# VIDEO MONITORING DEVICES ON SCHOOL BUSES: ARE THEY EFFECTIVE IN REDUCING BEHAVIORAL PROBLEMS?

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(ABSTRACT)

The purpose of this study was to evaluate the effectiveness of video monitoring devices (VMDs) in reducing incidents of student misbehavior on middle school buses. It was hypothesized that the presence of VMDs would decrease the frequency of behavioral problems encountered by school bus drivers, decrease the number of discipline referrals issued by the drivers, and improve the drivers' perception of student behavior.

The study utilized an experimental design with random assignment of drivers to treatment and control groups. These groups were formed from a population of 282 drivers who serve ten middle schools for Virginia Beach City Public Schools. In the summer of 1993, through a randomization procedure, VMDs were installed on 100 school buses to form the treatment group. The remaining 182 school buses did not receive installation and were designated as the control group.

All drivers maintained a daily log of the number of discipline problems encountered on their routes for three 15-day intervals. Statistical analysis revealed a significantly lower number of problems in the treatment group. Secondary analysis indicated that the use of VMDs was ineffective on morning routes, but effective on

afternoon routes. Also, there was a significantly lower number of discipline problems in the treatment group regardless of the day of the week.

As the drivers established rapport and control, both groups experienced a decline in the number of discipline problems throughout the experiment. The treatment group, however, recorded a significantly lower number of problems during each of the three 15-day intervals. This indicates that the students did not become desensitized to the presence of the VMDs over the five month experiment.

At the conclusion of the study, drivers in the treatment group rated the behavior of their students more highly than the rating of students by drivers in the control group. A tally of the number of discipline referrals issued by the drivers revealed that the members of the treatment group experienced fewer severe disciplinary problems.

Finally, multiple regression indicated that of all independent variables, group membership is the best predictor of number of behavioral problems, discipline referrals issued, and driver perception of student behavior.

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# CHAPTER I

## Introduction

In June 1990, a fifteen-year-old special education student pulled a knife, threatened the bus driver, and tried to take the bus monitor hostage as he attempted to commandeer a school bus in Canton, Georgia. When the bus monitor refused to cooperate with the boy, he cut the wires on the bus's two-way radio, jumped out of the vehicle and fled into the woods nearby. There were fifteen students on board the bus, but no injuries were reported (Transporting Handicapped Students, 1990, June 15, p. 3).

On October 15, 1990, in Erwinville, Louisiana, a four-year-old student was run over by his own bus moments after disembarking. The bus driver later told authorities, "I had been fussing with some children" who were misbehaving in the back of the bus. He had driven away without thinking of the young child crossing in front of the school bus (School Transportation Director, 1990, October 24, p. 3).

In Pine Top, Kentucky, a school bus overturned and slid down a 60-foot embankment injuring 23 students. This accident occurred on October 24, 1991, when the bus driver apparently lost control on a curve in the road. The bus with 30 students aboard eventually came to rest in a shallow creek. The students later testified that a paper-wad fight had preceded the crash (School Transportation Director, 1991, October 30, p. 5).

In January 1992, Chesterfield County, Virginia, agreed to pay one million dollars as an out-of-court settlement to the family of a girl who had been run over by her school bus two years earlier. The school bus driver testified that she had been distracted by unruly passengers as the girl crossed in front of the bus (School Transportation Director, 1992, January 22, p. 7).

A seventeen-year-old Birmingham, Alabama, student was killed on a school bus September 4, 1992. Her head, which was out of the window of the moving bus, was struck by a utility pole (School Transportation Director, 1992, September 9, p. 8).

Although they are relatively rare, these incidents illustrate the unfortunate consequences of inappropriate student behavior on a school bus. It is critical that student conduct be controlled while the vehicle is in motion or in the process of loading or unloading passengers. Unruly, loud, or boisterous behavior may distract the driver in such a manner that the bus could be involved in a crash resulting in multiple injuries or deaths.

Even seemingly minor infractions of safety regulations such as standing or placing extremities through the school bus windows may lead to injury. Passengers who are not properly seated during a school bus crash may sustain unnecessary injuries while endangering others as they are thrown about inside the passenger compartment (Transportation Research Board, 1989).

Experts in the pupil transportation field have always agreed that student control is fundamental to the safety of the children on a school bus. Stewart (1989) stated

that a successful system of maintaining adequate student control must strive toward recognizing safety procedures and minimizing disciplinary problems so that potentially dangerous situations are "nipped in the bud" before they can occur. Button (1988) felt that maintaining good discipline on the bus was essential since horseplay or other undisciplined actions might distract the driver and lead to accidents.

