

**VISIBLE SCHOOL SECURITY MEASURES AND ITS EFFECTS ON
YOUTH: AN ANALYSIS OF U.S. 10th GRADERS**

by

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ABSTRACT

The use of visible school security measures remains controversial. Although some scholars have theorized that these measures can be helpful in securing schools, other scholars suggest that these security measures may lead to worse student behavior and negative school climates (Hirschfield, 2008; Kupchik & Monahan, 2006).

Virtually no attempts have been made to explore how certain visible security measures, such as random metal detector checks on students, closed campus for students during lunch, random dog sniffs to check for drugs, random sweeps for contraband, enforced strict dress code, use of cameras to monitor school, emergency call buttons in classrooms, and an observed security guard at the school may influence students' feelings about school. More specifically, do these visible security measures result in an increased liking or disliking of students' feelings about school?

In this thesis, I use the Education Longitudinal Study: 2002 to examine whether these visible security measures have an influence on students' feelings about school. To ascertain whether these visible security measures influenced certain races differently, race-specific models were also examined. Results reflect that metal detector presence resulted in an increase of White students' liking of school. An observed call button in classrooms resulted in a decrease of White students' liking of school. However, the results did not reflect a significant association between metal

detector presence and Black and Hispanic students' liking of school, or an observed call button in classrooms and Black and Hispanic students' liking of school. All other visible security measures that were included as youth control complex variables in this study did not display any significant association with students' feelings about school.

Overall, I did not find strong relationships between visible security measures and students' liking of school. These findings mean that the literature needs to be revisited to examine why the relationships appear to be weak between visible security measures and students' liking of school. Metal detectors are not as effective as the literature has presented them to be. For instance, the presence of metal detectors had no relationship with Black or Hispanic students' liking of school. These findings also suggest that visible security measures shape students' perceptions of schools inconsistently. Although one visible security measure appears to be affective (metal detectors) in increasing White students' liking of school, my findings reflect that a visible call button in the classroom had the opposite affect on White students. Concerns about security practices should not be ignored. However, they should be used based off of effectiveness. Schools should consider conducting yearly surveys to examine how the implementation of visible security measures has impacted schools as well as students. This would allow for schools to be able to assess whether these visible security measures are achieving what they aim to do or if they are more harmful than helpful.

Chapter 1

VISIBLE SCHOOL SECURITY MEASURES AND ITS EFFECTS ON YOUTH: AN ANALYSIS OF U.S. 10th GRADERS

Introduction

Over the past three decades, schools across the nation have implemented various practices and policies in an attempt to respond to student misbehavior. These practices include the use of security cameras, metal detectors, drug-sniffing dogs, and the full-time presence of uniformed police officers (Addington, 2009). The purpose of these visible security measures is to limit access to school buildings, limit weapon presence, increase student surveillance, or provide a way for reacting to crises. Subsequently, they are intended to yield academic success by making schools safer and decreasing problematic student behavior (Addington, 2009). Safer schools with less student misbehavior should result in academic success. However, by importing policies once reserved for formal policing, there has been an increase in surveillance over students and tighter links between the educational and criminal justice systems (Hirschfield, 2008; Hirschfield and Celinska, 2011; Kupchik, 2010).

Prior research highlights the potential variability in the types and patterns of visible security measures used by schools. Studies have found that some visible school security measures, such as metal detectors, may be more exclusionary than others (Hirschfield, 2010; Kupchik & Ward, 2014). Exclusionary measures aim to “disengage offending students from school” (Kupchik & Ward, 2014, p.333). As a result, students may disengage from school by being disruptive in class and not

participating in school activities due to their feelings towards the school. Therefore, the presence of these exclusionary measures can lead to reduced student academic performance and increased misbehavior (Gottfredson, Payne & Gottfredson, 2005).

The use of visible school security measures remains controversial. Some scholars have theorized that these measures can be helpful in securing schools (Tiller, Fisher, & Wilcox, 2011; Schreck, Miller, & Gibson, 2003). While other scholars suggest that these security measures may lead to worse student behavior and negative school climates (Hirschfield, 2008; Kupchik & Monahan, 2006). This occurs because visible security measures, such as metal detectors, security cameras, security guards, drug-sniffing dogs, etc. may negatively influence youth by promoting a culture of criminalization and fear, and creating negative expectations, which can result in student misbehavior (Goldstein, Young & Boyd, 2008; Mayer & Leone, 1999).

There is a lack of literature that focuses on whether (and if so, how) these surveillance practices hyper-criminalize youth. Hyper-criminalization is the process by which an individual's everyday behaviors and styles become ubiquitously treated as deviant, risky, threatening or criminal, across social contexts (Rios, 2011). This hyper-criminalization, in turn, has a profound impact on young people's perceptions, worldviews, and life trajectories. Victor Rios describes this as part of a "youth control complex", in which it creates an overarching system of policing the lives of marginalized young people (Rios, 2011). Visible security measures in schools is an example of hyper-criminalization because it assumes that students that attend these schools need these visible security measures present in order to behave or not break school rules. These measures imply that all students are deviants and should be examined under these visible security measures to keep schools safe.

This study uses a nationally representative sample of U.S. 10th grade students (ELS, 2002) to analyze whether the presence of school security measures are systematically related to students' feelings about school. School security measures include metal detectors, security cameras, and security personnel (Hirschfield, 2010). The school security measures that are examined in this paper are: random metal detector checks, closed campus for students during lunch, random dog sniffs to check for drugs, random sweeps for contraband, enforced strict dress code, use of security cameras, emergency call buttons in classrooms, and observed security guards in the school. At present, few quantitative research studies have examined how the presence of these school security measures may influence students' feelings about school. The following research question is tested in this study:

How does the presence of visible school security measures influence students' feelings about (liking or disliking) school? More specifically, do visible security measures result in an increased liking or disliking of school?

This study addresses this gap in the literature by testing the applicability of Victor Rios's concept of the youth control complex. It is used to examine whether certain school security measures are associated with U.S. 10th graders' feelings about school. This study also explores racial differences among students' feelings about school due to the presence of these school security measures. I begin my paper by discussing the theoretical framework of this study. Next, I provide an overview of the previous literature that is relevant to this topic. Then, I dive into the methodological portion of the paper and presentation of the results of my analyses. Finally, I wrap up with a discussion of my study.

