AN ASSESSMENT OF ADOLESCENTS’ PERCEPTIONS OF AND ATTITUDES TOWARD POLICE INSTRUCTORS IN SCHOOL-BASED DRUG PREVENTION PROGRAMS

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Dissertation

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ABSTRACT

Adolescents have been observed to have negative perceptions and attitudes toward police officers, yet police officers are increasingly being used as resource persons and instructors in school-based drug prevention programs. This research study explored the perceptions and attitudes of students toward police officers and instructors and the factors determining the observed perceptions and attitudes. The study uses data from a longitudinal evaluative study of students in 7th grade through to 9th grade, clustered in 82 high schools in six United States geographic regions. The Adolescents Substance Abuse Prevention Study (A.S.A.P.S.), a longitudinal study by the Institute for Health and Social Policy of the University of Akron was undertaken to determine the impact of new curricula on delaying or reducing adolescent substance use.

Findings suggest that generally students were impartial in their perception of the police but they were fairly positive in their attitudes toward police instructors of drug prevention programs. These perceptions and attitudes declined over time and were not uniform across the sample. Female students and students with low risk, and low involvement in deviant behaviors were found to have consistently more favorable perceptions and attitudes toward police officers and instructors. Individual characteristics of students were found to affect their perceptions and attitudes toward police officers and instructors. These effects were also influenced by contextual factors.
It was concluded that both individual and contextual factors are equally important in predicting students’ perceptions and attitudes toward police officers and instructors. Students’ attitudes toward program instructors are determined by their perceptions of police, their individual- and school-level risk, their involvement in deviant behaviors and the type of instructor in school-based drug prevention program. On the other hand, students’ perceptions of the police are determined by their individual- and school-level risk, their involvement in deviant behaviors and racial identity.

The study made suggestions for policy reforms including the increasing use of police officers as resource persons in schools and the targeting of programs delivered by police officers to suit the unique needs of students. The study also made suggestions for replications of this study and future research into students’ perceptions and attitudes toward police officers and program instructors.
DEDICATION

To my mother, Grace and loving memory of my father, Paul,

for exposing me early to formal education and making learning and seeking higher

education a number one priority in my life.
ACKNOWLEDGEMENTS

In my journey into the world of higher education and in conducting this research study, I have received tremendous support from many people and they deserve my sincere appreciation. First, I would like to acknowledge and specially thank members of my dissertation committee namely professors Sonia Alemagno, Peter Leahy, Lucinda Deason, Zili Sloboda, Dennis Keating and Jesse Marquette. Without their intellectual encouragement, guidance and constructive criticism, I could not have acquired the knowledge, capacity and skills for writing this research possible.

I wish to acknowledge the support of the Institute of Health and Social Policy (I.H.S.P.). This research study is the result my association with the I.H.S.P., where I learned about substance abuse prevention through my four years work experience as a graduate research assistant. The I.H.S.P. also willingly made accessible to me to the database for this research study. To the director and staff of the institute, I say thank you. I am grateful to Drs. Peggy Tonkin and Brent Teasdale for their support and guidance.

I am very grateful to all the professors in the Department of Public Administration and Urban Studies. The challenges they presented, the guidance they provided and critical scrutiny of my work during my course work provided me with the basis for understanding public sector management and undertaking research study. I thank Dr. Nancy Grant, who initially offered me financial assistantship for my masters
program. Through my interaction with some of my colleagues in the masters and doctoral program I gained a lot of insight into statistical methods and I wish to thank them all.

I am happy to acknowledge the support of my family for his keen interest in my work and for encouraging me for success in the academic world. I am particularly grateful to my parent, whose drive, tireless efforts, unwavering support and continual prayers guided me through the rugged journey of academic pursuit. Special thanks go to my mother, who though had limited formal education but appreciated the value of education and made great sacrifices to ensure that I achieve my academic dreams. I thank my siblings, other family members and my good friends for their support and encouragement in my search for knowledge and in conducting this research study. I am especially grateful to my uncle, Professor Justice T. M. Ocran, who was instrumental in getting me to the United States and helped in making my stay in the United States meaningful. I thank my wife, Ella J. Hammond, for her love, support and believing in me.

I would like to give my thanks to all the numerous people who have contributed to my education and this research in one way or the other but who space would not allow me to mention them individually. To all the people who helped me in adapting to the challenges of the academic, social and cultural milieu of the United States, I simply say thank you. I also wish to express my appreciation to George Narh-Korli and Dr. Dudley Turner for their editorial inputs.

Finally, my greatest thanks go to God for all the great things He has done in my life.
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CHAPTER I
INTRODUCTION

Adolescent substance use has become one of the major public health problems causing morbidity and mortality throughout the world. While adolescent substance use in the United States (U.S.) has been on the decline in recent years (Johnston, O’Malley, Bachman, & Schulenberg, 2003), the level of drug use among adolescents with its likely consequence on students health and education remains a major concern to policy makers, practitioners and researchers in the field. There has also been a proliferation of school-based drug prevention programs in recent years with studies revealing that most of these programs can be effective (Botvin, 1990; Botvin, Baker, Dusenbury, Botvin, & Diaz, 1995; Durlak, 1995; Gorman, 1995). Generally, the effect size of most of these prevention programs has been low; ranging mostly from small to moderate (Tobler & Stratton, 1997; Tobler et al., 2000). This has ignited interest in increasing the effectiveness of prevention programs (Gottfredson & Wilson, 2003).

While previous studies have increased our understanding of school-based drug prevention programs, there remain gaps in the literature. One major gap is the lack of adequate examination of students’ perceptions of and attitudes toward program instructors. Yet, students’ perceptions of and attitudes toward program instructors are essential for high quality implementation and for the effectiveness of school-based drug prevention programs. Clayton, Cattarello, Day and Walden (1991) have noted that
program instructors and the process of communicating school-based drug prevention curricula are very essential to program success but have been given minimal attention. Further, most school-based drug prevention programs are based on the concept of persuasive communication. As observed by Clayton et al., (1991), “persuasive communication is, of necessity, an integral part of school-based drug prevention efforts” (p. 292). An essential feature of persuasive communication is the credibility of the message source, which among other things is based on the message recipients’ perceptions of the message source.

Despite the importance of source credibility and the essential role that program instructors play in the delivery of school-based drug prevention programs and by extension program success, little empirical research has examined students’ perceptions of and attitudes toward program instructors. The objective of this research study is, therefore, to explore students’ attitudes toward program instructors in school-based drug prevention programs. Specifically, it investigates students’ general perceptions of police officers and attitudes toward police as instructors of drug education programs. The study hypothesized that general perceptions of police officers determines students’ attitudes toward police instructors in drug prevention programs. Furthermore, it hypothesized that individual and contextual factors affect students’ perceptions of police officers and attitudes toward police instructors.

Statement of Problem

The main goal of school-based drug prevention programs is to delay or reduce adolescent substance use by changing students’ attitudes, values and normative beliefs as well as equipping them with the necessary skills for dealing with the pressures
to use drugs. The effectiveness of these programs in achieving this goal depends on a variety of factors, including program theory, implementation fidelity, research design, or a combination of these factors (Schaps, Moskowitz, Malvin & Schaeffer, 1984). Most school-based drug prevention programs are based on persuasive communication and an essential factor influencing their success is students’ perceptions of program instructors as being credible. In a typical teaching-learning environment, favorable perceptions of program instructors held by students and students’ receptivity of the information presented to them can be very influential in promoting program success. Flay and Petraitis (1991) captured this view when they noted “program effects depend not only on program content but also on the mode and quality of delivery and on attention and learning by the audience” (p. 94).

A unique feature of some school-based drug prevention programs, such as the Drug Abuse Resistance Education (D.A.R.E.) program, is the delivery of the program by police officers. The important role that police officers play in the delivery of such programs notwithstanding, few studies (if any), have examined the role of police officers in the delivery of school-based drug prevention programs. While previous evaluations of the D.A.R.E. program have explicitly or implicitly captured the essentials of persuasive communication, they have virtually ignored the role of police officers. Specifically, little or no attention has been given to the perceptions and attitudes of students toward police instructors.

To date, studies of the D.A.R.E. program have focused mainly on whether the program was effective in preventing, decreasing, or delaying substance use by adolescents, to the neglect of the role of police instructors. By focusing solely on whether
the program worked or not, without regard to students’ perceptions of and attitudes toward the police instructors, these studies are likely to underrate the effects of the program. The few studies that have looked at students’ perceptions of and attitudes toward police instructors are not without limitations. These studies only examined how the D.A.R.E. program affected students’ perceptions of police officers (Clayton et al., 1991; Ennett, Tobler, Ringwalt, & Flewelling, 1994; Faine & Bohlander, 1988; Harmon, 1993; Rosenbaum & Hanson, 1998; Wysong, Aniskiewicz, & Wright, 1994) and did not examine students’ perceptions prior to participation in the program and/or the underlying factors of the observed perceptions. In effect, the literature does not offer a complete understanding of students’ perceptions of program instructors, particularly police instructors, and its importance in school-based drug prevention programs based on persuasive communication. This study addresses the lack of attention to police instructors by exploring students’ attitudes toward police instructors and highlighting the need for examining the extent to which attitudes toward the instructors affect program outcomes.

There is a large body of literature on adolescents’ perceptions of and attitudes toward police officers. With the paucity of research on students’ attitudes toward police instructors, little is known about the extent to which findings from those studies are applicable to students in school-based drug prevention programs. More research is essential to increase our understanding of factors influencing students’ perceptions of and attitudes toward police instructors in drug prevention programs. To bridge the gap in the literature, this study explores students’ perceptions of and attitudes toward police officers in school-based drug prevention programs and the factors influencing the observed perceptions and attitudes. Following Ajzen and Fishbein’s (1980) theory of planned
behavior, the study conceptualizes reduction in substance use behavior as a function not only of behavioral intention through attitudes, subjective norms, and perceived behavioral control but also of individual attitude towards the program instructor.

**Significance of the Study**

The significance of this research study is derived from the fact that effective school-based drug prevention programs are crucial in the fight against adolescent substance use. The study’s significance is also based on the desire to develop effective school-based drug prevention programs by providing new information that would inform policy decisions regarding the delivery of prevention programs by police officers. This study is, therefore, not intended to be only an academic exercise meant to generate theory and discover truth but it is also meant to inform action and policy decisions, as well as help solve social problems. Previous studies of school-based drug prevention programs have contributed significantly to our understanding of the key elements of effective substance abuse prevention curriculum. Nonetheless, the lack of understanding of students’ perceptions of and attitudes toward program instructors, especially police officers, warrant additional study.

First, the effectiveness of any drug prevention program has been found to depend on a variety of intervening variables including the underlying theory, implementation of the program, research design, or a combination of these factors. This study provides information on one of the essential intervening variables, students’ attitudes toward program instructors, which has been ignored in previous studies. Such information would help provide a better understanding of school-based drug prevention programs and the development of more effective programs by designing a delivery
component that would take into consideration students’ perceptions of and attitudes toward the program instructor. Knowledge of the factors influencing students’ perceptions of and attitudes toward program instructors would help in selecting the type of instructor(s) to be used in program delivery and the possibility of using different instructors to target specific population of students.

This study also contributes to a better comprehension of school-based drug prevention programs and the underlying theory. A major theory for understanding school-based drug prevention programs based on persuasive communication is the theory of planned behavior. This theory, among other things, holds that external factors such as personality traits, attitude towards people and institutions could ultimately predict behavioral changes. By focusing on the factors influencing students’ perceptions of and attitudes toward police officers and instructors within the context of the theory of planned behavior, this study helps to set the stage in the process of determining whether students’ perceptions of and attitudes toward program instructors is a necessary condition for an effective prevention program. It also helps in the determination of whether the inclusion of students’ perceptions of and attitudes toward instructors add to the predictive value of the theory of planned behavior.

Third, there has been a persistent concern for solving the problem of adolescent substance use resulting in the proliferation of prevention programs. Some of these programs are delivered by police officers who by their training are likely to better understand issues of drug use and prevention. It can be argued that these programs delivered by police officers are capable of achieving what the D.A.R.E. program has achieved but “has been difficult for many prevention researchers to do – to organize and
implement an effective dissemination strategy” (Perry et al., 2000, p. 84). This could make school-based drug prevention programs delivered by police officers an indispensable component in the fight against adolescent substance use and concerted effort has to be made in ensuring their effectiveness.

Further, though there have been numerous studies on adolescents’ perceptions of and attitudes toward police officers elsewhere, these studies are basically cross-sectional. Studying adolescents’ perceptions of and attitudes toward the police at a given point in time poses as a limitation to these studies. This is because the studies have not been able to shed light on the direction of relationships, capture possible causation, nor ascertain whether there is a relation between the past and present perceptions and attitudes. Most of these studies are also limited to specific geographic location and populations, particularly Blacks or comparisons between Blacks and Whites in urban communities (Nofziger & Williams, 2005). This research study is, therefore, unique because it investigates the factors determining adolescents’ perceptions of police officers across the continental U.S. over a period of time (3 years with 5 data collection points). Consequently, the study would not only help identify the factors influencing adolescents’ perceptions of police officers but will also help trace and describe the magnitude and patterns of change in the observed perceptions. The broad coverage of this study to include the continental U.S. also helps make the findings from this study generalizable to other parts of the country and school-based drug prevention programs. In effect, the study will better illuminate our understanding of adolescents’ perceptions of and attitudes toward police officers.
Fifth, despite their distinctiveness, there are certain similarities among school-based drug prevention programs. Not only are most school-based drug prevention programs based on the psychosocial approach but most of these programs are also inspired by the concept of persuasive communication. These similarities would enable some generalizations and comparison among programs to be made. This study would, therefore, provide information that would inform most school-based drug prevention programs. The information from this study would also help in improving the quality of programs delivered by police officers.

Finally, prevention programs and research is a process undergoing continual changes and improvement. This study, therefore, contributes to the process of change and improvement by drawing attention to a virtually ignored factor that is essential for effective school-based drug prevention programs. Many of the research studies examining adolescent drug prevention programs tend to focus on program effect with little or no attention given to source credibility, an essential component of successful persuasive communication. This study also highlights student-instructor interactions and in so doing helps foster awareness of the role of students’ attitudes toward program instructors in drug prevention programs as well as stimulates intellectual interest and discussions in this area. It further helps in shaping policy decisions regarding the delivery of school-based drug prevention programs. In a nutshell, the findings from this study are useful to policy makers, program officials or practitioners and researchers interested in improving drug prevention programs delivered by police officers and non-police officers alike.
Scope of the Study

This research study is premised on the theory of planned behavior and thereby assumes that human beings are quite rational, make systematic use of available information and consider the implications of their actions before acting (Ajzen & Fishbein, 1980). It further assumes that individual attitude, subjective norms and perceived behavioral control influence the intention to perform behaviors, which in turn, influence actual behavior. Specifically, adolescents’ decisions to delay or quit using drugs are informed by their deliberate intention not to use drugs. This, in turn, is informed by their attitudes toward drug use, their subjective norms and perceived behavioral control with respect to drug use. Consequently, it is assumed that drug education programs can be effective if they influence the students’ intentions to use drugs by changing or reinforcing their attitudes toward drug use, their subjective norms concerning drug use and their perceived control over their drug use in a given situation.

Attitudes, subjective norms and perceived behavioral control are not the only factors that influence students’ drug use behavior. Indeed, there are more distal factors including attitude towards people or institutions and demographic variables that are essential in influencing behavior. Although several factors are significant in explaining behavior, this study focuses only on attitudes toward program instructors (information source) and is thus limited in coverage. The decision to focus on students’ perceptions of and attitudes toward program instructors stems from the fact that research has established students’ perceptions of and attitudes toward program instructors to be essential in successful teaching and learning processes. For instance, it has been found that the effectiveness of learning, among other things, depends on attention and receptivity by
students (Flay & Petraitis, 1991). Nevertheless, students’ perceptions of and attitudes toward program instructors have not been given the needed attention in the literature. This study adds to the literature by examining an essential factor to program success that has been overlooked in the literature - students’ attitudes toward program instructors.

Further, substance use behavior is a complex and interrelated process and the theory of planned behavior is likely to capture only the most proximal predictors of students’ drug behavior. It has to be pointed out that the complexity of substance use behavior makes it difficult, if not impossible, for any one theory to fully capture students’ drug behavior. This notwithstanding, the theory of planned behavior was used for this study because it is a widely used, and strongly supported expectancy-value model for studying and investigating persuasive communication as well as for understanding the process by which behavior is guided by attitudes.

Several variables underlie students’ perceptions of program instructors, specifically police officers. This study captures seven of the variables believed to affect adolescents’ perceptions of and attitudes toward police officers. The seven variables are age, gender, ethnicity, risk level, place of residence, encounter with the police and involvement in deviant behaviors. While conceding to the limitation of the study in the coverage of the underlying factors of adolescents’ perceptions of police officers, it must also be noted that the seven variables are the most studied in the literature.

In addition, there is no consensus among scholars with respect to the factors explaining adolescents’ perceptions of and attitudes toward police officers. For instance, race is by far the single most studied factor identified as shaping perceptions of and attitudes toward the police. While scholars such as Hurst, Frank and Browning (2000)
have found race not to be a significant predictor of perceptions of and attitudes toward the police, others such as Taylor, Turner, Esbensen and Winfree (2001) found otherwise. Further, it has been pointed out that it is not race per se that influences perceptions of and attitudes toward the police. Rather it is race coupled with other factors such as encounter with the police that influence perceptions of and attitudes toward the police (Dean, 1980).

**Organization of the Study**

This research study is organized around six chapters. The first chapter, of which this section is a part, provides a general background to the study and explains the basic themes. It describes the problem to be investigated and the key question guiding the study. It also provides the focus and significance of the study. The second chapter deals with the review of relevant literature and previous research on adolescent substance use with particular reference to school-based drug prevention programs. It consists of four major divisions: (1) general review and evaluation of school-based drug prevention programs, (2) review of evaluation of the D.A.R.E. program, (3) an overview of Take Charge of your Life Program, and (4) review of adolescents’ perceptions of and attitudes toward police officers. The third chapter discusses theoretical framework underlying most school-based drug prevention programs and the theory informing this study. It examines the theory of planned behavior and elaboration likelihood model and how they relate to source credibility.

Chapter four considers the research methodology used in this study. It describes the nature of the data and sample as well as the measurement instruments. It highlights the specific hypotheses to be tested, and the statistical procedure relevant for analyzing the data and answering the research questions. Chapter five presents and
discusses the major research findings from the study. It also explains the interpretation of the results emerging from the study and includes discussion about students’ perceptions of police officers and attitudes toward police instructors, and the factors influencing the observed perceptions and attitudes. The sixth and final chapter presents the summary and conclusions from the study as well as the implications for public policy, school-based drug prevention programs and makes suggestions for further research.
CHAPTER II
LITERATURE REVIEW

The purpose of this chapter is to provide a detailed review of relevant literature, highlighting findings from previous studies related to this study. This chapter comprises of eight sections, including this section. The next section provides a brief overview of adolescent substance use. This is followed by a discussion on school-based drug prevention programs and a section on a review of school-based substance abuse prevention programs. The fifth and sixth sections describe and present a review of evaluations of the D.A.R.E. program. The seventh section describes the Take Charge of your Life (T.C.Y.L.) Program and is followed by a section reviewing adolescents’ perceptions of and attitudes toward police officers.

Adolescent Substance Use

Adolescent substance use has become one of the major public health problems causing morbidity and mortality throughout the world. The damaging effects of adolescent substance use are many and varied including acute and chronic health problems, drug-related injuries and death, poor academic performance, criminal activity and psychosocial maladjustment (Ammerman, Ott, & Tarter, 1999). Recent national data indicates that adolescent substance use has experienced continual decline for some time now (Johnston et al., 2003). For instance, between 2002 and 2003, the proportion of 8th, 10th, and 12th grade students who reported use of any illicit drug in the past 30 days
dropped from 10.4%, 20.8%, and 25.4% to 9.7%, 19.5%, and 24.1% respectively (Johnston et al., 2003). The declining trend notwithstanding, the use of illicit drugs among adolescents continues to pose threats to public health and quality education. This has raised concern among researchers, practitioners and policy makers as well as stimulated interest in developing a more effective way of addressing the problem.

It has been established that the initiation of nearly all drug use begins at adolescence with experimentation with alcohol and cigarette smoking (Ammerman et al., 1999; Griffin, Botvin, Doyle, Diaz, & Epstein, 1999; Johnson, Boles, & Kleber, 2000; Kandel, Yamaguchi, & Chen, 1992; Oetting & Beauvais, 1987). Dynamic biological, cognitive, social and emotional changes that take place during adolescence influence behavior including experimentation with alcohol and smoking (Ammerman et al., 1999). The early experimentation with alcohol and cigarette smoking has the tendency of leading to heavy use of other drugs. Otherwise known as the gateway hypothesis of adolescent drugs use, it is held that adolescents who use alcohol and cigarettes are more likely to experiment with marijuana. Those experimenting with marijuana, in turn, have a higher probability of using other hard drugs and becoming heavy users of illicit drugs (Ammerman et al., 1999; Hawkins, Catalano, & Miller, 1992; Kandel, 2002; Kandel et al., 1992).

**School-Based Drug Prevention Programs**

The fact that adolescents experiment with drugs at an early age coupled with the subsequent adverse effects of early experimentation with drugs has made prevention programs targeting adolescents the most realistic approach for dealing with the problem
of adolescent drug use. With most adolescents initiating substance use at a time when they are in school, school-based drug prevention programs for adolescents are undeniably the most viable option for targeting adolescents’ drug use. Consequently, there has been an increased interest in developing school-based drug prevention programs geared towards the effective reduction, prevention or delaying of adolescent substance use.

Among the importance of schools in adolescent substance use prevention is the acknowledgement that schools are institutions with ready access to a large number of adolescents over a long period. This makes schools “the best site for reaching the most children” (Clayton et al., 1991, p. 295). Schools also offer existing structure with the necessary characteristics for the implementation of several prevention curricula (Forman & Linney, 1991) including the extensive time spent in schools by adolescents, the significant proportion of contact with peers, and the primary role of schools in the teaching-learning process (Ammerman et al., 1999).

In the past two decades, considerable effort and progress have been made toward the understanding of drug use as well as the development and rigorous testing of drug prevention programs (Botvin, Griffin, Diaz, & Lfill-Williams, 2001; Rohrbach, Graham, & Hansen, 1993). There has also been a pervasive proliferation of school-based drug prevention programs (Gottfredson & Gottfredson, 2002). The effect of these prevention programs on adolescent experimentation and abusive use of illicit drugs has been mixed (Ennett et al., 2003; Gottfredson & Gottfredson, 2002). While past approaches to school-based drug prevention programs were based on information dissemination and affective education, recent research has established that such
approaches have had limited or no effect on adolescent substance use behavior (Ammerman et al., 1999; Ennett et al., 1994).

Conversely, studies and reviews have indicated that drug prevention programs based on the social influence model are the most promising and effective in reducing adolescent substance use (Botvin et al., 2001; Dielman, Shope, Leech, & Butchart, 1989; Ellickson & Bell, 1990; Ennett et al., 1994; Pentz et al., 1989). For instance, Botvin and his colleagues have indicated, “prevention approaches that target social influences either alone or in combination with the teaching of general personal and social skills” are superior to the “more traditional information dissemination approaches” (Botvin et al., 2001, p. 1). This observation corroborates the findings from Hansen’s (1992) meta-analysis of research studies of school-based substance abuse prevention programs published in the 1980s. Controlling for methodological features, Hansen found that social influence and comprehensive prevention programs were more successful in reducing substance use.

Accordingly, current prevention approaches are increasingly focusing on social and psychological factors (psychosocial approach). The psychosocial approach seeks to increase the awareness of the social factors influencing the initiation of substance use, changing normative beliefs regarding drug use and building drug resistance skills. It is based on the assumption that drug prevention approaches “that combine the features of the problem-specific social influence model and the broader competence enhancement model” are the most effective (Ammerman et al., 1999, p. 292).
There are a variety of components characterizing the psychosocial approach to drug prevention but three major components underpin the approach (Botvin, 1990). These components are the psychological inoculation, resistance skills training, and personal and social skills training. According to Botvin, the psychological inoculation is similar to traditional prevention medicine whereby individuals are exposed to weak doses of pro-drug social influences (“germ”) to help them develop “antibodies”. These “antibodies” are expected to help individuals to increase their resistance to the social pressures of drug use.

Underlying the resistance skills is the assumption that adolescents use drugs because they lack sufficient skills to resist social influences that promote drug use. Consequently, the resistance skills place emphasis on providing individuals with the requisite knowledge and skills to be able to recognize, challenge and (or) respond effectively to situations likely to generate pressures of drug use. The personal and social skills training, on the other hand, seek to provide individuals with generic personal and social skills such as positive self-esteem, effective decision making and communication, and assertiveness, necessary for dealing with social influences that promote drug use.

**Evaluation of School-Based Substance Abuse Prevention Program**

The literature is rife with the view that school-based drug prevention programs can be effective in reducing adolescent substance use. Botvin et al. (1995) have revealed that more comprehensive programs and intensive approaches that include booster sessions tend to have long-term program effects, at least until the end of high school. They also noted that students who receive more of prevention intervention exhibit more program effect than their counterparts receiving less of the intervention.
In one of the best-known works in prevention intervention research, Tobler and her colleagues (Tobler, 1986; Tobler & Stratton, 1997; Tobler et al., 2000) declared that school-based drug prevention programs could be effective in delaying, decreasing, or preventing substance use among all groups of adolescents, at least in the short-run. In a meta-analysis of 143 research studies, Tobler (1986) observed a modest but significant difference in effect size between adolescents who had received intervention and their counterparts who had not received the intervention. Much of the effectiveness of the intervention programs was, however, recorded in the area of knowledge, attitudes and other intermediary measures and not actual drug use.

In a related meta-analytical study of 120 school-based drug prevention programs from the U.S. and Canada, Tobler and Stratton (1997) categorized the selected programs into two major groups based on the content and delivery process of the program. These categories were (a) interactive programs, which included social influences and comprehensive life skills programs, and (b) non-interactive programs comprising knowledge only, affective only and a combination of knowledge and affective programs. While both the interactive and non-interactive programs showed significant changes in knowledge, attitudes and skills, it was only with the interactive programs that these changes were transformed into changes in actual drug use. They observed that the effectiveness of the interactive programs was clinically and statistically significant compared to the non-interactive programs for all groups of adolescents.

The effectiveness of the interactive programs was found to be dependent on program size, with effectiveness decreasing as the size of the program approaches a few thousand students (Tobler & Stratton, 1997). According to Tobler and Stratton,
drawbacks associated with large-scale implementation of interactive programs are the possible reasons for the decreasing effectiveness of interactive programs as program size increases. These findings by Tobler and Stratton have been supported by evidence from an updated and expanded meta-analytical study of 207 universal school-based drug prevention programs (Tobler et al., 2000).

Tobler and her colleagues (Tobler, 1986; Tobler & Stratton, 1997; Tobler et al., 2000) acknowledge that certain content areas and instructional approaches can yield larger program effects than others. They noted that prevention programs focusing simply on drug-related knowledge and attitudes, and using traditional didactic instructional approaches tended to have limited effect. On the other hand, prevention programs focusing on social influences, drug refusal skills, and generic competency skills coupled with an instructional approach that places emphasis on active student participation were very effective. In effect, prevention programs based on the social influence approach and that actively engage students in the delivery process tend to be very effective.

In a meta-analytic research of 165 studies of school-based prevention programs, Wilson, Gottfredson and Najaka (2001) found that school-based drug prevention programs tend to be more effective in reducing drug use and other behavioral problems. Nonetheless, they observed considerable variations in effect size across program types. Programs using “self-control or social competency promotion instruction” with “cognitive-behavioral and behavioral instructional methods … showed consistently positive results across all four outcomes” studied (Wilson et al., 2001, p. 268). Like Tobler and her colleagues (Tobler, 1986; Tobler & Stratton, 1997; Tobler et al., 2000), they stressed the importance of program delivery. According to Wilson et al., programs
taught using traditional methods, even when they cover social competency skills content, were not effective compared to those taught with methods based on sound learning principles.

Gottfredson and Wilson (2003) using meta-analytic techniques to examine 94 studies of school-based alcohol and other drug prevention programs highlighted the role of program instructors. According to them, there were “no differences in the effect sizes for programs delivered with and without teachers, peers, and police” (Gottfredson & Wilson, 2003, p. 34). Nonetheless, they noted that controlling for the type of prevention activity, peer involvement in program delivery yielded a positive effect. The positive effect of program delivery by peers, however, disappeared when teachers were involved in the delivery process. They argued that the differential program outcomes might be confounded by unmeasured features of the programs other than who provided treatment. It must be pointed out that these unmeasured features of the programs were not identified.