## Statement of the Problem

Although disciplining students is a daily duty for many school employees, only school bus drivers need to do so with their backs turned to the students while operating an eleven-ton vehicle carrying two to three times as many children as the typical classroom holds (Odum, 1992). D. L. Pace, President of the Virginia Association of Pupil Transportation (personal communication, June 15, 1993) added, "We have a saying that school bus drivers are the only people in the world who have all their problems behind them."

In order to assist school bus drivers and improve the safe transport of students, many school districts have found it necessary to implement programs for monitoring student behavior on the bus. Due to the unusual working hours and fragmented working day, volunteer bus monitors have been difficult to obtain. Therefore, some small school divisions have considered the employment of salaried bus monitors. The cost of this type of program could be astronomical for a larger school division. For example, a transportation department that employs 100 monitors at minimum wage

would need to allocate nearly 1/2 million dollars per year in salaries and benefits (see Table 1).

There has recently been a trend toward the use of video monitoring devices to observe student behavior on school buses. The installation of these devices for a fleet of 100 buses would involve only a one-time start up investment of just over $20,000 (see Table 2). This program may be more cost efficient than the employment of salaried bus monitors, but is it effective in reducing student behavioral problems?

## Purpose of the Study

The purpose of this study is to evaluate the effectiveness of the presence of video monitoring devices in reducing student behavioral problems on middle school buses.

## Significance of the Study

The results of this research may prove beneficial to school divisions which are considering the implementation of a video monitoring device program on school buses. The study provides detailed demographic data so that readers may determine whether the findings are appropriate for their particular needs.

## Definitions

Video Monitoring Device: a black box located in the front interior of the school bus, which may or may not contain a video camera concealed behind a two way mirror

Table 1

Annual Cost for the Employment of 100 Adult Monitors at Minimum Wage ($4.25/Hour)

| | One Monitor | 100 Monitors |
|---|---|---|
| A. Daily Pay @ 5 Hours/Day | $ 21.25 | $ 2,125.00 |
| B. Annual Pay @ 180 Days | 3,825.00 | 382,500.00 |
| C. Benefits (25% of Pay) | 956.00 | 95,600.00 |
| D. Total Annual Salary (B+C) | $4,781.00 | $478,100.00 |

Table 2

Cost to Install VMDs on 100 School Buses

| Item | Cost |
|---|---|
| A. 100 Black Boxes @ $100.00 each | $10,000.00 |
| B. 10 Video Cameras @ $1,100 each | 11,000.00 |
| C. Total Cost (A+B) | $21,000.00 |

Note. The cost of a black box includes installation. The cost of a video camera includes video tapes and all accessories.

School Bus: Each vehicle in this study is a 64-passenger, Type C school bus (a body installed upon a flat black cowl chassis with a vehicle weight rating of more than 10,000 pounds, designed for carrying more than ten persons. All of the engine is in front of the windshield and the entrance door is behind the front wheels.)

Middle School Student: a student who attends a school designated to serve grades six through eight

Behavioral Problems: will be measured in three ways:

1. Acts of Misbehavior: the number of acts of misbehavior performed by the students and tallied by the driver on a daily basis;

2. Discipline Referrals: the number of discipline referrals issued by the school bus driver for severe acts of misbehavior; and

3. Driver Perception: the school bus driver's perception of student behavior on the bus as indicated on a ten point scale.

## Delimitations

The scope of this study is limited to the students and school bus drivers at ten middle schools in the Virginia Beach City Public Schools as part of a pilot program in the use of video monitoring devices. Because 80 percent of the discipline referrals issued by school bus drivers are in response to misbehavior by middle school students, this study focuses on that particular age group. This study does not include school buses that are used to transport students with special needs. All special education buses are currently staffed with salaried monitors.

## Organization of the Study

This study has been organized into five chapters. Chapter I contains the background information, statement of the problem, purpose of the study, significance of the study, definitions, and delimitations. Chapter II contains a review of the literature regarding behavioral problems on school buses, the use of volunteer and salaried school bus monitors, and related research involving the legality and effectiveness of video monitoring devices on school buses.

In Chapter III the research methodology is presented. Topics include the type of research, description of the population, data-gathering instruments, data-gathering procedures and strategies, and methods of statistical analysis.

The findings of the study are reported in Chapter IV. Information is provided to assist in answering the research questions posed earlier in the study. Chapter V provides a summary and discussion of the study's findings, plus recommendations for further study.