Theoretical Framework

In order to understand punishment as an ordinary form of social control in Black and Latino neighborhoods in Oakland, Victor Rios provides, in *Punished: Policing the Lives of Black and Latino Boys*, much-needed insight into the processes of criminalization and penalization that has become embedded in the social fabric of everyday life. Based on 3 years of ethnographic research, Rios argues that the 40 Black and Latino teenage boys he features in his study are subject to a pattern of social control that he calls the “youth control complex.” He introduces the concept to account for the diverse realms in which youth become criminalized: within the family, at school, on the streets, in convenience stores, by police and parole officers. Exploring how criminal justice institutions and community institutions have become punitively “coupled,” the first half of his work looks at how the youth control complex criminalizes Black and Latino youth through everyday, and perhaps well-intentioned, acts of punishment. The second half of his work uses the youth control complex to examine how the boys enact agency in an inescapably punitive context through practices such as hyper-masculinity.

The lives of Black and Latino youth who are labeled “deviant” are policed by institutions that treat them as serious criminal threats, ready to commit savage acts of violence even if they have only been arrested for drug possession or status offenses (Rios, 2011). Many of the youth in Rios’s study discussed their experiences of being criminalized in both multidimensional layers and in multiple social settings. Beyond the criminal justice system they experienced the effects of criminalization in other significant spaces such as, the street, school, businesses, and even their home. They compared encounters with police, probation, and prosecutors with interactions they had with school administrators and teachers who placed them in detention rooms and

community centers that attempted to exorcise their criminality. For the youth, their experience in each of these institutional settings had one thing in common: being treated as a criminal (Rios, 2006).

Rios's main point of his work is to show that youth are subjected to hyper-criminalization and that ultimately affects their lives. For example, Rios states, "In this social order where young people placed at risk were treated as potential criminals, social relations, worldviews, and creative responses were often influenced by this process of criminalization" (Rios, 2011, p. 5). Rios explains the youth control complex as a web of material and symbolic criminalization tactics that are used to control youth. He illustrates that the criminal justice system, mass incarceration, and the labeling of youth are forces of social control because politicians use them as mechanisms to "tame the ghetto" or suppress the urban black communities (Rios, 2011).

It is important to note that the youth control complex causes youth to be alienated from society, to see social institutions as against them, which leads them to often use crime as an act of resistance. From a young age, poor urban Black and Latino male youth face stigmatizing and punitive interactions in various settings in their communities. As often well-intentioned probation officers, teachers, community center workers, and police officers attempt to grapple with the deviance and risks that youth have, they adopt ideas and practices that further render young males of color suspicious and criminal. This in turn contributes to youth committing more deviance and crime. Rios' study presents how the youth in this study face this hyper-criminalization, which affects their encounters with different social entities. This is why I chose to examine how visible security measures in schools (a form of hyper-criminalization) may influence how students feel about school.

Students who dislike school could dislike it due to feeling alienated. The presence of visible security measures can cause students to isolate themselves because they feel like these measures are controlling their lives. They have to come to school everyday and be watched by these different surveillance practices, which can affect how they feel about school. The students may not look at school as a “judgment free” place where they can come to learn and enjoy themselves. However, the presence of visible security measures may not be viewed as a form of hyper-criminalization to all students. Their presence may influence students to like school because they feel safer due to the implementation of these practices. I hypothesize that the presence of visible security measures such as: random metal detector checks, closed campus for students during lunch, random dog sniffs to check for drugs, random sweeps for contraband, enforced strict dress code, use of security cameras, emergency call buttons in classrooms, and observed security guards in the school (forms of hyper-criminalization) influence students’ feelings about school.

This study adds to this body of research by examining how the presence of certain visible security measures may influence U.S. 10th grade students’ feelings about school. More specifically, do metal detectors result in increased liking or disliking of school? I decided to make this the focus of my study because Victor Rios demonstrates how the youth control complex – the constant surveillance, labeling, and treatment of youth as criminals produces both animosity and defiance among youth. This work is a contribution to the pre-existing literature because this study examines whether the youth control complex influences students’ liking or disliking of school. Rios’s findings reveal how institutions, like schools, maintain order by calling the police whenever youth misbehave in the classroom. Parents of youth also engage in

this type of control because they are made to believe that their children are deviant and they should call the police on them. In addition, probation officers use their power with the criminal justice system by assigning unattainable goals for youth that are on probation and then arrest them when they cannot follow through with these goals. Youth feel as though they are always under constant surveillance.

This theoretical perspective informs my analysis because Rios's study shows how youth can respond to security with alienation and distrust. The literature reflects how school security measures such as: metal detectors, security guards, and security cameras are used to control youth by way of surveillance. Students are hyper-criminalized and alienated as a result of these school security measures. When faced with security measures in school, students are expected to like school less. However, my analysis examines how the security measures mentioned above as well as other school security measures (i.e. closed campus for students during lunch, random dog sniffs to check for drugs, random sweeps for contraband, enforced strict dress code, and emergency call buttons in classrooms) influence students' feelings about school. This study tests the "youth control complex" component of Victor Rios's work to examine whether certain school security measures are associated with U.S. 10th graders' feelings about school. It also explores racial differences that are present amongst students' feelings about school due to the presence of these school security measures.

Literature Review

School Surveillance

Metal detectors are intended to aid school personnel in detecting weapons being carried or concealed by students, teachers, staff, and visitors before they are used (Yell & Rozalski, 2000). The effectiveness of metal detectors to achieve their operational aims depends on the overall state of building security (i.e., having unlocked or unsupervised doors or windows), the training of school personnel, and the consistency of implementation (Green, 1999). This means that all students must be searched with no exceptions. Thus, all students are under suspicion and are viewed as potential violators of school rules.

Such hyper-criminalization of students may elicit negative expectations or a “self-fulfilling prophecy.” This means that students who feel that they are labeled as criminal or suspect, based on the presence of security technology, adjust their behaviors to align with those labels attributed to them (Warnick, 2007; Watts & Erevelles, 2004). Prior research studies lend support to this hypothesis (Kupchik, 2010; Mayer & Leone, 1999). This implies that visible security measures, such as metal detectors, security guards, drug-sniffing dogs, and security cameras may have negative effects on adolescents’ feelings about school. In turn, youth may internalize negative expectations arising from prison-like school settings that implement harsh procedures when dealing with students (Hirschfield, 2008). This could influence them to have negative feelings about school.