Gottfredson and Gottfredson (2002) have reiterated the observation that quality of implementation is important to the effectiveness of prevention programs. They are of the view that four major school and program characteristics potentially facilitate or impede high-quality implementation of program and by extension program effectiveness. Gottfredson and Gottfredson stressed the importance of understanding these conditions and developing strategies toward the enhancement of implementation. The four characteristics are organizational capacity, organizational support, program features, and integration of program into normal school operations. Among other things, they indicated that “the amount and quality of training, level of supervision, and principal support for the prevention activities were” essential for high implementation quality (Gottfredson &
Gottfredson, 2002, p. 23). These characteristics are possibly, what Gottfredson and Wilson (2003) were referring to when they pointed out that unmeasured program features confound program outcomes.

In the view of Gottfredson and Gottfredson (2002), the current state-of-the-art approaches to prevention programs were not part of teacher training education and that has been an obstacle to effective school-based drug prevention programs. They highlighted the importance of integrating prevention programs into normal school operations and indicated that activities delivered by regular school employees were of higher quality than those by volunteers. This alludes to the importance of program delivery and instructors in effective prevention programs expressed elsewhere (Gottfredson & Wilson, 2003; Tobler, 1986; Tobler & Stratton, 1997; Tobler et al., 2000).

While program content and delivery combine to influence the effectiveness of prevention programs, the review of the literature so far elucidates and brings to the fore the importance of program delivery and by extension the role of program instructors in school-based drug prevention programs (Gottfredson & Wilson, 2003; Tobler, 1986; Tobler & Stratton, 1997; Tobler et al., 2000; Wilson et al., 2001). For instance, while acknowledging that the quality of school-based drug prevention activities being implemented in typical schools leaves much room for improvement, Gottfredson and Gottfredson (2002) stated that a high quality program is not dependent on a program type. Tobler and her colleagues (Tobler & Stratton, 1997; Tobler et al., 2000) best captured this view when they argued that some of the positive program effects attributed to program content might be due to the delivery method.
Though it has been established that the effectiveness of prevention programs depend on several factors, the importance of program leadership cannot be disregarded (Tobler et al., 2000). According to Tobler et al., the characteristics of program instructors including their preparedness, enthusiasm and credibility, and their ability to conduct a truly interactive approach greatly determine the success of prevention programs. Hansen (1992) has also highlighted the importance of program instructors when he stated that implementation fidelity as well as the training and background of the program instructor might be more important than the content of the message.

In a related point, Tobler (1992) indicated that the classroom teacher best teaches drug education. This, according to her, is due to the fact that classroom teachers by their training and work have first-hand knowledge of students’ needs and developmental level and are in the best position to modify and integrate drug education programs to suit their students and class needs. It is probably for this reason that Gottfredson and Gottfredson (2002) noted that programs delivered by regular school employees were of higher quality than those by volunteers. Tobler has, however, pointed out that an effective program instructor is someone who is a guide and not a leader. Thus, the quality of implementation depends not as much on who delivered the program but rather on the role of the program instructor in the delivery process.

The ineffectiveness of most school-based drug prevention programs has more to do with program delivery than program content. It is against this background that Gottfredson and Gottfredson (2002) have advocated that schools need not abandon existing prevention activities but should focus on improving the activities currently in place. Tobler and Stratton (1997) share a similar view when they suggested that the
adoption of an interactive approach to prevention programs would increase the effectiveness of school-based drug prevention programs by about 8.5%.

Undoubtedly, it is clear from the studies and reviews of school-based drug prevention programs that these programs can be effective in preventing substance use. While these studies and reviews have increased our understanding of school-based drug prevention programs, they have “raised new issues in improving program effectiveness and developing effective model for implementation, diffusion, and sustainability” (Greenberg, 2004, p. 5). In searching for more effective program development and implementation, Greenberg has suggested that the focus should be on a variety of factors including program and non-program factors such as characteristics of program instructors.

**Police Officers as Instructors: The Drug Abuse Resistance Education Program**

The Drug Abuse Resistance Education (D.A.R.E.) program is a school-based drug prevention program delivered by police instructors and widely implemented across the U.S. Against this backdrop it is worth examining the D.A.R.E. program. The D.A.R.E. program is a school-based drug prevention program created through a joint effort between the Los Angeles, California, Police Department and the Unified School District. Since its establishment in 1983, the D.A.R.E. program has increasingly become a widespread drug prevention program for adolescent substance use. Accordingly, it has gained wide acceptance among teachers, school administrators and students in the U. S. (Earle, Garner, & Phillips, 1987).

The D.A.R.E. program is considered “the most widely disseminated school-based prevention program in the United States” (Clayton, Cattarello, & Johnstone, 1996,
p. 307) and is being implemented in about 80% of U. S. school districts (Hallfors & Godette, 2002). The program has gained wide acceptance not only in the U. S. but it also enjoys considerable worldwide acceptance as shown by its implementation in over 58 countries (Drug Abuse Resistance Education, 1996). In the U. S., the program is designed for students in kindergarten through to the 12th grade. The core curriculum is delivered to students in the 5th or 6th grades.

Various studies have provided different theoretical underpinnings of the D.A.R.E. program, but like most school-based drug prevention programs, it is based on the concept of persuasive communication (Clayton et al., 1991). The D.A.R.E. program is also believed to comprise an element of each of the components of the psychosocial approach (Ammerman et al., 1999; Clayton et al., 1991; Rosenbaum & Hanson, 1998). Tobler and Stratton (1997) are of the view that the biggest difference between the D.A.R.E.-type programs and other prevention programs such as the social influence and comprehensive life skills type of programs is the use of the didactic mode of instruction in the D.A.R.E. program.

As a program based on the psychosocial approach, the D.A.R.E. program incorporates psychological inoculation, resistance skills and social and personal skills. With respect to psychological inoculation, the D.A.R.E. program attempts to prevent adolescent substance use by “psychologically inoculating” adolescents against pro-drug messages (Botvin, 1990). To build resistance to these messages conceptualized as the equivalent of “germs”, adolescents are exposed initially to weaker pro-drug messages and then to gradually stronger pro-drug messages (Botvin, 1990). Additionally, the D.A.R.E. program seeks to develop resistance skills by providing adolescents with the skills needed
to identify and resist the social pressures of drug use, particularly pressures from peers and the media. As far as social and personal skills development is concerned, the D.A.R.E. program seeks to enhance the competence of students in dealing with pressures of drug use by equipping them with generic skills such as communication and assertiveness.

The D.A.R.E. program is delivered in the classroom setting by trained and uniformed police officers using both the didactic and interactive approaches to teaching and learning (Clayton et al., 1996). The program, like most school-based drug prevention programs, aims at preventing, decreasing or delaying the onset of drug use among adolescents.

Evaluation of the Drug Abuse Resistance Education Program

The effectiveness of the D.A.R.E. program has been a subject of considerable debate and research. Evaluation of the program has grown in terms of both quantity and quality over the years. Earlier evaluative studies have found the program to be effective in influencing program outcomes such as increased knowledge, negative attitudes toward drugs, essential skill development and positive behavior relating to drugs. However, most of these studies are based on the 5th or 6th grades curriculum. The impact of the D.A.R.E. program, especially behavioral changes, at this level has been found to decay over time. Besides, most of the studies are plagued with weaknesses including lack of strong design and methodological rigor.

With respect to design problems, most of the studies lacked control group, randomization, and/or pre-test. While the lack of pre-test avoids the problem of pre-test sensitization (threat of testing to internal validity), the absence of pre-intervention data
makes it difficult for the actual program effect to be determined. The existence of a strong counterfactual group is very essential in reliably measuring program effect. This is because it helps in ensuring that the experimental and control groups are equivalent on virtually all important characteristics except for program effect. Mohr (1995) has reported that imperfect or lack of randomization has the tendency of creating a situation of pre-intervention differences between the treatment and control groups and confounding actual program effect.

In the absence of randomization, pretest can be used to identify pre-intervention differences and the observed differences accounted for in statistical analysis. This notwithstanding, some of the earlier D.A.R.E. studies not only lacked randomization but they were also devoid of the pre-test. In some studies where the pre-test was used, the observed pre-intervention differences were not adequately accounted for statistically in determining program effect. It must be pointed out that, even in cases where pre-intervention differences are measured and adequately accounted for, it would still be possible that the pre-test did not capture all essential pre-intervention differences. With the lack of randomization and/or pre-test in some of the earlier studies, it is likely that the effect of the D.A.R.E. program in earlier studies was overstated.

A major methodological issue confronting most of the earlier evaluation of the D.A.R.E. program is the difference between unit of assignment (schools) and unit of analysis (individual level data). In the D.A.R.E. program, like most school-based drug prevention programs, clusters of subjects (schools) instead of individual subjects are randomly assigned to experimental and control groups. This type of sampling design
creates within-cluster correlation (intra-cluster correlation) that has the tendency of biasing and usually underestimating the standard errors of the parameter estimates.

To avoid this problem of biasing the standard errors of the parameters, it is essential for the intra-cluster correlation (I.C.C.) to be accounted for in statistical analysis. Nonetheless, most of the earlier evaluative studies of the D.A.R.E. program failed to account for this correlation. The failure of the earlier studies to account for the I.C.C. has the tendency of exaggerating the statistical significance of the parameters – increasing type I errors (Norton, Bieler, Ennett, & Zarkin, 1996). In effect, it is likely that most of the significant effects of the D.A.R.E. program in the earlier studies are erroneous.

One of the earliest evaluations of the D.A.R.E. program worth examining is the study by DeJong (1987). Investigating the impact of the D.A.R.E. program on 7th grade students in Los Angeles, California, exposed to the D.A.R.E. intervention, DeJong observed mixed effects from the D.A.R.E. program. While the D.A.R.E. program did not have any significant effect on students’ knowledge or attitudes about drugs, it had a significant positive effect on students’ response to drug offers and actual drug use. Generally, students exposed to the D.A.R.E. program reported lower use of alcohol, cigarettes and all other drugs studied. Problems were found with this study, with the major one being the use of a weak design. Not only did the study lacked random assignment and used the post-test only design, but it also focused entirely on students’ recall, retrospectively, of whether they have received the D.A.R.E. program or not.

Subsequent studies have used a relatively improved design and (or) rigorous methodological analysis. Using a quasi-experimental design, particularly pre- and post-
test design, Clayton (1987) assessed the effect of the D.A.R.E. program on students’ drug use. Clayton found positive program effect on mediating variables such as knowledge, attitudes and social skills. These effects, however, did not have any significant impact on the ultimate goal of the D.A.R.E. program - drug use behavior.

Using similar design, Faine and Bohlander (1988) evaluated, among other things, the effectiveness of D.A.R.E. program among 5th graders in Kentucky by comparing students who have received the intervention with their counterparts without the intervention. They also analyzed the effect of the D.A.R.E. program among inner city students in a large metropolitan area. The study revealed a positive program effect on attitudes toward drugs, knowledge of drug, self-esteem, attitudes toward the police, peer resistance and perceived external control.

Harmon (1993) has also studied the effect of the D.A.R.E. program using nonequivalent control group quasi-experimental design. In a study of the D.A.R.E. program among 5th grade students in Charleston County, South Carolina, Harmon identified mixed program effects. Using analysis of variance (ANOVA) and controlling for pre-test differences, she found that the D.A.R.E. program has positive effect on alcohol use, beliefs in prosocial norms, association with drug using peers, peer association, attitudes toward substance use, and assertiveness. On the other hand, D.A.R.E. had no effect on cigarette, tobacco or marijuana use, frequency of drug use, attitudes about police, social integration, coping strategies, attachment and commitment to school, rebellious behavior and self esteem.

A common limitation to these studies is that they focused only on immediate posttest measures, though it is possible that the D.A.R.E. program might have a
“relapse”, “sleeper” or “boomerang” effect. For instance, in the study by Harmon (1993), the effect of the D.A.R.E. program was determined 20 weeks after the pretest. To determine the actual impact of the D.A.R.E. program, therefore, it is essential that studies examine the long-term effect of the D.A.R.E. program. The importance of a long-term study of the effectiveness of the D.A.R.E. program is also informed by the observation that steep rise in the usage of most drugs occur in high school; about five years after the delivery of the D.A.R.E. core curriculum (Rosenbaum & Hanson, 1998).

An attempt by Faine and Bohlander (1988) to examine the long-term effect of the D.A.R.E. program in one-follow-up was beset with the program of lack of true “no-treatment” group. This is because by the end of the first year, the original control group had also received the D.A.R.E. program. To address this problem and obtain a comparison group, Faine and Bohlander (1988) matched students in the experimental group with students from other counties. This effort to determine the effect of the D.A.R.E. is flawed. Like the study by DeJong (1987), students from the other counties were not pre-tested and the observed program effect might have been confounded by pre-intervention differences.

In a randomized experiment with pre- and post-test design, Ringwalt, Ennett, and Holt (1991) examined the effectiveness of the D.A.R.E. program among 5th and 6th graders in North Carolina. They used a convenience sample of 20 schools and randomly assigned 10 schools each to experimental and control groups. Controlling for pre-intervention differences, they noted that the D.A.R.E. program had significant anticipated impact on students attitudes toward specific drugs and general drugs, assertiveness, knowledge of cost associated with drugs and pressures (media) of drug use, and
perceptions of peer attitudes toward drugs. There were, however, no significant program effect on intention to use drug and actual drug use, self-esteem and perceived benefits of drug use.

Clayton et al. (1991) have also examined the effect of the D.A.R.E. program on 6th graders in Lexington, Kentucky. They randomly assigned 23 schools to the experimental group and eight schools to the control group. In the first of a 5-year longitudinal study, they identified positive program effect on attitudes toward drugs immediately after participation in the D.A.R.E. program. There was no immediate program effect on drug use, resistance to peer pressure and self-esteem. Evidence at the first year follow-up revealed a dissipation of the positive attitudinal effect but students reported less use of marijuana. The positive effect on marijuana use was, however, found to disappear at the second year follow-up. In effect, there was a relapse program effect with the observed positive effect of the D.A.R.E. program disappearing overtime. Though Clayton et al. identified pre-intervention differences between the experimental and control groups, they controlled for only race. The failure to control for other pre-intervention difference might have confounded the program effect.

In a subsequent follow-up to the Kentucky study (Clayton et al., 1991), Clayton et al. (1996) controlling for time, school and individual level effects and using random effect regression concluded that the D.A.R.E. intervention program did not influence actual drug use both in the short-term and long term. They detected some improvements in students’ attitudes toward drug use, peer pressure resistance and perceived drug use by peers but these improvements dissipated over time. Besides, there
was no significant difference between the D.A.R.E. and the control students for any of
the measured outcome at the end of the 5th year.

According to Clayton et al. (1996), the lack of positive D.A.R.E. effect in the
long run can be attributed to the fact that the control group was not a true “no-treatment”
group. This is because almost all the schools in the control group had some type of drug
education program that might be similar to the D.A.R.E. program. This has been a
problem confronting drug education research for sometime now with diverse
consequences. A classic example is the situation where Faine and Bohlander (1988)
could not use the ‘original’ control group for comparison in their one-year follow-up
study. This is because by the end of the first year, the control group had received the
treatment. With the proliferation of drug education program in schools (some being
mandatory), the problem has become widespread.

Rosenbaum and Hansen (1998) have attested to this problem and argued that
the “contaminating” influence of exposure of students to additional drug education
programs might equalize the two groups on the program. They indicated that the
equalization process has the tendency of biasing evaluation findings in favor of no
program effect, though they did not rule out the possibility of a reverse outcome. They
indicated that, they have developed a cumulative index of students’ exposure to
supplemental program to address the problem. The efficacy of this approach, however,
remains unknown.

Using pretest and multiple posttests, Wysong, Aniskiewicz, and Wright
(1994) studied the effect of the D.A.R.E. program on 7th grade students in Indiana. A t-
test for group mean difference demonstrated no consistent and significant long-term
effects on drug use, self-esteem, locus of control and positive attitudes toward police officers. They noted a decline in positive attitudes toward police and students’ unwillingness to denounce peer substance use. The study also revealed a possible “boomerang” effect on the use of hallucinogens. Like some prior studies (Clayton et al., 1991; Faine & Bohlander, 1988), the study lacked true control group as a cohort group, one year older was used as the comparison group.

Studying students in the final grade level of elementary schools (5th or 6th grade) in 18 pairs of elementary schools representative of rural, suburban, and urban communities in northern Illinois, Rosenbaum, Flewelling, Bailey, Ringwalt, and Wilkinson (1994) assessed the effect of the D.A.R.E. program. They randomly assigned the schools in the urban and suburban communities into treatment and experimental groups. In view of scheduling requirements of D.A.R.E. officers in the rural communities, however, the schools in the rural areas were not assigned randomly. The schools in all the communities were also matched on important characteristics such as school type, ethnic composition, family income and proficiency in English.

Rosenbaum et al. (1994) used randomized field experiments with a pretest and multiple posttests, following students annually to the 12th grade. At a one-year follow-up, Rosenbaum et al. (1994) using multiple logistic regression with control for antecedent covariates found that the D.A.R.E. program had a significant positive effect on only one (perceived media influences) of 13 intervening attitudinal/cognitive outcomes measured. Though not significant, the D.A.R.E. program had a positive effect on 10 of the 13 variables. The program also had no overall positive impact on students’ use of alcohol or cigarettes. They identified differential D.A.R.E. impact with Hispanics
perceiving benefits of smoking more highly than their counterparts and females less likely to stop using alcohol. Despite this unimpressive finding, the D.A.R.E. program had positive but non-significant impact on five out of six behavioral outcomes measured. They called for more research on the processes of delivering school-based drug education programs arguing that “little is known about the impact of differences in teacher characteristics, teaching style” among other factors (Rosenbaum et al., 1994, p. 27).

In a follow-up to the Illinois study (Rosenbaum et al., 1994), Rosenbaum and Hanson (1998) followed the students in the 18 pairs of elementary schools yearly from 6th through to 12th grade. Analyzing all waves of data, they observed short-term D.A.R.E. effects on cigarette use, attitudes toward drugs, peer attitudes toward drugs, media awareness, self-esteem and assertiveness, and attitudes toward the police. They found that while the D.A.R.E. program has “immediate and short-term effects (up to two years) on several mediating variables”, almost all of these effects were not sustained “into the critical high school years” (Rosenbaum & Hanson, 1998, p. 405). Similarly, with respect to drug use, the D.A.R.E. program did not have sustained preventive effect. They noted differential program impact on students with students in urban and rural communities experiencing some positive effects as against their counterparts in the suburban communities. Nonetheless, it was only the effect on the suburban students that was statistically significant. They also indicated that there is a possible boomerang effect among suburban students.

The longest reported study of the D.A.R.E. program has been by Lynam et al. (1999). In a follow-up study of the Kentucky study (Clayton et al., 1996), Lynam et al. (1999) examined the effect of the D.A.R.E. program among 6th grade students from urban
and suburban areas in a Midwestern metropolitan area for a 10-year period. Evidence from the study indicated that the D.A.R.E. program has no lasting beneficial effects on both attitudes toward drugs and actual drug use. Further, there was no significant effect on mediating outcomes such as self-esteem and peer resistance. Consistent with the earlier findings by Clayton et al. (1996), Lynam et al. stressed, “there appear to be no reliable short-term, long-term, early adolescent, or young adult positive outcomes associated with receiving the D.A.R.E. intervention” (p. 592).

A common feature of the long-term studies of the effect of the D.A.R.E. program is the use of stronger design and rigorous methodological analysis. Most of the studies used random procedure in the assignment of schools with pre-test and multiple posttests after the immediate posttest. They also adopted rigorous statistical analysis such as hierarchical models (Clayton et al., 1996; Lynam et al., 1999; Rosenbaum et al., 1994; Rosenbaum & Hanson, 1998) to account for multiple sampling levels that pose the problems of intra-cluster correlation. The use of stronger design and rigorous analytical methods notwithstanding, these studies are flawed by their focus on the old D.A.R.E. curriculum. As Rosenbaum and Hanson (1998) indicated, their study focused on the old D.A.R.E. curriculum instead of the revised version. In effect, these studies do not provide information on the effect of the revised and new D.A.R.E. curriculum and their findings tended to be outdated.

Furthermore, the long-term studies have generally produced similar results. First, the studies have indicated that the D.A.R.E. program has no long-term effect on adolescent substance use behavior. It has been revealed that the D.A.R.E. program has some positive short-term effects, particularly on knowledge and attitudinal outcomes, but
these effects are considered to be very small (Ennett et al., 1994). Besides, the studies captured the view that the positive short-term effects of the D.A.R.E. program tend to decay overtime.

In their meta-analytical study of eight evaluations of the D.A.R.E. program compared to 25 other prevention programs, Ennett et al. (1994) found that the D.A.R.E. program has positive effect on knowledge, attitudes, social skills, self-esteem, and drug use. They pointed out that the impact of D.A.R.E. is minimal and short-lived in the area of students’ knowledge of drugs, social skills development, attitudes toward drugs and police officers, and self-esteem with the largest impact occurring in the area of students’ knowledge of drugs. With respect to drug use, the effect was short-lived and generally small with a weighted average effect size of 0.06, an effect size not significantly different from zero. Generally, the effect size of the D.A.R.E. program was found to be larger than, and significantly different from, those of other intervention programs using traditional teaching modalities. Conversely, the effect size of the D.A.R.E. program was smaller than those from programs using interactive modalities and emphasizing social and general competencies.

The Take Charge of Your Life Program

The lack of long-term effect of the D.A.R.E. program notwithstanding, the program has been observed to have an effective dissemination strategy (Perry et al., 2000). Additionally, the training of the police instructors (D.A.R.E. officers) has been found to be “sound and based on a broad body of research on teaching” (Clayton et al., 1991, p. 310). The existence of an effective delivery system with well-trained instructors coupled with the search for a more effective program has led to the design and
experimentation of a new curriculum. The new curriculum known as the Take Charge of Your Life (T.C.Y.L.) is a universal adolescent substance abuse prevention program that seeks to change students’ attitudes and normative beliefs about substance use and provide them with knowledge, skills and abilities to gain control over their own lives, hence the name Take Charge of Your Life. The T.C.Y.L. curriculum was designed by the Institute for Health and Social Policy (I.H.S.P.) of the University of Akron to be disseminated through the existing system of D.A.R.E. officers across the country. The evaluative study of the T.C.Y.L. curriculum was undertaken with the cooperation of D.A.R.E. leadership and was funded by the Robert Wood Johnson Foundation. In designing the program, the staff of the I.H.S.P. began with an analysis of the existing D.A.R.E. curriculum utilizing insights from three major sources.

First, the design of the program was informed by principles derived from evaluative studies of successful school-based drug prevention programs. In accordance with findings from effective school-based drug prevention programs, the T.C.Y.L. curriculum placed emphasis on the development of resistance skills; communication, decision-making, assertiveness and refusal skills; reinforcement of negative consequences of use; and the correction of erroneous normative beliefs. Furthermore, Tobler and her colleagues (Tobler, 1986; Tobler & Stratton, 1997; Tobler et al., 2000) have argued that effective substance abuse prevention programs involve the active participation of students in the instructional activities. In view of this observation, the T.C.Y.L. curriculum was built on interactive and problem solving approaches that give students leading roles in the teaching and learning process.
The development of the curriculum was also informed by contemporary understanding of adolescents’ lives and development. The T.C.Y.L. curriculum was, therefore, designed to suit the lives and the developmental processes of adolescents. In view of this, separate curricula were designed for middle and high school students. Finally, constructivist learning was made a guiding principle in the development of the curriculum. Consequently, the dominant instructional activity of the curriculum was based on self-regulated learning through problem solving, role-playing, and in-depth deliberations and reflections on realistic scenarios.

Using these principles, the curriculum developers analyzed not only the content of the D.A.R.E. curriculum but they also analyzed the purpose and assumptions of the D.A.R.E. curriculum as well as its instructional activities. The development of the curriculum also included inputs from a variety of sources including school authorities, experienced D.A.R.E. officers, students, parents and experts in curriculum development. The planned curriculum was assessed by a group of national experts on drug abuse curriculum who made suggestions for revising and translating the curriculum into specific lessons, instructional activities and materials.

The developed and revised curricula were pilot tested among 7th and 9th grade students in public schools in the Akron, Ohio, area to obtain information on the feasibility and efficacy of the lessons and instructional materials. Based on information gathered from the pilot testing, the lessons and instructional materials were revised. The final middle school (7th grade) curriculum consisted of 10 lessons of 45 minutes each and that of the high school (9th grade) consisted of 7 lessons of 45 minutes. In addition, there was a culminating community involvement project directed toward substance abuse.
awareness. The activities of the curriculum delivered by trained police officers are structured around active student participation in real life situations and evaluation of students’ role in those situations.

Though the T.C.Y.L curriculum was developed from an evaluation of existing D.A.R.E. curriculum and is delivered by D.A.R.E. officers, the T.C.Y.L. is significantly different from the D.A.R.E. program. For instance, unlike the D.A.R.E. curriculum, the content of the T.C.Y.L. curriculum was highly evidence-based. In addition, while in the D.A.R.E. program police officers are the principal players in the instructional process, students are at the center of instructional activities in the T.C.Y.L. program, with classroom activities focusing on interactive and problem solving approaches. The T.C.Y.L. curriculum, like D.A.R.E., is designed for universal implementation across the country, but the T.C.Y.L. curriculum recognizes the unique cultural and social context of each school. Consequently, D.A.R.E. officers while operating within the limits of the curriculum are required, when necessary, to select alternative materials and activities, and teaching strategies they consider appropriate for their students.

Adolescents’ Perceptions of and Attitudes Toward Police Officers

An essential factor influencing students’ acceptance and response to information delivered by a program instructor is the prestige that they attach to the instructor as well as their perceptions of the credibility of the instructor. A unique feature of some school-based drug prevention programs such as the D.A.R.E. program is the use of trained and uniformed police officers in delivering the curriculum. However, it has been reported that most adolescents perceive police officers “as corrupt, harassing, and
not sensitive to community issues” (Jackson, 2002, p. 636) as well as repressive and controlling rather than serving (Jones-Brown, 2000). These perceptions undermine the prestige of police officers and cast doubt on their credibility among adolescents. As a result, adolescents are likely to respond to police officers negatively and that might negatively affect students’ receptivity to information presented to them by police instructors.

Furthermore, it has been observed that an effective program instructor is, among other things, someone who is a guide and not a leader (Tobler, 1992). Whether police instructors can effectively guide students in a typical teaching-learning environment remains to be examined. Nevertheless, there is the view that because of their authoritarian role, police officers are socially distant from their community and can intimidate students. It is believed that the authoritarian role of police officers coupled with other factors has the capability of alienating “students who may already have a negative attitude toward the police” (Jackson, 2002, p. 635).

The different organizational structure between the police and school can also pose a problem to integrating the police into the school system (Jackson, 2002). Jackson has indicated that the presence of police officers at schools “may pose a psychological threat to students, who may view police as a threat to their freedom to move about, have open conversations, and experiment in legal activities that may be socially unacceptable to police and administrators” (p. 647). The uncertainties about the effect of police officers in schools underscore the need for studies into students’ attitudes toward police instructors in school-based drug prevention programs. Studies into students’ attitudes toward police instructors would help provide better understanding of school-based drug
prevention programs delivered by police officers and ways of promoting their effectiveness.

Public perceptions of and attitudes toward the police has become a major concern of researchers, practitioners and policymakers for some time now. Several studies have revealed that generally the public perceptions of and attitudes toward the police have not been all that favorable. The studies have also indicated that the perceptions of and attitudes toward the police are shaped by individual (demographic) characteristics and social context (Jesilow, Meyer, & Namazzi, 1995). The demographic variables that have been observed to affect attitudes toward the police are varied and include age, race, socioeconomic status and gender. By far, the most studied social contextual factors shaping perceptions of and attitudes toward the police are place of residence and perceptions of one’s community (Cao, Frank, & Cullen, 1996; Leiber, Nalla, & Farnworth, 1998; Taylor et al., 2001).

Several studies have highlighted the variables affecting public perceptions of and attitudes toward police. Nonetheless, it is in recent times that such studies have focused on adolescents (Leiber et al., 1998; Taylor et al., 2001). The earliest studies on adolescent perceptions of and attitudes toward the police focused on general governmental agencies, including the police (Clark & Wenninger 1964; Giordano, 1976). Only a few studies focused specifically on perceptions and attitudes of adolescents toward the police (Griffiths & Winfree, 1982; Leiber et al., 1998; Moretz, 1980; Winfree & Griffiths, 1977). With few exceptions (Leiber et al., 1998), most of these studies relied on descriptive statistics and did not offer a rigorous statistical assessment of the factors affecting adolescents’ perceptions of and attitudes toward the police. The less rigorous
statistical analyses notwithstanding, the findings to a great extent were similar to studies using more sophisticated analytical techniques.