# CHAPTER II

# LITERATURE REVIEW

## Introduction

The National Highway Traffic Administration (1985), in a special report, claimed that school buses are the safest form of surface transportation. This claim was supported by the Transportation Research Board in Special Report 222 (1989). This latter report stated that even though school buses transport more passengers per trip, the rate of occupant fatalities per mile driven for school buses is about 25 percent less than that for passenger cars. Altogether, an average of 17 occupants are killed annually while riding school buses or vehicles used as school buses (i.e., 0.5 occupant fatalities per hundred million vehicle miles traveled). By comparison, passenger cars are driven 1.3 trillion miles each year and about 25,000 drivers and passengers are killed (i.e., 1.9 occupant fatalities per hundred million vehicle miles traveled). Considering that the occupancy rate for school buses is typically many times higher than for passenger cars, the relative safety of school buses compared with passenger cars is all the more impressive.

In the 1990-1991 school year, 350,000 school buses nationwide traveled 4.3 billion miles to transport 22 million students per day. During that year school buses were involved in 26,000 accidents that resulted in injuries to 11,000 persons. Of that number, 7,700 of the injured were students (School Transportation Director, 1992, October 14, p. 7).

During that same time period, Virginia's 10,491 school buses traveled nearly 93,000,000 miles to transport 768,601 pupils per day. There were 977 accidents that involved injuries to 106 students (School Transportation Director, 1992, October 14, p. 7).

The National Safety Council, in its 1992 accident report, estimated that 100 persons were killed nationwide in school year 1990-1991 as a result of school bus transportation accidents (School Transportation Director, 1992, October 14, p. 6). In the previous year, school bus accidents accounted for 90 deaths (Sieder, 1991).

While school bus transportation is considered to be a very safe form of pupil conveyance, the chance of a tragic accident is still highly possible. While many of these accidents are the result of nonpreventable factors (caused by other vehicles or road conditions), it is disheartening to learn that an unacceptable number of crashes are precipitated by distractive actions of the passengers on the school bus. Chapter I of this study opened with descriptions of several situations in which student behavior led directly to serious injuries or fatalities of fellow passengers.

School and pupil transportation officials have initiated a variety of strategies aimed at reducing or eliminating potentially dangerous student misbehavior on school buses. Reaffirmation of administrative support, continuation of inservice training for school bus drivers and, more recently, an extension of the school curriculum to include instruction for school bus riders are typical methods utilized by the more successful school officials (Association of School Business Officials, 1987). Some school divisions have decided to add personnel to school buses as monitors of student

safety and behavior. Other school divisions which cannot afford that type of program have elected to install video monitoring devices (VMDs) on their school buses.

Administrative Support

Button (1984) stated that the lack of administrative support and inconsistent handling of student problems leave school bus drivers vulnerable to failure when carrying out the responsible, safe passage of the students under their control. Drivers are limited in exacting individual student disciplinary measures on their buses; therefore they rely on school administrators to handle the more serious problems and to disperse appropriate punishment, such as suspending bus riding privileges. The danger is that the nonresolution of these disciplinary problems can lead to minor injuries, major injuries or fatalities if they are casually dismissed by an administrator. The irony is that the driver is held responsible. School bus drivers can only go so far in their efforts to maintain proper control: if administrative support is not forthcoming, the entire disciplinary system of student transportation is threatened.

Many school bus drivers perceive that they do not receive the proper support from school administrators in disciplinary matters. In many instances, when students are referred to the administration for disciplinary reasons, the students deny any misbehavior and the deciding factor results in a showdown between the students' word and the driver's word. It becomes an embarrassing condition when the school official finds it necessary to interview other students on the school bus in order to gather evidence in support of either the accused student or the driver.

When administrators do support a driver without consulting other students as witnesses, they are sometimes confronted by parents who claim that their child is innocent and incapable of any type of misbehavior. This places the administrator in a difficult situation. The task of the administrator would therefore be much easier if some type of student monitoring program were available.

Farmer (1988) stated that the school district should have the responsibility of teaching children the basic rudiments of good citizenship along with the content of the academic curriculum. An officially-adopted, uniformly-administered and rigidly-enforced code of discipline should curtail vandalism, promote respect for school employees and aid in the overall efficiency of the school bus operation. Any effective disciplinary program, however, is contingent on the support of the school administrators. The behavior of nonconforming students must be changed before they endanger the lives of other children (Farmer, 1984).

