain from cigarette use if they were eligible either for clothing store discounts or for larger prizes available to them through their participation in a long-term incentive program.

In addition to being deterred from smoking by policies of positive punishment and positive reinforcement, a majority of smokers also indicated that

two elements of school-based smoking prevention programs would be likely to dissuade them from smoking--learning about the long-term dangers of tobacco use, and having access to nicotine replacement products. As Table 15 indicates, more than half of current smokers reported that they would definitely or probably abstain from smoking if they were made aware of the long-term dangers of tobacco use. As Table 16 shows, almost 60 percent of current smokers indicated that they likely would be deterred from smoking if they had access to nicotine replacement products.

In addition to discussing the educational approaches that smokers indicated would deter them from smoking, it is worth noting here the approaches that smokers indicated would not be effective. In general, current smokers were not receptive to the techniques incorporated in social influences-based instruction, including learning about the short-term dangers of smoking and working with school officials to develop and implement anti-smoking policies. What is more, current smokers also are clearly not responding to the teachings of social influences-based education. More than 50 percent of smokers indicated that they would continue the habit even if their friends and family disapproved; two-thirds of smokers reported that they would continue to smoke even if their teachers expressed disapproval of the habit. Moreover, current smokers were more than twice as likely as nonsmokers to indicate that smoking would make them more popular among their friends. Fewer than one in 10 current smokers, compared to more than 43 percent of nonsmokers, indicated that they believed smoking would make them feel less grown up.

The percentages of current smokers who indicated that they probably or definitely would be dissuaded from smoking if they were susceptible to particular punishments, were eligible for certain rewards, or were exposed to specific educational approaches is still significantly lower than the percentage of nonsmokers who held the same views as to the effectiveness of each policy. In addition, the tables discussed above also indicate that there is a group of hard-core smokers who will not be dissuaded from smoking as a result of any of the policies being instituted. In fact, efforts to discourage youth smoking may actually *encourage* particular young people to take up the habit as a form of rebellion against authority figures. As Tables 17 and 18 indicate, there is a clear indication that at least some young people smoke simply because they are forbidden to do so. As Table 17 shows, current smokers were more than four times more likely than nonsmokers to indicate that the existence of youth access laws makes them want to smoke. Table 18 echoes this finding by demonstrating that more than 15 percent of current smokers indicated that they *would not smoke* if it were not against the law for them to do so.

However, despite the lack of effectiveness of many of the traditional tobacco-control strategies and the apparent existence of a group of hard-core smokers, there is one bit of encouraging news coming from this research. A significant proportion of current smokers *are* receptive to several policies designed to limit their use of tobacco products. Smokers indicated that the positive reinforcement policies most likely to prevent them from smoking would be the development of a rewards program offering both large prizes for long-term

abstinence and clothing store discounts. In addition, a majority of current smokers indicated that learning in school about the long-term dangers of smoking and having access to smoking-cessation aids would also be likely to dissuade them from continuing the habit. In short, significant percentages of current smokers indicated that they are not “lost causes” who will never be deterred from smoking. A combination of innovative approaches may simply be required to accomplish the goal of reducing the likelihood that they will smoke.

The Impact of a Student's Race on His/Her Attitudes

The critical finding regarding the impact of race on students' attitudes towards tobacco-control strategies is that social influences-based education does not appear to deter significant percentages of black students from smoking. This is the case despite the fact that almost 93 percent of black students indicated they would definitely or probably be deterred from smoking if they were exposed to one of the critical elements of social influences-based education--instruction regarding the short-term dangers of smoking.

Though black students appear to be receptive to the techniques of social influences-based instruction, they do not appear to be absorbing the messages of the curriculum. As Tables 19-21 indicate, between half and two-thirds of black students indicated that they would be very or somewhat likely to smoke even if their family, teachers, or friends expressed disapproval of the habit. Half of black students indicated that they would smoke even if their family disapproved; an even higher percentage--almost 54 percent--indicated that friends' disapproval of smoking would not even dissuade them from using cigarettes. Most striking of all

is the fact that two of three black students indicated that expressions of disapproval of smoking by their teachers would not discourage them from smoking.

Moreover, black students clearly are not convinced by social influence-based education that smoking does not improve one's status or self-image. As Table 22 indicates, more than one in five black students reported that they believed smoking would make them more popular among their friends. Black students were almost four and a half times more likely to hold this view than white students. As Table 23 indicates, almost one in three black students believed that smoking would make them feel more mature. Black students were more than three and a half times as likely to hold this view as white students.

The Impact of a Student's Income Level on His/Her Attitudes

As was the case regarding the influence of race on students' attitudes, the critical finding regarding the influence of a student's income level on his/her attitudes is that social influences-based education does not appear to deter significant percentages of lower income students from smoking. As Tables 24-26 indicate, almost half of lower income students reported that they would be very or somewhat likely to smoke even if their family and friends disapproved. More than 56 percent of these students indicated that expressions of disapproval of smoking by their teachers would not be likely to deter them from smoking.

Furthermore, as was the case with black students, significant numbers of lower income students are also clearly not convinced by social influence-based education that smoking does not improve one's status or self-image. As Table

27 indicates, more than one in 10 lower income students reported that they believed smoking would make them more popular among their friends. Lower income students were more than two and a half times more likely to hold this view than wealthier students. As Table 28 indicates, more than one in five lower income students believed that smoking would make them feel more mature. Lower income students were again more than two and a half times more likely to hold this view than wealthier students.

A Possible Explanation For the Ineffectiveness of Social Influences-Based Education Among Black and Lower Income Students

The results of this study clearly indicate that both black and lower income students are less receptive to social influences-based smoking prevention education than are other students. Because this has been the dominant approach that schools have employed in their tobacco-control efforts over the last 25 years, it could help to explain why smoking rates among black students are increasing, and why lower income students consistently smoke at higher rates than wealthier students. Students in both groups appear to place less value on the opinions of significant others than do their classmates. In addition, unlike their classmates, significant numbers of both black and lower income students also appear to see smoking as a means of increasing their social standing. Both of these findings can potentially be explained through a brief discussion of sociological theory.

Sociologist Robert K. Merton argues that societal resources are unequally distributed. Because some people may lack the resources necessary to achieve

or attain their goals, anomie, or normlessness, can result. This inability to attain desired resources encourages individuals to resort to deviant behaviors. I believe Merton's concept of "innovative deviance" may be particularly helpful in explaining cigarette use among black and lower income youth. According to Merton, "innovative deviance" implies that one accepts culturally defined goals as appropriate--for instance, the desire to be popular among one's friends and classmates. However, the individual lacks the ability to achieve that goal through legitimate means (Pfohl, 1985).

As black students growing up in a predominately white community, and as lower income students growing up in a middle- to upper-middle class setting, both groups of students may be experiencing difficulty in feeling accepted among their classmates. While they possibly find it difficult to be fully accepted by white or wealthier classmates, these students may find the acceptance they seek among fellow smokers. Although they may not be able to overcome the racial and social prejudice that is prevalent in society, these young smokers may be finding acceptance and a feeling of belonging among other smokers by rejecting society's smoke-free norms.

This could also explain why these two groups of students are disproportionately likely to discount expressions of disapproval of smoking by significant others in their lives. If these students have indeed come to believe that they will never be popular among their classmates because of racial or class discrimination, they may be inclined to reject the means of goal attainment that significant others are trying to promote--that is, they may be rejecting the

argument that family, teachers and friends are putting forth that one must be smoke-free to be popular. If a student has come to believe that he/she will not be popular anyway because of one demographic characteristic or another, why should that student continue to abide by societal norms governing what is acceptable and unacceptable forms of behavior among those who wish to be popular?

Conclusions

Some concluding statements can be offered regarding which tobacco-control policies students perceived to be most effective and the factors influencing their decisions in this regard.

- Overall, a majority of students offered at least modestly positive appraisals as to the likely effectiveness of all of the tobacco-control strategies that were presented to them. A majority of students indicated that each of the policies would definitely or probably prevent them from smoking. However, when *definite* deterrence is at issue, a majority of students indicated that only particular policies would be effective. Overall, students indicated that they would definitely be deterred from smoking by five out of six of the positive punishments that were addressed: parental notification of the child's smoking at school; being suspended; being expelled; being sent to an alternative school; and being forced to provide a saliva sample. A majority of students also indicated that they would definitely be deterred from smoking by being eligible for five of the six positive reinforcements that were offered: CDs; movie tickets; sporting event tickets; clothing

store discounts; and larger prizes through involvement in a long-term incentive program. In addition, a majority of students also indicated that they would definitely be deterred from smoking if a \$50 fine were imposed on them if they were caught with tobacco products. A majority of students also indicated that they would definitely be deterred from smoking if they were taught in school about the long-term dangers of smoking.

- Students' individual receptiveness to the tobacco-control strategies often varied based on their personal demographic characteristics.
 - Knowing someone with a smoking-related illness was generally unrelated to students' attitudes towards the policies. However, having first-hand knowledge of the dangers did tend to lessen among these students the "forbidden fruit" image of smoking.
 - Gender was also for the most part unrelated to students' receptiveness to the tobacco-control strategies that were offered. Significant differences emerged between males and females only in terms of their receptiveness to two of the positive reinforcement rewards. Females tended to be less likely than males to be deterred from smoking by the possibility of receiving free CDs or free tickets to sporting events. However, the most important finding in this regard is that a majority of both males and females indicated that they would definitely be deterred from smoking by having access to rewards. One simply would need to keep in mind in the designing of such reward programs that certain rewards may

appeal more to students of one gender than the other. As long as reward programs are designed with these differences in mind, such programs can be an effective deterrent to youth smoking.

- Similarly, grade level differences may influence the effectiveness of several of the tobacco-control approaches that were addressed.

Financial disincentives will tend to be more influential with younger students than older students. Likewise, school-based punishments and programs of positive reinforcement may be slightly more effective smoking deterrents among younger students than older students, though older students are also very likely to be influenced by these policies. Finally, for different reasons, social influences-based education does not appear to be particularly effective among significant numbers of either younger or older students. While younger students are more receptive to the techniques of this approach than are older students, they do not appear to be absorbing its messages. Older students both appear to reject the techniques of the approach and many also fail to absorb the messages.