Leiber et al. (1998) offered a relatively more rigorous analysis of the relationship between sub-cultural theory and the attitudes of adolescents toward the police. They identified race, social environment, subcultures and police contact as determining adolescents’ perceptions of and attitudes toward the police. However, Leiber et al. observed that race is the strongest predictor of perceptions of and attitudes toward the police, with White adolescents having the most favorable attitudes. The study was, however, limited to a single site and based on a small unrepresentative sample, thus failing to capture social context effectively and making the findings ungeneralizable.

The study of perceptions and attitudes of adolescent toward the police across 11 sites by Taylor et al. (2001) has the potential of addressing the problem of lack of generalizability. Using data from a multisite study of a youth gang prevention program, Taylor et al. indicated that adolescents had less favorable attitudes toward the police than those of adults observed in other studies. The finding that adolescents tend to have less favorable attitudes toward the police is prevalent in the literature (Apple & O’Brien, 1983; Cao et al., 1996; Cheurprakobkit, 2000; Hurst & Frank, 2000; Jesilow et al., 1995; Lasley, 1994; Scaglion & Condon, 1980). For instance, Hurst and Frank (2000) found that in contrast to the level of support expressed by adults, “juveniles did not express widespread support for the police” (p. 199).

Several reasons can be assigned for the differences in perceptions of and attitudes toward the police by adults and adolescents. A key determinant of the differences in perceptions and attitudes is differential value systems. According to
Rokeach (1973), while adults value security and perceive the police as working to protect that security, adolescents value freedom and perceive the police as making efforts to restrict their freedom. It is also argued that adolescents in general are hostile to authority, and with the police occupying an authoritative position, it is more likely for adolescents to hold negative attitudes toward the police (Jesilow et al., 1995).

There is overwhelming evidence to suggest a significant relationship between race and perceptions of and attitudes toward the police (Leiber et al., 1998; Scaglion & Condon, 1980; Winfree & Griffiths, 1977), though Jesilow et al. (1995) believe race is not a determinant of perceptions of and attitudes toward the police. The predominant view has been that race is a major determinant of attitudes toward the police, with minorities having more negative attitudes toward the police. Minority racial groups are believed to be less satisfied with the activities of the police and in turn hold negative attitudes toward the police (Cao et al., 1996; Decker, 1981; Leiber et al., 1998; Scaglion & Condon, 1990). Most of these studies on the relationship between race and perceptions of and attitudes toward the police have focused basically on the White-Black dichotomy, to the neglect of other racial groups (Taylor et al., 2001).

Few studies have considered other racial categories in addition to White and Black. The evidence from these multi-racial studies is similar to that of the two-racial group analysis. The consensus seems to have been that Black adolescents have more unfavorable perceptions of the police than their White counterparts and other racial groupings. Sullivan, Dunham, and Alpert (1987) studying students’ attitudes toward the police found that Cubans and Black students had more negative attitudes toward the police than students with Anglo descent.
In a study of attitudes of adolescents toward the police in eleven sites, Taylor et al. (2001) found that White adolescents have more favorable attitudes toward the police than their Black counterparts. The attitudes of Hispanic youth were found to lie between that of Whites and Blacks. Asian youth were found to have attitudes comparable to White youth while American Indian youth had attitudes comparable to that of their Hispanic counterparts. This observation is similar to an earlier finding by Lasley (1994) that indicated that Whites have more favorable attitudes toward the police than Blacks, with Hispanics’ attitudes toward the police falling in the middle of Whites and Blacks.

Jesilow et al. (1995) have found contrasting evidence in a study of residents of Santa Ana, California. Jesilow et al. noted that ethnicity was related to attitudes toward the police with Whites and Blacks reporting more favorable attitudes toward the police than Hispanics and Asians. Nonetheless, ethnicity was not found to be “a very good predictor of attitudes towards the police” (Jesilow et al., 1995, p. 85). The findings of mixed effects of race on attitudes toward the police bring to the fore the importance of racial context in determining the influence of race on attitudes toward the police. It has been stated, “racial context … alters the effects that race and racial attitudes have on evaluations of the police” (Howell, Perry & Vile, 2004, p. 62).

Contrary to findings from previous studies (Lasley, 1994; Sullivan et al., 1987; Taylor et al., 2001), a study of adolescents from Detroit, Michigan, observed that “African Americans hold more favorable attitudes toward the police than do whites” (Frank, Brandl, Cullen, & Stichman, 1996, p. 324). This observation is against the background that (a) Blacks constitute the majority of the Detroit population, (b) Detroit has had a Black Mayor since the mid-1970s, and (c) the chief of police and significant
numbers of the police officers in Detroit are Blacks (Frank et al., 1996). With Blacks being the majority in Detroit, Whites became the minority in the city and quite possibly held the “attitudes previously reserved for ‘minority’ group members” (Frank et al., 1996, p. 332). Similarly, the observation by Jesilow et al. (1995) that race does not significantly predict citizens’ attitudes toward the police is likely to be due to the confounding effect of racial context in a predominantly Hispanic community.

A study by Hurst et al. (2000) illuminated the possibility of contextual factors moderating or confounding the impact of race on attitudes toward the police. They have noted that “Black teens hold less positive attitudes toward the police” than their White counterparts (Hurst et al., 2000, p. 49). When it comes to specific police encounters, the differences in attitudes between the two groups were not significant. They also noted that when other variables are introduced, race was not a significant predictor of attitudes toward the police. According to Hurst et al., the strongest predictor of attitudes toward the police was knowledge of police conduct; with perceived misconduct of the police identified as the strongest predictor of negative attitudes toward the police. This is in sharp contrast to findings from Taylor et al. (2001) that indicated that race is a significant determinant of perceptions of and attitudes toward the police. Despite the differential attitudes toward the police across sites, Taylor et al. pointed out that race remained a significant factor in explaining attitudes toward the police.

Socio-economic status has also been identified as influencing adolescents’ perceptions of and attitudes toward the police. It has been argued that citizens at the lower end of socioeconomic spectrum tend to hold more negative perceptions of the police than citizens with higher status (Cao et al., 1996). Considering the fact that
minority groups tend to be at the lower end of socioeconomic spectrum, the assumption can be made that socioeconomic status confounds the effect of race in determining public perceptions of the police. The possibility of socio-economic status confounding the effect of race on adolescents’ perceptions of the police has been captured in the literature with the observation that minority poor adolescents view the police more negatively than majority rich adolescents do (Hurst & Frank, 2000; Leiber et al., 1998).

In addition to race, gender has been identified as explaining citizens’ perceptions of and attitudes toward the police. There seems, however, to be no consensus on the impact of gender on citizens’ perceptions of and attitudes toward the police. While gender has been observed to affect citizens’ perceptions of the police (Apple & O’Brien, 1983; Cao et al., 1996; Cheurprakobkit, 2000; Hurst & Frank, 2000; Lasley, 1994; Taylor et al., 2001) some studies have expressed contrary views (Boggs & Galiher, 1975; Jesilow et al., 1995; Reisig & Correia, 1997; Winfree & Griffiths, 1997).

The studies indicating a relationship between gender and attitudes toward the police have also not been conclusive. Generally, most of the studies have noted that male adolescents tend to have more negative attitudes toward the police than their female counterparts (Apple & O’Brien, 1983; Cao et al., 1996; Cheurprakobkit, 2000; Lasley, 1994; Taylor et al., 2001). For instance, isolating the effect of race, Taylor et al. (2001) indicated that male adolescents had less favorable attitudes toward the police than their female counterparts. This corroborates an earlier finding by Scaglion and Condon (1980) that males and younger people tended to have unfavorable attitudes toward the police. Conversely, Hurst and Frank (2000) observed that female adolescents have more negative attitudes toward the police than their male counterparts.
While individual characteristics, particularly age and race are essential in determining perceptions of and attitudes toward the police (Sullivan et al., 1987); they are not the only determinants. Social context has also been found to affect perceptions of and attitudes toward the police (Cao et al., 1996; Leiber et al., 1998; Taylor et al., 2001). Cao et al. (1996) best captured this when they opined, “attitudes toward the police may not be regulated by a person’s race per se, but by the social context in which the person is situated” (p. 13).

Citizens’ feelings about conditions in their neighborhood have been found to influence their perceptions of and attitudes toward the police. Generally, citizens’ perceptions of crime and effort of police officers in controlling crime in their neighborhoods affects their attitudes toward the police. In most cases, citizens who feel crime rate is high and (or) the police are doing little to control crime in their neighborhood are believed to have negative attitudes toward the police (Jesilow et al., 1995; Leiber et al., 1998). Cao et al. (1996) illuminate this view with the observation that the effect of race on citizens’ attitudes toward the police tends to be confounded by citizens’ perceptions of their neighborhood’s disorder, incivility, and informal collective insecurity. It has also been found that as the proportion of Blacks in a neighborhood increase, they tend to have more negative attitudes toward the police (Apple & O’Brien, 1983). This, according to Apple and O’Brien, is attributable to (1) the greater opportunity for Blacks to associate with other Blacks with negative attitudes toward the police and (2) the increased hostile interchanges between the police and Blacks, resulting in greater opportunity for negative police-citizen contact.
Place of residence has also been identified as the single most important predictor of attitudes toward the police (Jesilow et al., 1995). Jesilow et al. have stated that people in residential neighborhoods have more positive attitudes toward the police than people residing in other areas. In view of the fact that Blacks are more likely to reside in neighborhoods considered to be with disorder, incivility and insecurity (Wilson, 1987), it is logical for one to expect them to have more negative attitudes toward the police than Whites.

Apart from the racial composition of the city (Apple & O’Brien, 1983) and perceptions of neighborhood (Cao et al., 1996), the size of place of residence also tends to determine one’s attitudes toward the police. For instance, adolescents in larger cities are reported to have less favorable attitudes toward the police relative to their counterparts in smaller cities (Hurst & Frank, 2000; Taylor et al., 2001). In general, larger cities and urban areas have been assumed to be characterized by poor citizen-police relations and consequently negative attitudes toward the police. Further, larger cities usually tend to have higher crime rates and given that people’s perceptions of level of crime in their neighborhood determine their perceptions of and attitudes toward the police, it is likely that people in big cities would have negative perceptions of the police. In effect, neighborhood perceptions and city size might have identical effect on perceptions and attitudes toward the police.

Contact between the police and the public as well as the nature of the contact has also been found to have a significant effect on perceptions of and attitudes toward the police (Cheurprakobkit, 2000; Griffiths & Winfree, 1982; Hurst & Frank, 2000; Jesilow et al., 1995; Leiber et al., 1998; Scaglion & Condon, 1980; Winfree & Griffiths,
According to Scaglion and Condon (1980) the most significant factor in determining public satisfaction with the police is personal contact with the police. They observed that citizens who have had contact with the police tend to have more negative perceptions of the police than citizens who did not encounter the police. It must be pointed out that it is not the encounter with the police per se that influences citizens’ perceptions and attitudes toward the police. Rather, citizens’ perceptions and attitudes toward the police are dependent on the nature of the encounter with the police.

People encounter the police in several ways but these encounters can be broadly classified into voluntary or involuntary encounters. The involuntary contact, which is usually related to being arrested or stopped for traffic violation, is believed to be the type of encounter that engenders negative attitudes toward the police (Cox & White, 1988). It is worth noting that the nature of citizen-police encounter is based greatly on individual perceptions. Accordingly, Scaglion and Condon (1980) have indicated that the perceptions developed during citizens’ encounter with the police is more important than other factors such as race or the nature of police contact in determining citizens’ attitudes toward the police. Cox and White have argued that, citizens’ perceptions of and evaluation of the interactions that occur during their contact with the police, determines their attitudes toward the police. Generally, citizens tend to have more favorable attitudes toward the police in police-citizen encounter where the citizens perceive the police as treating them fairly and with respect; a situation likely to occur in a voluntary encounter.

Jesilow et al. (1995) corroborated this view with the observation that positive, voluntary police-citizen encounters tend to augment citizens satisfaction with police officers. He added that people who had been arrested or received citation from the police
reported “more negative comments about the police than did respondents who had no contact” (Jesilow et al., 1995, p. 80). Similarly, Cox and White (1988) noted that college students who had received traffic citations distrusted the police. They, however, alluded to the fact that it is not the citation, but the perceptions of inappropriate police behavior during the encounter that influences the negative attitudes.

Highlighting the effect of positive encounter with police on attitudes toward the police, Rusinko, Johnson, and Hornung (1978) have argued that positive contact with the police in a supportive context tends to neutralize negative attitudes held by adolescents toward the police, even among highly delinquent youth. It is possibly because of this that Hurst and Frank (2000) noted that adolescents who have had positive encounters with the police tend to have more positive attitudes toward the police and vice versa. This view has been reinforced with the observation that people who initiate contact with the police (voluntary encounter) tend to view the “police more favorably than those whose contact was initiated by the police” (Cheurprakobkit, 2000, p. 332). Schafer, Huebner and Bynum (2003) best sum the effect of citizen-police encounter on attitudes towards the police with the observation that the nature, frequency and satisfaction of encounter with the police are key determinants of the perceptions of and attitudes toward the police.

The observation that the nature of citizen-police encounter and the perceptions of such encounters determine attitudes toward the police possibly explains why Blacks have more negative attitudes toward the police than Whites. This is because research has established that Blacks are more likely to experience involuntary encounters with the police and perceive such encounters as being antagonistic and unwarranted as
well as experience personal abuse in such encounters (Flanagan & Vaughn, 1996; Harris, 1997). According to Anderson (1994), the police “color code” young people with Black youth coded as troublesome and a dangerous threat to society. Consequently, encounters between the police and Black youth are more likely to be involuntary and disrespectful.

Studies have also demonstrated that adolescents’ involvement in delinquent behavior affects their attitudes toward police officers. It is held that adolescents involved in deviant behaviors are most likely to have more negative perceptions and attitudes toward the police (Leiber et al., 1998; Rusinko, et al., 1978). For instance, Leiber et al. (1998) have also argued that delinquent subcultures negatively affect attitudes toward the police. This confirms earlier findings by Rusinko, et al. (1978) who indicated that adolescents involved in highly delinquent behavior tend to have more negative perceptions and attitudes toward the police.

Though not extensively studied, considering that deviance violates social order, it is logical to expect juveniles engaged in deviant behaviors to have negative attitudes towards the police and law enforcement agents. Besides, delinquent youth are most likely to fall foul to the law and encounter the police in an unsupportive context, a situation likely to make them hold more negative attitudes toward the police. This view is held by Leiber et al. (1998) when they revealed that with respect to juvenile delinquents, any encounter with the police (positive or negative) has the tendency of negatively affecting perceptions of and attitudes toward the police.

The review of the literature so far has indicated that race is by far the single most studied individual factor shaping the public perceptions of and attitudes toward the police (Decker, 1981). While race is a central determinant of adolescents’ perceptions of
and attitudes toward the police, it is obvious that the determinants of adolescents’
perceptions of and attitudes toward the police are complex. The literature captures this
observation by revealing that other factors appear to interact with or confound the impact
of race in determining citizens’ perceptions of the police (Cao et al., 1996; Dean, 1980;
Decker, 1981). For instance, Dean (1980) has indicated that being Black by itself does
not result in negative perceptions and attitudes toward the police. He noted further that, it
is the combined effect of being Black and having negative contact with the police that
lowers people’s perceptions of the police.

Hurst and Frank (2000) have affirmed that adolescents’ perceptions of and attitudes
toward the police is not uniform but has been found to be dependent on race,
gender, encounter with the police, the perceptions of crime in communities, and place of
residence. They also asserted that attitudes toward the police depended on the attitudinal
questions posed with specific police function eliciting less positive attitudes than general
function. They tried to sum up the complex determinants of adolescents’ perceptions of
and attitudes toward the police by stating that adolescents who perceived crime level to
be high in their communities, who are minorities, who reside, and attend schools, in
urban communities or are female, tend to have negative perceptions and attitudes toward
the police. The study was, however, limited to one metropolitan area in the Midwest,
Cincinnati, Ohio, and to only public schools. As a result, this observation is not likely to
be generalizable to other settings. The study by Jones-Brown (2000) seem to address the
problem of generalizability through the broadening of the scope of her study to include
both school and non-school groups in five towns in a suburban county and using both
quantitative and qualitative data sources. She concluded:
Whereas the nature (direct or indirect), quality (positive or negative), and extent (frequency and duration) of police contact are all factors that influence attitudes towards the police, the existence and influence of those factors appear to be conditioned by several sociocultural variables. (p. 213)

In sum, a review of the literature so far has revealed that adolescents’ perceptions of and attitudes toward the police are influenced by several interrelating factors. However, the most frequently cited factors are race, gender, age, place of residence, encounter with the police and involvement in deviant behaviors. Furthermore, age, race, neighborhood and encounter with the police have repeatedly been found to affect one’s perceptions of and attitudes toward the police. There seems not to be consensus on the effect of the other variables on perceptions of and attitudes toward the police. It is obvious, however, that the factors determining adolescents’ perceptions of and attitudes toward the police is multifaceted and in flux with some of the variables and their interactive consequences not fully understood. Further, the extents to which these findings apply to police officers in school-based drug prevention programs remain unknown. These situations make further study of the factors affecting adolescents’ attitudes toward the police, particularly police officers in school-based drug prevention programs, worth exploring.
CHAPTER III
THEORETICAL FRAMEWORK

This chapter explains the theoretical framework underlying most school-based drug prevention programs and the theory guiding this study. The chapter consists of four sections with the next section providing an overview of persuasive communication and the Theory of Planned Behavior (T.P.B.). The third and fourth sections present a discussion of the Elaboration Likelihood Model (E.L.M.) and the relation between the T.P.B. and E.L.M., and source credibility.

To better understand school-based drug prevention programs, their intended effects and how to make them more effective, it is essential for one to have a clear appreciation of the underlying theoretical framework of the program. Inherent in most school-based drug prevention programs is the concept of persuasive communication. As Clayton et al. (1991) stated, “Persuasive communication is, of necessity, an integral part of school-based drug prevention efforts” (p. 292). Persuasive communication has been defined differently but generally it refers to the process of providing information to elicit a desired response from receivers of the information. One of the earliest definitions of persuasive communication is a “communication process in which the communicator seeks to elicit a desired response” (Andersen, 1971, p. 6). It is also defined as “a conscious attempt by one individual to change the attitudes, beliefs, or behavior of another individual or group of individuals through the transmission of some message”
According to Stiff and Mongeau (2003), persuasive communication represents *any message that is intended to shape, reinforce, or change the responses of another, or others*” (p. 10; italic in original text).

Persuasive communication is meant to change individual behavior but for the change in behavior to occur, the persuasive message must first bring about change in attitudes and beliefs. As pointed out by Beisecker and Parson (1972), attitude change is the inherent goal of persuasive communication. In effect, the end result of persuasive communication is individual action and its success depends on the extent to which the message communicated changes attitudes and beliefs. The acceptance and understanding of information as well as acting on it are essential parts of the process of bringing about changes in attitudes and beliefs, and subsequent changes in behavior.

With respect to school-based drug prevention programs, the success of persuasive communication to a larger extent depends on adolescents’ accepting information provided in the prevention programs and changing their attitudes and beliefs about drugs as well as taking purposeful action not to start or to quit using drugs. Against this backdrop, persuasive communication model can be used to illuminate the drug prevention process and its effects on adolescents’ drug behavior. Wartella and Middlestadt (1991) have proposed that persuasive communication “is rooted largely in social psychological theorizing about the relationship between attitudes and behavior” (p. 62). Consequently, a theory that predicts and (or) explains the relationship between attitudes and behavior would be of profound use in studying persuasive communication. Several social psychological theories are available for studying persuasive communication. However, one theory that has been recognized to adequately capture the
relationship between attitude and behavior is the theory of reasoned action/planned behavior.

**Persuasive Communication and Theory of Planned Behavior**

The theory of reasoned action/planned behavior is the most widely used theory for studying persuasive communication (Stiff & Mongeau, 2003) and for understanding the “the process by which attitudes guide behavior” (Petty, Baker, & Gleicher, 1991, p. 83). According to Ajzen and Fishbein (1980), one advantage of the theory is that it “provides guidelines for the construction of a persuasive communication” (p. 239). Perhaps Wartella and Middlestadt (1991) best capture the popularity and importance of the theory of reasoned action/planned behavior. They have asserted that the theory “is one of the most influential, widely used, and strongly supported expectancy-value models, which is of importance to contemporary discussions of persuasion” communication (Wartella & Middlestadt, 1991, p. 63).

Against this backdrop, this research study utilizes Ajzen’s Theory of Planned Behavior (T.P.B.). The decision to use the T.P.B. is informed not only by its popularity in studying persuasive communication but also by the fact that it is the theoretical model underpinning most school-based drug prevention programs and thus offers a better examination of the structure underlying behavior. According to the T.P.B., behavior is informed by intention to act in a manner that provides favorable outcomes and meets the expectations of people we consider important to us. It is a common knowledge that the prevention of adolescent substance use is a favorable outcome and that society in general and people important in the lives of adolescents expect them not to use drugs or to quit using drugs. In the light of this reasoning, the T.P.B. is particularly applicable for
studying school-based drug prevention programs. In addition, the theory is believed to be a complete model of social and health behavior with established predictive power in many social and health behavior studies (Armitage & Conner, 1999; Godin & Kok, 1996; Godin, Valois, Lepage, & Desharnais, 1992; Sheppard, Hartwick, & Warshaw, 1988).

The T.P.B., a modified version of the Theory of Reasoned Action (T.R.A.) devised by Ajzen and Fishbein (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), is an expectancy-value model. The theory provides a framework for studying the impact of persuasive communication on the beliefs, attitudes, behavioral intention and behavior of individuals. In view of the fact that the T.P.B. is derived from the T.R.A., it is essential to examine the T.R.A. as a prelude to understanding the T.P.B. The T.R.A. proposes that behavioral and normative beliefs influence behavioral intentions that, in turn, influence actual behavior (See Figure 1A). The theory assumes that human beings are quite rational, make systematic use of available information and consider the implications of their actions before acting (Ajzen & Fishbein, 1980). It also assumes that the action under consideration is under the individual’s full volitional control. Consistent with these assumptions, the theory posits that a person’s intention to behave is the immediate determinant of an action. In effect, typically a person will act according to his or her intention.

However, a person’s behavioral and normative beliefs determine his/her intention to behave. Behavioral beliefs are assumed to shape attitude towards behavior, which refers to the person’s “positive or negative evaluation of performing the behavior” (Ajzen & Fishbein, 1980, p. 6). It is held that people’s attitudes are influenced by their
belief about the outcomes of their behavior (salient behavioral beliefs) and their evaluation of those outcomes (outcome evaluations).

Figure 1 A: Persuasive Communication - The Theory of Reasoned Action

Figure 1 B: Persuasive Communication - The Theory of Planned Behavior

The normative beliefs, on the other hand, shape the subjective norms concerning the behavior. Subjective norms are related to the perceived social pressures that individuals might feel to perform or not to perform the expected behavior. Subjective norms are believed to be influenced by expectation of what people important in one’s life want one to do as well as the motivation to comply with the expectation of those important people. In effect, subjective norms are based on social expectations and motivation to comply with those expectations.

A meta-analytical study by Sheppard, Hartwick, & Warshaw (1988) has established that the T.R.A. model is useful and predicts behavior. As mentioned earlier, the T.R.A. is based on the assumption that the anticipated behavior is under the individual’s full volitional control. In reality, however, not all behaviors are under individual’s full volitional control at all times. There are situations where a behavior might be subject to forces beyond the individual’s control. A typical case in point is adolescent substance use being highly dependent on peer pressure. Despite its usefulness, the failure of the T.R.A. to address the issue of incomplete volitional control weakens its efficacy in predicting behaviors in real life situations.

It is to address the weakness of the T.R.A. in capturing incomplete volitional control that Ajzen (1985) proposed the Theory of Planned Behavior. Accordingly, the T.P.B. is a modification of the T.R.A. by replacing the assumption of complete volitional control with incomplete volitional control. The only difference between the T.P.B. and T.R.A., therefore, is the degree of perceived control over behavior (Madden, Ellen, & Ajzen, 1992). The T.P.B., like T.R.A., hypothesizes that behavior is determined mainly by behavioral intentions. Unlike the T.R.A., however, behavioral intention is determined
not only by attitude and subjective norms relating to a behavior but also by perceived control over a behavior (See Figure 1 B).

Perceived behavioral control represents the professed ease or difficulty of performing the anticipated behavior. In general, it refers to the perception of an individual with respect to the amount of control he/she possesses over performing the anticipated behavior. Perceived behavioral control is determined by beliefs about the availability of resources and opportunities necessary for achieving the behavior (control beliefs). It is also determined by the power of those resources and opportunities to facilitate the behavior (perceived power). Like attitude and subjective norms, perceived behavioral control reflects motivational factors and can affect behavior indirectly through behavioral intention. Alternatively, perceived behavioral control can affect behavior directly when it reflects actual control.

The T.P.B. does not assume attitude, subjective norms and perceived behavioral control to be the only factors that determine behavior. There are equally important factors such as personality traits, attitude towards people and institutions, and demographic variables that have been found to be essential in determining behavior. While acknowledging the importance of these factors in influencing behavioral changes, Ajzen and Fishbein (1980) excluded them from their theory because those factors are considered external. As external factors, Ajzen and Fishbein believe that they might influence the beliefs a person holds or the relative importance a person attaches to attitude and/or subjective norms. They hold that the external factors affect behavior by mediating through the three central components of their model. As a result, the external
factors can be included in the model provided they add to the predictive efficacy of the T.P.B./T.R.A.

The T.P.B. posits that the best predictor of behavior is the intention of an individual to perform that behavior. As a result, individuals perform a behavior when they have the intention to do so. However, individuals will intend to perform an action only when they have evaluated the action and found it favorable, when they believe people important in their lives think they should perform that action, and when they perceive the action to be within their control to perform (Ajzen, 1991).

In sum, T.P.B. has demonstrated that persuasive messages bring about changes in behavior through changes in (1) behavioral, normative, and control beliefs; (2) weighting factors of behavioral, normative, and control beliefs; or (3) both the beliefs and their weights. These changes, in turn, bring about changes in attitude, subjective norms (normative believes) and perceived behavioral control. Though attitudinal changes and subsequent changes in behavior are inherent goals of persuasion (Beisecker & Parson, 1972) and are useful for the functioning of individuals in their environment (Petty & Cacioppo, 1981), the T.P.B. does not capture the processes through which persuasion changes attitudes. Considering the fact that persuasion does not always result in attitudinal changes, it is essential that we understand the processes through which attitudinal change emerge from persuasive messages.

The Elaboration Likelihood Model

Several theories have been developed for understanding the processes of persuasion and attitude change but the Elaboration Likelihood Model (E.L.M.; Petty & Cacioppo, 1979; 1981; 1986) is “perhaps the most thoroughly developed and tested” of
the theories examining the processes of attitude change and persuasion (Heesacker & Harris, 1993, p. 694). The E.L.M. was designed through the integration of several social psychological theories on attitude and persuasion with the aim of providing a general framework for examining the processes by which persuasive message influences attitude. The E.L.M. is a stepwise process that starts with persuasive messages (Petty & Cacioppo, 1981) and posits that attitude changes through persuasive messages depends on “the extent to which a person thinks about issue-relevant information” (Petty & Cacioppo, 1986, p. 7).

Central to the E.L.M. is the view that when presented with persuasive messages, an individual evaluates the message and integrates it to form an enduring evaluation of objects, issues or persons that often guide behavior (Petty & Cacioppo, 1986). Based on the degree of engagement of message recipients in issue-relevant thinking, two approaches to persuasion and attitudes change have been suggested: the central and peripheral approaches (Petty & Cacioppo, 1979; 1981; 1986). The main difference between the two routes of persuasion has to do with the extent to which attitude change is due to elaboration on issues relevant to the persuasive message (Petty & Cacioppo, 1981). In effect, the route to persuasion and attitude change adopted by individuals is dependent on the extent to which they cognitively process persuasive messages.

The central route to persuasion occurs when an individual presented with a persuasive message actively engages in higher level cognitive processing of the message. This route to persuasion involves higher elaboration likelihood and emphasizes on the thoughtful examination of message content. In effect, individuals choosing the central
processing route engage in careful and effortful consideration of the merits of arguments presented. Similar to the assumption of rationality in the T.P.B., persuasion under this route involves individuals attending to the persuasive message, seeking to comprehend and evaluate it as well as integrating it into their attitude guiding schemas (Petty & Cacioppo, 1981). Thus, the central route to persuasion, among other things, is based on the quality of arguments presented and individuals’ comprehensibility of the arguments.