An important and growing body of research focuses on whether daily metal detector searches are justified by high levels of school violence. For instance, while utilizing the National Longitudinal Study of Adolescent Health (AddHealth),

Perumean-Chaney and Sutton (2012) found that metal detectors and the number of visible security measures employed in school were associated with a decrease in student reports of feeling safe. Students who were male, White, had higher GPAs, and reported feeling safe in their neighborhood were more likely to report feeling safe at school, while those who experienced prior victimizations, had larger class sizes, and who attended schools that had disorder problems were more likely to report not feeling safe at school (Perumean-Chaney & Sutton, 2012). This research finds that these visible security measures are not achieving what they aim to do.

Another growing body of literature challenges the legality and fairness of daily metal detector searches (Brent, 2016; Bracy, 2011; Devine, 1996). For example, the increased surveillance of students, as exemplified by the presence of metal detectors and police officers in public schools, has raised concerns about the implications for students' rights and the culture of schooling in the United States, especially for low-income students and students of color (Kupchik, 2010; Monahan & Torres, 2009). Although Devine (1996) argues that security technology contributes to an overall climate of fear and violence in public schools, vendors continue to successfully generate demand for their diverse array of products and services aimed at monitoring students (Casella, 2006). Student searches have generated concerns about possible violations of students' right to privacy (Ferraraccio, 1999; Stefkovich & O'Brien, 1997). Other scholars have argued that any deprivation of students' liberties is not substantial enough to outweigh the benefits to public safety (Johnson, 2000). Courts have upheld schools' authority to conduct these searches (Stefkovich & Torres, 2003) and school leaders have also been allowed to use discretion in their judgments and

decision-making about student searches (Beger, 2003). However, it is still questionable how effective these practices actually are.

The limited research on the effects of school security measures has largely focused on behavioral outcomes like arrests, weapon charges, and drug use (Jackson, 2002; Na and Gottfredson, 2013). Another body of work has described the connections between metal detectors and students' perceptions about their school. In this regard, metal detectors have been associated with both elevated (Bachman, Randolph, & Brown, 2011; Scheck & Miller, 2003) and reduced (Tiller, Fisher, & Wilcox, 2011) fear at school. Studies of the relationship between metal detectors and students' attitudes about school policies are similarly mixed. Kupchik and Ellis (2008) found no association between metal detectors and students' perceptions of the fairness of school rules.

Despite visible security measures' aims of reducing school violence, they are still viewed by some as a form of systemic school violence that harms and alienates students (Finley, 2006). Scholars argue that metal detectors operate as part of overall, militarized reconfiguration of public schools as networks to incarceration (i.e., the school-to-prison pipeline) that perpetuate stereotypes of students of color, especially males, as criminal and violent (Watts & Erevelles, 2004). In addition, whether visible security measures assist schools in reaching their safety aims remains the subject of debate. Many studies have concluded that metal detectors have little association with students' risk of victimization at school (Schreck, Miller, & Gibson, 2003) or the presence of drugs and weapons at school (Brown, 2005). Subsequent studies report positive correlations between metal detectors and levels of school violence and crime (Mayer & Leone, 1999).

Hyper-criminalization of Minority Students

Hyper-criminalization involves constant punishment. Punishment, in this context, is understood as the process by which individuals come to feel “stigmatized, outcasted, shamed, defeated, or hopeless” as a result of negative interactions and sanctions imposed by individuals who represent institutions of social control (Rios, 2011, p. xv). These punitive effects do not result in better behaviors. For instance, when the punitive arm of the state crosses into traditionally nurturing institutions, delinquent kids become labeled and treated as criminals not only by police, courts, and probation, but also by teachers, community centers, and even parents. This is a problem when the latter institutions are meant to make productive citizens out of youth, not to render them as criminals, risking that the youth internalize this hyper-criminalization and become deviant.

Stanley Cohen (1972) calls this process “deviance amplification,” where parents participate in labeling their kids as criminals and in the process end up alienating themselves from their children. In his classic study, Cohen (1972) illustrates how youth can fall into a spiral of deviance when, as an act of resistance to authority figures (i.e., police) they commit more and more intense acts of deviance. Rather than break away from hyper-criminalization, Black and Latino youth are unfortunately conforming and internalizing their oppression. While the youth often internalize and naturalize their criminalization, they often do it as a form of resistance, as a strategy to defy the very same process of hyper-criminalization. They may embrace the label of “thug” or criminal in order to navigate their social world. However, once given opportunities to embrace a less violent and more nurturing environment they abandon the negative attitude fairly quickly (Rios, 2011).

The hyper-criminalization of students refers to a combination of reactive disciplinary policies, surveillance, metal detectors, and unwarranted searching and lockdowns that reflect the contemporary criminal justice system within the school environment (Rios, 2011). These various policies create the school-to-prison pipeline, often “push[ing] children out of school and hasten[ing] their entry into the juvenile, and eventually the criminal, justice system, where prison is the end of the road” (NAACP, 2007, p. 2). The school-to-prison pipeline intersects with class and race, and targets Black, Latino, undocumented immigrants, and other populations (Farmer, 2010).

The overrepresentation of Blacks in nearly every form of punishment—for example, incarceration (Carson, 2015), juvenile arrests (Engen, Steen, & Bridges 2002), and school discipline (Raffaele et al., 2002; Skiba et al., 2002)—is undeniable. Since the introduction of zero-tolerance policies in the 1990s, for example, schools now hand out more disciplinary sanctions than ever before. In the 2009–2010 academic year, about 3 million students in grades K–12 were suspended, representing a steady increase since the 1970s, when the suspension rate was half that level (US Department of Education Office for Civil Rights, 2014). This increased focus on discipline in schools, however, may affect Black students disproportionately (Skiba, 2000).

Recent work reveals that the practices and policies associated with contemporary school discipline are more likely to affect low socioeconomic status and racial/ethnic minority students. This work reveals that relative to White students, minority students are more likely to be affected by the school-to-prison pipeline (Kim et al., 2010), punished in schools more harshly (Gordon et al., 2000), suspended more

often (Losen & Martinez, 2013), and subject to more invasive security measures (Irwin et al., 2013). There is a gap in the literature that fails to examine how all of the components of the youth control complex may impact White and minority students differently. There is also a gap in the literature that does not examine how these specific visible security measures may have an impact on students' feelings about school. My analysis contributes new pieces to the literature because it examines whether these visible security practices can affect students' feelings about school and cause them to be alienated.