- Three critical factors appear to influence students' attitudes towards tobacco-control strategies: their current smoking status; their race; and their income level.
 - Students' current smoking status was the factor consistently most likely to influence students' appraisals of tobacco-control efforts.

Students who smoked rated all of the policies as less likely to be effective at deterring smoking than did nonsmokers. These differences in attitudes were all statistically significant. However, smokers did offer positive appraisals of options within each of the following approaches: positive punishment; positive reinforcement; and education. A majority of smokers indicated that they definitely or probably would be deterred from smoking by the threats of expulsion, being sent to an alternative school, or by having to provide a saliva sample. A majority also indicated that learning in school about the long-term dangers of smoking and having access to nicotine replacement products would both be likely to deter them from continued smoking. Smokers responded most favorably to the idea of being rewarded for not smoking. In fact, nearly two out of three current smokers indicated a willingness to abstain from tobacco use as a result of being eligible for clothing store discounts and large prizes through participation in a long-term incentive program. One note of caution is warranted regarding the impact tobacco-control efforts will have on students. The results of this study clearly indicate that there is a group of hard-core smokers. These young people will not be dissuaded from smoking by any of the policy alternatives that were offered here. In fact, the more people attempt to dissuade them from smoking, the more likely they may be to do so, as a form of rebellion.

- The most important finding in terms of the impact of race on students' attitudes is that significant numbers of black students do not appear to be dissuaded from smoking through their exposure to social influences-based education. A majority of black students indicated that they would be likely to smoke despite expressions of disapproval from significant others in their lives. In addition, significant proportions of black students indicated that they believe that smoking will make them more popular among their classmates and that it will improve their own self-image.
- The findings were similar in terms of the influence of social class on students' attitudes. Like black students, significant numbers of lower income students reported that they would smoke despite disapproval of the habit by significant others. In addition, significant numbers of lower income students expressed the belief that smoking would improve their status among their classmates and that it would improve their own self-image.
- Students did not believe that several significant and long-standing elements of contemporary tobacco-control efforts are effective smoking deterrents. They were more likely to believe that several approaches that are merely hypothetical in the field of youth tobacco-control would be more likely to deter them from smoking.
 - In particular, the effectiveness of the social influences approach to drug abuse prevention education has once again been called into

serious question. While some students, such as younger students, respond more favorably to its techniques than other students (for example, older students), significant numbers of students indicated that they are not absorbing the anti-smoking messages offered through this approach. Particularly troubling is the fact that black and lower income students appear to be particularly unlikely to be dissuaded from smoking as a result of their exposure to this approach in schools.

- However, students, and in particular smokers, did respond favorably to one particular aspect of contemporary social influences-based education--being actively assisted in their efforts to quit smoking. Nearly 60 percent of current smokers indicated that they would be deterred from smoking if they were actively assisted in efforts to quit by having access to nicotine replacement products.
- Nevertheless, overall students as a whole, and current smokers in particular, indicated that they would be more receptive to learning about the long-term dangers of use. This was the case despite the fact that educators long ago discounted the information deficit approach as an effective technique in drug use prevention education.
- In general, students, including current smokers, responded most favorably to the positive punishment and positive reinforcement

options that were offered. Receiving rewards and being susceptible to the imposition of severe penalties were the strategies most likely to be effective among all students. These approaches are particularly important in deterring those who have already begun to smoke. In fact, these were the only means through which a majority of young smokers indicated that they would definitely or probably be dissuaded from smoking. Overall, students responded most favorably to the prospect of being rewarded for abstaining from tobacco use, though they did express differing levels of approval regarding the specified rewards.

- Students respond differently to tobacco-control efforts based on their demographic characteristics. Therefore, students may be more likely to be dissuaded from smoking if tobacco-control is addressed through a combination of innovative approaches rather than if only one approach is employed at a time. Where one approach fails to dissuade a particular group or groups of students from smoking, another element in a multi-pronged approach to tobacco-control may convince them to abstain.

Summary

Despite the efforts of legislators and anti-tobacco activists, particularly over the last 10 years, youth smoking remains a serious problem. Traditional approaches to smoking deterrence are not working as effectively among younger people as among older individuals. While adult smoking rates have declined over the last 40 years, smoking rates among youth have continued to increase. Though youth access laws have been enacted on both the federal and state levels, even young children are still able to acquire and use tobacco products. Despite the fact that schools have incorporated drug use prevention education in their curricula for more than 30 years, significant numbers of young people are not absorbing and applying these anti-drug messages. As some scholars have noted, there is a gap between theory and practice in the field of youth tobacco-control (Wallack et al., 1987).

This situation poses serious implications for all levels of government. The Centers for Disease Control and Prevention estimates that 3,000 young people a day adopt a daily smoking habit (CDC, 1998). Of this number, it is estimated that one-third will die prematurely of a smoking-related illness (Prevention Alert, 1998; 1(15)). That figure rises to 50 percent if young people begin smoking before the age of 15 and continue the habit into adulthood (Gostin et al., 1997). Based on current rates of smoking initiation, as many as 5,000,000 people currently 18 years old or younger could die prematurely as a result of youth smoking (CDC, 1998). That represents an estimated 64,000,000 years of potential life and

productivity that may be lost (CDC, 1996). In practical terms, it has been estimated that youth smoking could result in \$200,000,000,000 in future health care costs (CDC, 1996). Particularly in a time of recession and reemerging budget deficits it is vital to ensure that governments reduce their financial burdens in any way possible. This is a particularly relevant concern in the state of Tennessee, where the state's Medicaid program TennCare is requiring an ever-greater share of the state's revenue each year. Reducing the economic impact of youth smoking would be a major step towards reducing healthcare costs in the state and throughout the nation.

Strategies for limiting tobacco's influence among young people must be reappraised. Not only must researchers objectively evaluate long-standing and politically popular approaches to drug abuse prevention, but they must also be open to new and innovative approaches as well. For far too long, one topic that anti-tobacco activists have neglected has been the insights that young people themselves can offer regarding the best ways to prevent youth tobacco use.

In the present study, I attempted to fill this hole in the literature on youth smoking prevention. I attempted to determine which, if any, tobacco-control strategies young people themselves believe would be effective in deterring their use of cigarettes. This study expands the literature on youth smoking prevention in two ways. First, my entire focus on incorporating youth attitudes into policy discussions about youth tobacco-control is a novel approach. To this point, youth attitudes have been overlooked for the most part. Second, I also incorporated a new theoretical foundation in this study--compliance theory. This

theory has traditionally been applied to studies investigating tobacco retailer compliance with tobacco-control laws. I surveyed students to evaluate their attitudes towards four specific types of tobacco-control strategies: financial disincentives; school-based drug use prevention education; positive punishment to promote compliance; and positive reinforcement to promote compliance. Responses from 577 Knox County, Tennessee, middle and high school students were collected and analyzed.

Findings

Perhaps the most important conclusion that can be drawn from this study is that there is a need in the policymaking process for input from young people. They need to play a role in designing and implementing programs aimed at limiting their access to tobacco products. Students indicated with their responses a willingness and desire to have their voices heard regarding the most effective methods for limiting youth smoking. Their responses also indicated that especially among particular groups of students, young people reject as ineffective several of the traditional approaches that are employed in youth tobacco-control efforts. Among the most important findings from this research are the following:

1. Overall, students indicated at least some support for the effectiveness of all of the tobacco-control strategies about which they were surveyed. However, particularly in terms of several important components in contemporary tobacco-control efforts, significantly less than a majority

of students indicated that the policies would definitely prevent them from smoking.

2. Students' demographic characteristics influenced their appraisals of the effectiveness of specific tobacco-control efforts. The three most significant factors influencing students' attitudes were their current smoking status, their race, and their income level.
 - a. In no case did a majority of current smokers indicate that any of the suggested approaches would definitely prevent them from smoking. However, when probable deterrence was taken into account, a majority of smokers did respond favorably to most of the positive punishments and most of the positive reinforcements about which they were surveyed. In addition, current smokers also indicated that two aspects of school-based drug use prevention education would also be likely to deter them from smoking: learning about the long-term dangers of smoking, and having access to nicotine replacement aids. Overall, current smokers responded most favorably to the prospect of receiving rewards for not smoking. Smokers indicated that the two most effective rewards would be being eligible to receive discounts from clothing stores and participating in a long-term incentive program that rewards nonsmoking. Nearly two out of three current smokers indicated that both of these options would likely deter them from smoking.

Nevertheless, these data do indicate that there is a group of hard-core smokers who will not be deterred from using cigarettes by any of these approaches. In fact, it appears that the illegality of youth smoking increases their desire to smoke. For these young people, smoking is a form of rebellion that will not be deterred through any legitimate means.

- b. The most significant finding regarding the influence of race on students' attitudes is that black students do not appear to respond favorably to social influences-based education. A majority of black students indicated that they would still be very or somewhat likely to smoke even if significant others in their lives expressed disapproval of the habit. A significant portion of black students also expressed the beliefs that smoking would improve their image among their classmates and that it would improve their own self-image.
- c. Similar results were noted in terms of the influence social class has on students' attitudes towards the effectiveness of tobacco-control strategies. Like black students, lower income students were much more likely than wealthier students to reject the teachings of social influences-based drug use prevention programs. Almost half of lower income students indicated that they would still smoke even if they knew their family members and friends disapproved; more than half of lower income

students said they would smoke despite their teachers' disapproval of the habit. In addition, like black students, lower income students were much more likely than wealthier students to believe that smoking would improve their status among their classmates and that it would improve their own self-image.

- d. Students' attitudes regarding the effectiveness of tobacco-control strategies may also vary in less consistent and less significant ways based on their gender, their grade level, and whether or not they know someone who has become ill from a smoking-related illness.