Alternatively, the peripheral route represents persuasion process that involves the superficial processing of information. Unlike the central route, factors external to the persuasion setting are sufficient enough to produce attitude change under this route to persuasion (Petty & Cacioppo, 1981). Persuasion through the peripheral route occurs when people accept or reject persuasive messages and change their attitudes “on the basis of source cues rather than on the basis of the content of the message” (Petty & Cacioppo, 1981, p. 63). Persuasion through the peripheral route is believed to occur when people have little or no motivation and/or ability to thoughtfully elaborate on the message (Petty & Cacioppo, 1986). Under such conditions of low potential for elaboration, attitudinal changes take place through reliance on cues external to the persuasive message without any thoughtful scrutiny of the merits of the arguments contained in the message. Several external cues have been found to influence an individual’s involvement in the peripheral route of persuasion. Among these cues are source credibility or expertise (Petty, Cacioppo, & Goldman, 1981), source attractiveness and social role of the message presenter (Petty, Cacioppo, & Schumann, 1983), source likeability (Chaiken, 1980), and the quantity (as opposed to the quality) of arguments presented (Petty & Cacioppo, 1984).
Typically, individuals do not elaborate every persuasive message. It has been demonstrated that the degree to which individuals engage in issue-relevant thinking is determined by their personal motivation to elaborate on the message (Petty & Cacioppo, 1981; Petty, Cacioppo, & Goldman, 1981). Generally, individuals with higher personal motivation to engage in issue-relevant thinking are believed to carefully examine the merits of persuasive messages prior to evaluating their feeling about some objects or issues. When people lack the motivation to engage in thoughtful examination of arguments in a persuasive message, their acceptance or rejection of the message is not based on the merits of the message. Rather, they make their decisions by relying on simple positive or negative inference external to the message (Petty & Cacioppo, 1984). In effect, personal motivation is a key determinant of whether individuals use the central or the peripheral routes to persuasion.

There are several factors influencing the motivation to elaborate on a persuasive message. The most cited and studied motivational factors, however, are personal relevance, need for recognition and multiple sources with multiple arguments (Cacioppo & Petty, 1982; Petty, Cacioppo, & Goldman, 1981). The presentation of multiple arguments by multiple sources has the potential for reinforcement and has been identified as positively influencing elaboration (Harkins & Petty, 1987). It has been demonstrated that the relevance of a persuasive message to an individual drives his/her motivation to engage in issue-relevant thinking (Cacioppo & Petty, 1982; Petty, Cacioppo, & Goldman, 1981). Individuals who perceive persuasive messages to be of personal relevance to them have been found to exert greater efforts in scrutinizing the message and vice versa.
It is assumed that people have inherent tendency to engage in cognitive thinking and derives gratification in cognitive thinking. This “tendency for an individual to engage in and enjoy thinking” (Cacioppo & Petty, 1982, 116) has been identified as a motivational drive influencing message elaboration (Cacioppo & Petty, 1982; Cacioppo, Petty, & Kao, 1984). Thus, irrespective of the importance of the persuasive message, an individual’s need for cognition determines whether he/she would thoughtfully analyze the arguments of the message before acting. In effect, an individual who identifies a message to be of personal importance, with higher need for cognition and/or multiple arguments is more likely to be motivated to engage in issue-relevant thinking.

It must be pointed out that higher motivation alone is not sufficient for an individual to engage in issue-relevant thinking. An individual might be motivated to elaborate on a persuasive message but if that individual lacks the ability to process the information, message elaboration is unlikely to happen. For people to engage in issue-relevant thinking, therefore, they must not only have the motivation to elaborate on the message presented but they must also have the ability to scrutinize the message. Thus, one’s capability to engage in active thinking is also a key determinant of the direction and amount of persuasion, and attitude change that takes place. Elaboration ability has also been found to be influenced by several variables including repetition of the message (Cacioppo & Petty, 1985), the absence of distractive stimuli (Petty & Brock, 1981; Petty, Wells & Brock, 1976), prior knowledge and preexisting attitudes (Cacioppo, Petty, & Sidera, 1982; Petty & Cacioppo, 1981) and the comprehensibility of the message (Petty, Wells, & Brock, 1976).
In a nutshell, engagement in issue-relevant thinking requires an interaction between elaboration motivation and ability. Specifically, people are likely to attend to the arguments presented in a persuasion messages when they (1) are motivated to thoughtfully consider the merits of the argument and (2) have the ability to engage in a thought process. A positive relationship has been identified between the motivation and ability to evaluate persuasive messages and the likelihood of elaboration. Petty and Cacioppo (1981) have stated that the subjective quality of the argument contained in the persuasive message also determines the nature of persuasion and attitude formation. They noted that in the presence of high motivation and ability to process information, individuals’ perceptions of argument quality determines their involvement in issue-relevant thinking. It has been argued that even in the presence of high motivation and ability to process information, a low quality argument could result in the use of peripheral route of persuasion (Petty, Cacioppo, & Schumann, 1983).

It needs to be recognized that the scrutiny of persuasive messages does not take place in vacuum. Instead, people consider the merits of presented arguments against their existing knowledge and attitudes, which can facilitate or hinder the elaboration process. Petty and Cacioppo (1981) have revealed that the presentation of persuasive message coupled with preexisting attitudes influence the direction of elaboration. They argued in the absence of motivation and/or ability to process information, people with positive preexisting attitudes generally “rehearse favorable thoughts and adopt an even more positive attitude” and vice versa (Petty & Cacioppo, 1981, 265-266). It has also been established that some factors perform multiple roles in issue-relevant thinking process (Petty, Schumann, Richman & Strathman, 1993). According to Petty et al (1993),
depending on the circumstance, the same factor can serve as a determinant of the central or the peripheral routes. For instance, the number of arguments presented generally facilitates central processing of information but under conditions of low elaboration, the number of arguments (irrespective of the quality of the arguments) can also serve as a peripheral cue (Petty et al, 1993).

It has been observed that the amount of cognitive efforts that people expend in processing a persuasive message determines the ease with which the message persuades, the resilience of the attitudes formed and the extent to which the attitudes formed predict behavior. Attitudes formed through the central route are believed to be based on conscientious effort at evaluating the message and reinforced by cogent arguments (Petty, 1995; Petty & Cacioppo, 1984; 1986). In the words of Petty (1995), “the end result of the information processing involved in the central route is typically an attitude that is well thought out and bolstered by supporting information on dimensions seen as central to the merits of the position advocated” (p. 208). Consequently, attitudes formed through the central route of persuasion show relatively greater persistence, stronger resistance to counterargument and greater prediction of behavior (Petty & Cacioppo, 1986). This contrasts with the relatively fragile and short-lived attitudes that endure “so long as the cues remain salient” (Petty & Cacioppo, 1981, p. 263).

This is not to suggest the superiority of the central route to the peripheral route. In fact, the E.L.M. posits that the central and peripheral routes are not two mutually exclusive and exhaustive approaches to persuasion or opposing processes. Instead, it indicates that the two routes signify points along an elaboration likelihood continuum ranging from high- to low-elaboration likelihoods. According to Petty and Cacioppo
(1986), there is a tradeoff between the central and the peripheral routes of persuasion with the effect of peripheral cues on persuasion becoming increasingly insignificant when elaboration likelihood is higher and vice versa. Consequently, persuasion can occur at any point along the continuum except that the nature of persuasion varies along the continuum. According to Petty, Cacioppo, and Goldman (1981), persuasion can occur either through the central or peripheral route, except that the factors influencing the two routes and their consequences on persuasion are different.

In sum, the E.L.M. describes two key approaches to persuasion based on the likelihood of people engaging in issue-relevant thinking. The persuasion approach adopted by an individual is determined greatly by his/her personal motivation and ability to thoughtfully examine the merits of the message, the strength or perceived strength of the argument as well as the motivation and ability to think about the issue itself. The E.L.M. states that when presented with a persuasive message, individuals with higher levels of motivation and ability to consider the quality of the argument presented or the issues itself are more likely to use the central route in forming opinion and changing attitudes. Generally, stronger arguments lead to attitude change in the direction of the advocated position, while weaker arguments lead to attitudes opposite to the advocated position (Petty & Cacioppo, 1984). However, when superficial approach is used in processing information, the effect of argument quality becomes inconsequential as people rely on peripheral cues for attitude change. Positive peripheral cues have more augmenting effect on attitudes in the intended direction as against negative cues.
Theory of Planned Behavior, Elaboration Likelihood Model and Source Credibility

The underlying theory of most school-based drug prevention programs is premised on the realization that the intention to use (or not to use) drugs is the principal determinant of adolescents’ behavior relating to drug use. It is also based on the realization that attitudes, subjective norms and perceived behavioral control are important determinants of adolescence behavioral intentions regarding drug use. Against this backdrop, it can be assumed that the T.P.B. would be appropriate for investigating school-based drug prevention programs. The T.P.B. posits that to influence behavior, it is necessary to change the behavioral and normative beliefs and thereby influence attitude and subjective norms. Generally, information plays an important role in shaping individual attitudes and subjective norms. Most school-based drug prevention programs are inspired by this important role of information in the prevention of adolescent drug use.

Most school-based drug prevention programs are designed to provide persuasive messages directed at changing attitudes and subjective norms of adolescents regarding drug use as well as building a sense of control and skills for overcoming peer and media pressures of drug use. The underpinning assumption of these programs is that when adolescents are provided with persuasive messages, they will change their behavioral and normative beliefs. This change in turn will shape their attitude, subjective norms and perceived behavioral control regarding drug use. Finally, these changes will help adolescents to decide on their intentions with respect to drug use and subsequently acting on those intentions.
It is logical to assume that the information provided by school-based drug prevention programs would help adolescents to evaluate the impact of substance use and cause them to have negative beliefs about drug use (negative attitudes toward substance use). Similarly, the message contained in most school-based drug prevention programs would make adolescents believe that important people in their lives and society in general disapprove of substance use (negative subjective norms). Further, the message would help adolescents to perceive that they have control over the pressures of drug use. In the light of these assumptions, it is expected that adolescents who have been exposed to drug education curriculum would not use, quit using or delay using drugs through positive behavioral and normative beliefs and perceived behavioral control as an antecedent to positive intentions.

The intended impact of school-based drug prevention programs on students’ drug behavior would depend to a greater extent on students’ elaboration on the content of the drug education curriculum. This research study asserts that both the central and peripheral routes determine students’ drug use decision. The route the students take in processing drug education curriculum depends on their motivation and ability to thoughtfully examine the merits of the arguments and/or just the issue of drug use. Though the ability and motivation of students to process the merits of arguments presented in drug education curriculum remain to be known, there are reasons to expect that the students have some levels of motivation and ability that might facilitate information processing. Assuming participation in school-based drug prevention programs is voluntary, the case can be made that the students are motivated to at least consider the issue of drug use. Further, most school-based drug prevention programs are
designed with the targeted students in mind. Accordingly, it would be logical for one to expect that the content of school-based drug prevention programs meets students’ cognitive abilities. While the abilities of the students might not be high enough for them to actively analyze the arguments presented, they might be able consider the issue of drug use.

It has been found that people often resist the changes they need (Heesacker & Harris, 1993). The emphasis on booster sessions in providing an enduring program effect in school-based drug prevention programs (Botvin et al., 1995; Gottfredson & Wilson, 2003) alludes to the possibility of fragile program effect. Against this backdrop, it can be argued that the peripheral route plays a role in attitudinal changes in drug education program. This research study, therefore, focuses on the peripheral route, specifically the characteristics of the program instructors. The characteristics of message sources are crucial to effective persuasion (Bettinghaus & Cody, 1987; Stiff & Mongeau, 2003) and sometimes “are the most important features of persuasive communication” (Stiff & Mongeau, 2003, p. 103). Of course, there are many characteristics of message sources, but one characteristic that stands out in effective persuasive communication is the credibility of the message source. There is strong evidence suggesting “source credibility influences attitude change” (Stiff & Mongeau, 2003, p. 109).

The credibility of message sources is traced to Aristotle who was quoted to have stated that the character of a speaker “is the most potent of all the means of persuasion” (Stiff & Mongeau, 2003, p. 104). Quoting from Aristotle, Bettinghaus and Cody (1987) indicated that “persuasion is achieved by the speaker’s personal character” and generally “we believe good men (and women) more fully and more readily than
others” (Bettinghaus & Cody, 1987, p. 3). It needs to be recognized that the credibility of the message sources is based on perception. As noted by Bettinghaus and Cody, “credibility is a set of perception about sources held by receivers” (p. 85). Stiff and Mongeau have affirmed this view when they stated, “perhaps the greatest source of agreement about credibility construct lies in the definition of credibility as a perception held by message recipients” (p. 107).

Apart from source credibility, “practitioners have long believed that effective persuasion begins by establishing a personal connection between the message source and the target audience” (Stiff & Mongeau, 2003, p. 119). Stiff and Mongeau (2003) have added that a personal connection between the communicator and receiver is built to a larger extent on trust and respect for each other as well as perception of similarity between the communicator and receiver of the message.

In effect, the relationship that exists between the roles of the source and the receiver is essential in effective persuasion. It has been observed that there is a positive relationship between status level and persuasion. The basis for this relationship is the argument that people in high status positions possess high credibility and are, therefore, likely to be more influential in persuasion. Bettinghaus and Cody (1987) posit that the higher the prestige message recipients attach to the role position of the communicator, the more persuasive the message delivered by the communicator. It has also been established that demographic and psychological factors of message recipients to a greater extent impinge on the effectiveness of persuasive messages on behavioral changes (Bettinghaus & Cody, 1987).
Figure 2: Theoretical Framework for Most School-Based Drug Prevention Programs

The importance of source credibility in persuasive communication illuminates the centrality of program instructors in drug prevention programs. This view is not lost to researchers in drug prevention studies. It is the view of Clayton et al. (1991) that the effect of prevention programs “can be conceptualized as being mediated through
the person delivering or communicating the program” (p. 296). Rosenbaum and Hanson (1998) expressed a similar view when they hypothesized that the observed ineffectiveness of the D.A.R.E. program might be due to theory failure with respect to curriculum content or instructional methods. Nonetheless, program instructors are not given the needed attention in drug prevention research. It has been argued that a key element in all school-based prevention “programs and one that is given minimal attention is the person and the process of communicating the curriculum” (Clayton et al, 1991, p. 295).

According to Clayton et al., the focus of prevention intervention research has solely been on outcomes and this might ignore equally important elements such as the instructor and the delivery process. Clearly, program instructors and students’ perceptions of the instructors (source credibility) are very essential in influencing students’ receptivity of information provided by the instructor and subsequent drug use behavior in school-based drug prevention programs.

From this analysis, the assumption can be made that message recipient’s (student’s) perceptions of and attitudes toward message communicators (program instructors) can have predictive value in influencing behavioral changes. This research study, therefore, argues that to fully comprehend school-based drug prevention programs and its impact on adolescents’ drug behavior, it would be necessary for students’ perceptions of and attitudes toward program instructors to be incorporated into the T.P.B. Arguing along the lines of Ajzen and Fishbein (1980), the study holds that students’ perceptions of and attitudes toward police instructors can affect drug use behavior by mediating through the three central components of the T.P.B. In effect, this study
suggests that the theoretical framework for understanding school-based drug prevention programs based on the T.P.B. should involve the incorporation of the underlying factors of students’ perceptions of and attitudes toward programs instructors officers into the T.P.B. model (See Figure 2).
CHAPTER IV
RESEARCH METHODOLOGY

This chapter explains and justifies the method used for exploring students’ perceptions of and attitudes toward police officers and instructors. The chapter is divided into eight sections with this section providing the introduction. The second section presents the research question and hypotheses to be addressed in this study. This is followed by a description of the research design, the sample and sample selection procedure. The forth and fifth sections explain the recruitment of schools and students for the study. The next two sections present the data collection processes and measurement of the variables used in this study. The final section discusses the statistical analysis and techniques utilized for data analysis.

This research study seeks to explore students’ perceptions of police officers and attitudes toward police instructors of drug education program as well as the factors underlying the observed perceptions and attitudes. The data for this study were part of the Adolescent Substance Abuse Prevention Study (A.S.A.P.S.) being conducted by the I.H.S.P. of The University of Akron with funding from the Robert Wood Johnson Foundation. The A.S.A.P.S. uses a rigorous evaluation design (randomized experiment) involving one pretest and multiple posttests to explore the effectiveness of the T.C.Y.L. curricula. The T.C.Y.L. is an experimental adolescent substance abuse prevention curriculum for middle and high school students. The A.S.A.P.S. seeks to evaluate the
effect of the T.C.Y.L. curricula in reducing or delaying adolescent substance use through its impact on the mediators of normative beliefs, perceived consequences of the use of these substances, and the development of skills and capabilities to refuse or avoid substance use.

The A.S.A.P.S., which began in the Spring 2001 with a cohort of students who were 7th graders in the 2000/2001 school year selected from public school districts in the U. S., is a 5-year, prospective, longitudinal study. The selected school districts consisted of 43 high schools and their 122 feeder middle schools from six regional areas across the continental U. S. The six cities involved in the study are Los Angeles, California; Houston, Texas; St. Louis, Missouri; Detroit, Michigan; New York, New York; and New Orleans, Louisiana. Apart from the geographic region, the selected school districts were matched by risk status and were randomly assigned to either experimental or control conditions. Students in the experimental condition received the T.C.Y.L. curricula delivered by police officers while those in the control condition continued with prevention programs currently being offered by their schools, if any were offered.

The current study uses data collected at five time points over a three-year (2000/2001 – 2003/2004) period from the selected school districts in the six metropolitan areas. The five data points are 7th pretest and posttest, 8th posttest, and 9th grade pretest and posttest.

**Research Question and Hypotheses**

There have been considerable studies and reviews of school-based drug prevention programs in the past decades that have increased our understanding of adolescent substance prevention programs. These advances notwithstanding, there remain
gaps in the school-based drug prevention literature. One major gap is the fact that students’ perceptions of and attitudes toward program instructors have not been adequately examined. Students’ perceptions of and attitudes toward program instructors is essential to the success of any drug education program. As observed by Flay et al. (1995), students’ acceptance and learning from information presented to them depends to a greater extent on who is delivering the information. Yet, students’ perceptions and attitudes toward program instructors remain an understudied issue in school-based drug prevention research. It has been noted that a key element in all school-based drug prevention “program and one that is given minimal attention is the person and the process of communicating the curriculum” (Clayton et al., 1991, p. 295).

A basic concept underlying most school-based drug prevention programs is persuasive communication. The concept of persuasive communication, among other things, stresses the importance of source credibility in effective persuasive message. Further, the E.L.M. has stated that under conditions of low elaboration likelihood peripheral cues such as source credibility become essential in persuasion and attitude change. One factor essential for the success of persuasive communicative prevention programs delivered by police officers is students’ perceptions of the credibility of the police instructors as well as the interaction between the students and the police instructors. Furthermore, the police instructors, among other things, must possess the necessary expertise and must use their expert power to facilitate learning and serve the students and not to manipulate or control them.

In addition, an effective program instructor is also one who guides rather than leads students (Tobler, 1992). This notwithstanding, the police occupy an authoritative
role and are perceived by adolescents as repressive and controlling, rather than serving (Jones-Brown, 2000). It has also been established that adolescents generally have negative perceptions of and attitudes toward police officers (Apple & O’Brien, 1983; Cao et al., 1996; Hurst & Frank, 2000; Jesilow et al., 1995; Taylor et al., 2001). Consequently, the presence of police officers in classrooms is likely to pose a threat to an effective student-instructor interaction and thereby impede effective teaching and learning (Jackson, 2002).

Given that school-based drug prevention programs are increasingly being delivered by police officers who generally do not enjoy favorable evaluation from adolescents, one cannot underemphasize the importance of students’ perceptions of and attitudes toward police instructors in the success of such programs. The literature also indicates that individual and environmental factors contribute to adolescents’ perceptions of and attitudes toward police officers. The intended purpose of this study, therefore, is to determine the extent to which this observation is applicable to students in the A.S.A.P.S.

Additionally, the study argues that students in school-based drug prevention programs are likely to rely on peripheral cues to make decisions about drug use. As a result, it is assumed that different instructors would have different program effects based on their attributes. It is also assumed that students’ general perceptions of police officers affect their attitudes toward police instructors in the classroom. The study seeks to determine whether students in drug education programs have different perceptions and attitudes toward different program instructors.

This research study argues that the characteristics of program instructors are crucial to the effectiveness of school-based drug prevention programs. That being the
case, it is hypothesized that the different types of instructors would have different program effects based on their attributes. This study, therefore, seeks to determine whether students in the A.S.A.P.S. have different perceptions of police officers and attitudes toward police instructors. Based on findings from previous studies (Jesilow et al., 1995), this study further hypothesized that individual and contextual factors determine students’ perceptions of and attitudes toward the police (See Figure 3). The individual and contextual factors of interest to this study are students’ age, gender, race, place of residence, risk level, encounters with the police and involvement in deviant behaviors.

Figure 3: Perceptions of Police Officers and Attitudes Toward Police Instructors

The detailed hypotheses related to the research questions may be stated as follows:

1. It is argued that the cordial interaction that takes place between students and police officers in the delivery of drug education programs can help mitigate some
of the negative perceptions and attitudes of students toward the police.

Consequently, this study hypothesizes that the perceptions of police officers and attitudes toward police instructors would be more positive for students who have previously had police instructors than their counterparts with non-police instructors.

2. Individual characteristics and social/environmental factors of age, gender, race, risk level, place of residence and encounter with the police significantly influence students’ perceptions of police officers and attitudes toward police instructors.

2a. With adolescents having more negative perceptions of and attitudes toward the police, it is hypothesized that student age would be inversely related with perceptions of police officers and attitudes toward police instructors. In effect, older students are expected to have more positive perceptions of police officers, and attitudes toward police instructors than younger students.

2b. There is a significant difference in the perceptions of police officers and attitudes toward police instructors held by male and female students.

2c. This study predicts that student’s ethnicity would be significantly related with their perceptions of police officers and attitudes toward police instructors. Compared to White students, it is expected that other students would have more negative perceptions of police officers, and attitudes toward police instructors.

2d. High risk students are expected to have negative perceptions of police officers and attitudes toward police instructors. Similarly, students in high risk schools are expected to have more negative perceptions of police officers, and attitudes toward police instructors than those in low risk schools.
2e. Students’ involvement in deviant behaviors would be negatively related with perceptions of police officers and attitudes toward police instructors with students more involved in deviant behaviors having more negative perceptions and attitudes.

2f. The perceptions of police officers and attitudes toward police instructors are expected to be significantly different by the location of student’s school district. Considering the fact that students in inner cities and urban communities tend to have more negative attitudes toward the police, this study predicts that students in urban schools to have more negative perceptions of police officers, and attitudes toward police instructors than their counterparts in non-urban schools.

2g. The nature, frequency and satisfaction of encounter with the police are key determinants of the perceptions of and attitudes towards the police. In view of the fact that students participating in drug prevention programs delivered by police officers are likely to have regular cordial relationship with police instructors, it is expected that students who have exposure to the D.A.R.E. program prior to 7th grade would have more positive perceptions of the police, and attitudes toward police instructors. It is also expected that at 9th grade follow-up, students who previously had drug programs delivered by police officers would have significantly more positive perceptions of police officers, and attitudes toward police instructors than students who had drug programs delivered by non-police officers.

3. Students’ general perceptions of police officers are a key determinant of their attitudes toward police instructors in school-based drug prevention programs.
Students who have favorable perceptions of police officers are likely to have more positive attitudes toward police instructors than students with unfavorable perceptions of the police.

4. Students’ attitudes toward program instructors in general are dependent on the type of instructors (police or non-police) delivering the drug program, students’ age, gender, ethnicity, risk level, place of residence, encounter with the police and involvement in deviant behaviors.

5. Students’ age, gender, ethnicity, risk level, place of residence, encounter with the police and involvement in deviant behaviors significantly determine students’ perceptions of police officers.

Research Design

To investigate students’ perceptions of police officers and attitudes toward police instructors and the factors underlying the observed perceptions and attitudes, the study employed a longitudinal design. The central concern of social science research revolves around the description of patterns of change and the explanation of how and why the changes occurred (Kessler & Greenberg, 1981). Longitudinal designs provide an opportunity for achieving this goal - describing the magnitude and patterns of change over time as well as the factors influencing those changes within and between individual subjects. Longitudinal designs can also be used to explain changes in relation to other characteristics and to forecast variables of interest.

Longitudinal designs are of various types including simultaneous cross-sectional, trend, time series, intervention and panel, studies (Bijleveld & Van der Kamp, 1998; Keeves, 1988). The different types of longitudinal design can be used to address
different research questions and each has its strengths and weaknesses. For instance, while simultaneous cross-sectional studies are unable to capture intra-individual differences and changes, time series studies make it possible to examine both inter- and intra-individual differences and changes. The nature of the data and the diverse questions addressed in this study make the use of different types of longitudinal designs appropriate. With respect to questions pertaining to the comparison of students with police instructors and those with non-police instructors, the intervention analysis was used. Alternatively, trend analysis was used for questions relating to changes over time.

A fundamental problem in longitudinal design relates to the possibility of repeated measurements within participants being correlated, known as autocorrelation (Gibbons et al., 1993). The existence of autocorrelation not only affects the efficiency of the estimators but it also violates one of the central assumptions of statistics – independence of measurements. Another problem confronting longitudinal design is the costly and complicated process of gathering and analyzing data repeatedly on a number of variables for a number of subjects. For instance, it has always been problematic and costly to maintain contact with or trace subjects over a period of time.

Further, there is the problem of high and (or) selective dropout rates with dropout rates of between 40-60% reported in most longitudinal research (Bijleveld & Van der Kamp, 1998). The presence of selective dropout rates has the potential to bias the remaining sample with respect to the variables of interest and thereby distort findings from a study. While threats of internal validity such as history, maturation and testing have been found to affect longitudinal design, with the use of random assignment, it is likely that these effects would be minimized and would not be of great concern.
These weaknesses notwithstanding, longitudinal designs are valuable when used to address the appropriate research questions (Menard, 1991). It has been noted, “in general, the costs of longitudinal designs pay off in terms of the appropriateness with which certain research questions can be addressed” (Bijleveld & Van der Kamp, 1998, p. 3). Longitudinal designs help in tracing and describing patterns of change as well as establishing the direction and magnitude of causal relationships (Menard, 1991). Perhaps, Menard best summed up the importance of longitudinal designs when he stated, “longitudinal research is touted as a panacea for establishing temporal order, measuring change, and making stronger causal interpretations” (p. 3).

Sample Selection

The sample for this study (and the A.S.A.P.S.) was obtained from school districts in six metropolitan areas across continental U.S.A. Students in the sample were 7th graders during the 2000/2001 school year. The sampling procedure involved the selection of one district in each of the six inner cities. School districts within a 50-mile radius of each city were then randomly selected and after agreeing to participate in the study, randomly assigned to the treatment or control condition. In selecting the schools, attempt was made to include adequate number of schools with high stress level. The stress level of schools was determined by measures of proportion of students eligible for free lunch and proportion of minority students. The selected schools must also have had a population of more than 2,500 students. For a high school to be eligible for inclusion in the study, it must begin at the 9th grade. Further, schools in the control condition were
asked not to implement a new “formal” drug prevention programs but could continue with whatever program was in place.¹

The rationale for using this sample is the fact that it is a large representative sample with a large number of students having police officers as program instructors. Further, the sample provides information that were good measures and proxy measures of the variables of interest in this study over a period of time, making it suitable for the intended purpose of the study. The request to schools in control condition not to implement new “formal” drug prevention programs would have resulted in lack of comparable group (students with non-police instructors) and thus a limitation to the study. This notwithstanding, 33 out of the 41 schools in the control condition implemented other prevention programs, making it possible for this study to obtain a comparable sample for analysis.

At baseline, the sample consisted of 83 high schools and their feeder middle schools (N = 122). Forty-two of the high schools were assigned to the treatment condition and 41 to the control condition. In all, 19,169 7th grade students provided positive parental and student consent to participate in the study and completed at least one survey. The average age of the students at 7th grade pretest was 12.4 years with majority of them (62.0%) being 12 years old. The racial composition of the sample at baseline was 35.6% white, 23.3% Latino, 13.8% Black, 4.3% Asian, 7.9 American Indian, 11.8% other race/ethnicity, and 3.4% had missing data on race/ethnicity. There were relatively more females (56.2%) than males (43.8%) in the study with equal proportion of females and males (55.4%) receiving treatment.