Methods

Sample

The data that I analyze were collected by the United States Department of Education and the National Center for Education Statistics. This nationally representative sample was collected for the base year of the Education Longitudinal Study (ELS) of Spring 2002. This study was designed to provide trend data about transitional periods that students experience as they progress throughout high school and into postsecondary education or their careers. The geographical coverage of this study was the United States. The 2002 sophomore cohort was followed at 2-year intervals. Part 1, Student-Level Data, is comprised of data from assessments of students. These assessments included achievement tests in mathematics and reading, surveys of students, surveys of parents, and surveys of teachers. Information about student's background, school experiences and activities, plans and goals for the future, employment and out-of-school experiences, language background, and psychological orientation toward learning were all gathered in the student questionnaire (ELS, 2002).

Part 2, School-Level Data, is comprised of data from surveys of school administrators, surveys of librarians, and a facilities checklist. This information was collected by survey administrators based on their observations at the school. Information on the school was collected in six areas: school characteristics, student characteristics, teaching staff characteristics, school policies and programs, technology, and school governance and climate (ELS, 2002).

A two-stage sample selection process was used to collect these data. First, a national sample of schools was selected using stratified probability proportional to size (PPS). Probability proportion to size is a sampling procedure under which the probability of a unit being selected is proportional to the size of the ultimate unit, giving larger clusters a greater probability of selection and smaller clusters a lower probability.

According to the ELS (2002) study description, school contacting resulted in “1,221 eligible public, Catholic, and other private schools from a population of approximately 27,000 schools containing 10th grade students” (p. iii). Surveys were distributed on a “Survey Day.” This survey day was a day that schools dedicated to collecting data for this study. 752 of the 1,221 eligible schools responded, resulting in a 67.8 percent response rate. In the second stage of sample selection, a sample of approximately 26 sophomores from within each of the participating public and private schools was selected. Each school had to provide a list of 10th grade students. A stratified systematic sample of students was selected as student lists were received. The strata included Hispanic, Asian (Non-Hispanic), Black (Non-Hispanic), Multiracial (Non-Hispanic), and Other (Non-Hispanic) race/ethnicity. For the

purposes of my study, I merged baseline part 1 and part 2 data to include relevant variables from each dataset.

The Current Study

The units of observation in this study are schools (n= 752) and students nested within schools (n= 15,362). See Table 1 for descriptive statistics of variables. This study examines both student-level and school-level variables. Table 2 represents four separate models that I included in one chart. The first column represents the first model, which is the main model of this study. The second through fourth columns represent models 2-4, which are race-specific models, White (Non-Hispanic), Hispanic, and Black (Non-Hispanic).

Dependent Variable

To assess how much a student likes school I used the same dependent variable across all four models. This variable addresses my research question: “How does the presence of visible school security measures influence students’ feelings about school?” Students were asked “How much do you like school?” Response categories are transformed and reverse coded (0= Not at all; 1= Somewhat; 2= A great deal). It is necessary to use this variable as a dependent variable because Victor Rios demonstrates how the youth control complex – the constant surveillance, labeling, and treatment of youth as criminals -- produces both animosity and defiance among youth (Rios, 2011). If this is the case, the presence of visible security measures should influence whether students like or dislike school.

Independent Variables

Student-Level Variables

The following six variables were important to include because research has found that the presence of these exclusionary measures (visible security) can lead to reduced student academic performance and increased misbehavior (Gottfredson, Payne & Gottfredson, 2005). In fact, some scholars suggest these security measures may lead to worse student behavior and negative school climates (Hirschfield, 2008; Kupchik & Monahan, 2006). Also, students' relationships with teachers are important to examine because studies have shown that closer relationships with teachers result in better academic performance (Servoss, 2017; Free, 2017). Thus it is important to control for academic performance so as to best isolate the independent relationship between security and feelings about school.

In the student survey, students were asked, with a sub question following, "How much do you agree or disagree with each of the following statements about your current school and teachers?" The sub question asked students to respond about whether students get along well with teachers. Students were asked with sub questions following, "Since starting ninth grade, did you win any of the following awards or were you recognized at school for doing well or participating in certain activities?" The sub questions asked students to respond about whether they received special recognition for good attendance and/or if they received special recognition for good grades. Students were asked with sub questions following, "Have you ever been in any of the following kinds of courses or programs in high school?" The sub questions

asked students to respond about whether they were in an advanced placement (AP) program and/or if they were in a school academic club. Lastly, students were asked, “As things stand now, how far in school do you think you will get?” They were asked to mark one response. Response categories were, less than high school graduation, high school graduation or GED only, attend or complete 2-year college, attend college/ 4-year degree, graduate from college, obtain Master’s degree or equivalent, obtain PhD, MD, or other advanced degree. Variables are listed below with coding in parentheses.

- *Students get along well with teachers* (transformed and reverse coded 1= Strongly disagree; 2= Disagree; 3= Agree; 4= Strongly agree)
- *Recognized for good attendance* (0= No; 1= Yes)
- *Recognized for good grades* (0= No; 1= Yes)
- *Ever in advanced placement program* (0= No; 1= Yes)
- *Participated in school academic club* (0= No; 1= Yes)
- *How far in school student thinks they will get* (1= Less than high school graduation; 2= High school graduation or GED only; 3= Attend or complete 2-year college; 4= Attend college, 4-year degree; 5= Graduate from college; 6= Obtain Master’s degree or equivalent; 7= Obtain PhD, MD, or other advanced degree)

It is important to include the following four variables because scholars argue that metal detectors operate as part of an overall, militarized reconfiguration of public schools as networks to incarceration (i.e., the school-to-prison pipeline) that perpetuate stereotypes of students of color, especially males, as criminal and violent (Watts & Erevelles, 2004). Variables are listed below with coding in parentheses.

- *Students’ sex* (0= Female; 1= Male).

- *Students' race/ethnicity* - The following races/ethnicities are included as dichotomous variables in this study, White (Non-Hispanic), Hispanic¹, Black (Non-Hispanic), Multiracial (Non-Hispanic), and Other (Non-Hispanic) (0= No; 1= Yes). The variable White (Non-Hispanic) is excluded as the reference category.
- *Family composition* (0= Less than two parent/guardian household; 1= Two parent/guardian household).
- *Socioeconomic status* - This variable was created in a standardized scale by the ELS 2002 study. It is based on five equally weighted, standardized components: father's/guardian's education (FATHED), mother's/guardian's education (MOTHED), family income (INCOME), father's/ guardian's occupation (OCCUFATH), and mother's/guardian's occupation (OCCUMOTH). Higher scores reflect higher socioeconomic status.