3. Overall, students indicated less positive appraisals of several vital elements of traditional youth-targeted tobacco-control efforts than for other alternatives. Students responded favorably to one approach that has been discounted by educators in recent decades, and they also indicated considerable support for several policies that have not traditionally been employed in efforts to control youth smoking. Students offered little support for several aspects of affective education- and social influences-based instruction, including the following: the importance of working with school staff to devise and implement tobacco policies; and learning about the short-term dangers of tobacco use. In addition, many do not appear to be internalizing the message that cigarette use is not an effective means for improving one's status or one's self-image. Rather, students were more likely to

indicate that learning about the long-term dangers of smoking through the information deficit model of education would be more likely to deter them from smoking. This was the case despite the fact that educators long ago discounted the effectiveness of this model. Overall, students of all demographic backgrounds responded most favorably to compliance-based policies of punishments and rewards. This was the case despite the fact that policies based on this theoretical foundation have not traditionally been applied in the field of youth-targeted tobacco-control. In particular, students responded most favorably to the policy of rewarding young people for not smoking. This finding applied to even the most difficult group of young people to deter from smoking--current smokers.

4. Because students respond differently to techniques designed to deter youth smoking based on their demographic characteristics, a multi-pronged approach to youth-targeted smoking prevention needs to be employed. Where one approach fails to deter youth from smoking, another approach may be more effective with all but the most hard-core smokers.

Conclusions

Students demonstrated in this study not only willingness but a desire to have their opinions heard regarding how best to limit tobacco's impact on their lives. Traditional approaches to youth-targeted smoking prevention efforts are not working effectively. It is time to reexamine objectively past efforts and

explore new alternatives. Students can and should play a critical role in this endeavor.

The Need for Replication and Expansion of This Study

Future tobacco-control efforts need to continue the tactic developed here of incorporating the views of young people in the design and implementation of policies and programs focused on limiting youth tobacco use. One area of weakness in this study is that its findings cannot automatically be extended to other settings and populations. Due to financial and scheduling restrictions, the sample consisted only of students in one county in one state. Additional studies need to be conducted to determine whether or not the views expressed by the students of Knox County, Tennessee are consistent with the views of young people in other parts of the country.

In addition, the focus of future studies needs to be expanded. This analysis focused specifically on the issue of cigarette use among young people, but they are also exposed to dangers from the use of smokeless tobacco products as well. Because smokeless tobacco use is more common among certain groups of people than others (for example, males are more likely than females to use smokeless products), programs designed to deter cigarette use among the general population of young people may not necessarily be as effective in reducing the use of other kinds of tobacco. For example, there were several instances where statistically significant differences in students' attitudes regarding the likely effectiveness of rewards to deter smoking emerged based on the students' gender. Because smokeless tobacco use is more common among

males than females, this may influence the shape that smokeless tobacco deterrence programs need to take and the strategies upon which they need to focus. In addition, there also potentially may be differences in students' motivations for using one type of product rather than another that could affect their responsiveness to programs designed to deter use. These issues need to be explored in future studies.

Recommendations for Policymakers and Educators

The Need for Stricter Penalties and Conscientious Enforcement of Laws and Policies to Prevent Youth Access

A majority of students expressed the view that if they faced the risk of being fined for possessing cigarettes, particularly with a \$50 fine, they would definitely be deterred from smoking. The experiences of Woodridge, Illinois and Suffolk County, New York indicate that the use of fines does indeed deter youth smoking in practice as well as in theory.

Policymakers should take note of several points from this research. First, students themselves indicated that a fine of less than \$50 would not adequately deter them from smoking. Barely one in three students reported that the threat of having to pay a \$25 fine for possession of tobacco products would definitely prevent them from obtaining or using cigarettes. This points to a significant area of weakness in Tennessee's youth access law. As currently written, Tennessee's youth access law allows for fines ranging from a minimum of \$10 to not more than \$50 to be imposed on youth found in possession of tobacco

products. The fact that penalties begin as low as \$10 reduces the effectiveness of the law as a deterrent to youth tobacco possession.

- The first recommendation for policymakers is obvious--either the range of the penalty structure needs to be eliminated, with \$50 set as the standard fine, or \$50 should be set as the *lowest*, not the highest, possible fine a young person could receive for possession.

Anything less than implementing one or the other of these changes in the state's youth access law is simply preserving a hollow, ineffective statute.

While adjusting the state's penalty structure for youth possession is an important step, it is only one of the steps that needs to be taken to ensure the law is effective. A second critical point of which policymakers need to take note is that conscientious enforcement of the law is also needed. A critical element in the success of the Woodridge and Suffolk County experiences is that the areas' police forces have actively enforced the tobacco-control laws. While punishment for violation of these laws cannot be completely certain even in these areas, it is highly probable.

The same cannot be said for the likelihood that violators of Tennessee's youth access law will be punished. Under the terms of the state's law, both law enforcement officers and school officials are granted authority to cite students for illegal possession of tobacco products. However, barely one in five students believed it very likely that they would get into trouble if they smoked in a public setting. In fact, more than one in three students even believed it very unlikely that they would get into trouble if they smoked at school. As Maccoun (1993)

has noted, the certainty that punishment will be imposed is even more important in deterring inappropriate behaviors than is the severity of potential punishments. Students' responses indicated that not only is the state's minimum fine of \$10 insufficient to deter young people from possessing or using cigarettes, but their belief in the certainty of punishment, particularly in public areas, is also insufficient to ensure that a fine will be a meaningful deterrent. Even a fine of \$75 or \$100 is not likely to be an effective deterrent to youth possession and/or use of tobacco products in the state if young people know the fine is unlikely to ever be imposed on them.

This leads to a discussion of two other related issues that policymakers and educators must address: inability from a resource standpoint to enforce youth access restrictions; and/or reluctance on the part of officials to enforce such restrictions. As discussed previously, scholars have noted that there is often reluctance on the part of law enforcement officers and other officials within the justice system to fully enforce tobacco-control laws. The perception persists that violations of these laws are not serious enough to warrant conscientious enforcement and consistency in sanctioning violators. Indeed, in locales where police are the primary enforcers of a community's tobacco-control laws, higher smoking rates among citizens have been noted in areas with high crime rates, because law enforcement officials must direct their attention to "real crimes" (Jacobson and Wasserman, 1997).

The same issue comes into play regarding the role of school officials as enforcers of tobacco-control policies. With increasing state and federal demands

being placed on teachers and administrators to ensure that their students meet learning objectives, school officials have less time to devote to policing of students' tobacco use behaviors.

In addition, as is the case within the judicial system, there is reason to believe that school officials may be reluctant to impose the full range of penalties on students who violate nonsmoking regulations, despite the fact that respondents in the survey indicated that only the harshest penalties would be the most effective punishment-based deterrents. Despite the fact that Knox County middle school students report smoking at a rate of more than one in 10 and that nearly one in three high school students report that they smoke, during the 2000-2001 school year, fewer than 10.5 percent of the county's entire student population was suspended. Only 0.2 percent of the student population was expelled (Knox County Schools, 2002). Moreover, these percentages refer to the entire student population, including elementary school students, and relate to suspensions and expulsions for all causes, not only smoking-related violations.

Ensuring that law enforcement officials and educators have sufficient resources to adequately enforce youth access restrictions will require increased appropriations from the state legislature. Neither law enforcement officials nor school officials can take on additional functions, and be expected to perform them well, without also increasing their resource base. In particular, law enforcement agencies will require additional manpower in order to improve their performance in two areas: more routinely conducting retailer compliance checks; and more effectively enforcing youth access restrictions in public settings.

Schools will need to have additional staff available to monitor student activity outside of class. If a teacher is in a classroom instructing students, he/she cannot also be monitoring bathrooms or school grounds at the same time in an effort to uncover student smoking.

- A second recommendation for policymakers is to increase funding for law enforcement agencies and the state's schools.

If additional resources are allocated to these agencies, they will be better able to address their growing responsibilities without taxing their existing resources.

To reduce the reluctance authorities feel about conscientiously enforcing youth access laws will require a substantial change in officials' and the public's perceptions regarding the issue of youth tobacco use. It is long since time for policymakers, educators and parents as well to begin taking a serious stand to prevent youth exposure to tobacco. As was the case in earlier years regarding the issue of drunk driving, tobacco use by young people in particular continues to be seen as a problem not worthy of taking drastic steps to correct. With the development of powerful public interest groups, for example, Mothers Against Drunk Driving and its members' active involvement in the political process, political leaders across the country began to be motivated to strengthen states' drunk driving laws. Just as importantly, these groups have altered the perception of drunk driving among the public. No longer is it an "irresponsible slip-up" to drink and drive. Now vast segments of the population see it as a serious crime worthy of harsh penalties. A similar level of public involvement by anti-tobacco activists may be required to encourage policymakers, educators and parents to

view youth tobacco use as a serious issue rather than as an unfortunate but unavoidable situation.

The attitudinal change necessary among parents, law enforcement and school officials that will be required to increase the salience of penalty enforcement may develop over time. Organizations such as the Campaign for Tobacco-Free Kids and The American Legacy Foundation are becoming active and vocal proponents for a tobacco-free society, particularly for young people. Increasing the availability of resources that could be devoted to tobacco-control efforts can result from more concrete actions. Several options are open to the political leaders of Tennessee, if they can muster the political will to enact changes in the state's laws relating to tobacco.

Echoing the results of earlier studies regarding the impact of excise tax increases on youth smoking rates, more than two-thirds of the respondents in the study indicated that if the sales tax on cigarettes were increased to \$2 per pack, they would be very unlikely to smoke. As tobacco-control activists have noted, such an increase in the tax rate would represent a double victory. Not only would youth smoking rates be lowered initially by the tax increase, but also the state would get a steady source of revenue from citizens who do continue to smoke. These monies could then be allocated to future tobacco-control efforts, including the development and implementation of additional tobacco-control programs and the hiring of additional law enforcement and school personnel to enforce youth access restrictions.