¹ For the purpose of the study, formal drug prevention programs were defined as a program with goals, formal lesson plans and a title or name.
Eleven thousand and ninety-three (56.8%) of the students came from schools receiving the T.C.Y.L. curricula (treatment group) and 8,076 (41.3%) of the students did not receive the program (control group). Twelve thousand, five hundred and forty-eight (64.2%) of the students came from high stress districts as compared to 6,621 (33.9%) from low stress districts. Of the 12,548 students from the high stress school districts, 7,422 (59.1%) were in schools assigned to the treatment conditions. Three thousand, six hundred and seventy-one (55.4%) of the students in the low stress school districts were in schools assigned to the treatment conditions.

**Recruitment of Schools**

Recruitment of schools for the study began with the development and distribution of brochures containing highly persuasive public presentation materials and emphasizing the potential significance of the study to superintendents of selected school districts. In addition to the brochure, a cover letter requesting the participation of the schools was sent to superintendents of selected school districts. This was followed by phone calls and site visits to the schools by project staff. The superintendents were made aware of the possibility of their schools being randomly assigned to the treatment or control conditions for prevention programming for each condition.

Once the district superintendents agreed to participate in the study, a similar approach together with a letter of support from the district superintendents was used to contact and elicit the cooperation of principals of the schools. In some cases, the cooperation of school board members was also elicited. To encourage participation in the study, participating schools were given $500 per year in addition to resource materials.
relating to substance abuse prevention. The schools were also assured of a copy of the final study report.

After superintendents and all principals signed letters of agreement to participate in the study, the research team arranged to obtain participation agreement from the appropriate local police departments for districts assigned to the treatment condition. In communities where D.A.R.E. officers were not available, an officer was trained by D.A.R.E. or an officer from another community was asked to deliver the program. The training consisted of two phases of (1) 5-day training in the basic D.A.R.E. program by D.A.R.E. mentors at a D.A.R.E. regional training center and (2) two 5-day sessions of training in delivery of the T.C.Y.L. program conducted at the I.H.S.P. by curriculum developers involved in the A.S.A.P.S. The training of the police officers focused on understanding of the curriculum, development of comfort with the key teaching strategies, understanding of prevention principles and key characteristics of contemporary middle and high school students.

Statistical power is essential for ensuring that sufficient data is generated for purposes of analyzing and testing of adequate number of subjects. Statistical power helps in rejecting the null hypothesis when it ought to be rejected (avoidance of Type I error). Analysis of the power of statistical tests to be used in any study is a function of effect size, sample size, and significance level. School-based drug prevention research faces a major methodological issue relating to the difference between the unit of assignment (cluster of schools) and unit of analysis (individual students). Instead of individual subjects, most school-based drug prevention research randomly assigns a cluster of schools to the experimental and control conditions. This sampling process creates a
problem of intracluster correlation (I.C.C.) that, unless accounted for in statistical analysis, biases the standard errors and the subsequent conclusions about statistical significance. There are several approaches to addressing this problem, but Norton et al. (1996) are of the view that generalized estimating equations (G.E.E.) are the most attractive methods that yield consistent and robust variance estimates.

Among other things, the G.E.E. assumes that the number of clusters is relatively large. Nonetheless, “the literature is not specific about how large is large enough” but the determination of the appropriate sample size “is based on a large number of factors including the I.C.C., the average cluster size, and the number of parameters being estimated” (Norton et al, 1996, p. 922). Norton et al. are of the view that the number of cluster of schools more than 30 might be enough. In an application of the G.E.E. method to a D.A.R.E. study, Norton et al. argued that a total of 36 schools in the study were sufficient enough for effective analysis.

A detailed review and analysis by a research design consultant group to the A.S.A.P.S. arrived at the conclusion that based on reasonable assumptions, a sample size of 40 school districts per condition (treatment and control) would be sufficient to provide adequate power of .80 at significance level of 0.05 for a two-tailed hypothesis test. The sample size of 83 school districts with at least 2,500 students per cluster is far larger than what the literature considers to be the appropriate for school-based drug prevention research (Norton et al., 1996). To ensure the robustness of the sample size, the research design consultant group varied assumptions about the effectiveness of the proposed treatment, the amount of variation, which might be observed across units of analysis, and
the sample size of individual participants, among other things, and observed power estimate of between .77 to .99.

As with all longitudinal studies, retention of participants was crucial to the A.S.A.P.S. To ensure the retention of schools in the program, the study encouraged active community participation through the formation of a community advisory group to support the study within the community, help interpret the findings from the study, and to serve as support network for the possible implementation of a successful program.

**Recruitment of Students**

All students in the appropriate grade levels in the selected schools were included in the study. Participation in the research study was voluntary and active parental and student consents were sought from the students prior to the 7th and 9th grade (middle and high schools) interventions. Students who refused or whose parents refused to allow them participate in the study were included in the intervention but were excluded from the survey. These students were given other materials to read at the time of the survey.

Confidentiality of the respondents was a priority of the study and though the students were assigned project identification numbers, measures were taken to protect the identity of the respondents. The students were assigned identification numbers only as an individual code and were used solely for the purpose of tracking the students throughout the study and for linking data over time. To maintain confidentiality and anonymity, the identification number was bar coded on all data collection forms and the crosswalk file for names and identification numbers were available only to assigned officials at the central project office. Further, the completed surveys were opened only by assigned
Data Collection Procedures

The data for these analyses were collected by self-administered surveys distributed to middle and high school students from the six regions. The survey instrument was administered prior to and immediately (30 to 60 days) after the delivery of the T.C.Y.L. curriculum in the 7th and 9th grade and at follow-ups at the 8th, 10th and 11th grades. In the control schools, surveys were administered prior to and following the implementation of existing drug abuse prevention programs. The survey instrument was designed to be completed in one class period of about 45 minutes. The survey was administered in each region by a team consisting of a Regional Site Coordinator and 2 to 6 part-time staff (survey team) who were familiar with the geographic area and had been trained in the collection of data and tracking of students. The instrument collected information on student demographics, measures of students’ substance use, mediating variables including normative beliefs, perceived consequences of drugs use, attitudes toward drug use, and skills and competencies for resisting pressures of drug use.

Prior to each data collection, the importance of the study was explained to the students. During the data collection, students were given survey packets, which contain the survey instruments with a letter introducing the project, informed consent forms for parents and students, and letters of approval for study participation by school principals and superintendents. The completed surveys were scaled and sent directly to the I.H.S.P. for processing. To encourage active student participation in the data collection, incentives officials at the central office, scored electronically and locked in a secured place accessible only to assigned officials.
including classroom wide activities such as pizza parties were given to students. Missing students were identified and tracked for data collection and attrition analyses.

Measurement of Variables

In accordance with the objectives of the A.S.A.P.S., the survey was designed to collect a wide range of information. The survey instrument used in the study was developed by staff of the I.H.S.P. of The University of Akron and contains measures adapted from ongoing national studies such as the Monitoring the Future Study (Johnston et al., 2003). The developed instrument was pre-tested through focus groups with students of comparable age and through pilot studies in schools not included in the A.S.A.P.S. The instrument assesses students’ demographics, drug use, and a variety of other factors believed to be related to drug use including students’ attitude towards police officers.

The current study uses longitudinal data with general perceptions of police officers, the individual and environmental factors measured at five points in time. Students’ attitudes toward instructors of the drug education program were measured at two points in time (7th and 9th grade posttests) and involvement in deviant behaviors measured at baseline only. The study explores students’ perceptions of police officers and their attitudes toward police instructors in drug prevention programs. Of particular interest is an assessment of the factors determining the observed perceptions of police officers and attitudes toward program instructors. While the A.S.A.P.S. data were not originally collected to specifically address students’ perceptions and attitudes toward police officers, the coverage of the data collection is broad enough and the content quite
appropriate for the objectives of this research study. A copy of the survey instrument at the 7th grade posttest is presented in Appendix A.

Students’ perceptions of police officers were measured by two survey items in the A.S.A.P.S. data relating to the duties of police officers. The two items were: (1) “I think that police officers are trying to catch you doing something wrong rather than trying to help you” and (2) “I know a police officer in my community or school who I could go to if I needed help”. Students rate each of the items on a five-point Likert scale of 1 = “disagree”, 2 = “kind of disagree”, 3 “neither”, 4 = “kind of agree”, and 5 = “agree”. To ensure that the two items are coded in the same direction, responses to the negatively worded item (the first item) were reverse-coded. Consequently, higher scores on each item indicated more favorable perception and vice versa. For purposes of easy analyses and interpretations and consistent with prior research (Taylor et al., 2001), a composite score of perceptions of the police was constructed by averaging each student’s response to the two items.

Students’ attitudes toward the instructor of drug education programs were assessed by four five-point Likert scale items relating to students attitude towards three types of instructors of drug education programs received that year. The types of instructors were “teachers”, “police officers” and “others”. The four items were: (1) the instructor understood what the real world is like for kids my age, (2) I felt it was easy to talk to the instructor about drugs and alcohol, (3) I believe the instructor gave me real/true information, and (4) I believe the instructor was enthusiastic. The responses to all the four items were 1 = “disagree”, 2 = “kind of disagree”, 3 “neither”, 4 = “kind of agree”, and 5 = “agree”.
The responses to the four items were subjected to principal component analysis (PCA: varimax rotation with Kaiser Normalization). The PCA at the 7th grade posttest resulted in one principal component accounting for 65.6% of the total variance and factor loadings ranging from .76 to .84. At the 9th grade posttest follow-up, the PCA resulted in one principal component accounting for 73.0% of the total variance. The factor loadings were relatively higher than at the 7th grade posttest; ranging from .84 to .88. The Cronbach’s alpha of .82 (M = 16.11, SD = 4.13) and Guttman’s split half coefficient of .80 were high enough to indicate strong scale reliability at the 7th grade posttest. The high Cronbach's alpha (α = .88; M = 14.93; SD = 4.65) and Guttman’s split half technique (.86) coefficients reveal strong scale reliability at the 9th grade posttest. The outcome of the factor and scale reliability analysis is presented in Appendix B.

Age was measured as the student’s reported age (in years) at the time of 7th grade pretest survey completion. The range of students’ age at baseline was from 10 to 15 (M = 12.50, SD = .68) years. Respondents’ gender consists of students’ self-identification of being male or female and was coded as 0 = “female” and 1 = “male”. Respondents’ ethnicity was ascertained by students’ self-identification and was dummy coded as “White” = 0, “Latino” =1, “Black” = 2, “Asian” = 3, “American Indian” = 4, and “Other race/ethnicity” = 5.

The risk level of respondents’ refers to their exposure to relatively greater risk factors and few protective factors. Risk factor has generally been defined differently to include societal, familial, community, school, and individual, level factors. In this study, students’ risk level was measured by both individual and school level factors. At the individual level, risk was constructed from student self-reports of ever using alcohol,
tobacco, marijuana or inhalants 30 days prior to the time of survey completion. Students who have used any drug were considered to have high risk. This variable is coded as 1 = “high risk”, and 0 = “low risk”. The school level risk factor was constructed by measures of poverty (proportion of students within a school receiving free-lunch program) using the following categorization: 0 = “low stress” (25% or less students on free lunch), and 1= “high stress” (more than 25% students on free lunch).

The locations where the students attend school were used to ascertain respondents’ place of residence and was classified as being urban or non-urban. Respondents’ place of residence was coded as 0 = “non-urban” and 1 = “urban”.

Respondents’ contact with the police was measured by their exposure to the D.A.R.E. program prior to entry into the study and was coded as 1 = “exposure to the D.A.R.E. program” and 0 = “non-exposure to the D.A.R.E. program”. While the students might have several encounters with the police in diverse settings and conditions, lack of data on such encounters in the dataset makes it impossible for such encounters to be captured in this study. Irrespective of other police encounters, however, it is the belief of this researcher that students with a prior encounter with D.A.R.E. officers are likely to have a more positive police encounter than their counterparts without a prior encounter with D.A.R.E. officers.

A composite score of student deviant behavior was computed by averaging the score of eight five-point Likert scale items completed by students at baseline. The items asked students how often they have been involved in deviant behaviors in the last 12 months with responses ranging from 1 (not at all) to 5 (more than 5 times). The 8 items were highly correlated. The subjection of the 8-item responses to PCA (varimax
rotation with Kaiser Normalization) resulted in the extraction of one component accounting for 44.2% of the total variance with factor loadings ranging from .61 to .71. The Cronbach's alpha ($\alpha = .80; M = 10.49; SD = 4.01$) and Guttman’s split half technique (.80) coefficients were sufficiently high to reveal strong scale reliability.

The dropout of students at the 9th grade posttest did not significantly affect the outcome of the factor analysis and scale reliability. The PCA at the 9th grade resulted in one component accounting for 45.0% of the total variance and the factor loadings ranged from .62 to .73. Similarly, the Cronbach's alpha ($\alpha = .80; M = 10.11; SD = 3.72$) and Guttman’s split half technique (.82) coefficients were sufficiently high for one to conclude a strong scale reliability. The list of the items, outcome of the factor and scale reliability analysis is presented in Appendix B.

**Statistical Analysis and Techniques**

Data analyses were performed using version 8 of *Stata* (StataCorp., 2003) for univariate and bivariate analyses and version 3.12 of *Mplus* (Muthén & Muthén, 2005) for multivariate analyses. With students nested within schools, the assumption of independence of errors underlying most statistical analyses is likely to be violated. *Stata* and *Mplus* are two of the few special-purpose statistical software packages that are suitable for dealing with this problem. The family of ‘survey’ commands in *Stata* makes it possible for design effects to be computed and the necessary adjustments made to the test statistics. Similarly, the *Mplus* has a special feature for handling clustered data. To systematically and adequately answer the proposed research questions, multiple analytical techniques including both descriptive and inferential statistics were employed to analyze the data. All inferential statistics were conducted at the .05 significance level.
Prior to the data analysis, internal consistency analysis was performed to check for completeness and reliability in the data. Students whose responses were found to be incomplete and/or inconsistent were excluded from the analysis.

In all, 264 (1.38%) students were excluded from the initial sample of 19,169 students. This consisted of 124 (.65%) students who were in a school that dropped out of the study at the 9th grade follow-up. Thirty-two (.17%) students were without middle school (7th grade) identification. In addition, 108 (.56%) students transferred between schools and were excluded from the analysis to avoid the problem of variation of treatment condition within clusters.

In addition, some of the groupings were reclassified for purposes of simplifying the analyses and/or ensuring that there was sufficient number of cases in the groups for effective statistical analysis. First, the classes of instructors were reclassified into “police officer” coded 1 and “non-police officer” coded 0. Respondents’ ethnicity was also dummy coded as “White”, “Latino”, “Black”, and “Other race”. The measure of students’ involvement in deviant behaviors was highly skewed (M = 1.33, SD = .53) and using median split was re-categorized into high and low deviance. “High deviance” comprised students with mean score of involvement in deviant behaviors exceeding 1 and was coded “1” while “low deviance” (students with mean score of involvement in deviant behaviors below 1) was coded 0. With the observation that adolescents involved in deviant behavior tend to have a high level of risk (Bachman, Johnston, & O’Malley, 1981), this categorization was validated by comparing it with risk level. A Cross-tabulation of deviant behavior with risk level (X² = 641.15, p = .000) provided evidence
in support of this categorization with 2,132 (86.1%) of high deviant students also being high risk.

Descriptive statistics including mean, standard deviation and range were used to describe the ratio and interval data, and frequencies and percentages were utilized to describe the nominal and ordinal data. With respect to multiple item constructs, the principal component analysis (PCA: varimax rotation with Kaiser Normalization) and Cronbach reliability analyses were used to determine the extraction of factor components and scale reliability. The inferential statistics used were \( t \)-tests and multilevel Structural Equation Modeling (S.E.M.).

The \( t \)-test is the most commonly used method to evaluate the mean differences between two groups. The study tested for differences in students’ perceptions of police officers and attitudes toward drug education instructors by individual and contextual factors. \( T \)-tests were conducted to determine whether there were differences in students’ perceptions of police officers and attitudes toward police instructors by students’ age, gender, ethnicity, risk level, place of residence, encounter with the police and involvement in deviant behaviors. The test of differences between the various age groups was based on dichotomous categorization of age into younger and older students based on the mean age. The reason for this was the fact that the number of cases in some of the age groups was not large enough to facilitate effective significance testing among the groups. With respect to ethnicity, the study compared White students with non-White students.

Since the two groups within the independent variables to be compared in this study are independent of each other, an independent-sample \( t \)-test of the difference in
means (analyzing relationship between two groups which do not share pairs of scores) was appropriate for testing the hypotheses relating to difference between the two groups. Independent-sample $t$-test was also used to determine whether students’ perceptions and attitudes toward police officers and instructors by the type of instructors they had in their drug education programs. The same procedure was used to determine whether students with favorable and unfavorable perceptions of the police differ in their attitudes toward program instructors. The hypothesis for the $t$-test analyses was that there is significant difference between the perceptions of and/or attitudes toward police officers and instructors of the two groups. The $t$-test determines whether the mean levels of students’ perceptions and attitudes toward police officers and instructors in any of the two different groups are different enough not to have occurred by chance. Observed differences between the groups were deemed significant at the alpha level of .05.

Further, multilevel S.E.M. was used to determine whether the independent variables predict students’ perceptions of police officers and attitudes toward program instructors. Dummy variables consisting of one less than the number of categorizations ($n-1$) were entered for ethnicity with White students as the reference category. Mplus has special features for handling missing data, complex sample data and multilevel data structures that makes it suitable for this study. First, The S.E.M. in Mplus has the ability to handle Full Information Maximum Likelihood (F.I.M.L.) missing data at both individual- and school-levels as well as provide modification indices with F.I.M.L. missing data. Specifying that the data contain missing values and stating the value of the missing data, Mplus accounts for the missing data using optimal F.I.M.L. Further, Mplus
has a feature for taking into account clustered sampling and uses complex algorithms to maximize the model fit and generate robust estimation of standard errors.

Though the chi-square difference tests based on model log-likelihood values is the most commonly used fit index for assessing model fit, this study used indices other than the chi-square. This is because the chi-square statistic is well known to be influenced by sample size. Large samples usually result in significant chi-square and considering the fact that this study makes use of a large sample (N ≥ 6,054), chi-square by itself might not be an ideal measure of model fit in this study. Four indices were used to evaluate the models estimated in this study. These indices were the comparative fit index (C.F.I.; Bentler, 1990), Tucker-Lewis fit index (T.L.I.; Tucker & Lewis, 1973), root mean square error of approximation and Standardized Root Mean Square Residual (R.M.S.E.A. and R.S.M.R.; Browne & Cudeck, 1993). The choice of these indices was based on their popularity and unique features that conform to the nature of data input used for this study.

The C.F.I. assumes a non-central chi-square distribution (Hu & Bentler, 1998) and like most goodness of fit measures, compares the estimated model fit to a hypothetical independence model (null model) assumed to have variables that are uncorrelated with the dependent variable(s). The T.L.I. is similar to the C.F.I. but further assumes that the fit function of the estimated model follows a chi-square distribution with the degrees of freedom of the estimated model (Hu & Bentler, 1998). The C.F.I. and T.L.I. vary from 0 to 1 and determine the improvement in fit of the estimated model over the null model. The closer the value of the C.F.I. or T.L.I. is to 1, the better the estimated model fits the data at the .05 level. The R.M.S.E.A. is a descriptive statistic related to the non-central chi-square distribution and indicates the size of the residuals. Unlike the chi-
square, however, it is not affected by large sample and it compensates for model complexity. Further, the R.M.S.E.A. does not require a comparison of the fitted model with a null model. Another descriptive statistic used to assess model fit is the S.R.M.R. The S.R.M.R. is the average difference between the predicted and observed variances and covariances in the model, based on standardized residuals. By convention, the smaller the value of the R.M.S.E.A. and S.R.M.R., the better the estimated model fits the observed data at the .05 level.

The use of multiple measures of model fit is also informed by the fact that each of the measures has its weaknesses and there is no universally accepted measure of model fit. Though Hu and Bentler (1999) have reviewed and prescribed stringent cutoff criteria of .95 for C.F.I. and T.L.I., .06 for R.M.S.E.A. and .08 for S.R.M.R. for accessing model fit, these criteria are not to be considered as a universal guide for judging model fit. Marsh, Hau and Wen (2004) have clearly indicated that there is no golden rule with respect of the cutoff values for assessing model fit. Rather they argue that cutoff values should be used with caution taking into consideration issues such as model complexity, adequacy and interpretability of parameter estimates.

For the estimated models in this study to be deemed a good fit of the data, there must be agreement among the four model fit indices. In general the models would be considered a good fit of the data, if the C.F.I. and T.L.I. values were equal to or greater than .95, the R.M.S.E.A. estimate was less than or equal to .06 and the S.R.M.R. value was less than or equal to .08. It is believed that the use of multiple measures of model fit would help enhance the reliability of the estimated models’ fit.
CHAPTER V

DATA ANALYSIS

This chapter reports and discusses the results of the analyses of this study using *Stata* 8 (StataCorp., 2003) and *Mplus* 3.12 (Muthén & Muthén, 2005). The chapter consists of four sections. The first section presents the description of the sample. The second section describes students’ perceptions of and attitudes toward police officers and instructors. It also reports results of differences in students’ perceptions of the police and attitudes toward police instructors. The third section presents results of bivariate analysis of the individual and contextual factors affecting students’ perceptions of the police and attitudes toward police instructors. It highlights differences in students’ perceptions of police officers and attitudes toward police instructors according to their individual and contextual factors. The final section reports the result of multivariate analyses of the effect of individual and contextual factors on students’ perceptions of and attitudes toward police officer/drug program instructors. In particular, the section reports on the outcome of the S.E.M.

**Characteristics of the Sample**

The analyses sample for this study consisted of only students who reported that they participated in drug education program at the 7th or 9th grades posttest follow-ups. In effect, two set of samples, one each for the 7th and 9th grade posttests, were analyzed. The demographic characteristics of the analysis sample and proportions of
students who reported having drug education program at the 7th or 9th grades posttests are presented in Table 1. The analysis samples for the 7th grade posttest consisted of 10,542 (55.8 %) of the final baseline sample (18,905) and that for the 9th grade posttest analysis consisted of 6,054 (32.0%) of the final baseline sample. Data were missing on the instructors type of 226 (2.1%) out of the 10,542 students who reported having drug education at the 7th grade posttest. Of the remaining 10,316 students, 8,443 (81.7%) indicated that they had police officers as program instructors while 1,885 (18.3%) indicated that they had non-police instructors.

The age of students in the 7th grade sample ranged from 10 to 15 (M = 12.46, SD = .65) years, with a slight majority (56.1 %, n = 5,691) reporting that they are 12 years of age. The sample was slightly split between male and female students; 5,952 (57.9%) female and 4,320 (42.1%) male. The ethnic composition of the sample was fairly diverse with 4,102 (38.9%) of the students describing themselves as White, 2,408 (22.8%) as Latino, 1,190 (11.3%) as Black and 2,854 (27.0%) were classified as other groups.

Most of the students (81.1%, n = 8,162) reported no use of alcohol, cigarette, inhalant or marijuana in the last 30 days at the 7th grade posttest, and were classified as low risk. In terms of school risk, there were 5,478 (51.9%) students in schools where a quarter or less of the students receive free lunch, compared to 5,076 (48.1%) students in schools where more than a quarter of the students receive free lunch. The deviance category consisted of 3,903 (42.4%) students classified as having low deviant involvement versus 5,301 (57.6%) students classified with high involvement in deviant behaviors. The students attended schools in a predominantly non-urban setting (90.2%, n
as opposed to an urban setting (9.8%, n = 1,031). Students’ prior encounter with
D.A.R.E. officers indicates that 5,715 (77.4%) of the students had experience with the
D.A.R.E. program prior to involvement in the A.S.A.P.S. (7th grade).

The composition of the 9th grade posttest analysis sample by instructor type
indicates a large number of students (78.3%, n = 4,616) had police officers as their drug
education instructors compared to 1,281 (21.7%) students who had non-police
instructors. The large number of students having police officers as instructors has to do
with the fact that half of the sample were assigned to the treatment condition and thus
received prevention program delivered by police officers. Students in the 9th grade
posttest sample ranged in age from 12 to 17 years with a mean age of 14.42 (SD = .59). A
slight majority of the students (58.7%, n = 3,397) indicated that they were 14 years of
age. There were relatively more female students (58.6%, n = 3,524) than male students
(41.4%, n = 2,494) in this sample. The ethnic composition of this (9th grade) analysis
sample was relatively diverse with 2,622 (43.2%) of the students identifying themselves
as White. There were 1,213 (20.0%) students who identified themselves as Latino, 522
(8.6%) as Black and the remaining 1,710 (28.2%) students were classified as others.

The classification of students according to their individual risk level revealed
2,874 (48.2%) of the students reporting use of alcohol, cigarette, inhalant or marijuana in
the last 30 days at the 9th grade posttest. This contrasts with 3,084 (51.8%) students who
reported that they did not use alcohol, cigarette, inhalant or marijuana in the last 30 days
at the 9th grade posttest. A slight majority of the students (56.2%, n = 3,412) also attended
schools where a quarter or less of the students received free lunch. Of the students in this
sample, 2,722 (53.1%) were classified to have high level of involvement in deviant
Table 1

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<td>48.1 %</td>
<td>2,655</td>
</tr>
<tr>
<td>Low</td>
<td>5,478</td>
<td>51.9 %</td>
<td>3,412</td>
</tr>
<tr>
<td>Deviance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>5,301</td>
<td>57.6 %</td>
<td>2,722</td>
</tr>
<tr>
<td>Low</td>
<td>3,903</td>
<td>42.4 %</td>
<td>2,404</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>1,031</td>
<td>9.8 %</td>
<td>312</td>
</tr>
<tr>
<td>Non-urban</td>
<td>9,523</td>
<td>90.2 %</td>
<td>5,755</td>
</tr>
</tbody>
</table>
behaviors as against 2,404 (46.9%) with low involvement in deviant behaviors. Majority of the students were in school clusters that were located in non-urban communities. There were 5,755 (94.9%) of the students who attended schools in non-urban communities, compared to 312 (5.1%) students who attended schools in urban communities. A large number of students had encounter with D.A.R.E. officers at the 9th grade pretest; 4,140 (70.8%) versus 1,711 (29.2%) students indicated that they participated in the D.A.R.E. program prior to 7th grade.

Students’ Perceptions of Police Officers and Attitudes Toward Police Instructors

This section provides a summary of students’ perceptions of and attitudes toward police officers and instructors. It also summarizes the results of test of differences in students’ perceptions of the police and attitudes toward police instructors by the type of program instructor. For descriptive purposes and to facilitate easy analyses and interpretation of results of test of differences in students’ attitudes toward program instructors, attitude was measured by the mean score of the four items measuring the construct.

Table 2 describes the perceptions of and attitudes toward police officers and program instructors at the 7th and 9th grade posttests. Students’ perceptions of police officers at both time periods were relatively lower than their attitudes toward program
instructors. Generally, students were fairly neutral in their perceptions of police officers while they had somewhat positive attitudes toward program instructors. For instance, the mean score of perceptions of police officers at the 7th grade was 3.74 (SD = .039) as against 4.03 (SD = .030) for attitudes toward program instructors at the 7th grade posttests. Further, the perceptions of and attitudes toward police officers and program instructors were relatively higher at the 7th grade than the 9th grade posttests. The 7th grade posttest mean score of perceptions of police officers (M = 3.74, SD = .039) and attitudes towards program instructors (M = 4.03, SD = .030) were relatively higher than mean score of perceptions of 3.22 (SD = .041) and attitudes of 3.73 (SD = .050) for the 9th grade posttest.

The study explored whether the perceptions of police officers and attitudes toward drug education instructors differ between students with police officers as instructors and those with non-police instructors. One-tailed test with significance level of 0.05 was used to test the hypothesis that the mean score of perceptions and attitudes of students with police instructors are greater than that of students with non-police instructors:

Ho: \( \mu_1 = \mu_2 \)

HA: \( \mu_1 > \mu_2 \)

Where \( \mu_1 \) and \( \mu_2 \) are the mean score of perceptions of and attitudes toward police officers and instructors by students with police and non-police instructors respectively. The analysis was performed in Stata 8 (StataCorp., 2003), using its means test facility for survey data (svymean) and excluding missing data. The summary results of the analyses for the 7th and 9th grade posttests are presented at the low portion of Table 2. The
perceptions of police officers and attitudes toward instructors were measured along a scale of 1 = “unfavorable”, 2 = “kind of unfavorable”, 3 = “neutral”, 4 = “kind of favorable”, and 5 = “favorable”.