School-Level Variables

It is important to include the following primary independent variables (random metal detector checks on students, closed campus for students during lunch, random dog sniffs to check for drugs, random sweeps for contraband, enforced strict dress code, use of cameras to monitor school, emergency call buttons in classrooms, and an observed security guard at the school) because the purpose of these visible security measures is to limit access to school buildings, limit weapon presence, increase student surveillance, or provide a way for reacting to crises. Subsequently, they are intended to yield academic success by making schools safer and decreasing problematic student behavior (Addington, 2009). The hyper-criminalization of students refers to a combination of reactive disciplinary policies, surveillance, metal

¹ For the race variables, the Hispanic variable includes students who identified as Hispanic with a race specified and those who identified as Hispanic with no race specified.

detectors, and unwarranted searching and lockdowns that reflect the contemporary criminal justice system within the school environment (Rios, 2011).

The following eight variables are measures of the youth control complex concept that Victor Rios describes in his study. For these variables, school administrators were asked with sub questions following; “During this school year (2001-2002), is it a practice of your school to do the following? (If your school changed its practices in the middle of the school year, please answer regarding your most recent practice).” The following sub questions asked administrators to respond about whether the school requires them to perform one or more random metal detector checks on students, close campus for students during lunch, require random dog sniffs to check for drugs, require random sweeps for contraband, enforce a strict dress code, use cameras to monitor school, provide emergency call buttons in classrooms, and/or have an observed security guard at the school. Variables are listed below with coding in parentheses.

- *Random metal detector checks on students* (0= No; 1= Yes)
- *Close campus for students during lunch* (0= No; 1= Yes)
- *Random dog sniffs to check for drugs* (0= No; 1= Yes)
- *Random sweeps for contraband* (0= No; 1= Yes)
- *Enforce strict dress code* (0= No; 1= Yes)
- *Use cameras to monitor school* (0= No; 1= Yes)
- *Emergency call button in classrooms* (0= No; 1= Yes)
- *Observed security guard at school* (0= No; 1= Yes)

It is important to include the following index of variables because Devine (1996) argues that security technology contributes to an overall climate of fear and

violence in public schools. Despite this claim, vendors continue to successfully generate demand for their diverse array of products and services aimed at monitoring students (Casella, 2006). It is important to control for these variables to better isolate the relationship between security practices and students' feelings about school.

For these variables, school administrators were asked with sub questions following, "To the best of your knowledge how often do the following types of problems occur at your school?" The following sub questions asked administrators to respond about how often tardiness, absenteeism, class cutting, physical conflicts, robbery/theft, vandalism, alcohol use, use of illegal drugs, possession of weapons, disorder of classrooms, student disrespect of teachers, and/or gang activity are issues at school. Each of these variables were transformed and reverse coded (0= Never happens; 1= Happens on occasion; 2= Happens at least once a month; 3= Happens at least once a week; 4= Happens daily). These variables were combined to create an index².

It is important to include the following variables because recent work reveals that the practices and policies associated with contemporary school discipline are more likely to affect low socioeconomic status and racial/ethnic minority students. This work reveals that relative to white students, minority students are more likely to be affected by the "school to prison pipeline" (Kim et al., 2010), punished in schools more harshly (Gordon et al., 2000), suspended more often (Losen and Martinez,

² I created an index with the following 12 variables to measure disorder in schools. After running a factor analysis, the alpha score was (.83), indicating that these variables cling well together. I averaged the mean of each variable to create the index.

2013), and subject to more invasive security measures (Irwin et al., 2013). Rios explains the youth control complex as a web of material and symbolic hyper-criminalization tactics that are used to control these youths. He illustrates that the criminal justice system, mass incarceration, and the labeling of youth are forces of social control because politicians use them as mechanisms to “tame the ghetto” or suppress the urban black communities (Rios, 2011).

The following variables (proportion of White students in school, percent of students receiving free/reduced price lunch, crime in students’ neighborhood, family composition, and SES) are included because they provide a group level context for race. Including these variables allows for us to consider whether students have different perceptions across different types of schools.

For the *proportion of white students in schools* variable, I took the mean of students within each school to calculate the proportion of student respondents who identify as White in each school. For the *crime in students’ neighborhood* variable, school administrators were asked: “How would you describe the crime level in the neighborhood(s) in which your students live?” Variables are listed below with coding in parentheses.

- *Proportion of White students in schools* (higher scores reflect a higher proportion)
- *Percent of students receiving free/reduced price lunch* (1= 0-5%; 2= 6-10%; 3= 11-20%; 4= 21-30%; 5= 31-50%; 6= 51-75%; 7= 76-100%)
- *Crime in students’ neighborhood* (0=None/Mixed level of crime; 1= Low level of crime; 2= Moderate level of crime; 3= High level of crime)
- *Geographical region* is categorized in the following four categories, Northeast, Midwest, South, and West (0= No; 1= Yes). South is excluded as the reference category.

- *School urbanicity* is categorized into the following three categories, Urban, Suburban, and Rural (0= No; 1= Yes). Urban is excluded as the reference category.
- *Type of school* is categorized into the following three categories, Public, Catholic, and Other private (0= No; 1= Yes). Public is excluded as the reference category.

Analytical Strategy

To analyze the data, I computed a series of multi-level models, as is appropriate and commonly done when analyzing data at multiple units of analysis. This study analyzes data of students and schools, thus students in the same schools violate OLS's assumption of independence. For my quantitative analysis, multi-level models were utilized since my study includes student-level variables and school-level variables. More specifically, I ran a multi-level ordinal logistic regression for my main model since the dependent variable is categorical (students' feelings about school). Next, race-specific multi-level ordinal logistic regressions were conducted to see the effect that each independent variable had on the dependent variable, net of all other factors. Diagnostics were run to test for multicollinearity, heteroskedasticity, nonlinearity, and outliers to ensure that all analyses were done correctly. The results of these tests indicated that none of these things were present amongst the variables in my study. However, my analysis is whittled down to a smaller sample size due to missing values on the cases. This decline in the sample size is due to the lack of responses to visible security measure questions in the study. All analyses were performed using Stata, version 13.

Results

Main Multi-level Model

All of the following results are listed for the main model of my study.