School Bus Driver Training

The Transportation Research Board (1989) recommended that all states establish minimum criteria for school bus driver training in pupil management prior to transporting children. The Commonwealth of Virginia had earlier anticipated this need and required that all potential school bus drivers receive a minimum of twelve hours of preservice classroom instruction, which included methods of student control.

School bus drivers, unfortunately, are not usually extensively educated in child or adolescent psychology. Their skills in handling student behavior are usually

instinctive and cultivated through personal experience. The Association Of School Business Officials (1987) reported that dealing with a variety of problems is considerably more difficult for inexperienced drivers. Drivers who are yet to acquire the patience, experience, and tact to deal with the typically vocal and often rebellious junior high schooler are frequently subjected to major problems. Turnover is high among school bus drivers, and few are employed long enough to come up with effective solutions to bus discipline entirely on their own (Trotter, 1987). Therefore, it is imperative that school officials be aware of the experience of the school bus drivers in their employ and provide them with the appropriate training and support.

Discipline Through Curriculum

The Department of Education for the Commonwealth of Virginia has instituted a curriculum aimed at students in kindergarten through third grade. This program, A Shared Responsibility, was initiated in the 1991-1992 school year and focused on safety and proper behavior on the school bus. Packets of lesson plans and teaching aids were distributed to all local education agencies with the intent of assisting them in promoting the protection and safety of children who ride school buses. It was thought that early training would carry through the students' ensuing school years. If this program proves successful, the frequency of behavioral problems at the middle school level should begin to decrease within the next four to six years.

Personnel as School Bus Monitors

In some cases, additional action needs to be taken to supplement administrative support, effective school bus driver training and curriculum measures. Such action involves the acquisition of personnel to act as monitors of safety and behavior on school buses. The Transportation Research Board (1989), in its review of school bus safety, stated

> To many, the belief that student behavior can be modified through classroom instruction is little more than wishful thinking. Instead they advocate putting monitors on school buses to ensure proper behavior. Monitors could ensure that students remained in their seats with heads and arms inside the bus, and they could reduce driver distractions through better control of the students.
>
> It is generally agreed that the use of school bus monitors would enhance school bus safety; however, opponents of the program argue that staffing school buses with monitors nationwide would be impractical. Even if 390,000 [number of school buses in the United States in 1988] responsible adults could be found to serve as school bus monitors, the cost for their services would be prohibitive, beyond the resources of most school districts.

Several school divisions, though, have found the means by which to implement school bus monitor programs. In Washington, D.C., where the majority of students either walk to school or ride Metro buses, school buses are staffed with attendants

who are available to discipline students while the driver is behind the wheel (Leff, 1992).

Parents and school officials have sought to make school buses safer by employing school bus monitors in Buffalo, Rochester, and the Connecticut towns of North Haven and Westport. In Rhode Island, monitors are mandated by state law (Adding an Extra, 1992).

The Connecticut General Assembly's transportation committee voted down a proposal to put adult monitors on all elementary school buses. The negative vote came despite an increase in the number of advocates favoring the idea. The monitor program would have cost the state $15 million to $20 million and was a major reason why the idea failed (School Transportation News, 1993, June, p.8.).

A legislative task force in Minnesota has recommended that adult monitors be placed on every bus that carries children in kindergarten through fourth grade. This action was in response to a study that showed the leading causes of school bus accidents in that state to be driver inattention and distraction. The responsibility of the monitors is to train children early that the bus is part of the school day and that there needs to be reasonable order on the bus with consequences for misbehavior (School Transportation News, 1993, November, p. 18).

The city of North Branford, Connecticut, has eliminated the employment of school bus monitors through cuts in the education budget. The Bus Safety Committee for the school district had conducted a survey to determine the effectiveness of a twenty-day pilot program. The results showed favorably, almost 4 to 1, that the

monitors were helpful. However, the town council felt that the $100,000 price tag could not be justified for a program that is just used to "end up disciplining kids." (School Transportation News, 1993, August, p. 8).

An innovative program was recently instituted in Canada. Welfare recipients were trained as bus monitors and put to work on board twenty school buses operated by the Taillon School Commission of St. Hubert, Quebec. Under this pilot job training project, administered by the Province of Quebec, welfare recipients can earn additional money by working up to twenty hours a week on the afternoon school bus routes. Several other Quebec communities had tried the idea and reported favorable results. It is estimated that up to 9,500 welfare recipients could be employed as bus monitors if the program were to grow province-wide (School Transportation Director, 1992, October 14, p. 4).