- A third recommendation to the policymakers of the state is to increase the state's sales tax on cigarettes, now currently set at \$0.13 per pack. While past research indicates that a \$2-per pack tax would be most effective, much more conservative taxes even as low as \$0.32 per pack have been shown to reduce the number of young people who smoke.

Given the significant role that tobacco plays in the state's economy, increasing the state's excise tax on cigarettes, even moderately, would require tremendous political will on the part of legislators. Almost 60,000 acres of tobacco are produced annually in the state, and tobacco manufacturing nets the state more than \$337,000,000 each year (S.T.A.T.E., 1999). On balance, however, an increase in the state's excise tax, and particularly a significant increase that dramatically reduced smoking rates, would benefit the state; currently the state spends almost \$1.1 billion annually on smoking-attributable expenditures (S.T.A.T.E., 2001).

In addition to revenue that would be available as a result of an increase in the state's excise tax on cigarettes, the state will continue until 2025 to receive funds through the Master Settlement Agreement, funds totaling more than \$4 billion. The legislature could satisfy its resource requirements in terms of tobacco-control efforts by using these funds to achieve compliance with the CDC's recommended funding levels for tobacco-control activities in the state.

- A fourth recommendation for the state's policymakers is to allocate for state tobacco-control efforts at least the low-end recommendation provided by the CDC in its *Best Practices* guide. This would amount to

\$32,233,000, or \$6.00 per citizen. These funds are available for the next 23 years from the MSA award. After 2025, these funds could be taken from the state's general fund.

However, to accomplish this objective would again require tremendous political will. It would necessitate lawmakers viewing the settlement funds as tobacco-control monies rather than as general funds that are available to resolve future budget crises.

Another funding option open to the political leaders of Tennessee, and one that will be particularly important after the MSA funds dry up in 2025, is to increase state revenues for tobacco-control efforts by licensing of tobacco retailers. The CDC and the state Attorneys General have developed guidelines for the development of states' licensing schemes: licensing laws must explicitly link the privilege of selling tobacco products with compliance with youth access laws; both over-the-counter sales and vending machine sales should be included in the requirement; licenses should be renewed annually; license holders, not only employees, should be fined when violations are committed; fines should be high enough to encourage compliance with the law, but not so high as to create reluctance on the part of the community to enforce the penalty; fines need to be high enough to subsidize any costs of enforcement activities that are not covered through licensing fees; fines should be graduated so that repeat offenders incur stiffer penalties, including suspension or revocation of the license. Finally, these requirements and penalties must be adequately enforced (USDHHS, 2000).

- A fifth recommendation for policymakers is to institute licensing of the state's tobacco retailers, following the guidelines created by the CDC and the Attorneys General.

Again, this option would represent a double victory for tobacco-control proponents. Not only would it aid in the enforcement of the state's youth access law, but also the monies received through the payment of fees could be used to fund additional tobacco-control efforts.

One critical issue that must not be overlooked in efforts to reduce the impact of cigarette smoking on young people is the role that tobacco farmers and manufacturers play in this matter. By virtue of the fact that they are the producers of the main ingredient in the product, a product so vital to the state's economy, tobacco farmers are important political actors in terms of this issue. Manufacturers are also vital actors in the political process, as entire industries have developed to process, distribute and sell tobacco products. None of the policies recommended above are likely to be enacted if they are viewed as an assault against tobacco farmers or the state's tobacco economy. Steps must be taken to ensure that this is not the case.

- A sixth recommendation to policymakers is that greater efforts be made to assist farmers and manufacturers in converting from tobacco-based production to the production of other crops or agricultural products.

For hundreds of years tobacco has been a vital part of the state and the nation's economy. Generation after generation of families have produced tobacco, and important industries have developed to oversee its manufacture and sale. These

facts cannot simply be overlooked. Yet, it can no longer be reasonably argued that tobacco is a safe product for human use. A process of conversion to other crops or products must be undertaken. This may require the state to subsidize farmers and manufacturers as they transition to other products. This aid may take the form of grants or low-interest loans needed for the purchase of equipment necessary for the production of other products. It may also take the form of increased assistance for education as farmers and manufacturers learn new skills to produce and manufacture other products.

The Need for Reevaluation of School Curricula

The respondents in this study echoed the failure of the social influences approach to smoking deterrence that was demonstrated through the 15-year Hutchinson study. Overall, less than half of students believed that learning about the short-term dangers of smoking, which is a major component of the social influences approach, would definitely prevent them from smoking. Instead, students indicated a greater likelihood of being dissuaded from smoking by learning about the long-term dangers of tobacco use. This was the case despite the fact that educators long ago discounted the validity of theories that called for a focus on the long-term dangers of drug use.

Particularly troubling in terms of the reliance on social influences-based curricula is the fact that black and lower income students responded so unfavorably to it. One in three lower income students and 40 percent of black students indicated that they would be very likely to smoke even if their families disapproved. Almost half of the students in each group indicated that they would

be very likely to smoke even if their teachers disapproved. Perhaps most troubling is the fact that these students also were much more likely than other students to indicate that they believed smoking would make them more popular and would improve their own self-image.

Clearly, these students are not embracing the message of social influences-based curricula. Now, at a time when the validity of the approach has been called into serious doubt, educators and tobacco-control activists and researchers need to explore other theoretical foundations that may be more salient with young people. This may be a difficult task to achieve, as social influences-based curricula have long been popular with educators, the public, and political leaders. For far too long, people have turned a blind eye to the fact that these programs simply are not effective. DARE and other social influences-based programs have made people feel good because these programs make people think that they are doing something significant to confront the problem of youth substance abuse. Yet, the evidence indicates otherwise. What the public, educators and policymakers need to do is to pursue policies that *will* actually do something to reduce youth substance abuse.

One of the doctrines that appears to offer possibilities in the area of youth-focused tobacco-control efforts, as well as retailer-focused tobacco control, is the theory of compliance. Respondents offered important insights regarding which penalties would be necessary to encourage them to comply with nonsmoking laws, and equally as important, which penalties would not encourage compliance. For instance, though it is a commonly used punishment, barely one

in three students indicated that the threat of being sent to detention would definitely deter them from smoking. Again, however, it remains to be seen whether school officials, as well as the parents of students, would endure the imposition of the penalties that students themselves have indicated would be necessary to more completely deter their use of cigarettes.

The Need for Development of Community-Sponsored Incentive Programs to Promote Smoking Abstinence

Students also offered important insights into which positive reinforcement rewards would encourage them to comply with youth access tobacco laws. In general, students responded more positively to the prospect of being rewarded for not smoking than to any other policy option. This was the case even for those students who are the most difficult youngsters to dissuade from smoking--current smokers. One-third of current smokers indicated that they would definitely abstain if they were eligible to receive large prizes for not smoking; another one-third of smokers indicated that they would probably be deterred from smoking by being eligible for such rewards. Almost two-thirds of current smokers also indicated that receiving discounts from clothing stores would definitely or probably discourage them from smoking.

Overall, students, and smokers in particular, indicated that they would be more likely to comply with Tennessee's youth access law if they were eligible to receive various rewards including the following: free CDs; free movie tickets; free tickets to sporting events; discounts on clothes; and large prizes including TVs, CD players, and video games, which could be earned through their

involvement in and commitment to a long-term program designed to promote smoking abstinence.

For three reasons, the development of an incentive program may be the best option available in efforts to control youth smoking. First, the development of an incentive program is a practical step that could be taken that would not require action by the state legislature. Although I have put forth recommendations to the state's policymakers, I have also discussed the practical difficulties that would have to be overcome in order to enact the policies I recommend. With the establishment of an incentive program, at least one community in the state could be attempting to confront its youth smoking problem. If the program is found to be beneficial, it could then be expanded to other communities throughout the state or nation, again without requiring any direct action by the legislature.

A second critical reason that the development of an incentive program may be the best option to pursue at this time is that this is the policy option to which students responded most favorably. Regardless of demographic characteristics, including currently being a smoker, a majority of students indicated that a rewards program would motivate them not to smoke.

And finally, such a program can potentially be created without imposing large financial burdens on local schools. All of the rewards that were evaluated by students could be offered by local businesses that are willing to co-sponsor a community-based anti-smoking initiative. The development of a community-based reward program such as this is exactly the type of program the CDC

recommended in its *Best Practices* guide--a program that encourages involvement in anti-smoking efforts among all segments of the community, and one that reinforces for students the lessons they learn in school about the importance of being smoke-free.

Respondents in this study clearly expressed an openness to new and innovative efforts to deter youth smoking. Whether it is through ensuring access for students to nicotine replacement aids or coordinating incentive programs to promote smoking abstinence, there is a role for the community to play in anti-tobacco campaigns. Indeed, as tobacco-control activists have long noted, it will only be through concerted efforts of the entire community that the dangers of tobacco use will be successfully addressed.

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Appendices

Table 1. Federal Taxes Per Pack of Twenty Cigarettes

Effective Date	Tax
November 1, 1951	.08
January 1, 1983	.16
January 1, 1991	.20
January 1, 1993	.24
January 1, 2000	.34
January 1, 2002	.39

Source: U.S. Department of Health and Human Services. 2000. *Reducing Tobacco Use: A Report of the Surgeon General*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. Reprinted, with corrections, October 2000b.

Table 2. Penalties for Violation of the Prevention of Youth Access to Tobacco Act of 1994

Incidence of Violation	Maximum Penalty
1st Offense	Warning Letter
2nd Offense	\$500 Fine ^a
3rd Offense	\$1,000 Fine
4th and all Subsequent Offenses	\$1,500 Fine

Source: Tennessee Code. 39-17-1509.

^a Fines for the second offense may be eliminated if the owner or manager presents a signed statement from the employee(s) who sold the cigarettes illegally, indicating that the employee(s) had been informed by the owner or manager before the sale that the minimum age for purchase is eighteen.