Observed random metal detector checks in school were significantly associated with students' liking of school. For students who attend a school with observed random metal detector checks, the odds of scoring one point higher on the like school are 20 percent ($p < .05$) higher than students who do not observe random metal detector checks in school. An observed call button in students' classrooms was associated with students' liking of school. For students who attend a school with an observed call button in the classroom, the odds of them scoring one point higher on the like school are 13 percent ($p < .01$) lower than students who do not observe a call button in the classroom.

Gender was significantly associated with students' liking of school. The odds of males scoring one point higher on the like school scale are 28 percent ($p < .001$) lower when compared to females. Race was significantly associated with students' liking of school. The odds of Hispanic students scoring one point higher on the like school scale are 62 percent ($p < .001$) higher when compared to Whites. The odds of Black students scoring one point higher on the like school scale are 49 percent ($p < .001$) higher when compared to Whites. There are no significant results for Multiracial or students in the "other" category. SES was significantly associated with students' liking of school. As the scale for SES increases by 1, the odds of students scoring one point higher on the like school scale decreased by 16 percent ($p < .001$). Students' relationship with their teachers was significantly associated with their liking of school. As the scale for students who get along with their teachers increases by 1,

the odds of them scoring one point higher on the like school increased by 157 percent ($p < .001$).

Good attendance was significantly associated with students' liking of school. For students with good attendance, the odds of them scoring one point higher on the like school scale are 33 percent ($p < .001$) higher than students who do not have good attendance. For students who have good grades, the odds of them scoring one point higher on the like school scale are 40 percent ($p < .001$) higher than students who do not have good grades. Students' involvement in an academic club was significantly associated with their liking of school. For students involved in an academic club, the odds of them scoring one point higher on the like school are 73 percent ($p < .001$) higher than students who are not involved in an academic club. How far a student thinks they will get in the future was significantly associated with their liking of school. As the scale for how far a student thinks they will get in the future increases by 1, the odds of them scoring one point higher on the like school scale increased by 34 percent ($p < .001$). Free/reduced price lunch was significantly associated with students' liking of school. For students who attend a school with a higher proportion of free/reduced price lunch, the odds of them scoring one point higher on the like school increased by 6 percent ($p < .001$).

In sum, for the main model, the variables that help us understand students' feelings about school are: students get along with their teachers, students are recognized for good attendance/grades, students participated in an academic club, how far students predict they will get in school, gender, students are Hispanic or Black, socioeconomic status, students observed random metal detector checks in school, students observed a call button in the classroom, and students received free/reduced

price lunch. Of all the visible security measures included in this study, the presence of an emergency call button in the classroom is the best predictor of the dependent variable (students' feelings about school).

Race-Specific Multi-level Models

The following results are listed for the race-specific models of my study. In regards to my research question, metal detector presence resulted in an increase of White students' liking of school. However, the results did not reflect a significant association between metal detector presence and Black or Hispanic students' liking of school. An observed call button in the classroom resulted in a decrease of White students' liking of school. The results did not reflect a significant association between an observed call button in the classroom and Black or Hispanic students' liking of school. All other visible security measures that were included as youth control complex variables in this study did not display any significant association with students' feelings about school (see Table 2 for results).

For the White model, observed random metal detector checks in schools were significantly associated with students' liking of school. For students who attend a school with observed random metal detector checks, the odds of them scoring one point higher on the like school are 35 percent ($p < .05$) higher than students who attend a school that does not observe random metal detector checks. Observed random metal detector checks were not a significant predictor of Hispanic or Black students' liking of school. For the White model, an observed call button in students' classrooms was significantly associated with their liking of school. For students who attend a school with an observed call button in the classroom, the odds of them scoring one point higher on the like school scale are 18 percent ($p < .01$) lower than students who attend a

school that does not have an observed call button in the classroom. An observed call button in the classroom was not a significant predictor of Hispanic or Black students' liking of school.

Gender was significantly associated with White students' liking of school. For the White model, the odds of males scoring one point higher on the like school scale are 35 percent ($p < .001$) lower than females. However, gender was not significantly associated with Hispanic or Black students' liking of school. For the White and Black models, SES was significantly associated with students' liking of school. As the scale for SES increases by 1, the odds of students scoring one point higher on the like school scale decreased. The highest percentage of decrease was amongst Black students, with a 20 percent decrease ($p < .05$). SES was not a significant predictor of Hispanic students' liking of school.

For the White, Hispanic, and Black models, students' relationship with their teachers was significantly associated with their liking of school. As the scale for students who get along with their teachers increases by 1, the odds of them scoring one point higher on the like school increased. The highest percentage of increase was amongst White students, with a 172 percent increase ($p < .001$). For the White and Hispanic models, good attendance was significantly associated with students' liking of school. For students with good attendance, the odds of them scoring one point higher on the like school scale is higher than students that do not have good attendance. The highest percentage was amongst Hispanic students, which was 61 percent ($p < .01$) higher than students who do not have good attendance. Good attendance was not a significant predictor of Black students' liking of school. Good grades were significantly associated with students' liking school. For students who have good

grades, the odds of them scoring one point higher on the like school scale is higher for White, Hispanic, and Black students. The highest percentage was amongst Black students, which was 47 percent ($p < .01$) higher when compared to all other races.

Students' involvement in an academic club was significantly associated with their liking of school. For students involved in an academic club, the odds of them scoring one point higher on the like school scale increased for White, Hispanic, and Black students. The highest percentage was amongst Hispanic students, which was 136 percent ($p < .001$) higher when compared to all other races. How far a student thinks they will get in the future was significantly associated with their liking of school. As the scale for how far a student thinks they will get in the future increases by 1, the odds of them scoring one point higher on the like school scale increased for White, Hispanic, and Black students. The highest percentage of increase was amongst Black and Hispanic students, with a 29 percent ($p < .001$) increase for both models. For the White model, free/reduced price lunch was significantly associated with students' liking of school. For students who attend a school with a higher proportion of free/reduced price lunch, the odds of scoring one point higher on the like school increased by 8 percent ($p < .01$). Free/reduced price lunch was not a significant predictor of Hispanic or Black students liking of school.

In sum, for the White model, the variables that help us understand students' feelings about school are: students get along with their teachers, students are recognized for good attendance/grades, students participated in an academic club, students predicted that they will get far in school, gender, socioeconomic status, students observed random metal detector checks in school, students observed a call button in the classroom, and students received free/reduced price lunch. Of all the

visible security measures included in this study, the presence of an emergency call button in the classroom is the best predictor of the dependent variable (students' feelings about school) for White students.