Not all school divisions are successful at obtaining personnel for a school bus monitor program. Pinzone (1993) described the difficulties in obtaining school bus monitors in Westport, Connecticut. School officials there concluded that a monitor program that relied solely on volunteers would not be successful due to the limited availability of volunteers. Advertisements for paid positions began in July of 1992, but it was six months into the school term before officials could fill the 23 positions needed.

A request for 30 volunteers was offered to the PTA at a middle school in Virginia Beach, Virginia, in the fall of 1992. Only one parent volunteered, but she relinquished her position after two days, citing the unusual working hours and

fragmented working day as reasons for her resignation. The typical hours for such a position are 6:30 A.M. to 9:00 A.M. and 1:30 P.M. to 4:00 P.M.

## Use of Video Monitoring Devices (VMDs)

Over the past several years there has been a trend toward the use of VMDs to monitor student behavior on school buses. School divisions which have decided to implement this type of program have usually done so after exhausting the options of volunteer or salaried adult monitors.

Video monitoring devices have been developed to aid the bus driver with student management. Identifying which student is responsible for disruptive behavior while safely operating the bus is a major problem for the school bus driver. The use of VMDs has the potential to provide the driver most of what would be the benefits of another person on the bus without the extraordinary cost implications (School Transportation Director, 1990, November 21, p. 5).

A review of the literature provided insight into the positive and negative aspects of VMD programs as well as several unanticipated spinoffs. In addition, this researcher had a letter to the editor published in the October/November, 1993 issue of School Bus Fleet (Slavinsky, 1993), requesting information and opinions concerning the use of VMDs. Some of the responses have been incorporated into the following sections.

Positive Aspects of VMD Programs

A number of school divisions have professed success with VMD programs. A school official in San Angelo, Texas, reported (School Transportation Director, 1992, October 28, p. 5) the results of a trial program with VMDs. He found at the end of a three-month trial that the number of bus incident referrals sent to principals for disciplinary reasons declined by 40 percent on two buses equipped with VMDs. The success of that experimental program prompted the school division to equip all regular buses with VMDs at an average cost of $750 per bus. The result was an overall 45 percent reduction in the number of discipline referrals.

Prince George's County, Maryland, officials were so pleased with the success of their current VMD program that they have approved $28,000 for the purchase of 30 to 40 additional video cameras for use on school buses. Currently, 100 cameras are in use on 400 of the system's 750 school buses (School Transportation Director, 1993, March 17, p. 7).

G. W. Bishop, a school official from Blacksburg, Virginia, recounted this experience (School Transportation Director, 1992, October 28, p. 4):

> What sold me on the camera was when a parent of a child we had been having problems with--and who consistently denied any wrong doing and was supported by the parents in that denial--was invited to my office to view the tape of two days of the student's bus route. After sitting almost speechless while watching, the parent left with a renewed understanding of the tough job

all bus drivers have, total support for the driver's actions and a need for a long talk with the student.

School officials in Chicopee, Massachusetts, reported that VMDs are inexpensive to use, especially when compared to the cost of adult monitors. The employment of monitors on 48 school buses had cost the district $100,000 the previous year, while cameras on twenty buses in the current year cost just $7,000 (School Transportation Director, 1992, September 9, p. 3).

P. R. Matherne (personal communication, November 3, 1993), director of transportation, St. Charles Parish Public Schools, Louisiana, wrote to express her satisfaction with the VMD program in her school division. They began using 35 black boxes and six cameras in 1992 and discipline problems have almost completely come to a halt on the buses equipped with VMDs.

S. Adkins (personal communication, November 4, 1993), coordinator of transportation for Spartansburg County Schools, South Carolina, expressed the opinion that the program in his school district has been successful. He wrote that VMDs "make believers out of children" and that the VMDs are the "drivers' best friend."

The editorial staff of School Bus Fleet (Henke, 1993) plans to survey district transportation directors and bus contractors on whether they are using VMDs and how well the devices have worked. That information will be published in a future issue of the magazine.

Negative Aspects of VMD Programs

H. Hilkey (personal communication, November 10, 1993), director of transportation for Fontana United School District, California, wrote that his department declined the Board of Education's offer to install VMDs in their school buses. He cited anticipated problems with maintenance and implementation strategies as reasons for rejecting the program. He also reported that school divisions in southern California have experienced some measure of desensitization about the presence of VMDs. The VMDs seem to have lost their effectiveness after the first three or four months.