Table 2

Test of Difference in Perceptions of Police Officers and Attitudes Toward Police Instructors

<table>
<thead>
<tr>
<th></th>
<th>7th Grade Posttest</th>
<th></th>
<th>9th Grade Posttest</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Perceptions</td>
<td>3.74</td>
<td>.039</td>
<td>10,492</td>
<td>3.22</td>
</tr>
<tr>
<td>Attitudes</td>
<td>4.03</td>
<td>.030</td>
<td>10,481</td>
<td>3.73</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Estimates</th>
<th>t</th>
<th>N</th>
<th>Estimates</th>
<th>t</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceptions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Police</td>
<td>3.56 (.055)</td>
<td>3.30 ***</td>
<td>1,870</td>
<td>3.18 (.048)</td>
<td>1.15</td>
<td>1,219</td>
</tr>
<tr>
<td>Police</td>
<td>3.78 (.045)</td>
<td></td>
<td>8,399</td>
<td>3.25 (.049)</td>
<td></td>
<td>4,438</td>
</tr>
<tr>
<td>Attitudes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Police</td>
<td>3.85 (.041)</td>
<td>4.58 ***</td>
<td>1,865</td>
<td>3.51 (.056)</td>
<td>3.60 ***</td>
<td>1,272</td>
</tr>
<tr>
<td>Police</td>
<td>4.07 (.033)</td>
<td></td>
<td>8,410</td>
<td>3.79 (.058)</td>
<td></td>
<td>4,602</td>
</tr>
</tbody>
</table>

Note: Standard errors are in the parentheses.

*** Significance at p ≤ .001;  ** Significance at p ≤ .01;  * Significance at p ≤ .05

The mean score of perceptions of police officers by students with police instructors at the 7th grade was 3.78 (SD = .045) as against 3.56 (SD = .055) for students with non-police instructors. The mean score of perceptions of police officers at the 9th grade posttest follow-up was 3.25 (SD = .049). This compares with mean score of 3.18 (SD = .048) for students with non-police instructors. This suggests that students with police instructors have more positive perceptions of police officers than their counterparts with non-police instructors. While the observed difference in the mean score of perceptions of police officers held by students instructed by police and non-police at the
7th grade posttest was statistically significantly (t = 3.30; p = .002), that at the 9th grade posttest was not significant (t = 1.15; p = .504).

The results also indicate differences in students’ attitudes toward drug education instructors at both the 7th grade and 9th grade posttest. Students who had police officers as instructors in their drug programs had at the 7th grade posttest a mean score of attitudes of 4.07 (SD = .033). The mean score for their counterparts with non-police instructors was 3.85 (SD = .041). The observed differences in the mean score of attitudes toward drug education instructors between the two groups was statistically significant (t = 4.58; p = .000). At the 9th grade posttest follow-up, students with police instructors had relatively more positive attitudes toward program instructors (M = 3.79, SD = .058) than their counterparts with non-police instructors (M = 3.51, SD = .056). The observed difference was statistically significant (t = 3.60; p = .001).

The analyses also showed that the perceptions of and attitudes of students toward police officers and instructors declined overtime. The mean score of perceptions of police officers held by students with police instructors decreased from 3.74 (SD = .039) at the 7th grade posttest to 3.22 (SD = .041) at the 9th grade posttest. Similarly, the mean score of perceptions of police officers held by students with police instructors decreased from 3.78 (SD = .045) at the 7th grade posttest to 3.25 (SD = .049) at the 9th grade posttest. In the case of students with non-police instructors, the mean score of general perceptions of police officers decreased from 3.56 (SD = .055) at the 7th grade posttest to 3.18 (SD = .048) at the 9th grade posttest. Similar pattern was observed for mean score of attitudes toward program instructors.
A test of change in students’ perceptions of police officers from pretest to posttest revealed that perceptions at 7th grade pretest were higher than that of 7th grade posttest (not reported). Similarly, students’ perceptions of police officers at 9th grade pretest were higher than that at 9th grade posttest. These differences were not statistically significant at the .05 level.

**Bivariate Analysis of Individual and Contextual Factors**

This section presents and discusses the results of tests for differences in students’ perceptions of police officers and attitudes toward police instructors by individual and contextual factors. Eight tests each for the 7th and 9th grade posttests were performed to test for differences between groups mean score of perceptions of police officers and attitudes toward police instructors. The analyses determine whether students’ perceptions of police officers and attitudes toward police instructors differ by their age, gender, ethnicity, risk level, place of residence, encounter with the police and involvement in deviant behaviors. The overall hypothesis tested for each of the analysis was that the mean score of perceptions and attitudes for the two groups within the individual and contextual factors were not equal:

\[
\begin{align*}
H_0: \mu_1 &= \mu_2 \\
H_A: \mu_1 &\neq \mu_2
\end{align*}
\]

Where \(\mu_1\) and \(\mu_2\) are students mean score of perceptions of and attitudes toward police officers and instructors for the respective two groups within the factors. Stata 8 (StataCorp., 2003), using the *svymean* command and excluding missing data was also used to conduct these analyses. Table 4 presents results from these analyses.
With respect to test of differences between younger and older students’ perceptions of police officers, the result indicated that younger students have more favorable perceptions of the police (M = 3.83, SD = .044) than older students (M = 3.62, SD = .042) at the 7th grade posttest. Likewise, younger students’ perceptions of the police was more favorable (M = 3.26, SD = .044) at the 9th grade posttest than that of older students (M = 3.18, SD = .049). However, while the observed difference at the 7th grade posttest was statistically significant at .01 (t = 4.80, p = .000), the observed difference at the 9th grade posttest was not statistically significant (t = 1.79, p = .077).

The mean score of attitudes toward police instructors at the 7th grade posttest was 4.06 (SD = .035) for younger students and 3.98 (SD = .033) for older students. This means that younger students have more positive attitudes toward police instructors than older students. Similarly, younger students reported more positive attitudes toward police instructors at the 9th grade posttest (M = 3.75, SD .056) than the older students (M = 3.70, SD = .051). The observed difference at the 7th grade posttest was statistically significant at .05 (t = 2.51, p = .014) but the observed difference at the 9th grade posttest was not statistically significant (t = 1.18, p = .240).

The results for tests for differences between the perceptions of police officers, and attitudes toward police instructors of male and female students show marked differences. In general, female students had more favorable perceptions of police officers than their male counterparts at both the 7th and 9th grade posttests. The mean score of perceptions of police officers held by female students was 4.06 (SD = .033) and 3.78 (SD = .053) for the 7th and 9th grade posttests respectively. On the other hand, the mean score of perceptions of police officers held by male students was 3.98 (SD = .034) and 3.66
(0.054) for the 7th and 9th grade posttests respectively. Similarly, compared to male students, female students had relatively more positive attitudes toward police instructors at both the 7th and 9th grade posttests. The differences in perceptions of police officers at both time periods were statistically significant at .001 level (t = -5.35, p = .000; t = -5.46, p = .000 for 7th and 9th grades respectively). The mean differences in attitudes toward police instructors were statistically significant at .01 level for the 7th (t = -3.22, p = .002) and 9th (t = -3.27, p = .002) grade posttest.

The test for differences between groups mean scores of perceptions of police officers by White and non-White students revealed significant differences. The mean score of perceptions of police officers by White students at the 7th grade posttest was 3.88 (SD = .041) and that for non-White students was 3.65 (SD = .042). This means that White students tend to have more favorable perceptions of the police than their non-White counterparts. This difference was statistically significant at .001 (t = 5.89, p = .000). Results from the analysis of perceptions of the police at the 9th grade posttest also signified that White students have more favorable perceptions (M = 3.38, SD = .044) than their non-White counterparts (M = 3.10, SD = .044). Just like the findings from the 7th grade posttest, the observed difference between White and Non-White students was statistically significant at .001 (t = 5.82, p = .000). On the contrary, there were no significant differences in White and non-White students attitudes toward police instructors at both the 7th and 9th grade posttests.

With respect to individual risk level, the result indicates significant difference in the perceptions of police officers and attitudes toward instructors by high and low risk students. Students with high risk levels reported less favorable perceptions of police
officers (M = 3.09, SD = .046) at the 7th grade posttest than their counterparts with low risk levels (M = 3.91, SD = .039). The observed difference was statistically significant (t = -19.08; .000). A parallel pattern of difference in means and statistical significance (t = -11.51, p = .000) were observed for perceptions of police officers at the 9th grade posttest. In the same vein, the mean score of attitudes of high risk students toward police instructors at the 7th grade posttest was (3.58, SD = .054) lower than that of their counterparts with low risk (4.14, SD = .029). This observation was comparable with findings from differences in attitudes toward police instructors at the 9th grade posttest. The differences in attitudes toward police instructors by risk levels were statistically significant at both 7th (t = -12.99, p = .000) and 9th (t = -10.49, p = .000) grade posttests. Analyses of the school level risk revealed differences in the perceptions of police officers held by students in high and low risk schools at the two time periods. The mean score of perceptions of the police held by students in high and low risk schools at the 7th posttest was 3.61 (SD = .048) and 3.86 (SD = .049) respectively. At the 9th grade posttest, students in high risk schools had a mean score of perceptions of the police (M = 3.16, SD = .058) as against (M = 3.28, SD = .056) for students in low risk schools. Whereas the observed difference at the 7th grade posttest was statistically significant (t = -3.63, p = .000), the difference at the 9th grade posttest was not statistically significant (t = -1.47, p = .144). With respect to attitudes toward police instructors, there were no significant differences between students in high risk and low risk schools at 7th grade posttest (t = .69, p = .49). At the 9th grade posttest, however, students in high risk schools had a higher mean score of attitudes toward police instructors (M = 3.84, SD = .077) than their counterparts in low risk schools (M = 3.64, SD = .058). Unlike the 7th grade
Table 3

Test of Difference in Perceptions of Police Officers and Attitudes Toward Police Instructors by Individual and Contextual Factors

<table>
<thead>
<tr>
<th></th>
<th>7th Grade Posttest</th>
<th></th>
<th>9th Grade Posttest</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimates</td>
<td>t</td>
<td>N</td>
<td>Estimates</td>
</tr>
<tr>
<td>Perceptions of Police Officers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.65 (.039)</td>
<td>-5.35 ***</td>
<td>4,290</td>
<td>3.11 (.045)</td>
</tr>
<tr>
<td>Female</td>
<td>3.81 (.044)</td>
<td></td>
<td>5,927</td>
<td>3.30 (.045)</td>
</tr>
<tr>
<td>High Risk</td>
<td>3.09 (.046)</td>
<td>-19.08 ***</td>
<td>1,895</td>
<td>2.95 (.042)</td>
</tr>
<tr>
<td>Low Risk</td>
<td>3.91 (.039)</td>
<td></td>
<td>8,142</td>
<td>3.49 (.055)</td>
</tr>
<tr>
<td>High Deviance</td>
<td>3.52 (.040)</td>
<td>-16.29 ***</td>
<td>5,277</td>
<td>3.02 (.046)</td>
</tr>
<tr>
<td>Low Deviance</td>
<td>4.03 (.041)</td>
<td></td>
<td>3,887</td>
<td>3.49 (.043)</td>
</tr>
<tr>
<td>Encounter</td>
<td>3.84 (.037)</td>
<td>3.90 ***</td>
<td>5,692</td>
<td>3.33 (.055)</td>
</tr>
<tr>
<td>No Encounter</td>
<td>3.69 (.049)</td>
<td></td>
<td>1,660</td>
<td>3.18 (.040)</td>
</tr>
<tr>
<td>White</td>
<td>3.88 (.041)</td>
<td>5.89 ***</td>
<td>4,091</td>
<td>3.38 (.044)</td>
</tr>
<tr>
<td>Non-White</td>
<td>3.65 (.042)</td>
<td></td>
<td>6,401</td>
<td>3.10 (.044)</td>
</tr>
<tr>
<td>Older</td>
<td>3.62 (.042)</td>
<td>4.80 ***</td>
<td>4,665</td>
<td>3.18 (.049)</td>
</tr>
<tr>
<td>Younger</td>
<td>3.83 (.044)</td>
<td></td>
<td>5,827</td>
<td>3.26 (.044)</td>
</tr>
<tr>
<td>Urban</td>
<td>3.49 (.085)</td>
<td>-2.97 **</td>
<td>1,012</td>
<td>2.94 (.042)</td>
</tr>
<tr>
<td>Non-urban</td>
<td>3.77 (.041)</td>
<td></td>
<td>9,480</td>
<td>3.24 (.042)</td>
</tr>
<tr>
<td>Free Lunch</td>
<td>3.61 (.048)</td>
<td>-3.63 ***</td>
<td>5,033</td>
<td>3.16 (.058)</td>
</tr>
<tr>
<td>No Free Lunch</td>
<td>3.86 (.049)</td>
<td></td>
<td>5,459</td>
<td>3.28 (.056)</td>
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<tr>
<td>Attitudes Toward Program Instructors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.98 (.034)</td>
<td>-3.22 **</td>
<td>4,296</td>
<td>3.66 (.054)</td>
</tr>
<tr>
<td>Female</td>
<td>4.06 (.033)</td>
<td></td>
<td>5,909</td>
<td>3.78 (.053)</td>
</tr>
<tr>
<td>High Risk</td>
<td>3.58 (.054)</td>
<td>-12.99 ***</td>
<td>1,889</td>
<td>3.49 (.052)</td>
</tr>
<tr>
<td>Low Risk</td>
<td>4.14 (.029)</td>
<td></td>
<td>8,111</td>
<td>3.98 (.055)</td>
</tr>
<tr>
<td>High Deviance</td>
<td>3.89 (.035)</td>
<td>-11.24 ***</td>
<td>5,270</td>
<td>3.60 (.054)</td>
</tr>
<tr>
<td>Low Deviance</td>
<td>4.18 (.033)</td>
<td></td>
<td>3,883</td>
<td>3.85 (.052)</td>
</tr>
<tr>
<td>Encounter</td>
<td>4.05 (.033)</td>
<td>1.22</td>
<td>5,689</td>
<td>3.78 (.046)</td>
</tr>
<tr>
<td>No Encounter</td>
<td>4.00 (.045)</td>
<td></td>
<td>1,654</td>
<td>3.71 (.055)</td>
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</table>
Table 3 Continued

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>t</th>
<th>N</th>
<th>Mean (SD)</th>
<th>t</th>
<th>N</th>
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</thead>
<tbody>
<tr>
<td>White</td>
<td>4.06 (.040)</td>
<td>1.79</td>
<td>4,085</td>
<td>3.70 (.056)</td>
<td>-0.67</td>
<td>2,603</td>
</tr>
<tr>
<td>Non-white</td>
<td>4.00 (.031)</td>
<td>6,396</td>
<td>3.75 (.062)</td>
<td>3,430</td>
<td></td>
<td></td>
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<tr>
<td>Older</td>
<td>3.98 (.033)</td>
<td>2.51 *</td>
<td>4,668</td>
<td>3.70 (.051)</td>
<td>1.18</td>
<td>2,584</td>
</tr>
<tr>
<td>Younger</td>
<td>4.06 (.035)</td>
<td>5,813</td>
<td>3.75 (.056)</td>
<td>3,449</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>4.07 (.032)</td>
<td>1.15</td>
<td>1,022</td>
<td>4.32 (.094)</td>
<td>6.02 ***</td>
<td>312</td>
</tr>
<tr>
<td>Non-urban</td>
<td>4.02 (.033)</td>
<td>9,459</td>
<td>3.70 (.043)</td>
<td>5,721</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free Lunch</td>
<td>4.05 (.030)</td>
<td>0.69</td>
<td>5,042</td>
<td>3.84 (.077)</td>
<td>2.11 *</td>
<td>2,643</td>
</tr>
<tr>
<td>No Free Lunch</td>
<td>4.01 (.051)</td>
<td>5,439</td>
<td>3.64 (.058)</td>
<td>3,390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Perception</td>
<td>3.66 (.038)</td>
<td>22.33 ***</td>
<td>4,689</td>
<td>3.45 (.069)</td>
<td>11.37 ***</td>
<td>3,029</td>
</tr>
<tr>
<td>High Perception</td>
<td>4.32 (.024)</td>
<td>5,734</td>
<td>4.04 (.040)</td>
<td>2,756</td>
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</tbody>
</table>

Note: Standard errors are in the parentheses.

*** Significance at p ≤ .001; ** Significance at p ≤ .01; * Significance at p ≤ .05

posttest, the observed difference in attitudes toward police instructors at 9th grade was statistically significant (t = 2.11, p = .038).

Results from analysis of differences in perceptions of police officers according to students’ involvement in deviant behaviors were similar to analysis involving students risk levels. At the 7th grade posttest, students with high level of involvement in deviant behaviors reported less favorable perceptions of the police (M = 3.52; SD = .040) and less positive attitudes toward police instructors (M = 3.89; SD = .035) than their counterparts with low level of involvement in deviant behaviors. These observed differences were statistically significant at .001 level for perceptions of the police (t = -16.29, p = .000) and attitudes toward police instructors (t = -11.24, p = .000).

The mean score of perceptions of police officers held by students with high deviant involvement at the 9th grade posttest was 3.02 (SD = .046) as compared to 3.49
(SD = .043) for students with low involvement in deviant behaviors. This indicates that students with low involvement in deviant behaviors have relatively more favorable perceptions of the police. Students with high involvement in deviant behaviors at the 9th grade posttest had a less positive attitudes toward police instructors (M = 3.60; SD = .054) than students with low involvement in deviant behaviors (M = 3.85; SD = .052). The results indicate that the observed differences were statistically significant at .001 for perceptions of the police (t = -12.61, p = .000) and attitudes toward police instructors (t = -7.46, p = .000).

Analyses of difference in the perceptions of the police with respect to prior exposure to D.A.R.E. revealed that students with prior encounter with D.A.R.E. officers generally have more favorable perceptions at both time periods. The mean scores of perceptions of police officers held by students with and without prior encounter with D.A.R.E. officers at the 7th grade posttest were 3.84 (SD = .037) and 3.69 (SD = .049) respectively. At the 9th grade posttest, the mean scores of perceptions of police officers for students with prior encounter with D.A.R.E. officers was 3.33 (SD = .055) and that for their counterparts was 3.18 (SD = .040). The observed differences were statistically significant at .001 for 7th (t = 3.9, p = .000) and 9th (t = 3.74, p = .000) grade posttests. Similarly, students with prior encounter with D.A.R.E. had more positive attitudes toward police instructors at both the 7th and 9th grade posttests. The difference in attitudes at the 9th grade posttest that was statistically significant at .05 (t = 2.15, p = .035) however, the difference in attitudes at the 7th grade was not statistically significant (t = 1.22, p = .226).

Test of differences between students in cluster schools in urban and non-urban locations indicated differences in perceptions of the police and attitudes toward
police instructors. Students in urban schools had less favorable perceptions of the police (3.49, SD = .085) than students in non-urban schools (M = 3.77, SD = .041) at the 7th grade posttest. The mean score for students in urban schools at the 9th grade posttest was 2.94 (SD = .042) as compared to 3.24 (SD = .042) for students in non-urban schools. The observed differences were statistically significant at the 7th (t = -2.97, p = .004) and 9th grade posttest (t = -5.07, p = .000).

Students in urban schools had a mean score of attitudes toward police instructors of 4.07 (SD = .032) as against 4.02 (SD = .033) for students in non-urban schools. The mean score of attitudes toward police instructors at the 9th grade posttest was 4.32 (SD = .094) for students in urban schools and 3.70 (SD = .043) for students in non-urban schools. While the observed difference at the 7th grade posttest was not statistically significant (t = 1.15, p = 0.254), the observed difference at the 9th grade posttest was statistically significant at .001 (t = 6.02, p = .000).

The study further hypothesized that there would be a significant difference in the attitudes toward police instructors between students with favorable and unfavorable perceptions of the police. Specifically, it was hypothesized that students with favorable perceptions of the police (as indicated by a median split) would have more positive attitudes toward police instructors. The results indicated that students with more favorable perceptions of the police tended to have more positive attitudes toward police instructors at both time periods than their counterparts with unfavorable perceptions of the police. The mean scores of attitudes toward police instructors by students with favorable perceptions were 4.32 (SD = .024) and 4.04 (.040) for the 7th and 9th grade posttest respectively. On the other hand, the mean scores of attitudes toward police
instructors by students with unfavorable perceptions were 3.66 (SD = .038) and 3.45 (SD = .069) for the 7th and 9th grade posttest respectively. The observed differences were statistically significant at the 7th (t = 22.33, p = .000) and 9th (t = 11.37, p = .000) grade posttests respectively.

**Multilevel Analysis of Individual and Contextual Factors**

Multilevel analysis of the effect of individual and contextual factors on students’ perceptions of police officers and attitudes toward police instructors is presented and discussed in this section. The proposed model to be tested in this section is presented in Figure 4 with individual and contextual factors hypothesized to affect students’ perceptions of police officers and attitudes toward police instructors. To test for the hypothesized effects of the individual and contextual factors on perceptions of the police, and attitudes toward police instructors, multilevel latent S.E.M. was applied to the data. The analysis was conducted in Mplus 3.12 (Muthén & Muthén, 2005) using the maximum likelihood parameter estimates with robust standard errors (M.L.R.).

The basic model analyzed in this study is multilevel S.E.M. and is depicted as a path diagram in Figure 4. The proposed model was fitted separately to the analysis sample at the 7th (N = 10,542) and 9th (N = 6,054) grade posttests. The model was estimated in a stepwise approach by first estimating the individual (within) level effect and then including the school (between) level effect. Following the common practice with path diagram, the latent construct (attitude towards instructors of drug program) was depicted by circles and the observed (manifest) variables by rectangular boxes. A single headed arrow pointing to the latent construct from the manifest variable depicts a factor loading. Single-headed arrows pointing from one variable to another specify the
Level I – Individual Level [Within Groups]

* Reference group is White

Level II – School Level

Figure 4: Multilevel Structural Equation Model for Students’ Perceptions of Police Officers and Attitudes Toward Police instructors
prediction of the variance (structural parameters) for the variable it is pointing.

Exogenous variables are distinguished from endogenous variables by appearing at the tails of the directed arrows. Short single-headed and double-headed arrows (not shown in this figure) are used to indicate residual variability and non-causal relationship between variables respectively. The model also specifies the effect of school level factors (residence and school risk) on students’ attitudes toward police instructors in drug education programs. The paths specifying the effect of the covariates on attitudes toward program instructors were excluded from the path diagram to avoid cluttering the diagram.

Four Likert scale items measure the latent variable of attitudes toward drug education instructors. The S.E.M. in Mplus, like most S.E.M. software, accommodates latent variables and takes into account clustering and models restrictions including fixed parameters and equality constraints. Despite the fact that the use of Likert data as continuous outcomes measure might violate the assumption of multivariate normality, Mplus has an estimation procedure that takes into account non-normality of outcomes and non-independence of observation resulting from cluster sampling (Muthén & Muthén, 2005).

The results of measures of model fit for the models estimated at the 7th grade posttest are presented in Table 4. An examination of the estimated values of all the four selected fit indices at the 7th grade posttest indicated that the estimated model fits the data well. The C.F.I. of the estimated model was .976 indicating that about 98% of the covariation in the data is reproduced by the estimated model. Similarly, the T.L.I. of the estimated model (.961) was high enough to provide evidence for a good fit model. The estimated values of R.M.S.E.A. (.029), which is known to compensate for sample size
and model complexity, and S.R.M.R. (.015) were far below the prescribed cutoff criteria by Hu and Bentler (1999) and corroborate the findings from C.F.I. and T.L.I.. The estimated model accounted for a small portion of the variance in the perceptions (.099) and attitudes (.206) of students toward police officers and instructors. The Mplus syntax for running this model is presented at Appendix C.

Table 4

<table>
<thead>
<tr>
<th>Measures</th>
<th>Original Model</th>
<th>Re-Estimated Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.F.I.</td>
<td>.976</td>
<td>.976</td>
</tr>
<tr>
<td>T.L.I.</td>
<td>.961</td>
<td>.963</td>
</tr>
<tr>
<td>R.M.S.E.A.</td>
<td>.029</td>
<td>.029</td>
</tr>
<tr>
<td>S.R.M.R.</td>
<td>.015</td>
<td>.016</td>
</tr>
</tbody>
</table>

Despite the good fit of the estimated model to the data, the $Z$ statistic revealed that some of the covariates were not statistically significant in the prediction of students’ perceptions of and attitudes toward police officers and instructors. The question, however, is can the non-significant covariates be excluded from the model without adversely affecting the model fit and parameter estimates. To address this question, the original model was modified by excluding the insignificant covariates one at a time. The non-significant covariates in the prediction of attitudes toward instructors were students’ age, gender and Latino racial grouping. In view of the fact that Latino students were compared with other racial groups, the dummy code for Latino students was retained in the model. With respect to the prediction of perceptions of police officers, the non-significant covariate was students’ prior encounter with D.A.R.E. officers.

The results indicated that the modified model fit the data well (C.F.I. = .976; T.L.I. = .963; R.M.S.E.A. = .029; S.R.M.R. = .016) but there is not enough evidence to
indicate that the modified model was significantly better than the original model. Only two of the fit indices (T.L.I. and S.R.M.R.) experienced changes but the changes were not remarkable. While the T.L.I. experienced a slight improvement from .961 to .963, a minor decline from .015 to .016 was observed for the S.R.M.R.. The exclusion of the non-significant covariates resulted in minor changes in the parameter estimates but the changes were not enough to have any remarkable changes in the statistical significance of the parameters.

Table 5 presents the results of the parameter estimates and their significances for the original and re-estimated 7th grade posttest individual-level models. The table, among other things, reports both the unstandardized and standardized beta. The reported standardized beta refers to the standardized coefficient based on the latent and observed variables’ variances and is denoted by Std. As shown by the modified model in Table 5, the type of program instructors had a significant and positive effect on attitudes toward instructors (b = .162, SE = .045, Std. = .061). In effect, controlling for the demographic and contextual factors, students with police instructors had more positive attitudes toward instructors of drug programs than students with non-police instructors.

Further, students’ perceptions of the police was found to be positive and significantly related to attitudes toward program instructors (b = .312, SE = .016, Std. = .382). This indicates that students with favorable perceptions of the police tend to have more positive attitudes toward drug education instructors. The effect of students’ risk levels on attitudes toward program instructors was significant and negative (b = -.344, SE = .042, Std. = -.131). Similarly, the effect of students’ risk levels on perceptions of the police was significant and negative (b = -.691, SE = .039, Std. = -.215). This means that
high risk students have relatively negative attitudes toward program instructors and less favorable perceptions of the police. Comparable arguments can be made for students’ involvement in deviant behaviors and their attitudes toward program instructors (b = -.106, SE = .024, Std. = -.051) and perceptions of the police (b = -.310, SE = .027, Std. = -.122).

Table 5

Estimate of 7th Grade Posttest Individual-Level Models

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Original Model</th>
<th>Re-Estimated Model</th>
<th>Std</th>
<th>Z-Value</th>
<th>Std</th>
<th>Z-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>.163 (.045)</td>
<td>.162 (.045)</td>
<td>.061</td>
<td>3.587 ***</td>
<td>.061</td>
<td>3.572 ***</td>
</tr>
<tr>
<td>Instructor</td>
<td>.312 (.016)</td>
<td>.312 (.016)</td>
<td>.381</td>
<td>19.272 ***</td>
<td>.382</td>
<td>19.531 ***</td>
</tr>
<tr>
<td>Perception</td>
<td>-.103 (.025)</td>
<td>-.106 (.024)</td>
<td>.050</td>
<td>-4.167 ***</td>
<td>.051</td>
<td>-4.337 ***</td>
</tr>
<tr>
<td>Risk</td>
<td>-.347 (.041)</td>
<td>-.344 (.042)</td>
<td>-.132</td>
<td>-8.359 ***</td>
<td>-.122</td>
<td>-8.203 ***</td>
</tr>
<tr>
<td>Deviance</td>
<td>-.103 (.025)</td>
<td>-.106 (.024)</td>
<td>-.132</td>
<td>-4.167 ***</td>
<td>-.122</td>
<td>-4.337 ***</td>
</tr>
<tr>
<td>Latino</td>
<td>.042 (.036)</td>
<td>.042 (.037)</td>
<td>.017</td>
<td>1.171</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>.198 (.047)</td>
<td>.200 (.047)</td>
<td>.061</td>
<td>4.206 ***</td>
<td>.062</td>
<td>4.267 ***</td>
</tr>
<tr>
<td>Other</td>
<td>-.072 (.033)</td>
<td>-.074 (.033)</td>
<td>-.031</td>
<td>2.209 *</td>
<td>-.032</td>
<td>2.225 *</td>
</tr>
<tr>
<td>Age</td>
<td>.004 (.022)</td>
<td>.003</td>
<td>.018</td>
<td>1.137</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.024 (.027)</td>
<td>-.012</td>
<td>-.042</td>
<td>-2.854 **</td>
<td>-.044</td>
<td>-2.914 **</td>
</tr>
</tbody>
</table>

R-Square = .206

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Perceptions of Police Officers</th>
<th>Std</th>
<th>Z-Value</th>
<th>Std</th>
<th>Z-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>5.229 (.383)</td>
<td>14.100 ***</td>
<td>5.309 (.376)</td>
<td>4.229</td>
<td></td>
</tr>
<tr>
<td>Encounter</td>
<td>.069 (.039)</td>
<td></td>
<td>.023</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Risk</td>
<td>-.689 (.039)</td>
<td>-.691 (.039)</td>
<td>-17.687 ***</td>
<td>-.215</td>
<td></td>
</tr>
<tr>
<td>Deviance</td>
<td>-.310 (.027)</td>
<td>-.310 (.027)</td>
<td>-11.487 ***</td>
<td>-.122</td>
<td></td>
</tr>
<tr>
<td>Latino</td>
<td>-.158 (.044)</td>
<td>-.168 (.045)</td>
<td>-3.751 ***</td>
<td>-.056</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>-.408 (.073)</td>
<td>-.415 (.074)</td>
<td>-5.642 ***</td>
<td>-.105</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>-.090 (.041)</td>
<td>-.096 (.042)</td>
<td>-2.274 *</td>
<td>-.034</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.086 (.030)</td>
<td>-.088 (.030)</td>
<td>-2.914 **</td>
<td>-.045</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.120 (.030)</td>
<td>-.112 (.030)</td>
<td>-4.070 ***</td>
<td>-.048</td>
<td></td>
</tr>
</tbody>
</table>

R-Square = .206

Note: Standard errors are in the parentheses
*** Significance at p ≤ .001; ** Significance at p ≤ .01; Significance at * p ≤ .05
The effect of students’ race on perceptions of the police in comparison to White students was statistically significant and negative for Black (b = -.415, SE = .074, Std. = -.105), Latino (b = -.168, SE = .045, Std. = -.056) and other (b = -.096, SE = .042, Std. = -.034). The results also indicated that there is a relationship between students’ race and their attitudes toward drug education instructors. Compare to White students, positive attitudes toward drug instructors were observed for Black (b = .200, SE = .047, Std. = .062) and Latino (b = .042, SE = .037, Std. = .017). Students of other races were observed to have negative attitudes toward drug education instructors (b = -.074, SE = .033, Std. = -.032) in comparison to their White counterparts. While compared to White students, the relationship between Black and Other students were statistically significant, that of Latino students was not statistically significant.