Table 3. Tennessee's Target and Reported Rates of Sales to Minors, 1997-2002

Year ^a	Target Rate	Reported Rate
1997	^b	62.9
1998	50.0	37.0
1999	40.0	24.2
2000	32.0	31.3
2001	25.0	26.2
2002	20.0	^c

Source: Substance Abuse and Mental Health Services Administration, 2001a.
 "SAMSHA State Synar Non-Compliance Rate Table-2001."
<http://www.samhsa.gov/centers/csap/SYNAR/01synartable.html>.

- ^a Indicates year compliance rates were reported; figures reflect target and non-compliance rates for the previous fiscal year.
- ^b Only baseline rates were reported for states in 1997.
- ^c 2002 non-compliance rates will not be available until after the fiscal year ends on June 30, 2002.

Table 4. Tennessee's Rate of Tobacco Sales to 16-18 Year Old Youth as Reported for FFY 1997 and FFY 1998

Year	Target Rate	14-17 Year Old Sales Rate ^a	16-18 Year Old Sales Rate
1997	50.0	37.0	41.0
1998	40.0	24.2	50.8

Source: DiFranza, Joseph. "State and Federal Compliance With the Synar Amendment." *Archives of Pediatric and Adolescent Medicine.* 155(5):572-578.

^a Data reported to the Secretary of Health and Human Services under the terms of the Synar regulations.

Table 5. Size and Racial Makeup of Participating Knox County Schools

School	Number of Students	% White	% Black	% Other Races
Knox County	52,072 ^a	83.5	13.6	3.0
School A. (Middle)	1,051	79.4	14.6	6.0
School B. (Middle)	848	97.5	1.5	1.0
School C. (High)	1,098	98.8	0.1	1.0
School D. (High)	1,526	93.0	5.0	1.9

Source: Knox County Schools, 2002. "School System Report Card 2001."
<http://www.k-12.state.tn.us/rptcrd01/system.asp>.

^a Total school population, including elementary school students.

Table 6. Ranking of Students' Perceptions of the Effectiveness of Suggested Tobacco-Control Policies

Policy	% Indicating Policy Definitely Or Probably Would Prevent Smoking	% Indicating Policy Definitely Would Prevent Them From Smoking	% Indicating Policy Probably Would Prevent Them From Smoking	N
Earning Points Towards a Large Prize	87.7	67.5	20.2	570
Being Sent to an Alternative School	86.2	73.0	13.1	571
Being Expelled	84.4	70.9	13.5	571
Learning About the Long-Term Consequences of Smoking	83.3	60.3	23.0	574
Getting Free CDs	82.8	60.6	22.1	574
Receiving Discounts For Clothes	80.6	57.3	23.3	571
Having Access to Nicotine Replacement Products	80.5	36.8	43.6	573
Testing Saliva For Cotinine	80.4	52.6	27.7	570
Notifying Parents When Child Smokes At School	79.8	61.3	18.5	574
Receiving Free Movie Tickets	79.4	57.4	22.0	573
Receiving Free Tickets to Sporting Events	78.5	55.9	22.6	572
Being Suspended	76.9	56.2	20.7	571
Being Fined \$50	75.8	54.5	21.3	574
Learning About the Short-Term Consequences of Smoking	74.8	45.2	29.6	575
Working With School Officials to Design Tobacco Policies	74.2	42.6	31.6	573
Paying a \$2 Per Pack Excise Tax	71.6	44.7	26.9	573
Receiving Restaurant Gift Certificates	71.2	46.8	24.4	573
Being Fined \$25	63.7	38.9	24.8	576
Being Sent to Detention	61.5	38.7	22.8	574

Table 7. Attitudes Towards the Threat of Expulsion Based on Smoking Status

			Current smoking status		Total
			No	Yes	
If you were expelled	Definitely would keep me from smoking	Count % within Current smoking status	366 79.7%	39 35.5%	405 71.2%
	Probably would keep me from smoking	Count % within Current smoking status	59 12.9%	18 16.4%	77 13.5%
	Probably would not keep me from smoking	Count % within Current smoking status	25 5.4%	23 20.9%	48 8.4%
	Definitely would not keep me from smoking	Count % within Current smoking status	9 2.0%	30 27.3%	39 6.9%
Total		Count % within Current smoking status	459 100.0%	110 100.0%	569 100.0%

a. Chi-square = 133.350, df = 3, p < .001

Table 8. Attitudes Towards the Threat of Being Sent to an Alternative School Based on Smoking Status

			Current smoking status		Total
			No	Yes	
If you were sent to an alternative school	Definitely would keep me from smoking	Count % within Current smoking status	377 82.3%	38 34.5%	415 73.1%
	Probably would keep me from smoking	Count % within Current smoking status	48 10.5%	27 24.5%	75 13.2%
	Probably would not keep me from smoking	Count % within Current smoking status	20 4.4%	18 16.4%	38 6.7%
	Definitely would not keep me from smoking ^a	Count % within Current smoking status	13 2.8%	27 24.5%	40 7.0%
Total	Count % within Current smoking status	458 100.0%	110 100.0%	568 100.0%	

a. Chi-square = 119.418, df = 3, p < .001

Table 9. Attitudes Towards Saliva Cotinine Testing Based on Smoking Status

			Current smoking status		Total
			No	Yes	
Testing saliva for cotinine	Definitely would keep me from smoking	Count % within Current smoking status	282 61.4%	18 16.7%	300 52.9%
	Probably would keep me from smoking	Count % within Current smoking status	120 26.1%	36 33.3%	156 27.5%
	Probably would not keep me from smoking	Count % within Current smoking status	42 9.2%	27 25.0%	69 12.2%
	Definitely would not keep me from smoking	Count % within Current smoking status	15 3.3%	27 25.0%	42 7.4%
Total ^a		Count % within Current smoking status	459 100.0%	108 100.0%	567 100.0%

a. Chi-square = 108.555, df = 3, p < .001

Table 10. Attitudes Towards a CD Reward Based on Smoking Status

			Current smoking status		Total
			No	Yes	
Getting free cds	Definitely would keep me from smoking	Count % within Current smoking status	315 68.5%	33 29.7%	348 60.9%
	Probably would keep me from smoking	Count % within Current smoking status	100 21.7%	27 24.3%	127 22.2%
	Probably would not keep me from smoking	Count % within Current smoking status	33 7.2%	28 25.2%	61 10.7%
	Definitely would not keep me from smoking ^a	Count % within Current smoking status	12 2.6%	23 20.7%	35 6.1%
Total	Count % within Current smoking status	460 100.0%	111 100.0%	571 100.0%	

a. Chi-square = 97.431, df = 3, p < .001

Table 11. Attitudes Towards a Movie Ticket Reward Based on Smoking Status

			Current smoking status		Total
			No	Yes	
Getting free movie tickets	Definitely would keep me from smoking	Count % within Current smoking status	298 64.9%	31 27.9%	329 57.7%
	Probably would keep me from smoking	Count % within Current smoking status	99 21.6%	27 24.3%	126 22.1%
	Probably would not keep me from smoking ^a	Count % within Current smoking status	44 9.6%	27 24.3%	71 12.5%
	Definitely would not keep me from smoking	Count % within Current smoking status	18 3.9%	26 23.4%	44 7.7%
Total		Count % within Current smoking status	459 100.0%	111 100.0%	570 100.0%

a. Chi-square = 81.129, df = 3, p < .001

Table 12. Attitudes Towards a Clothing Store Discount Reward Based on Smoking Status

			Current smoking status		Total
			No	Yes	
Getting coupons for discounts on clothes	Definitely would keep me from smoking	Count % within Current smoking status	291 63.5%	36 32.4%	327 57.5%
	Probably would keep me from smoking	Count % within Current smoking status	102 22.3%	31 27.9%	133 23.4%
	Probably would not keep me from smoking	Count % within Current smoking status	44 9.6%	20 18.0%	64 11.2%
	Definitely would not keep me from smoking ^a	Count % within Current smoking status	21 4.6%	24 21.6%	45 7.9%
Total	Count % within Current smoking status	458 100.0%	111 100.0%	569 100.0%	

a. Chi-square = 54.674, df = 3, p < .001

Table 13. Attitudes Towards a Sporting Event Ticket Reward Based on Smoking Status

			Current smoking status		Total
			No	Yes	
Getting free tickets to sports events	Definitely would keep me from smoking	Count	292	28	320
		% within Current smoking status	63.6%	25.2%	56.1%
	Probably would keep me from smoking	Count	100	29	129
		% within Current smoking status	21.8%	26.1%	22.6%
	Probably would not keep me from smoking ^a	Count	44	25	69
		% within Current smoking status	9.6%	22.5%	12.1%
	Definitely would not keep me from smoking	Count	23	29	52
		% within Current smoking status	5.0%	26.1%	9.1%
Total		Count	459	111	570
		% within Current smoking status	100.0%	100.0%	100.0%

a. Chi-square = 80.252, df = 3, p < .001

Table 14. Attitudes Towards a Long-Term Incentive Reward Based on Smoking Status

			Current smoking status		Total
			No	Yes	
Earning points towards a big prize	Definitely would keep me from smoking	Count % within Current smoking status ^a	348 76.0%	36 33.0%	384 67.7%
	Probably would keep me from smoking	Count % within Current smoking status ^a	80 17.5%	34 31.2%	114 20.1%
	Probably would not keep me from smoking	Count % within Current smoking status ^a	16 3.5%	19 17.4%	35 6.2%
	Definitely would not keep me from smoking	Count % within Current smoking status ^a	14 3.1%	20 18.3%	34 6.0%
Total	Count % within Current smoking status ^a	458 100.0%	109 100.0%	567 100.0%	

a. Chi-square = 94.280, df = 3, p < .001

Table 15. Attitudes Towards Effectiveness of Long-Term Dangers Educational Approach Based on Smoking Status