For the Hispanic model, the variables that help us understand students' feelings about school are: students get along with their teachers, students are recognized for good attendance/grades, students participated in an academic club, and how far students predict they will get in school. Of all the visible security measures included in this study, none were predictors of the dependent variable (students' feelings about school) for Hispanic students.

For the Black model, the variables that help us understand students' feelings about school are: students get along with their teachers, students are recognized for good grades, students participated in an academic club, how far students predict they will get in school, and socioeconomic status. Of all the visible security measures included in this study, none were predictors of the dependent variable (students' feelings about school) for Black students.

Discussion

The current research examined whether there was a difference in students' feelings about school when visible security measures were present. This study utilized a contemporary, nationally representative sample from the Education Longitudinal Study, 2002. This research contributes to the current literature by providing one of the first analyses to examine the following visible security measures all in one study. These visible security measures tested are random metal detector checks on students, closed campus for students during lunch, random dog sniffs to check for drugs, random sweeps for contraband, enforced strict dress code, use of cameras to monitor

school, emergency call buttons in classrooms, and an observed security guard. My study examines how the presence of these visible security measures influences U.S. 10th graders' feelings about school in ways that previous literature has not done. This study also uses Victor Rios' study as a theoretical framework to help with variable selection. Finally, this study contains one of the first analyses to test the effects of these specific school security measures on youth this age after controlling for student/teacher relationships, academic involvement/achievement and school disorder.

The results indicate that metal detector presence resulted in an increase of White students' liking of school. However, the results did not reflect a significant association between metal detector presence and Black and Hispanic students' liking of school. An observed call button in the classroom resulted in a decrease of White students' liking of school. The results did not reflect a significant association between an observed call button in the classroom and Black and Hispanic students' liking of school. All other visible security measures that were included as youth control complex variables in this study did not display any significant association with students' feelings about school. There may be a difference across all models due to the fact that metal detector presence makes White students feel safer, but they have no effect on the other races. The observed call button in classrooms may intimidate White students, but it has no effect on the other races. Black and Hispanic students seem to not be affected by these security measures when examining the race-specific models.

These results listed above are contrary to the previous literature. Prior work has argued that visible security measures have had adverse negative effects on students. For example, previous literature has noted that visible security measures, such as metal detectors, security cameras, security guards, drug-sniffing dogs, etc. may

negatively influence youth by promoting a culture of criminalization and fear, and creating negative expectations, which can result in student misbehavior (Goldstein, Young & Boyd, 2008; Mayer & Leone, 1999). However, my research shows that only certain visible security measures (observed random metal detector checks and an emergency call button in the classroom) have an effect on students. More specifically, these visible security measures only influence White students' feelings about school. While the presence of observed random metal detector checks in schools increases White students' liking of school, the presence of an observed call button in the classroom decreased White students' liking of school. However, none of the visible security measures present in this study appear to have an effect on Black and Hispanic students' feelings towards school at all. These findings reflect that visible security measures do not affect all students in the same way.

The overall lack of significance for these security measures is quite surprising. This may be because these security practices are not helpful or harmful for students. They may just be a waste of space and money. The focus could be ensuring that students develop closer bonds with the schools, teachers, and peers. These things can be done by decreasing the focus on visible security measures in schools and striving to develop a trustworthy environment, where students can come to learn and not feel like they are being labeled or hyper-criminalized.

These findings add to the significant body of literature that highly debates the differences that visible security measures have on youth. They have been explained to be both harmful and helpful for students. Rios finds that the youth control complex causes youth to be alienated from society, to see social institutions as against them, which leads them to often use crime as an act of resistance (Rios, 2011). However, my

results indicate that random metal detector checks are associated with an increased liking of school, but an observed call button in classrooms is associated with a decreased liking of school. The population that the literature said these visible security measures would impact the most (minority students), showed no significant association in my study. This finding adds new perspectives to the literature because now we see that visible security measures can be both helpful and harmful towards White students' feelings about school, but have little to no effect on Black and Hispanic students' feelings about school.

These findings may differ across racial groups because the experiences are different in school for each racial group. Minority students may be so used to the constant labeling and presence of visible security measures not only in their schools, but also in other social institutions that they attend (libraries, stores, home, etc.) that they grow numb to their presence. This could be why my findings show that the presence of these visible security measures had no influence on Black or Hispanic students' feelings about school. On the other hand, the presence of observed random metal detector checks and an emergency call button in classrooms could be something new for White students. The neighborhoods that White students grow up in may not have many visible security measures present because they are not needed. When they come to school they find that these random metal detector checks are done to prevent weapon presence and this makes them feel safe, causing them to like school more. However, the emergency call button in classroom may be a little extreme and cause White students to feel like they are in danger for having to have a call button in the classroom. They may not necessarily feel that they are the problem but the presence of an emergency call button can make them feel like they are in danger.

No study is without limitations, and this study has its limitations. The first limitation is that I only included one base year (2002) in this study. The results would have been broader if I included multiple years of data. Multiple years of data would allow me to have a larger sample size, making results easier to generalize. Also, including multiple years of data would allow me to see changes in the effects of visible security measures among students throughout the years. But for the purposes of this study, I felt it was necessary to include one year of research because it still provided me with a large sample size and it included all of the variables that I wanted to use in my study. The second limitation of this study is that the mean responses for my youth control complex variables were low. The lack of responses for these variables may have prevented me from having significant results for these variables. This limited my results because the variables that I thought would have an influence on students' feelings about school had absolutely no effect at all. The third limitation of this study is that my analysis is whittled down to a smaller sample size due to missing values on the cases. This decline in the sample size is due to the lack of responses to visible security measure questions in the study.

In the future, schools should be more selective about which visible security measures they practice in their schools. According to my results, these visible security measures can be more helpful than harmful. More specifically, my results indicate that an observed call button in a classroom results in a decreased liking of school for students in this study. Contrary to the previous literature, my results indicate that random metal detector checks in schools result in an increased liking of school for students. This finding was very surprising because this youth control complex is shown to have adverse negative effects on students (Rios, 2011).