The results provided evidence to indicate that White students tended to have more favorable perceptions of the police than their non-White counterparts. Not only do students of other races have negative perceptions of the police but they also have less positive attitudes toward drug education instructors. On the contrary, Black students had relatively more negative perceptions of the police but they had relatively more positive attitudes toward drug education instructors.

To test whether students’ attitudes toward program instructors were mediated by school level variables, the model was analyzed with the inclusion of the school level variables (school risk and location). In performing this analysis, the manifest variables measuring attitudes were constrained to be constant between the two levels so that they would not vary between the individual and school levels. Considering the fact that the variances in the manifest variables measuring attitudes were estimated at the individual
level, their variances at the school level were constrained to zero. The Mplus syntax for running this model is presented in Appendix C.

Table 6

<table>
<thead>
<tr>
<th>Measures</th>
<th>Original Model</th>
<th>Re-Estimated Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.F.I.</td>
<td>.967</td>
<td>.967</td>
</tr>
<tr>
<td>T.L.I.</td>
<td>.955</td>
<td>.954</td>
</tr>
<tr>
<td>R.M.S.E.A.</td>
<td>.035</td>
<td>.036</td>
</tr>
<tr>
<td>S.R.M.R.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between –Level</td>
<td>.031</td>
<td>.029</td>
</tr>
<tr>
<td>Within – Level</td>
<td>.014</td>
<td>.015</td>
</tr>
</tbody>
</table>

The results of measures of model fit for the school-level models estimated at the 7th grade posttest are presented in Table 6. The inclusion of the school-level risk and locations of schools in the re-estimated model at the 7th grade posttest suggested a good model fit (C.F.I. = .967, T.L.I. = .955, R.M.S.E.A. = .035, and S.R.M.R. of .031 and .014 for between and within levels respectively). The model fit for this (school-level) model at 7th grade posttest can be considered to slightly lower than that of individual-level model, with all the indices experiencing decline except the S.R.M.R. at the individual-level (.014) that experienced a slight improvement over the original value of .016. The model accounted for 34.7% of the variance in students’ attitudes toward program instructors (21.6% at the individual level and 13.1% at the school level), compared to about 20.6% at the individual-level model. There was a negligible decline in the variance in students’ perceptions of the police from 9.9% at the individual-level to 9.7% at the school-level.

The effect of the location of schools on attitudes toward program was positive but not statistically significant (b = .098, SE = .058, Std. = .117). The model was refined by re-estimating the school-level model without the location of schools. The
results of the re-estimated school model at 7th grade posttest suggested a good model fit (C.F.I. = .967, T.L.I. = .954, R.M.S.E.A. = .036, and S.R.M.R. of .029 and .015 for between and within levels respectively). The model fit of the re-estimated school model was not appreciably different from the original school model. The re-estimated school-level model accounted for 33.1% of the variance in students’ attitudes toward program instructors (21.6% at the individual level and 11.5% at the school level).

Table 7

Estimate of 7th Grade Posttest School-Level Models

<table>
<thead>
<tr>
<th>Attitudes Towards Program Instructors</th>
<th>Original Model</th>
<th>Re-Estimated Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimates</td>
<td>Z-Value</td>
</tr>
<tr>
<td><strong>Within Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td>.161 (.031)</td>
<td>5.129 ***</td>
</tr>
<tr>
<td>Perception</td>
<td>.306 (.013)</td>
<td>23.131 ***</td>
</tr>
<tr>
<td>Risk</td>
<td>-.364 (.039)</td>
<td>-9.351 ***</td>
</tr>
<tr>
<td>Deviance</td>
<td>-.125 (.023)</td>
<td>-5.321 ***</td>
</tr>
<tr>
<td>Latino</td>
<td>.000 (.022)</td>
<td>-0.22</td>
</tr>
<tr>
<td>Black</td>
<td>.100 (.040)</td>
<td>2.518 *</td>
</tr>
<tr>
<td>Other</td>
<td>-.056 (.028)</td>
<td>-1.985 *</td>
</tr>
<tr>
<td>R-Square = .216</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Between Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Risk</td>
<td>.134 (.055)</td>
<td>2.426 *</td>
</tr>
<tr>
<td>Location</td>
<td>.098 (.058)</td>
<td>1.696</td>
</tr>
<tr>
<td>R-Square = .131</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perceptions of Police Officers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-Square = .097</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Standard errors are in the parentheses

*** Significance at p ≤ .001; ** Significance at p ≤ .01; * Significance at p ≤ .05

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The results of the parameter estimates and their significances for the original and re-estimated school-level models at the 7th grade posttest are presented in Table 7. The results suggested a significant positive effect of school risk level on attitudes toward program instructors (b = .134, SE = .055, Std. = .310). This means that, controlling for all the other factors, students in high risk schools tended to have more positive attitudes toward program instructors than students in low risk schools. There were not any notable changes in the effects of the parameters in the re-estimated individual- and school-level models. The results also showed that taking into consideration school-level risk, the effects of instructor type, students’ perceptions of the police, individual risk, involvement in deviant behaviors and race on attitudes toward program instructors became very pronounced.

Table 8 provides the fit indices of the original and re-estimated 9th grade posttest individual-level models. The test of the hypothesized model at the individual (within) level for the 9th grade posttest resulted in the following model fit indices: C.F.I. = .981, T.L.I. = .969, R.M.S.E.A. = .030, S.R.M.R. = .011. The C.F.I. and T.L.I. values were greater enough to indicate an adequate fit of the model to the data. This view is supported by the values of R.M.S.E.A. and S.R.M.R., which were smaller than the prescribed values of .06 and .08 respectively.

The estimated model accounted for approximately 9% of the variance in perceptions of the police and about 15% of the variance in attitudes toward program instructors. The effect of age on the perceptions of and attitudes toward police officers and instructors were not statistically significant and the original model was re-estimated exclusive of age. The effects of other racial groups on the perceptions of the police, and
Latino and other racial groups on attitudes toward program instructors were not statistically significant. Nonetheless, they were retained in the re-estimated model for purposes of comparisons.

The analysis without the non-significant covariates resulted in a model that fit the data well (C.F.I. = .981, T.L.I. = .969, R.M.S.E.A. = .031, and S.R.M.R. = .011) but there was not any appreciable improvement in the fit of the model. While the R.M.S.E.A. experienced a minor improvement from .030 to .031, all the other fit indices remained the same.

Table 8

<table>
<thead>
<tr>
<th>Measures</th>
<th>Original Model</th>
<th>Re-Estimated Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.F.I.</td>
<td>.981</td>
<td>.981</td>
</tr>
<tr>
<td>T.L.I.</td>
<td>.969</td>
<td>.969</td>
</tr>
<tr>
<td>R.M.S.E.A.</td>
<td>.030</td>
<td>.031</td>
</tr>
<tr>
<td>S.R.M.R.</td>
<td>.011</td>
<td>.011</td>
</tr>
</tbody>
</table>

Results of the parameter estimates and their significance from the 9th grade posttest original and re-estimated individual-level models are shown in Table 9. Results from the re-estimated model revealed that instructor type has a positive and significant effect on attitudes toward police instructors (b = .267, SE = .077, Std. = .093).

Controlling for all other variables, it was found that students’ perceptions of the police significantly affected their attitudes toward police instructors (b = .255, SE = .021, Std. = .286). These results mean that students with police officers as drug prevention instructors tended to have more positive attitudes toward police instructors. Further, students with relatively more favorable perceptions of the police tended to have more positive attitudes toward police instructors.
<table>
<thead>
<tr>
<th>Parameters</th>
<th>Original Model Estimates</th>
<th>Z-Value</th>
<th>StdYX</th>
<th>Re-Estimated Model Estimates</th>
<th>Z-Value</th>
<th>StdYX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>.267 (.077)</td>
<td>3.486 ***</td>
<td>.093</td>
<td>.267 (.077)</td>
<td>3.466 ***</td>
<td>.093</td>
</tr>
<tr>
<td>Instructor</td>
<td>.255 (.021)</td>
<td>12.115 ***</td>
<td>.286</td>
<td>.255 (.021)</td>
<td>12.115 ***</td>
<td>.286</td>
</tr>
<tr>
<td>Perception</td>
<td>-.378 (.053)</td>
<td>-7.083 ***</td>
<td>-.159</td>
<td>-.377 (.054)</td>
<td>-6.984 ***</td>
<td>-.159</td>
</tr>
<tr>
<td>Risk</td>
<td>-.081 (.034)</td>
<td>-2.380 *</td>
<td>-.034</td>
<td>-.081 (.034)</td>
<td>-2.392 *</td>
<td>-.034</td>
</tr>
<tr>
<td>Deviance</td>
<td>.184 (.117)</td>
<td>1.577</td>
<td>.062</td>
<td>.184 (.118)</td>
<td>1.559</td>
<td>.062</td>
</tr>
<tr>
<td>Latino</td>
<td>.229 (.085)</td>
<td>2.695 **</td>
<td>.054</td>
<td>.229 (.085)</td>
<td>2.698 **</td>
<td>.054</td>
</tr>
<tr>
<td>Black</td>
<td>.047 (.045)</td>
<td>1.056</td>
<td>.018</td>
<td>.047 (.045)</td>
<td>1.048</td>
<td>.018</td>
</tr>
<tr>
<td>Other</td>
<td>.003 (.035)</td>
<td>.085</td>
<td>.001</td>
<td>.003 (.035)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gender</td>
<td>-.096 (.041)</td>
<td>-2.336 *</td>
<td>-.040</td>
<td>-.096 (.041)</td>
<td>-2.362 *</td>
<td>-.040</td>
</tr>
</tbody>
</table>

R-Square = .145

Table 9
Estimate of 9th Grade Posttest Individual-Level Models

Attitudes Towards Program Instructors

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Original Model Estimates</th>
<th>Z-Value</th>
<th>StdYX</th>
<th>Re-Estimated Model Estimates</th>
<th>Z-Value</th>
<th>StdYX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.755 (.530)</td>
<td>7.090 ***</td>
<td>2.820</td>
<td>3.829 (.050)</td>
<td>75.860 ***</td>
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<tr>
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<td>.038</td>
<td>.111 (.039)</td>
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<td>.038</td>
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<td>-.495 (.040)</td>
<td>-12.317 ***</td>
<td>-.186</td>
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<td>Deviance</td>
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<td>-8.720 ***</td>
<td>-.123</td>
<td>-.326 (.037)</td>
<td>-8.717 ***</td>
<td>-.122</td>
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<tr>
<td>Latino</td>
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<td>-.423 (.052)</td>
<td>-8.166 ***</td>
<td>-.127</td>
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<tr>
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<td>-.093</td>
<td>-.442 (.099)</td>
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<td>-.093</td>
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<td>Other</td>
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<td>-.097 (.061)</td>
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<td>Age</td>
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<td>.143</td>
<td>.002</td>
<td>.005 (.036)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gender</td>
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<td>-5.651 ***</td>
<td>-.068</td>
<td>-.184 (.033)</td>
<td>-5.553 ***</td>
<td>-.068</td>
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R-Square = .086

Perceptions of Police Officers

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<tr>
<th>Parameters</th>
<th>Original Model Estimates</th>
<th>Z-Value</th>
<th>StdYX</th>
<th>Re-Estimated Model Estimates</th>
<th>Z-Value</th>
<th>StdYX</th>
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<td>.093</td>
<td>.267 (.077)</td>
<td>3.466 ***</td>
<td>.093</td>
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<td>Perception</td>
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<td>12.115 ***</td>
<td>.286</td>
<td>.255 (.021)</td>
<td>12.115 ***</td>
<td>.286</td>
</tr>
<tr>
<td>Risk</td>
<td>-.378 (.053)</td>
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<td>-.159</td>
<td>-.377 (.054)</td>
<td>-6.984 ***</td>
<td>-.159</td>
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<tr>
<td>Deviance</td>
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<td>-.034</td>
<td>-.081 (.034)</td>
<td>-2.392 *</td>
<td>-.034</td>
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<tr>
<td>Latino</td>
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<td>1.577</td>
<td>.062</td>
<td>.184 (.118)</td>
<td>1.559</td>
<td>.062</td>
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<td>Black</td>
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<td>2.695 **</td>
<td>.054</td>
<td>.229 (.085)</td>
<td>2.698 **</td>
<td>.054</td>
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<tr>
<td>Other</td>
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<td>1.056</td>
<td>.018</td>
<td>.047 (.045)</td>
<td>1.048</td>
<td>.018</td>
</tr>
<tr>
<td>Age</td>
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<td>.085</td>
<td>.001</td>
<td>.003 (.035)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gender</td>
<td>-.096 (.041)</td>
<td>-2.336 *</td>
<td>-.040</td>
<td>-.096 (.041)</td>
<td>-2.362 *</td>
<td>-.040</td>
</tr>
</tbody>
</table>

R-Square = .145

Note: Standard errors are in the parentheses
*** Significance at p ≤ .001; ** Significance at p ≤ .01; * Significance at p ≤ .05

Students’ involvement in deviant behaviors and their risk levels were found
to be significantly related to their perceptions of the police and attitudes toward police
instructors. The involvement of students in deviant behaviors had negative and significant
effects on both perceptions of the police (b = -.326, SE = .037, Std. = -.122) and attitudes
toward police instructors (b = -.081, SE = .034, Std. = -.034). Similarly, students’ risk
level had negative and significant effects on both perceptions of the police (b = -.495, SE
and attitudes toward police instructors (b = -.377, SE = .054, Std. = -.159). In effect, students with high involvement in deviant behaviors or high risk level tended to have less favorable perceptions of the police and less positive attitudes toward police instructors.

The effects of gender on perceptions of the police and attitudes toward police instructors were found to be significant. The effect of gender on the perceptions of the police was negative (b = -.184, SE = .033, Std. = -.068). Likewise, the effect of gender on attitudes toward police instructors was negative (b = -.096, SE = .041, Std. = -.040). These findings mean that, controlling for all other factors, female students tended to have more favorable perceptions of the police and more positive attitudes toward police instructors than their male counterparts. Furthermore, the results showed that prior encounter with the police had positive and significant effect on perceptions of police officers. It was observed that students with prior exposure to the D.A.R.E. programs tended to have more favorable perceptions of the police (b = .111, SE = .039, Std. = .038) than their counterparts without prior exposure to the D.A.R.E. program.

Significant differences existed between the perceptions of the police held by White students and their non-White counterparts. Compared to White students, the effects of ethnicity on perceptions of police officers was negative for Blacks (b = -.442, SE = .099, Std. = -.093) Latinos (b = -.423, SE = .052, Std. = -.127) and students of other racial backgrounds (b = -.097, SE = .061, Std. = -.033). The effects of ethnicity on perceptions of the police were statistically significant for Black (p < .001) and Latino (p < .001) students but not for students of other racial groups (p > .05). In contrast, the effect of ethnicity on attitudes toward police instructors was positive. Compared to White
students, Blacks students had more positive attitudes toward police instructors ($b = 0.229$, $SE = 0.085$, Std. = 0.054) than Latinos ($b = 0.184$, $SE = 0.118$, Std. = 0.062) and students of other racial groups ($b = 0.047$, $SE = 0.045$, Std. = 0.018). Whereas the effect for Black students was statistically significant ($p < 0.01$), the effects for Latino and other racial groups were not statistically significant.

Like the 7th grade posttest, the effects of school-level variables on students’ attitudes toward program instructors at the 9th grade posttest were examined by including school risk and location in the re-estimated individual-level model at 9th grade posttest. Table 10 presents the results of the multilevel analysis at the 9th grade posttest. As shown in top portion of Table 10, the 9th grade posttest multilevel model fitted the data well. The estimated values of the C.F.I. (.974), T.L.I. (.964), R.M.S.E.A. (.035), and S.R.M.R. (.024 for between and for .011 within) for the 9th grade posttest multilevel model met the specified criteria for judging a model as a good fit. In contrast to the individual level model, the school-level model fit can be considered slightly lower but the school-level model accounted for higher proportion of the variance in attitudes toward program instructors. The school-level model accounted for a total of 42.6% (16.1% at within and 26.5% at between levels) of the variance in the attitudes toward program instructors, compared to 14.5% of the variance at the individual level model. There was also a negligible decline in the variance of the perceptions of police officers from 8.6% at the individual level model to 8.4% at the school level model.

The results revealed that there was a positive significant effect of school risk ($b = 0.172$, $SE = 0.082$, Std. = 0.255) and school location ($b = 0.493$, $SE = 0.129$, Std. = 0.381) on students’ attitudes toward police instructors. In effect, controlling for all other factors,
Table 10

Measures of Model fit for, and Estimate of, 9th Grade Posttest School-Level Models

Measures of Model Fit

<table>
<thead>
<tr>
<th>Measures of Model Fit</th>
<th>Estimate</th>
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<tbody>
<tr>
<td>CFI</td>
<td>.974</td>
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<tr>
<td>TLI</td>
<td>.964</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.035</td>
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<tr>
<td>SRMR</td>
<td></td>
</tr>
<tr>
<td>Between –Level</td>
<td>.024</td>
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<tr>
<td>Within – Level</td>
<td>.011</td>
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</tbody>
</table>

Estimated Parameters for Attitudes Towards Program Instructors

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Estimates</th>
<th>Z-Value</th>
<th>Std.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td>.198 (.046)</td>
<td>4.265 ***</td>
<td>.071</td>
</tr>
<tr>
<td>Perception</td>
<td>.261 (.020)</td>
<td>12.747 ***</td>
<td>.306</td>
</tr>
<tr>
<td>Risk</td>
<td>-.380 (.038)</td>
<td>-9.972 ***</td>
<td>-.168</td>
</tr>
<tr>
<td>Deviance</td>
<td>-.097 (.035)</td>
<td>-2.767 **</td>
<td>-.043</td>
</tr>
<tr>
<td>Latino</td>
<td>-.025 (.037)</td>
<td>-.660</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>.077 (.064)</td>
<td>1.193</td>
<td>.018</td>
</tr>
<tr>
<td>Other</td>
<td>.038 (.035)</td>
<td>1.090</td>
<td>.015</td>
</tr>
<tr>
<td>Gender</td>
<td>-.079 (.038)</td>
<td>-2.056 *</td>
<td>-.034</td>
</tr>
</tbody>
</table>

| **Between Level**   |            |          |       |
| School Risk         | .172 (.082)| 2.102 * | .255  |
| Location            | .493 (.129)| 3.814 ***| .381  |

Estimated Parameters for Perceptions of Police Officers

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Estimates</th>
<th>Z-Value</th>
<th>Std.</th>
</tr>
</thead>
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<td>76.745 ***</td>
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</tr>
<tr>
<td>Encounter</td>
<td>.113 (.039)</td>
<td>2.874 **</td>
<td>.039</td>
</tr>
<tr>
<td>Risk</td>
<td>-.465 (.039)</td>
<td>-11.851 ***</td>
<td>-.175</td>
</tr>
<tr>
<td>Deviance</td>
<td>-.323 (.039)</td>
<td>-8.319 ***</td>
<td>-.122</td>
</tr>
<tr>
<td>Latino</td>
<td>-.428 (.053)</td>
<td>-8.046 ***</td>
<td>-.129</td>
</tr>
<tr>
<td>Black</td>
<td>-.471 (.101)</td>
<td>-4.668 ***</td>
<td>-.097</td>
</tr>
<tr>
<td>Other</td>
<td>-.070 (.071)</td>
<td>-.987</td>
<td>-.024</td>
</tr>
<tr>
<td>Gender</td>
<td>-.175 (.034)</td>
<td>-5.205 ***</td>
<td>-.065</td>
</tr>
</tbody>
</table>

Note: Standard errors are in the parentheses

*** p ≤ .001; ** p ≤ .01;  * p ≤ .05
students in high risk schools have more positive attitudes toward police instructors. Similarly, students in schools in urban communities tended to have more positive attitudes toward police instructors than students in non-urban schools. With the exception of change in the significance of the effects of racial groups, the significances of the other variables in the individual level model did not experience any major changes in the multilevel model. While in the individual level model, the effect of Black students, compared to their White counterparts, was positively and significantly related to attitudes toward police instructors, the effect of Black students became non-significant in the multilevel model (b = .077, SE = .064, Std. = .018). In effect, within the context of school factors, one’s racial group compared to White students did not affect his/her attitudes toward police instructors. On the contrary, students’ instructor type, perceptions of the police, individual risk, involvement in deviant behaviors and gender affected his/her attitudes toward police instructors.
CHAPTER VI
RESULTS AND CONCLUSIONS

This chapter presents the results of the analysis for this study and the implications of the findings for policy decisions and future research. The chapter begins with an overview of the study and is followed by discussions of findings from the analyses; addressing the hypotheses for the study. Further, the limitations and implications of the study are presented.

This research study explored students’ perceptions of police officers and attitudes toward police instructors in school-based drug prevention programs. Most school-based drug prevention programs are based on persuasive communication and many are being delivered by uniformed police officers. A key component of persuasive communication is source credibility. Despite the importance of source credibility in school-based drug prevention programs, students’ perceptions of and attitudes toward program instructors, particularly police instructors, have not been adequately examined. The few studies that have examined students’ perceptions of and attitudes toward police instructors have focused on program effect on perceptions and attitudes and not as antecedent to program effect.

Studies have also identified that individual and contextual factors influence adolescents’ perceptions of and attitudes toward the police. With the paucity of research on students’ attitudes toward police officers in school-based drug prevention programs,
however, it is difficult to determine the extent to which these factors are applicable to students in programs being delivered by police officers. The existing studies on adolescents’ perceptions of and attitudes toward the police have limitations including, but not limited to, the focus on restricted geographic area and sample, and use of cross-sectional analysis.

Guided theoretically by the T.P.B. and E.L.M., this study addresses these limitations and contributes to the literature by exploring students’ attitudes toward police instructors and highlighting the need for examining the extent to which such attitudes may affect program outcomes. This research study was based on the premise that students’ perceptions of and attitudes toward police instructors affect the impact of school-based drug prevention programs delivered by police officers. Consequently, understanding the perceptions and attitudes of students toward police instructors and the factors underlying those perceptions and attitudes is essential in improving the effectiveness of drug prevention programs.

Using a diverse sample of students nested in 82 high schools in six metropolitan areas in U.S. followed over a three-year (2000/2001 – 2003/2004) period, the study asked: (1) do students differ in their perceptions of police officers and attitudes toward police instructors by individual and contextual factors; and (2) which of the individual and contextual factors determine students’ perceptions of police officers and attitudes toward police instructors.

Discussions

The results of the analyses at both the 7th and 9th grades suggested that the sample was relatively diverse in terms of its demographic characteristics. The results
showed that a large number of students had police officers as instructors of drug prevention programs. This is because about half of the sample were in schools assigned to the treatment condition and had police officers as instructors. Similarly, a large number of students in the analysis sample attended schools in urban communities at the two time periods. While a large number of students in both the treatment and control conditions had contact with D.A.R.E. officers prior to the 7th grade, the inverse was true for contact with D.A.R.E. officers one year prior to the 9th grade (i.e. in the 8th grade). Though a considerable number of the students were considered to have high risk level at the 7th grade posttest, the 9th grade posttest sample was almost evenly split between high and low risk students.

Despite these differences, the cohort entered the study at the 7th grade pretest in their pre-teens (12.5 years). The sample was almost split evenly between male and female students, with a slight majority of female students at the two periods. Though there were relatively more students who identified themselves as White, the sample at both periods can be considered representative of other racial groupings. There was a small majority of students in school districts considered low risk schools at both periods. A slight majority of students were involved in more deviant behaviors, as indicated by the median split, at the 7th and 9th grade posttests.

The results of descriptive analysis suggested that students’ perceptions of the police, and attitudes toward police instructors declined overtime. Although students’ perceptions of the police at the 7th grade posttest were considered to be fairly favorable, the perceptions at the 9th grade were somewhat neutral. While students’ attitudes toward police instructors decreased slightly from the 7th to the 9th grade posttests, their attitudes
at both time periods were somewhat positive. In effect, students’ attitudes toward police instructors were relatively higher than their perceptions of police officers in general. Contrary to the previous observations that adolescent generally have negative perceptions of the police (Apple & O’Brien, 1983; Cao et al., 1996; Cheurprakobkit, 2000; Hurst & Frank, 2000; Jesilow et al., 1995; Lasley, 1994; Scaglion & Condon, 1980), this sample had relatively more positive perceptions of the police.

The results of the means test were mixed but provided evidence indicating significant differences in students’ perceptions of the police and attitudes toward police officers instructors according to most of their individual and contextual factors. With some factors, particularly racial identity, school location and contact with D.A.R.E. officers prior to the study, the differences were consistent across the two periods for only perceptions of police officers. This notwithstanding, there were consistent significant differences in both the perceptions of the police and attitudes toward police instructors across the two periods for students’ gender, individual-level risk and involvement in deviant behaviors. Further, there were significant differences in the attitudes toward police instructors at 7th and 9th grade posttests according to students’ perceptions of police officers.

The result of the latent multilevel S.E.M. suggested that most individual level factors significantly affected students’ perceptions of the police and attitudes toward police instructors at the 7th and 9th grade posttests. Students’ gender, racial identity, individual risk and involvement in deviant behaviors were significantly related to students’ perceptions of the police consistently across the 7th and 9th grade posttests. With respect to students’ attitudes toward program instructors, students’ racial identity,
individual risk, involvement in deviant behaviors and perceptions of the police were significant predictors. The other individual level factors either did not affect perceptions of the police and attitudes toward police instructors or significantly affect perceptions of and attitudes at one time period. Of the two school level factors, only school risk had significant effect on attitudes toward police instructors across the two time periods. The other school level factors, location of schools, significantly affected attitudes toward police instructors only at the 9th grade posttest.

The findings provided emphatic support for the key hypotheses of this study. This study hypothesized that the perceptions of police officers and attitudes toward police instructors would be higher for students who have police instructors than their counterparts with non-police instructors (Hypothesis 1). The results partly supported this hypothesis with students who had police instructors having significantly more positive perceptions of police officers at 7th grade posttest ($p = .001$) and the attitudes toward program instructors at 7th ($p = .000$) and 9th ($p = .001$) grade posttest. Instructor type was not a significant predictor of students’ perceptions of the police at 9th grade posttest ($p = .252$). In effect, students who had police officers as program instructors had relatively more favorable perceptions of the police than their counterparts with non-police instructors at the 7th grade posttest. Similarly, students who had police instructors had more positive attitudes toward program instructors than students with non-police instructors at the 7th and 9th grade posttests.