			Current smoking status		Total
			No	Yes	
Long-term consequences	Definitely would keep me from smoking	Count % within Current smoking status	326 71.0%	17 15.3%	343 60.2%
	Probably would keep me from smoking	Count % within Current smoking status	90 19.6%	41 36.9%	131 23.0%
	Probably would not keep me from smoking ^a	Count % within Current smoking status	36 7.8%	34 30.6%	70 12.3%
	Definitely would not keep me from smoking	Count % within Current smoking status	7 1.5%	19 17.1%	26 4.6%
Total		Count % within Current smoking status	459 100.0%	111 100.0%	570 100.0%

a. Chi-square = 143.212, df = 3, p < .001

Table 16. Attitudes Towards the Effectiveness of Being Provided with Nicotine Replacement Based on Smoking Status

			Current smoking status		Total
			No	Yes	
Nicotine patch	Definitely would keep me from smoking	Count % within Current smoking status	197 43.0%	13 11.7%	210 36.9%
	Probably would keep me from smoking	Count % within Current smoking status	199 43.4%	50 45.0%	249 43.8%
	Probably would not keep me from smoking	Count % within Current smoking status	45 9.8%	32 28.8%	77 13.5%
	Definitely would not keep me from smoking ^a	Count % within Current smoking status	17 3.7%	16 14.4%	33 5.8%
Total	Count % within Current smoking status	458 100.0%	111 100.0%	569 100.0%	

a. Chi-square = 65.261, df = 3, p < .001

Table 17. Attitudes Regarding the Existence of a Forbidden Fruit Effect Based on Smoking Status

			Current smoking status		Total
			No	Yes	
Laws make me want to try cigarettes	Yes	Count % within Current smoking status	29 6.3%	29 26.1%	58 10.2%
	Sometimes	Count % within Current smoking status	67 14.6%	26 23.4%	93 16.3%
	No	Count % within Current smoking status	364 79.1%	56 50.5%	420 73.6%
Total		Count % within Current smoking status	460 100.0%	111 100.0%	571 100.0%

a. Chi-square = 48.897, df = 2, p < .001

Table 18. Attitudes Regarding a Personal Decision to Smoke Based on Smoking Status

			Current smoking status		Total
			No	Yes	
I would smoke	Yes	Count % within Current smoking status	16 3.5%	62 55.9%	78 13.7%
	Sometimes	Count % within Current smoking status	49 10.7%	32 28.8%	81 14.3%
	No	Count % within Current smoking status	392 85.8%	17 15.3%	409 72.0%
Total		Count % within Current smoking status	457 100.0%	111 100.0%	568 100.0%

a. Chi-square = 260.371, df = 2, p < .001

Table 19. Likelihood of Family's Disapproval to Discourage Students' Smoking Based on Race

			Race		Total
			white	black	
Likelihood of smoking if family disapproved	Very likely	Count	59	16	75
		% within Race	12.2%	40.0%	14.3%
	Somewhat likely	Count	71	4	75
		% within Race	14.6%	10.0%	14.3%
	Somewhat unlikely	Count	89	3	92
		% within Race	18.4%	7.5%	17.5%
	Very unlikely	Count	266	17	283
		% within Race	54.8%	42.5%	53.9%
Total	Count	485	40	525	
	% within Race	100.0%	100.0%	100.0%	

a. Chi-square = 24.125, df = 3, p < .001

Table 20. Likelihood of Teachers' Disapproval to Discourage Students' Smoking Based on Race

			Race		Total
			white	black	
Likelihood of smoking if teachers disapproved	Very likely	Count	90	18	108
		% within Race	18.6%	46.2%	20.6%
	Somewhat likely	Count	73	8	81
		% within Race	15.1%	20.5%	15.5%
	Somewhat unlikely ^a	Count	146	6	152
		% within Race	30.1%	15.4%	29.0%
	Very unlikely	Count	176	7	183
		% within Race	36.3%	17.9%	34.9%
Total	Count	485	39	524	
	% within Race	100.0%	100.0%	100.0%	

a. Chi-square = 20.207, df = 3, p < .001

Table 21. Likelihood of Friends' Disapproval to Discourage Students' Smoking Based on Race

			Race		Total
			white	black	
Likelihood of smoking if friends disapproved	Very likely	Count	58	14	72
		% within Race	12.0%	35.9%	13.7%
	Somewhat likely ^a	Count	63	7	70
		% within Race	13.0%	17.9%	13.4%
	Somewhat unlikely	Count	80	7	87
		% within Race	16.5%	17.9%	16.6%
	Very unlikely	Count	284	11	295
		% within Race	58.6%	28.2%	56.3%
Total	Count	485	39	524	
	% within Race	100.0%	100.0%	100.0%	

a. Chi-square = 21.672, df = 3, p < .001

Table 22. Impact of Smoking on Popularity Based on Race

			Race		Total
			white	black	
Impact on my popularity	Would make me more popular	Count % within Race	22 4.6%	8 20.5%	30 5.8%
	Would have no impact on my popularity	Count % within Race	253 52.7%	16 41.0%	269 51.8%
	Would make me less popular	Count % within Race	205 42.7%	15 38.5%	220 42.4%
Total		Count % within Race	480 100.0%	39 100.0%	519 100.0%

a. Chi-square = 16.937, df = 2, p < .001

Table 23. Impact of Smoking on Feelings of Maturity Based on Race

			Race		Total
			white	black	
Impact on my feeling grownup	Would make me feel more grown up and mature	Count ^a % within Race	38 7.9%	12 30.8%	50 9.7%
	Would have no impact on how grown up and mature I feel	Count ^a % within Race	263 55.0%	12 30.8%	275 53.2%
	Would make me feel less grown up and mature	Count ^a % within Race	177 37.0%	15 38.5%	192 37.1%
Total	Count ^a % within Race	478 100.0%	39 100.0%	517 100.0%	

a. Chi-square = 23.422, df = 2, p < .001

Table 24. Likelihood of Family's Disapproval to Discourage Students' Smoking Based on Income Level

			Free/reduced price school lunch		Total
			No	Yes	
Likelihood of smoking if family disapproved	Very likely	Count	55	32	87
		% within Free/reduced price school lunch	11.7%	33.7%	15.3%
	Somewhat likely	Count	71	10	81
		% within Free/reduced price school lunch	15.0%	10.5%	14.3%
Somewhat unlikely	Count	91	12	103	
	% within Free/reduced price school lunch	19.3%	12.6%	18.2%	
Very unlikely ^a	Count	255	41	296	
	% within Free/reduced price school lunch	54.0%	43.2%	52.2%	
Total		Count	472	95	567
		% within Free/reduced price school lunch	100.0%	100.0%	100.0%

a. Chi-square = 29.860, df = 3, p < .001

Table 25. Likelihood of Teachers' Disapproval to Discourage Students' Smoking Based on Income Level

			Free/reduced price school lunch		Total
			No	Yes	
Likelihood of smoking if teachers disapproved	Very likely	Count	82	40	122
		% within Free/reduced price school lunch	17.4%	42.6%	21.6%
	Somewhat likely ^a	Count	76	13	89
		% within Free/reduced price school lunch	16.1%	13.8%	15.8%
Somewhat unlikely	Count	145	19	164	
	% within Free/reduced price school lunch	30.8%	20.2%	29.0%	
Very unlikely	Count	168	22	190	
	% within Free/reduced price school lunch	35.7%	23.4%	33.6%	
Total	Count	471	94	565	
	% within Free/reduced price school lunch	100.0%	100.0%	100.0%	

a. Chi-square = 29.730, df = 3, p < .001

Table 26. Likelihood of Friends' Disapproval to Discourage Students' Smoking Based on Income Level

			Free/reduced price school lunch		Total
			No	Yes	
Likelihood of smoking if friends disapproved	Very likely	Count	52	27	79
		% within Free/reduced price school lunch	11.0%	28.7%	14.0%
	Somewhat likely	Count	65	18	83
		% within Free/reduced price school lunch	13.8%	19.1%	14.7%
Somewhat unlikely	Count	84	12	96	
	% within Free/reduced price school lunch	17.8%	12.8%	17.0%	
Very unlikely ^a	Count	270	37	307	
	% within Free/reduced price school lunch	57.3%	39.4%	54.3%	
Total	Count	471	94	565	
	% within Free/reduced price school lunch	100.0%	100.0%	100.0%	

a. Chi-square = 24.888, df = 3, p < .001

Table 27. Impact of Smoking on Popularity Based on Income Level

			Free/reduced price school lunch		Total
			No	Yes	
Impact on my popularity	Would make me more popular	Count % within Free/reduced price school lunch	24 5.1%	12 13.3%	36 6.4%
	Would have no impact on my popularity	Count % within Free/reduced price school lunch	253 53.9%	35 38.9%	288 51.5%
	Would make me less popular	Count % within Free/reduced price school lunch	192 40.9%	43 47.8%	235 42.0%
Total		Count % within Free/reduced price school lunch	469 100.0%	90 100.0%	559 100.0%

a. Chi-square = 12.077, df = 2, p = .002

Table 28. Impact of Smoking on Feelings of Maturity Based on Income Level

			Free/reduced price school lunch		Total
			No	Yes	
Impact on my feeling grownup	Would make me feel more grown up and mature	Count % within Free/reduced price school lunch	37 7.9%	20 22.0%	57 10.2%
	Would have no impact on how grown up and mature I feel	Count % within Free/reduced price school lunch	267 57.3%	30 33.0%	297 53.3%
	Would make me feel less grown up and mature	Count % within Free/reduced price school lunch	162 34.8%	41 45.1%	203 36.4%
Total	Count % within Free/reduced price school lunch	466 100.0%	91 100.0%	557 100.0%	

a. Chi-square = 25.325, df = 2, p < .001

Appendix B.

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Dr. Charles Q. Lindsey, Superintendent:

September 14, 2001



Claudia Bryant
1001 McClung Tower
Knoxville, TN 37996

Dear Ms. Bryant:

You are granted permission to contact appropriate building-level administrators concerning the conduct of your proposed research study entitled, "Students Speak: Obtaining Youth Input Regarding Tobacco Policies." In the Knox County schools final approval of any research study is contingent upon acceptance by the principal(s) at the site(s) where the study will be conducted. Include a copy of this permission form when seeking approval from the principal(s).