G. Butterfield, deputy director of the National School Safety Center, felt that the technological solution may not be the best approach. He opts for the more traditional methods of student discipline: "If there is a way to get the students working with you and for you, that would be a much better approach." (School Transportation Director, 1992, September 9, p. 3).

R. C. Rost (1993), President of Minnesota Body and Equipment Company, had very strong feelings against the use of VMDs. He stated that:

> "It is a sad day when we resort to cameras and black boxes to take the place of teaching, discipline, strong administrators and old-fashioned values. A camera on every bus won't stop our children from being harassed by a bully or being taunted by a child whose parents are bigoted and have taught their child racial intolerance.

It is our number one mission in life as administrators, teachers and transportation people to teach harmony among the children. Black boxes and cameras are not the answer, only a fad and an easy way out."

S. Comstock-Gay, Executive Director of the American Civil Liberties Union, Maryland, stated: "It's [the use of VMDs] troubling. I don't know if it's illegal, but it's troubling, conditioning the youth of America that there might always be an anonymous person watching them. There is something disturbing about it and we should tread lightly." (School Transportation Director, 1992, September 9, p. 3). However, J. Vose, the President of Safety Consultants Marketing in Springfield, Illinois, which has sold 3,500 VMDs, stated that there are no legal problems as long as students and parents know the system is in place (Riede, 1993). In order to fully explore this concept, Chapter II of this study concludes with an in-depth analysis of the legality of VMDs.

K. Cogdell, Director of Transportation, Leander, Texas, described how his school division realized a 70-percent reduction in misconduct reports after 15 days of VMD use. Once the students became used to the system, however, misconduct escalated. By the end of the year, there was only a 30-percent reduction in misbehavior on school buses (Sweeney, 1992). J. Root (1992) stated that it is possible that the immediate impact of the VMDs in reducing discipline problems on buses may diminish over time. The novelty of the program may be responsible in some part for students behaving better. However, VMDs will continue to be used as

a valuable tool for providing accurate, timely and unbiased resolutions to student behavior problems.

A school division and its administrators may be held liable for failing to protect adequately the interests of the students within their charge (Wood & Ruch, 1986). For example, a five million dollar claim has been filed against the Antelope Valley Schools Transportation Agency in Lancaster, California, over an alleged rape on a publicly-operated school bus. The claim was filed by the mother of a fourteen-year-old emotionally disturbed girl, one of two female teenagers who were allegedly raped by a twelve-year-old boy. The claim suggests that the bus agency allowed an "unsafe and hazardous environment" to exist on the school bus that contributed to the attacks. The school bus driver reported that she was unaware of the assaults (Transporting Handicapped Students, 1990, October 5, p. 3). Several questions arise here. How would this situation have been resolved if that school bus were equipped with a VMD? How would the parents have reacted if funds for implementation of a VMD program were allotted but declined by the bus agency?

Spinoff Uses of VMDs

R. McCracken (personal communication, July 1993), Superintendent of Giles County Public Schools, Virginia, reported that his school division has installed VMDs on twenty of forty buses in the fleet. While they have not yet evaluated their effectiveness in reducing behavioral problems, school officials have discovered an unexpected use for the video tapes. The tapes are now being used as a training

device for school bus drivers. The drivers view acts of student misbehavior and are provided with tips on how to handle specific types of disruptions.

In addition to monitoring the behavior of students, the VMDs have been used in Leander, Texas, to monitor the behavior of school bus drivers. Officials have assured the drivers' union, however, that the video tapes will not be used to discipline drivers. They will be used exclusively as training films. (School Transportation Director, 1992, May 27, p. 3).

B. Howell, Superintendent of Grape Creek Schools, Texas, pointed out some beneficial side effects of the use of VMDs. They can improve the drivers' public relations skills, and drivers can perform self-evaluation by reviewing the tapes. In one instance, the camera was used to video tape a driver notorious for running the school bus' red flashing lights (School Transportation Director, 1992, October 28, p. 5).

## VMD Use and the Fourth Amendment

Before the VMD program was subjected to a measure of its effectiveness, it was necessary to determine its legal basis. Is it an infringement of the students' Fourth Amendment right to reasonable expectation of privacy?

A review of the literature revealed two excellent law reviews which illustrated the current status of electronic surveillance and its relationship with the Fourth Amendment of the United States Constitution. Greenfield (1991) provided a thorough background of these devices in the field of criminal law, while Schreck (1991)

advanced relevant views of the legality of the use of electronic surveillance by public school administrators. Both sources were cited extensively as the basis for this section.