Table 1 Descriptive Statistics for Variables (ELS, 2002)

Dependent Variable

Feelings about school	14801	1.13	0.58	0	2
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Independent Variables

Student-Level Variables

Academic Measures

Students get along with teachers	14662	2.8	0.59	1	4
Recognized for good attendance	14596	0.22	0.41	0	1
Recognized for good grades	14614	0.49	0.5	0	1
Ever in AP class	14477	0.18	0.39	0	1
Participated in school academic club	14938	0.09	0.29	0	1
How far in school student thinks they will get	13901	5.19	1.43	1	7

Gender

	15301	0.5	0.5	0	1
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Race Measures

White	15362	0.57	0.5	0	1
Hispanic	15362	0.15	0.35	0	1
Black	15362	0.13	0.34	0	1
Multiracial	15362	0.05	0.21	0	1
Other	15362	0.1	0.31	0	1
Family composition	15362	0.12	0.26	0	1
Socioeconomic status	15362	0.04	0.74	-2.11	1.82

School-level Variables

Youth Control Complex

Random metal detector checks on students	13389	0.1	0.3	0	1
Close campus for students during lunch	13423	0.69	0.46	0	1
Random dog sniffs to check for drugs	13513	0.44	0.5	0	1
Random sweeps for contraband	13351	0.23	0.42	0	1
Enforce strict dress code	13365	0.57	0.5	0	1
Use cameras to monitor school	13439	0.48	0.5	0	1
Emergency call button in classrooms	13423	0.54	0.5	0	1
Observed security guard at school	13479	0.64	0.48	0	1

Disorder Index

	12850	1.67	0.45	0.16	3.33
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Table 1 Continued

	N	M	SD	Min	Max
<i>Race Measures</i>					
Prop White	15362	0.57	0.33	0	1
Percent of students receiving free lunch	14107	3.15	1.94	1	7
Crime in students' neighborhood	13423	1.06	0.65	0	3
<i>Geographic region of school</i>					
Northeast	15363	0.18	0.38	0	1
Midwest	15363	0.25	0.43	0	1
South	15363	0.37	0.48	0	1
West	15363	0.2	0.4	0	1
<i>Type of school</i>					
Public	15363	0.78	0.41	0	1
Catholic	15363	0.12	0.33	0	1
Other private	15363	0.09	0.29	0	1
<i>School Urbanicity</i>					
Urban	15363	0.33	0.47	0	1
Suburban	15363	0.48	0.5	0	1
Rural	15363	0.19	0.39	0	1

MULTI-LEVEL ORDINAL LOGISTIC REGRESSION

Table 2 Multi-level Ordinal Logistic Regression Examining the Relationship Between Independent Variables and Students' Feelings About School (ELS, 2002)

<i>Independent Variables</i>	Odds Ratio (SE)			
Student-Level Variables	Model 1 (Main)	Model 2 (White)	Model 3 (Hispanic)	Model 4 (Black)
<i>Academic Measures</i>				
Students get along with teachers	2.57 (.10)***	2.72 (.15)***	2.5 (.26)***	1.86 (.19)***
Recognized for good attendance	1.33 (.07)***	1.3 (.09)***	1.60 (.26)**	1.30 (.18)
Recognized for good grades	1.40 (.07)***	1.40 (.09)***	1.40 (.19)**	1.46 (.21)**
Ever in AP class	.99 (.05)	1.07 (.08)	1.13 (.18)	.86 (.15)
Participated in school academic club	1.73 (.13)***	1.76 (.17)***	2.36 (.63)***	1.96 (.48)**
How far in school student thinks they will get	1.34 (.02)***	1.36 (.03)**	1.29 (.05)***	1.29 (.06)***
<i>Gender</i>	.72 (.03)***	.65 (.03)***	.83 (.10)	.87 (.11)
<i>Race Measures</i>				
Hispanic	1.62 (.13)***			
Black	1.49 (.12)***			
Multiracial	1.02 (.11)			
Other	.90 (.08)			
Family composition	.86 (.04)	.92 (.11)	1.09 (.08)	1.13 (.06)
Socioeconomic status	.84 (.03)***	.87 (.04)**	.83 (.08)	.79 (.08)*
<i>School-Level Variables</i>				
<i>Youth Control Complex Measures</i>				
Random metal detector checks on students	1.20 (.11)*	1.35 (.19)*	.93 (.22)	.91 (.17)
Close campus for students during lunch	.92 (.05)	.91 (.06)	.99 (.15)	1 (.17)
Random dog sniffs to check for drugs	.97 (.05)	1.01 (.07)	.95 (.16)	.86 (.15)

Random sweeps for contraband	.92 (.06)	.90 (.07)	1.29 (.22)	.91 (.15)
Enforce strict dress code	1.01 (.05)	1 (.07)	1.04 (.16)	.82 (.13)
Use cameras to monitor school	.96 (.05)	1 (.06)	.99 (.13)	.88 (.13)

Table 2 Continued

<i>Independent Variables</i>	Odds Ratio (SE)			
Student-Level Variables	Model 1 (Main)	Model 2 (White)	Model 3 (Hispanic)	Model 4 (Black)
Emergency call button in classrooms	.87 (.04)**	.82 (.05)**	.87 (.12)	.97 (.15)
Observed security guard at school	1.06 (.06)	1.09 (.08)	.89 (.15)	.93 (.2)
<i>Disorder Index</i>	.95 (.06)	.89 (.08)	.97 (.17)	.86 (.16)
<i>Race Measures</i>				
Prop White	0.82 (.10)	1.05 (.19)	.46 (.15)*	.72 (.23)
Percent of students receiving free/reduced lunch	1.06 (.01)***	1.08 (.02)**	.99 (.04)	1.08 (.05)
Crime in students' neighborhood	1 (.04)	1.03 (.06)	.91 (.08)	.92 (.07)
<i>Geographic region of school</i>				
Northeast	.90 (.07)	.93 (.09)	.87 (.20)	.83 (.19)
Midwest	1.05 (.07)	1.1 (.09)	1.05 (.23)	.74 (.16)
West	.99 (.08)	1.15 (.12)	.95 (.17)	.62 (.18)
<i>Type of school</i>				
Catholic	.96 (.1)	.92 (.12)	.65 (.19)	1.08 (.35)
Other private	1.17 (.13)	1.15 (.15)	1.16 (.38)	.92 (.36)
<i>School Urbanicity</i>				
Suburban	.97 (.06)	.93 (.07)	.91 (.13)	1.03 (.17)
Rural	.95 (.08)	.91 (.1)	.92 (.23)	.92 (.22)
N	9098	5603	1152	1030
Log likelihood	-7126.04	-4325.13	-890.79	-828.98
Prob > chi2	0.0000***	0.0000***	0.0000***	0.0000***

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