The findings show that typically, police instructors enjoyed more positive attitudes from the students than non-police instructors. The reasons for the more positive attitudes toward police instructors are not known but some conclusions can be drawn
from this study. First, it is possible that police officers have some features that can be appealing to students and once the students get to know the police in a supportive milieu, they tended to like them. This argument is bolstered by the fact that students prior contact with D.A.R.E. officers tended to affect their perceptions of police officers.

In their role as law enforcement officers, it is possible that the police know more about the consequences and legality of substance use and thus appeared more credible to the students. Against the background of the E.L.M., it can be argued that several factors including instructor attractiveness, physical appearance and power to administer rewards or punishment can affect source credibility. Considering the fact that police instructors in school-based drug prevention programs typically deliver the programs in their official apparel with guns, their appearances might be more salient than that of other instructors. Also, with the police occupying an authoritative role, it might be that the students perceive them as being more powerful than non-police instructors in administering rewards or punishment as well as ensuring compliance, particularly in the context of drug prevention program.

The study hypothesized that there would be differences in the perceptions of and attitudes of students toward police officers and instructors according to the individual and environmental factors (Hypothesis 2). The results indicated that the differences in perceptions of police officers and attitudes toward police instructors according to students’ individual and contextual factors were mixed. It was hypothesized that older students would have more positive perceptions of the police, and attitudes towards police instructors than younger students (Hypothesis 2a). The results indicated that younger students tended to have more positive perceptions of the police than older students at both
the 7th and 9th grade posttests. Similarly, younger students tended to have more positive attitudes toward police instructors than older students at both periods. While the observed differences in perceptions and attitudes at the 7th grade posttest were statistically significant, the differences at the 9th grade posttest were not significant. In effect, the difference the 9th grade posttest can be attributed to chance.

Though this finding is contrary to the anticipated direction of the effect of age on students’ perceptions of the police and attitudes towards police instructors, there is probable reason for this finding. The observation that adolescents tended to have negative perceptions of and attitudes toward the police than adults (Apple & O’Brien, 1983; Cao et al., 1996; Cheurprakobkit, 2000; Hurst & Frank, 2000; Jesilow et al., 1995; Lasley, 1994; Scaglion & Condon, 1980) points to a process of change in the perceptions of and attitudes toward the police. Though the stages of change are unknown, it can be argued from this study that at the early developmental process of adolescence, students tend to have more favorable perceptions of the police and renounce their favorable perceptions as they become more matured adolescents. Since the students at 7th grade had not yet reach their teen years, and were mid-adolescent at 9th grade, their perceptions and attitudes may not have began to reflect those of later adolescents.

It was hypothesized that male and female students would significantly differ in their perceptions of the police and attitudes toward police instructors (Hypothesis 2b). The results provided convincing evidence in support of this hypothesis. The results indicated that there are significant differences in the perceptions of the police and attitudes toward police instructors of male and female students at the 7th and 9th grade posttests with female students having more positive perceptions and attitudes. While the
effect of gender on perceptions of and attitudes toward the police have not received consensus in the literature, the findings confirm the general findings that male adolescents tend to have more negative perceptions of and attitudes toward the police than their female counterparts (Apple & O’Brien, 1983; Cao et al., 1996; Cheurprakobkit, 2000; Lasley, 1994; Taylor et al., 2001).

The study further hypothesized that compared to White students; students of other racial groups would have less positive perceptions of police officers and attitudes toward program instructors (Hypothesis 2c). The result of differences in the perceptions of and attitudes toward police officers and instructors held by White and non-White students showed mixed results. The perceptions of police held by White students were significantly favorable compared to those of non-White students at the 7th (p = .000) and 9th (p = .000) grade posttests. The differences in White and non-White students’ perceptions of the police demonstrate that non-White students tend to have less favorable perceptions of the police than their White counterparts. The observed differences between White and non-White students’ perceptions of the police highlight the observation that minority racial groups tend to hold negative perceptions and attitudes toward the police (Cao et al., 1996; Decker, 1981; Leiber et al., 1998; Scaglion & Condon, 1990). With respect to attitudes toward police instructors, White students were not significantly different from non-White students at both the 7th and 9th grade posttests.

The study also hypothesized that students with high risk and attend high risk schools would have less favorable perceptions of the police, and attitudes toward police officers instructors than students with low risk and attending low risk schools respectively (Hypothesis 2d). Whereas there was overwhelming evidence to support the
hypotheses with respect to differences in individual-level risk, there was not enough evidence to support the hypotheses related to school-level risk. The results showed that high risk students had significantly less favorable perceptions of the police (p = .000) and less positive attitudes toward police instructors (p = .000) than low risk students at the 7th and 9th grade posttests.

Though students in high risk schools had less favorable perceptions of the police than students in low risk schools at both periods, it was only the differences at the 7th grade posttest that was statistically significant (p = 000). On the other hand, significant differences in the attitudes toward police instructors were observed between students in high risk and low risk schools at the 9th grade posttest (p = .038). Relatively students in high risk schools had more positive attitudes toward police instructors than students in low risk schools. In effect, while students in high risk schools tended to have less favorable perceptions of the police at the 7th grade, they tended to have more positive attitudes toward program instructors at the 9th grade.

It was further hypothesized that students with involvement in deviant behaviors would have less positive perceptions of police officers and attitudes toward police instructors than their counterparts with low involvement in deviant behaviors (Hypothesis 2e). There was compelling evidence in support of this hypothesis as students with high levels of involvement in deviant behaviors had significantly less favorable perceptions of the police than their counterparts with low involvement in deviant behaviors at both time periods (p = .000). Similarly students with high involvement in deviant behaviors had significantly less positive attitudes toward program instructors than students with low involvement in deviant behaviors at the two periods (p = .000). These
findings were consistent with the evidence that adolescents’ involved in deviant behaviors are most likely to have more negative perceptions of and attitudes toward the police (Leiber et al., 1998; Rusinko, et al., 1978).

The study also hypothesized that students in urban schools would have less positive perceptions of police officers and attitudes toward police instructors than their counterparts in non-urban schools (Hypothesis 2f). The results provided mixed findings in the differences in perceptions of the police and attitudes toward police instructors and thus only partially supported the hypotheses. With respect to perceptions of the police, the findings supported the stated hypothesis with students in urban schools having significantly less favorable perceptions than students in non-urban schools at the 7th (p = .004) and 9th (p = .000) grade posttests. Conversely, students in urban schools had more positive attitudes toward police instructors than their counterparts in non-urban schools at the 9th grade posttest. From these results, it can be argued that these findings are somewhat consistent with observation that adolescents in larger cities have less favorable attitudes toward the police relative to their counterparts in smaller cities (Hurst & Frank, 2000; Taylor et al., 2001).

The study hypothesized that students who have prior voluntary contact with police instructors would have positive perceptions of the police and attitudes toward police instructors (Hypothesis 2g). The results revealed that at both the 7th and 9th grade posttests, the perceptions of the police held by students with contact to D.A.R.E. officers prior to the study were higher than that of students without prior contact with D.A.R.E. officers. With respect to attitudes toward police instructors, students with contact to D.A.R.E. officers prior to the study had significantly more positive attitudes than students
without such contact only at the 9th grade posttest. In effect, there was convincing
evidence in support of the findings that contact between the police and the public as well
as the nature of the contact have a significant effect on perceptions of the police
(Cheurprakobkit, 2000; Griffiths & Winfree, 1982; Hurst & Frank, 2000; Jesilow et al.,

Assuming that students’ participation in the D.A.R.E. program prior to the
study was voluntary, the cordial relationship that existed between students and the
D.A.R.E. officers created positive and voluntary encounter essential for favorably
affecting perceptions of the police. The observed differences in attitudes toward police
instructors only at the 9th grade might be due to the issue of dosage. It is possible that at
the 7th grade, students have not had enough contact with police instructors but by the 9th
grade, they would have had regular cordial relationship with the police instructors leading
to more positive attitudes toward police instructors. In effect, while insufficient amount
of contact with police instructors might account for the non-significant difference at the
7th grade, the cumulative effect of several encounters with police instructors over the
years made the differences significant at the 9th grade posttest.

Furthermore, the study hypothesized that students who have more positive
perceptions of police officers would have more positive attitudes toward police
instructors than students with unfavorable perceptions of the police (Hypothesis 3). This
hypothesis was overwhelmingly supported. The results showed that students with more
favorable perceptions of the police had significantly more positive attitudes toward police
instructors than students with less favorable perceptions at both the 7th and 9th grade
posttests (p = .000).
It was also hypothesized that students’ attitudes toward police instructors are dependent on the type of instructors (police or non-police) delivering the drug program, students’ age, gender, ethnicity, risk level, place of residence, encounters with the police and involvement in deviant behaviors (Hypothesis 4). These hypotheses were partially supported with students’ age and gender not significantly predicting students’ attitudes toward police instructors at the 7th grade posttest. The results from the estimated models indicated a good model fit at the 7th and 9th grade posttests with most individual level factors observed to have significant effects on attitudes toward police instructors.

Students’ individual risk, involvement in deviant behaviors, perceptions of the police, instructor type and their racial identity as Black and other, compared to White, were observed to significantly affect attitudes towards police instructors at 7th grade posttest. Black students had more positive attitudes toward police instructors compared to White students and students of other racial groupings. While instructor type and perceptions of the police positively affected attitudes toward police instructors, students risk level and involvement in deviant behaviors negatively affected attitudes towards police instructors.

The results also suggested that school level risk positively and significantly affected individual students’ attitudes toward police instructors. The inclusion of school-level factors in the model at the 7th and 9th grade posttests influenced the significances and effect sizes of the individual factors on attitudes toward police instructors. When school-risk was included in the 9th grade model, the effect of race became non-significant. Gender, individual risk, involvement in deviant behaviors, perceptions of the police and instructor type significantly determined students’ attitudes toward program
instructors at 9th grade posttest. Of these factors, gender, individual risk and involvement in deviant behaviors inversely affected attitudes toward program instructors.

The study hypothesized that students’ age, gender, ethnicity, risk level, place of residence, encounter with the police and involvement in deviant behaviors significantly determine students’ perceptions of police officers (Hypothesis 5). With students’ contact with D.A.R.E. officers prior to the study and age not significantly affecting perceptions of the police at 7th and 9th grade posttest respectively, the hypothesis was partially supported. Students’ age, gender, racial identity, individual risk and involvement in deviant behaviors, had significant inverse effects on their perceptions of the police at the 7th grade. At the 9th grade posttest, students’ gender, identity as Black or Latino compared to White, individual risk, involvement in deviant behaviors and prior encounter with D.A.R.E. officers significantly affected their perceptions of the police. Except for students’ prior encounters with D.A.R.E. officers, all the other significant factors inversely affected students’ perceptions of the police at the 9th grade.

Like the prediction of students’ attitudes toward police instructors, the inclusion of school-level factors affected the significances and effect sizes of the individual-level factors. With the inclusion of school-level factors in the 7th grade model, the effect of other racial groups became non-significant in predicting students’ perceptions of the police. The effect sizes of prior encounter with D.A.R.E. officers, Latino and Black students increased with the inclusion of school-level factors in the model.

The findings from the multilevel analysis (Hypotheses 4 and 5) illuminate the importance of contextual factors in determining students’ perceptions of and attitudes
toward police officers (Cao et al., 1996; Leiber et al., 1998; Taylor et al., 2001). For instance, Cao et al. (1996) have stated that it is not a person’s race per se that determines attitudes toward the police but the social context in which the person is situated is equally important. More especially, the findings support the evidence from other studies indicating that the inclusion of neighborhood conditions into predictive models often resulted in the reduction or elimination of the effects of other individual characteristics (Apple & O’Brien, 1983; Cao et al., 1996).

Limitations

This study is beset with a number of limitations that have to be considered in the interpretation of the results. These limitations require that the findings from the study are interpreted with caution. Whereas many factors affect the receptivity of messages from the communicators and subsequent effects on attitude and behavior changes, this has focused on only perceptions of and attitudes toward program instructors. Consequently, the proposed effects of perceptions and attitudes on program effectiveness and policing are bound to be limited.

Second, the reliability and validity of some of the measures remain a concern. Though, most of the measures are adapted from national studies such as the Monitoring the Future Study (Johnston et al, 2003), they were not originally meant to measure students perceptions of the police and attitudes toward program instructors and their use in this study might pose some problem. For instance, the study measured encounter with the police in a narrow context (exposure to D.A.R.E. program prior to the study), though it has been observed that the intensity and perceptions of the encounter with the police
are also important in determining adolescents’ perceptions of the police (Scaglion & Condon, 1980).

Third, the sample consisted primarily of students who had police instructors in the delivering of the program. With large differences in the sample sizes of the two groups, unequal variances might become a problem. Further, the data for the study was collected a period of time after students’ exposure to the program. Considering the fact that students’ recall might not be perfect, the information provided might be questionable.

Fifth, like most longitudinal studies missing data was a problem for this study. Though both Stata and Mplus had a mechanism for handling missing data, the presence of missing data was still a concern to this study. Also the attrition of students might bias the inferences drawn. Finally, there is the possibility of the individual and/or contextual factors interacting to affect perceptions of and attitudes toward police officer; issues such as the interactive effect of these factors on students’ perceptions of police officers and attitudes toward police instructors were reserved for future research.

Conclusions

Despite these limitations, this study provides useful findings that may inform program development and delivery. This study has provided an understanding of students’ perceptions of the police and attitudes toward police instructors, and revealed that students’ attitudes toward police instructors are higher than their general perceptions of the police. Students’ contact with D.A.R.E. officers prior to the study tended to have positive effect on students’ perceptions of the police. Furthermore, students’ perceptions of and attitudes toward the police are somewhat more positive than generally assumed. However, these perceptions and attitudes are not uniform across the students studied. It
was found that, compared to their counterparts, male students, students at high risk of substance use, and those with high involvement in deviant behaviors had consistently less favorable perceptions of and attitudes toward the police.

The study has indicated that individual and contextual factors are significant predictors of students’ perceptions of the police and attitudes toward police instructors, highlighting the view that contextual factors are important in explaining students’ perceptions of the police and attitudes toward police instructors. The study has argued, however, that there is the possibility of other factors including societal-level factors, acting by itself or in combination of other factors, which also determine students’ perceptions and attitudes.

Furthermore, the study has also revealed that compared to non-police instructors, police instructors were held in high esteem by students in drug prevention programs. Against the backdrop of the argument that the peripheral route to persuasion is important in drug prevention programs, it is expected that school-based drug prevention programs delivered by police officers would have more positive effects than programs delivered by non-police officers. The study has also indicated that students’ perceptions of police officers in general affected their attitudes toward police instructors. As a result, if police officers are going to continue delivering school-based drug prevention programs, then efforts should be made to improve adolescents’ perceptions of the police.

**Implications**

The findings from this study have policy implications for school-based drug prevention, schools and the wider society. With respect to school-based drug prevention, it suggested that, where possible, there should be matching of program instructors with
the different categories of students. This study has noted that the perceptions and attitudes of students toward police officers and police instructors are different for different categories of students. Specifically, it has revealed that male students, students with high risk, and high involvement in deviant behaviors tended to have less positive perceptions of the police and attitudes toward police instructors. Consequently, the use of police instructors in delivering prevention programs to these classes of students is likely to result in less positive program effect. To obtain more positive program effect for these classes of students, it is recommended that programs be delivered by instructors (other than police officers) whom these students hold in high esteem. Alternatively, if police instructors are used in the delivery of programs to these classes of students, it would be necessary for these students to be given special attention to increase bonding with the police instructors. While this procedure may be more expensive, the benefits may exceed the cost.

Schools should increasingly use police officers as instructors of school-based drug prevention programs and in other school activities. Police officers are being used in schools in several capacities, particularly as security officers in addressing school violence. Adolescents in general have been observed to be generally rebellious to authority and tend to have more negative perceptions of and attitudes toward the police. With most adolescents perceiving the police as corrupt, harassing, insensitive, repressive and controlling (Jackson, 2002; Jones-Brown, 2000), the presence of the police in schools for security purposes is likely to fail.

With the observation that regular positive, encounter between the police and adolescents in a supportive context promotes positive perceptions of and attitudes toward
the police (Jesilow et al., 1995; Rusinko, et al., 1978), conscientious efforts should be made to create a school environment where students would appreciate the police and view them as friends who are in the school to help them rather than an environment where the police are viewed as authoritative persons trying to control students. Once students appreciate the police and view them as friends, they are likely to relate cordially with the police and cooperate in curbing violence in schools. It is believed that by increasingly using police officers as instructors and other resource persons in schools, the negative perceptions that the students have about the police would improve. This view is supported by the findings from this study indicating that voluntary positive contact with police officer engenders positive perceptions of the police and that general perceptions of the police affects attitudes towards police instructors.

The usefulness of police officers in schools would not be limited only to the improvement of the image of police among adolescents and promoting order in schools. It would also be useful in enhancing the effectiveness of school-based drug prevention programs and law enforcement in the wider society. Considering the fact adolescents make “up a disproportionately large segment of the population subject to police contacts and arrests” (Leiber et al, 1998: 152), the positive perceptions of police engendered by the use of police as instructors and other resource persons in schools may promote effective and efficient law enforcement.

The wider community also stands to benefit from this study, especially in the area of community policing. In recent times, community policing has become a central component of law enforcement. Among other things, community engagement and police-community partnerships are central to the efforts of designing organizational strategies to
address crime and social disorder as well as reduce the fear of crime and social disorder in communities. In effect, the effectiveness of community policing is dependent on citizens’ support of the police. As pointed out elsewhere, regular positive interaction between the police and adolescents in a supportive context has been observed to enhance adolescents’ perceptions of and attitudes toward the police (Jesilow et al., 1995; Rusinko, et al., 1978). Additionally, it has been noted that using police officers as instructors in schools would improve students’ perceptions of and attitudes toward the police. The fact the schools are microcosm of the wider community, it is expected that the positive perceptions of and attitudes toward the police cultivated by students in schools would be transferred to the community. This would help engender more positive community engagement and police-community partnerships and thus help promote effective community policing.

Recommendations for Future Research

This study adds to the literature by exploring adolescents perceptions of the police and attitudes toward police instructors within the context of school-based drug prevention programs. Though previous studies have identified individual and contextual factors as important in affecting perceptions of and attitudes toward the police, the hierarchical nature of these factors have not been considered. The key analytical technique used (multilevel S.E.M.) and its advantages over other general linear modeling such as analysis of variance and regression analysis makes this study unique and adds to the literature. For instance, the multilevel structural equation analysis of students’ perceptions of the police and attitudes toward police instructors made it possible for this study to take into consideration the complex data structures of students nested in schools.
as well as shed light on the importance of societal factors in mediating the effects of individual factors. Consequently, the study was able to capture both changes over time and across individuals as well as separate the effects of individual-level factors from school-level factors. The use of S.E.M. made possible the modeling to latent variables, the estimation of robust parameters with robust standard errors and mediating and moderating mechanisms.

The findings on the effect of some of these individual and contextual factors are inconclusive and further studies into this issue are required. First, it is suggested that the design and methodology of this study be applied to other contexts. In replicating this study, efforts should be made to determine the reasons why students have more positive attitudes toward police instructors and whether this finding is applicable to other settings. Future research should address some of the limitations highlighted in this study, particularly the reliability and validity of the measures. It is suggested that future research improve on the measures of students contact with the police. Researchers replicating this study should consider students contact with the police both within and outside the school as well as the nature, frequency and intensity of such contacts. Researcher should also work on developing and using a more reliable and valid measures of students perceptions of the police and attitudes toward police instructors.

Secondly, this study focused on comparison between only police and non-police instructors. Researcher designing future studies should include a broad categories of instructors used in school-based drug prevention programs. For instance, future research might consider other categories of program instructors such as peer groups, teachers and counselors.
Thirdly, it has been observed contrary to expectation that Black adolescents in Detroit have more positive perceptions of the police. This was attributed to the fact that Detroit has a majority Black population, a Black Mayor, chief of police and significant numbers of Black police officers (Frank et al., 1996). This coupled with the importance of racial context in determining perceptions of the police indicates that students’ perceptions of the police may be different in different cities or areas. As a result, it would be essential for future research to further analyze students’ perceptions of the police and attitudes toward police instructors across the six areas in this study. Researchers designing future studies might determine whether students’ perceptions of the police and attitudes toward police instructors differ across the six areas and the possible cause for the any observed difference.

The age range of the students in this study was limited and students in this study were generally pre-adolescents to young adolescents. This possibly explains why age was not a significant predictor of perceptions of the police and attitudes toward police instructors as well as no difference between younger and older students. It is, therefore, suggested that future research consider a broad range of students and where possible undertakes cohort analysis.

Fifthly, this study has highlighted the fact that police officer and police instructors in school-based drug prevention programs are held in high esteem by students in this study. The reasons why the students have relatively more positive perceptions of and attitudes toward police officers remain unknown. All conclusions drawn to that effect in this study are at best speculations and more study is warranted. This study has also implied that a variety of factors including individual, contextual and societal-level factors
affect students’ perceptions of police officers and attitudes toward police instructors. A complete understanding of students’ perceptions of the police and attitudes toward police instructors would require a rigorous understanding of these factors and how they interact to impact perceptions of the police and attitudes toward police instructors. Researchers designing future research should explore the other factors that affect students’ perceptions of the police and attitudes toward police instructors within the framework of multilevel analysis. Researcher should seek to explain why students in this study have more positive perceptions of the police and attitudes toward police instructors.

Furthermore, it is possible that there some attributes of police instructors that appeal to the students and future research should consider the attributes of police instructors in determining students’ perceptions of and attitudes toward police officers in schools-based drug prevention programs. Similarly, the manner in which police instructors deliver the program is likely to affect students’ attitudes toward police instructors. For instance, it is believed that the training of police officers as instructors of school-based drug prevention programs is strong (Clayton et al., 1991) and that the role of the police gives them a better understand and command of issues relating to drug use. Consequently, future research should also consider implementation fidelity in determining students’ attitudes toward police instructors. In sum, future research should determine whether the characteristics of police instructors and implementation fidelity are predictors of the positive attitudes that students have toward police instructors. It must also determine whether police officers deliver prevention programs with high fidelity than other school-based drug prevention instructors. Research must also seek to determine the particular attributes of the police, if any, that appeal most to students.
This study has also argued that students’ attitudes toward police instructors might impact receptivity of messages presented but whether the positive attitudes toward police instructors translate into program effectiveness is not known. Further studies might be needed to determine whether students’ attitudes toward police instructors affect program outcome.

Finally, the decline in students’ perceptions of the police coupled with the view that adolescents tend to have more negative perceptions of the police than adults points to developmental changes in perceptions of the police. Future research is required to investigate these changes in perceptions, the possible causes of these changes and the stages at which these changes take place.
REFERENCES


StataCorp. (2003). *Stata Statistical Software: Release 8*. College Station, TX: StataCorp LP.


APPENDIX A

SAMPLE SURVEY INSTRUMENT

1. If you were Billy, which response is MOST like what you would say?
   ○ Laugh and say "Thanks, but no thanks."  
   ○ Firmly say "I don't smoke because it can mess up your game."  
   ○ Clearly say "No thanks."  
   ○ Say "No thanks, I don't smoke."  
   ○ Say "Not tonight, maybe some other time."  
   ○ Maintain eye contact and say "No thanks, smoking is a bad habit."  

2. If you were Sarah, which response is MOST like what you would say?
   ○ Clearly say "No thanks."  
   ○ Say "No thanks, not tonight."  
   ○ Say "No thanks, I don't drink because it messes with my judgement."  
   ○ Take the beer and pretend to drink so you won't be asked again.  
   ○ Maintain eye contact and say "I don't want to drink."  
   ○ Say "No thanks, I don't want to have a hangover."  

3. If you were Shawn, which response is MOST like what you would say?
   ○ Firmly say "No thanks."  
   ○ Say "Not to the other person and say "No thanks, I don't smoke marijuana."  
   ○ Say "No thanks, I'm fine for now."  
   ○ Get in his face and say "Get that stuff away from me."  
   ○ Firmly say "No thanks, I'm not interested in smoking marijuana."  
   ○ Say "No thanks, smoking marijuana messes with your head."  

As an expert in this area, mark the THREE best responses for refusing to smoke cigarettes and drink alcohol.
   ○ Say "No thanks, not this time."  
   ○ Say "No thanks, my parents would be disappointed with me."  
   ○ Firmly say "No thanks, smoking/drinking doesn't agree with me."  
   ○ Say "No thanks" and then make a joke about smoking/drinking.  
   ○ Maintain eye contact and say "Smoking/drinking is not something I want to try."  
   ○ Firmly say "No thanks."  
   ○ Just say "No" when offered cigarettes or alcohol.  
   ○ Look directly at the person and say "No thanks."  
   ○ Say clearly "No thanks, I'm not interested in smoking/drinking."  

When you find yourself in a difficult situation, one of the best things to do is . . . .

Choose only ONE answer
   ○ Act on your gut instinct.
   ○ Leave the situation quickly.
   ○ Try to think of several different things you can do.
   ○ Keep quiet and do what your friends are doing.
   ○ Ask yourself "What is the problem here?"  
   ○ Ask your friends to help you.

8. If you want someone to know you are listening to what they have to say . . . . . .

Choose only ONE answer
   ○ Keep nodding your head to everything they say.
   ○ Interrupt them every once in a while to ask questions.
   ○ When they finish, say something that relates to what they told you.
   ○ Try to think of a good argument to what they are saying.

PLEASE DO NOT WRITE IN THIS AREA

00098
## APPENDIX B

### FACTOR AND RELIABILITY ANALYSES

#### Factor Loadings For Attitude Constructs for 7th and 9th Grade Posttests

<table>
<thead>
<tr>
<th>Variables</th>
<th>7th Grade Factor Loadings</th>
<th>9th Grade Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude (α = .820)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor understood kid’s world</td>
<td>.836</td>
<td>.876</td>
</tr>
<tr>
<td>Easy to talk to instructor</td>
<td>.823</td>
<td>.857</td>
</tr>
<tr>
<td>Instructor gave real information</td>
<td>.814</td>
<td>.850</td>
</tr>
<tr>
<td>Instructor enthusiastic</td>
<td>.763</td>
<td>.835</td>
</tr>
</tbody>
</table>

#### Factor Loadings For Deviance Constructs for 7th and 9th Grade Posttests

<table>
<thead>
<tr>
<th>Variables</th>
<th>7th Grade Factor Loadings</th>
<th>9th Grade Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deviance (α = .796)²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taken something over $50</td>
<td>.684</td>
<td>.692</td>
</tr>
<tr>
<td>Gotten in fight</td>
<td>.692</td>
<td>.716</td>
</tr>
<tr>
<td>Broken in</td>
<td>.642</td>
<td>.655</td>
</tr>
<tr>
<td>Hurt someone</td>
<td>.712</td>
<td>.729</td>
</tr>
<tr>
<td>Taken something under $50</td>
<td>.646</td>
<td>.627</td>
</tr>
<tr>
<td>Gang fight</td>
<td>.696</td>
<td>.696</td>
</tr>
<tr>
<td>Run away</td>
<td>.632</td>
<td>.621</td>
</tr>
<tr>
<td>Sent to office</td>
<td>.611</td>
<td>.618</td>
</tr>
</tbody>
</table>

² The items asked about students’ involvement in these behaviors in the last 12 months.
APPENDIX C

MPLUS SYNTAX FOR MULTILEVEL ANALYSES

Individual-Level Analysis

CLUSTER IS hs9dist;
MISSING IS blank;
ANALYSIS:
  TYPE IS COMPLEX MISSING H1;
  ITERATIONS = 1000;
  CONVERGENCE = 0.00005;
MODEL:
  attitude BY utq41a utq41b utq41c utq41d;
  attitude ON rutq40 percept2 latino black other anyuse2 deviance;
  percept2 ON latino black other age gender anyuse2 deviance;
OUTPUT: RESIDUAL STANDARDIZED MODINDICES;

School-Level Analysis

WITHIN IS rutq40 percept2 latino black other age gender anyuse2 deviance;
BETWEEN IS Rhsfree;
CLUSTER IS hs9dist;
MISSING IS blank;
ANALYSIS:
  TYPE IS TWOLEVEL;
  ESTIMATOR IS MLR;
  ITERATIONS = 1000;
  CONVERGENCE = 0.00005;
MODEL:
%WITHIN%
attitW BY utq41a
   utq41b (1)
   utq41c (2)
   utq41d (3);
attitW ON rutq40 percept2 anyuse2 deviance latino black other;
percept2 ON anyuse2 deviance latino black other age gender;

%BETWEEN%
attitB BY utq41a
   utq41b (1)
   utq41c (2)
   utq41d (3);
   utq41a-utq41d@0;
attitB ON Rhsfree;

OUTPUT:  SAMPSTAT RESIDUAL STANDARDIZED MODINDICES TECH1
         TECH8;