In all research studies names of individuals, groups, or schools may not appear in the text of the study unless *specific* permission has been granted through this office. The principal researcher is required to furnish this office with one copy of the completed research document.

Good luck with your study. Do not hesitate to contact me if you need further assistance or clarification.

Yours truly,

A handwritten signature in cursive script that reads "Mike S. Winstead".

Mike S. Winstead, Ph.D.
Coordinator of Research and Evaluation
Phone: (865) 594-1740
Fax: (865) 594-1709

Project No. 110

Date

Claudia Bryant
University of Tennessee
Political Science Department
1001 McClung Tower
Knoxville, TN 37996

Principal
School Name
Street Address
City, TN Zip Code

Dear Name:

I am writing to request your permission to enter School Name in order to conduct doctoral research in political science. Attached is my letter from Dr. Mike Winstead from the Office of Research and Evaluation granting me permission to seek your approval to conduct research in your school. I have enclosed for your review the packet of supporting information that I submitted to Dr. Winstead. Thank you, in advance, for your consideration of my request.

Sincerely,

Claudia Bryant
Enclosures

180

1. Name and addresses of researcher:

Name: Claudia Bryant

Departmental address: Department of Political Science
1001 McClung Tower
Knoxville, TN 37996

2. Telephone numbers:

Office number: 974-4470 (I can be reached at this number from 9:30 a.m. until 11:00 a.m. on Tuesdays and Thursdays.)

Departmental number: 974-2261 (Phone messages may be left at this number during my teaching hours--Tuesdays and Thursdays from 8:10 a.m. until 9:25 a.m.)

Home telephone number: 544-0931 (When not teaching or holding office hours, I work at home and can be reached at this number.)

3. Position of researcher:

I am a fifth-year doctoral student in the Department of Political Science at the University of Tennessee-Knoxville. I have completed all the course work for my degree and have passed all of my comprehensive exams. If approved, the data obtained from the students in your school will serve as part of the data set in my dissertation on youth attitudes towards tobacco policies.

4. Name and title of researcher's major professor:

Dr. Anthony Nownes
Associate Professor of Political Science
University of Tennessee-Knoxville
Dissertation Committee Chair

5. Exact title of proposed study:

Students Speak: Obtaining Youth Input Regarding Tobacco Policies

6. Description of proposed study:

1. Purpose:

The purpose of this study is to determine what policies Knox County students believe would be effective in preventing their use of cigarettes. Extensive research has found that anti-drug messages that are created by students or incorporate student input are more effective than programs which do not include student opinions.

While adult smoking rates have declined since the release of the first Surgeon General's report on the dangers of smoking in 1964, youth smoking rates have actually been increasing in the last two decades. The Centers for

Disease Control and Prevention estimates that 3,000 young people every day adopt a daily smoking habit. The age at which young people adopt daily smoking habits has also fallen over the years, especially among females. Research shows that the younger a person is when he/she adopts a daily smoking habit, the heavier a smoker that person is likely to become. This, in turn, leads to a greater likelihood that the person will develop and potentially die from smoking-related illnesses. It has been estimated that youth smoking could result in two hundred billion dollars in future health care costs (in 1993 dollars). Based on the current rate of youth initiation of smoking habits, an estimated five million people currently eighteen years old or younger can be expected to die eventually from smoking-related illnesses. This represents an estimated 64,000,000 years of potential life that may be lost as a result of youth smoking. If more effective tobacco control policies can be designed and implemented, lives can be saved.

Extensive research has been conducted to evaluate adult attitudes regarding anti-tobacco policies that they believe would be appropriate and effective in reducing youth smoking. However, only one study has been conducted to determine student attitudes towards tobacco policies. That study was conducted only amongst high school students. Therefore, students who are most likely to initiate a smoking habit, those who are in 6th or 7th grade, were excluded from that study. In addition, only students in California were surveyed in the study. It is reasonable to expect that student attitudes may vary across different regions of the country. Another problem with this preliminary survey of students is that it only evaluated their attitudes on existing policies; it did not allow them to offer suggestions on policies they believed might be effective at reducing youth smoking. By obtaining input from students directly and by considering their suggestions in policy debates, more effective anti-tobacco policies might be implemented in the future.

2. Target population:

The target population for the study will be middle and high school students in Knox County. I am excluding elementary school students because the average age at which most young people begin smoking is 12 1/2, either sixth or seventh grade for most students, depending on the month of the student's birth. High school students will also be surveyed because a significant portion of them do not reach the legal age for purchase and possession of tobacco products until their senior year, or even until after graduation for some. I hope to receive responses from at least 384 students in order to yield results that are reliable within five percentage points of the entire student population.

3. Data Collection Procedures:

I have constructed an anonymous and confidential survey that will be administered in randomly selected classrooms within participating schools. The readability of the survey instrument was evaluated and found to be appropriate for those with a fourth-grade reading level and higher. The Flesch Reading Ease

score is 82.7, and the Flesch-Kincaid Grade Level score is 3.9. I will employ a cluster sampling technique, with each of the county's participating middle and high school classes representing the clusters. In each classroom that is selected, all willing students who have their parents' permission will be surveyed. The use of cluster sampling will avoid unnecessary disruption of a large number of classes where only a small number of students in each class will be surveyed. In an effort to reinforce to students that the survey is completely anonymous and completely confidential, I would a) personally distribute the surveys to the students, without any teacher involvement in the distribution process b) explain the instructions and direct them not to put their names on it anywhere, c) inform them that the results of the survey will be reported only in summary form, ensuring that their individual responses can never be traced back to them personally, and d) collect the surveys when students complete them, without any teacher involvement in the collection process. To reiterate, the classroom teacher would not be involved in the survey administration in any way.

4. Time Estimate:

I will allow five minutes before the distribution of the survey for an explanation regarding its purpose and the instructions for completing it. The design of the survey should ensure that most students can complete it within approximately fifteen minutes. I would allow another five minutes at the end of the survey to collect them, to answer any final questions students may have about the survey, and to thank them and their teacher for their cooperation in completing it. I believe the entire survey process within each classroom can be easily completed in less than thirty minutes. Based on an average class size of 25, with a sample size of 384 students, and allowing for student absences, the desired number of completed surveys could be obtained by surveying fifteen to twenty classes. I teach at the university on Tuesdays and Thursdays during most of the hours that students are at school and would therefore only be able to administer the surveys on Tuesday and Thursday afternoons. I am available for survey administration any time on Mondays, Wednesdays and Fridays. Even with these scheduling limitations, I nevertheless believe the survey process could still be completed within a three-week period.

5. Value to Knox County Schools:

As of 1998, Tennessee had the highest rate of illegal tobacco sales to minors of any state in the nation. The Centers for Disease Control and Prevention found in a survey of Tennessee students in grades six through eight that nearly one in four students report using tobacco products. That is nearly double the rate for the nation as a whole. Among high school students, the figures are even worse; nearly 1/3 of Tennessee high school students report smoking on a regular basis. Each year in the state of Tennessee, 16,400 young people on average take up the smoking habit, and youth smokers in Tennessee smoke more than 18.3 million packs of cigarettes annually. Tennessee has the seventh highest death rate nationally from smoking, with an estimated 110,000

Tennessee youth projected to eventually die prematurely. At the same time, Tennessee ranks forty-ninth in the amount of per capita spending that is allocated by the state for tobacco control programs. For the 2002 fiscal year, none of Tennessee's portion of the Master Tobacco Settlement funds, totaling \$353.9 million through December 2001, was allocated by the state legislature for tobacco prevention programs.

Given the significance of the smoking problem within the state, and the limited funds that are being spent to control it, it is important to ensure that the funds that are allocated are used in the most effective manner. The initial findings from this survey will provide Knox County school administrators with additional insight into how students respond to a variety of tobacco policies. The results of this survey could prove to be vitally important in helping Knox County school administrators target their financial resources to the areas where that money will be most effective in reducing youth smoking.

My long-term goal is to use the information obtained from Knox County's students, as well as students from other areas, to develop an incentive program that school systems, in cooperation with interested parents, local businesses, and community organizations, can implement to encourage students to avoid smoking cigarettes. My program will be much the same in purpose as "Project Graduation" and similar programs that provide special rewards and opportunities for recreation to those who pledge to abstain from particular behaviors. The incentive program that will be developed from these findings will reinforce for students outside the classroom the information regarding healthy behaviors that they learn in class. Given the indispensable role that schools now play in discouraging alcohol, tobacco and other drug use among young people, such reinforcement of student learning seems vital.

7. Single copy of the survey to be used by Knox County participants:
The survey instrument is attached at the end of this request petition.

8. Single copy of parent permission statement:
The instructions that will be given to the students before they begin the survey are indicated on the survey form itself. A sample parental consent letter is included after the survey instrument.

9. Proposed times for beginning and ending of the study:
I would ideally like to have the surveys completed by the end of March 2002, if possible. However, if I could distribute the surveys earlier than this date, that would be preferable, to ensure that I have adequate time to analyze the data. Any three-week period between now and early March that would be convenient for school officials would be ideal for me.

184

Dear Parent(s)/Guardian(s):

In the coming weeks, a researcher from the University of Tennessee Department of Political Science will enter one of your child's classes in order to administer a written survey to students regarding their attitudes about tobacco policies. The results of this survey could prove to be vitally important in helping Knox County school administrators design increasingly effective anti-tobacco programs and policies for students. The survey is expected to require less than thirty minutes of class time. Your child's teacher will remain in the classroom during the entire time that the survey is being conducted. At no time will the researcher be alone with your child or any of his or her classmates.

While some specific questions regarding your child's opinions on tobacco policies and his or her use of tobacco products will be asked, there is no need for your child to feel at all anxious about answering every question truthfully. The survey will be completely anonymous and completely confidential. Completed surveys will be stored in a locked file cabinet in a secure location, and only the principal investigator will have access to them. The surveys will be destroyed once the necessary data have been obtained from them. No questions, such as your child's name, will be asked which could ever be used to identify your child personally. In the questionnaire, students will be asked a variety of questions, including their opinions on the likely effectiveness of a variety of policies that have been proposed or implemented across the country to discourage students from smoking cigarettes. In order for comparisons in the results to be analyzed, several general questions about your child will also be asked, including: your child's age; grade level; gender; race; whether or not your child receives free or reduced price school lunches; your child's current smoking status, and the smoking status of parents and siblings. No one other than the researcher will review the completed surveys, and the results of this study will only be reported in summary form. Again, in no way will your child's responses be reported in any way that could be used to identify him or her individually.