The Fourth Amendment reads in full, "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized." (U.S. Constitution, Fourth Amendment.)

Surveillance Issues in General

As technology steadily increases the quality of video cameras and decreases their size, more and more government agencies are relying on them as surveillance devices. Greenfield (1991) asserted that electronic visual surveillance (EVS) has become one of the most intimidating weapons in a modern police officer's arsenal because it can substitute for the eyes of law enforcement officials in places where it would be impossible to be present physically. This allows a much deeper infringement into privacy than devices such as "bugs" and wiretaps. How then does the Supreme Court apply the Fourth Amendment to EVS?

The threshold question in Fourth Amendment inquiries is whether a specific government act constitutes a search. A search occurs when government surveillance violates an individual's "reasonable expectation of privacy." If the act is a search, the Fourth Amendment mandates two separate but related requirements. First, search

warrants must be supported by a showing of probable cause and must describe with particularity the place to be searched and the people or things to be seized. The second requirement is one of reasonableness or, more precisely, of absence of unreasonableness, for the Amendment protects individuals from unreasonable searches and seizures (Greenfield, 1991).

Warrant requirements mitigate the danger of government intrusions by forcing law enforcement officials to gain approval from a neutral magistrate before conducting a search. Approval is granted only if the officials meet the probable cause requirements by showing that there is a substantial probability that certain items are evidence of crime and that these items can be found at a certain place at a specific time. This particularity requirement is a safeguard against the dangers of general warrants, which would allow law enforcement officials excessive discretion to search a person indiscriminately in the hope of finding evidence of criminal activity (Greenfield, 1991).

In Berger v. New York (1967), the Supreme Court struck down a statute allowing electronic surveillance without strict regulation, finding that the infringement on privacy was as "equally offensive" as those of a general warrant. Greenfield (1991) described four particularity requirements established by the Court: First, a warrant must particularly describe the crime to which surveillance relates, the information to be intercepted, the place where it is to occur, and the people whose conversations are to be seized. Second, the search must minimize surveillance of those unconnected to the crime under investigation. Third, surveillance may be

allowed for only a limited duration. Finally, the search may proceed without prior or concurrent notice only where exigent circumstances are shown.

The presence of a warrant, however, is not always determinative for finding reasonableness. The Court stated that there can be no ready test for determining reasonableness other than by balancing the need to search against the invasion which the search entails. The Court now describes "balance of competing interests" as the key principle of the Fourth Amendment (Greenfield, 1991).

When officials use EVS in nonpublic areas and without the consent of a person present, the surveillance in most cases constitutes a search. Generally, EVS "discloses intimate associations, objects or activities otherwise imperceptible" (California v. Ciraolo, 1986) and would constitute a search in places such as homes, offices, hotel rooms and public washrooms. Exceptions would be limited to places where people would not have a reasonable expectation of privacy. If EVS is to take place in areas like streets, where the target is open to public view, the target has no reasonable expectation of privacy because she knowingly exposed herself to public view (Fishman, 1988).

Surveillance Issues in the Public Schools

The issue of search and seizure in the public schools balances primarily on whether or not the court views the school administrator as a parent (*in loco parentis*) or a police officer. To assume that the school administrator represents the state and

seeks to obtain seized goods for purposes of criminal prosecution would require a warrant (Alexander & Alexander, 1985).

The Court has held that some searches that do not require a warrant or probable cause must nevertheless be supported by a level of suspicion lower than probable cause, known as reasonable suspicion. These searches include brief investigative detentions known as "stop and frisk," employer searches of government employees' desks, and public school searches of students and their possessions (Schreck, 1991).

Schreck described circumstances under which the Fourth Amendment does not apply: consent searches, searches by private citizens, and searches of places and objects to which a person has no reason to expect privacy. The Court has explained that the Fourth Amendment only applies to government intrusions upon a citizen's reasonable expectation of privacy, that is, a person's actual expectation of privacy that society is prepared to recognize as reasonable.

Schreck pointed out two serious consequences of violations of Fourth Amendment requirements: application of the exclusionary rule and tort liability. The exclusionary rule prevents the admission of illegally-seized evidence in criminal trials. The Supreme Court has held that the exclusionary rule is the only effective way to deter police from violating constitutional restrictions. On the other hand, school officials may be held liable under Section 1983 of the Civil Rights Act of 1871 for damages that result from deprivation of Fourth Amendment rights.