If you have any questions about the survey, you may contact the researcher, Claudia Bryant, at the Department of Political Science, University of Tennessee-Knoxville. She may be reached by phone at 974-4470 or 974-2261. Written correspondence may be directed to her at the Department of Political Science, 1001 McClung Tower, Knoxville, TN 37996.

You child's participation in this survey is completely voluntary and he or she will not be penalized in any way if you or your child decides not to be involved. Your child is under no obligation to complete the survey even if he or she begins it. Should you decide to refuse to allow your child to participate in this survey, rest assured that your relationship with the school will not be affected in any way. This letter is completely confidential, and to ensure the privacy of your decision regarding your child's participation in this survey, it will not be released to anyone. Please indicate below whether or not you are willing for your child to participate in this survey.

_____ I am willing for my child to participate in the survey that was described in this letter.

_____ I am not willing for my child to participate in the survey that was described in this letter.

Signature: _____

Your Voice Counts

Knox County Students' Opinions on Tobacco Policies



**Your Voice Counts
Knox County Students' Opinions on Tobacco Policies**

A study is being done to determine students' attitudes towards tobacco policies. Your answers may one day help school officials to begin programs that you helped to design. This survey is completely anonymous. No information will be asked that could identify you personally. Please do not put your name on any of the pages. Your answers are completely confidential. Neither your teachers, your parents/guardians, nor your classmates will ever know what your individual answers were.

A few weeks ago, a letter was sent home to the parents/guardians of all the students in your class telling them about this survey. If your parents/guardians read that letter, signed it, and if you have brought it back to your teacher, indicating that both you and your parents are willing for you to participate in this survey, you are asked to answer the following questions as honestly as you can. If you participate in this survey, please understand that: your participation is voluntary; you do not have to complete this survey; even if you begin the survey, you do not have to answer all the questions; there is no penalty for leaving answers blank; and that you can refuse or withdraw from participation in this survey at any time without penalty. If you understand this information completely and are willing to participate, please circle the best answer beside each question. Again, no one at your school or in your family will ever see your answers.

Please complete the entire survey and turn it over when you are finished. When everyone is through, the surveys will be collected.

A. First, we want to get your opinion on a few laws that have been adopted in recent years to reduce youth smoking. Please tell us how likely you think each of the following laws would be at preventing you from smoking cigarettes.

	Definitely would keep me from smoking	Probably would keep me from smoking	Probably would not keep me from smoking	Definitely would not keep me from smoking
	1	2	3	4
1. Fining you \$25 if you are caught with cigarettes, even if you are not smoking them.....	1.....	2.....	3.....	4.....
2. Fining you \$50 if you are caught with cigarettes, even if you are not smoking them.....	1.....	2.....	3.....	4.....
3. Adding \$2 in tax to the regular price you have to pay every time you buy a pack of cigarettes.....	1.....	2.....	3.....	4.....

B. Now, we want to get your opinion on some policies that some schools have adopted in recent years to reduce youth smoking. Please tell us how likely you think each of the following school policies would be at preventing you from smoking cigarettes.

Definitely would keep me from smoking	Probably would keep me from smoking	Probably would not keep me from smoking	Definitely would not keep me from smoking
1	2	3	4

1. If you were taught in class about the short-term health effects that can result from smoking cigarettes, such as your teeth turning yellow or having shortness of breath when you run.....1.....2.....3.....4.....

2. If you were taught in class about the long-term health effects that can result from smoking cigarettes, such as getting lung cancer, emphysema, or heart problems.....1.....2.....3.....4.....

3. If you worked with your teachers and principal in creating and enforcing your school's tobacco policies.....1.....2.....3.....4.....

4. If you were given products like a nicotine patch to help you stop smoking if you smoke already.....1.....2.....3.....4.....

C. In this section, we want to get your opinion on a few other policies that some schools have adopted in recent years to reduce youth smoking. Please tell us how likely you think each of the following school policies would be at preventing you from smoking cigarettes.

	Definitely would keep me from smoking	Probably would keep me from smoking	Probably would not keep me from smoking	Definitely would not keep me from smoking
	1	2	3	4
1. If your parents were told any time you were caught with cigarettes at school.....	1.....	2.....	3.....	4.....
2. If you were sent to detention when you were caught with cigarettes at school.....	1.....	2.....	3.....	4.....
3. If you were suspended when you were caught with cigarettes at school.....	1.....	2.....	3.....	4.....
4. If you were expelled when you were caught with cigarettes at school.....	1.....	2.....	3.....	4.....
5. If you were not allowed to return to your school after being caught with cigarettes and you had to go to an alternative school.....	1.....	2.....	3.....	4.....
6. If you had to provide a sample of your saliva (spit) to test for chemicals that are present after smoking.....	1.....	2.....	3.....	4.....

D. Recently, some schools have started giving rewards to students who do not smoke cigarettes. In this section, please tell us how likely you think each of the following rewards would be at preventing you from smoking cigarettes.

		Definitely would keep me from smoking	Probably would keep me from smoking	Probably would not keep me from smoking	Definitely would not keep me from smoking
		1	2	3	4
1.	Getting free CDs.....	1.....	2.....	3.....	4.....
2.	Getting free movie tickets.....	1.....	2.....	3.....	4.....
3.	Getting coupons for free food.....	1.....	2.....	3.....	4.....
4.	Getting coupons for discounts on clothes.....	1.....	2.....	3.....	4.....
5.	Getting free tickets to sporting events.....	1.....	2.....	3.....	4.....
6.	Earning points over a period of time that could be traded in for large prizes like CD players, video games, or TVs.....	1.....	2.....	3.....	4.....

E. Next, we want to learn about your general attitudes towards smoking and smoking policies.

1. How likely do you believe it is that you would get into trouble if you smoked cigarettes in the following places?

- | | Very likely
1 | Somewhat likely
2 | Somewhat unlikely
3 | Very unlikely
4 |
|--|------------------|----------------------|------------------------|--------------------|
| a. at home..... | 1..... | 2..... | 3..... | 4..... |
| b. at school..... | 1..... | 2..... | 3..... | 4..... |
| c. in a public place, like a mall..... | 1..... | 2..... | 3..... | 4..... |

2. In Tennessee, it is against the law for anyone under the age of 18 to buy or possess cigarettes.

- a. Do you think these laws would make it harder for you to smoke cigarettes if you wanted to?
1. Yes 2. Sometimes 3. No
- b. Does knowing that you are not allowed to have cigarettes make you want to try them?
1. Yes 2. Sometimes 3. No

3. Do you think people under the age of 18 should be allowed to smoke cigarettes legally?

1. No 2. Yes 3. Not sure

4. Based on what you have learned about cigarettes from your family, school, and the media, do you think you would smoke if there were no rules against it?

1. Yes 2. Sometimes 3. No

5. How likely do you think you would be to smoke if you knew that

- | | Very likely
1 | Somewhat likely
2 | Somewhat unlikely
3 | Very unlikely
4 |
|--|------------------|----------------------|------------------------|--------------------|
| a. your family members did not like it?..... | 1..... | 2..... | 3..... | 4..... |
| b. your teachers did not like it?..... | 1..... | 2..... | 3..... | 4..... |
| c. your friends did not like it?..... | 1..... | 2..... | 3..... | 4..... |

6. What impact do you believe smoking cigarettes has/would have on your popularity among your classmates?
- | | | |
|--|---|--|
| 1. | 2. | 3. |
| It makes/would make me more popular among my classmates. | It has/would have no impact on my popularity among my classmates. | It makes/would make me less popular among my classmates. |
7. What impact do you believe smoking cigarettes has/would have on how grown up you feel?
- | | | |
|---|--|---|
| 1. | 2. | 3. |
| It makes/would make me feel more grown up and mature than I feel now. | It has/would have no impact on how grown up and mature I feel now. | It makes/would make me feel less grown up and mature than I feel now. |

F. Finally, we want to find out some information about you.
--

1. How old are you? _____
2. What grade are you in? _____
3. Are you male or female?
1. Male 2. Female
4. What is your race?
1. White/Caucasian
2. Black/African-American
3. Hispanic
4. Asian
5. Native American
6. Other (please specify): _____
5. Do you receive free or reduced price meals when you are at school?
1. No 2. Yes
6. Have you smoked one or more cigarettes in the last thirty days?
1. No 2. Yes

If yes, how many have you smoked? _____
7. Do your parent(s)/guardian(s) smoke cigarettes?
1. No 2. Yes 3. I am not sure.
8. If you have brothers and/or sisters, do any of them smoke?
1. No 2. Yes 3. I do not have any brothers or sisters.
9. Do you know anyone who has experienced health problems that have been blamed on smoking?
1. No 2. Yes 3. I am not sure.

<p>Thank you for your help in completing this survey!</p> <p>When you have completed the survey, please turn it over and place it on your desk. The surveys will be collected when everyone in class is finished.</p>

VITA

Claudia Ruth Bryant was born in Rocky Mount, North Carolina on August 4, 1971. She graduated from Athens Drive High School in Raleigh, North Carolina in 1989. In the fall of 1989, she entered the University of North Carolina-Asheville, and in 1993 received a Bachelor of Arts degree in political science. In the spring of 1994, she received a Certificate of Major in sociology from UNCA. In the fall of 1994, she entered Appalachian State University in Boone, North Carolina, where she received a Master of Arts degree in political science in 1996. She entered the University of Tennessee-Knoxville in the fall of 1997. She served as a Graduate Teaching Associate in the Department of Political Science from 1998 until 2002. She received her Doctor of Philosophy degree in political science in May 2002.