If video monitoring devices (VMDs) were challenged as a violation of the students' reasonable expectation of privacy, school officials would find it difficult to discipline students "caught in the act" on video tape. Fortunately, the Supreme Court in New Jersey v. T.L.O. (1985) expressly refused to decide whether the exclusionary rule is the appropriate remedy for violations by school officials, contending that deterrence would be minimal and the social costs would be too great. It would permit students to avoid the consequences of their misconduct, undermine respect for the law, interfere with the relationship between teachers and students, and perhaps encourage others to engage in misconduct.

In New Jersey v. T.L.O., the Court held that school officials are government officials when they conduct searches of their students. However, the Court did not require school officials to obtain warrants because such a requirement would "unduly interfere with the maintenance of the swift and informal disciplinary procedures needed in the schools." Instead of requiring probable cause to justify a search, the Court accommodated the school's substantial need to maintain order by requiring only reasonable suspicion. To justify the decision to search, there must be "reasonable grounds for suspecting that the search will turn up evidence that the student violated the law or the rules of the school." Furthermore, the search must be reasonable in its scope and not excessively intrusive in light of the age and sex of the student and the nature of the infraction (Schreck, 1991).

Schreck (1991) delineated the difference between particularized and nonparticularized suspicion. Particularized suspicion refers to suspicion that a

particular individual has engaged in misconduct. Nonparticularized suspicion includes situations in which suspicion is directed at the student body in general or a certain segment of the student population.

The Supreme Court in New Jersey v. T.L.O. refused to decide whether particularized suspicion is an essential element of the reasonableness requirement. The Court stated however, that exceptions to the requirements of particularized suspicion are generally appropriate only where the privacy interests implicated by a search are minimal and where safeguards are available to assure that the individual's reasonable expectation of privacy is "not subject to the discretion of the official in the field." It is for this reason that school bus drivers are required to erase the video tapes after every uneventful trip.

Schreck (1991) felt that schools might be permitted to employ EVS devices to monitor the publicly visual conduct of students, e.g., television cameras in school hallways on the theory that the Fourth Amendment is not implicated because there is no intrusion upon students' privacy expectations. S. Comstock-Gay, Executive Director of the ACLU in Maryland, expressed the opinion that the use of VMDs on school buses "kind of smells of Big Brother, but it's difficult to argue that you have an expectation of privacy in a place like a school bus when hundreds of people can see you through the window." (Sweeney, 1992.)

Summary

In conclusion, it seems apparent from the literature that a school division may legally proceed with a VMD program. As stated earlier, the threshold question in Fourth Amendment inquiries is whether a specific government act constitutes a search. A search occurs when government surveillance violates an individual's reasonable expectation of privacy. Since students riding on a school bus are always clearly in public view, the use of VMDs may not be considered an intrusion of the students' reasonable expectation of privacy and therefore may not be interpreted as a search.

School bus drivers have a difficult time observing both the road ahead of them and the students behind them; VMDs act as a second pair of eyes to identify students who are misbehaving. New Jersey v. T.L.O. provided school officials with considerable discretion in methods aimed at maintaining order and safety for the welfare of the students. With this in mind, the school division must balance the slightly intrusive nature of the VMD program with the high priority need to transport the students in the safest manner possible.

# CHAPTER III

# METHODS AND PROCEDURES

## Introduction

In June 1993, staff members of the pupil transportation office determined that intervention was necessary to curb student misbehavior on the district's school buses. A year end comparison of the number of student discipline referral forms issued by school bus drivers revealed a twenty percent increase over the previous year's total. It was also noted that eighty percent of the total number of referrals involved students of middle school age.

The division's school bus drivers overwhelmingly agreed that this escalation in the level of student misbehavior had become a major concern. Middle school drivers were especially vocal. Many drivers expressed anxiety over the increasing frequency of violent misconduct such as personal verbal assaults, fighting, and student weapon possession. They welcomed the possibility of improving safety on the school buses.

Previous attempts at obtaining volunteer bus monitors for the beleaguered drivers had been futile. One solitary volunteer relinquished her position after only two afternoon trips. She cited the unusual working hours and fragmented work day as reasons for her resignation. The typical hours for such a position are 6:30 A.M. to 9:00 A.M. and 1:30 P.M. to 4:00 P.M.

The transportation staff quickly dismissed the concept of hiring salaried personnel to act as school bus monitors. The annual cost of such a program would

approach two million dollars in salary and benefits -- well beyond the economic means of the school division.

It was finally agreed to employ the use of video monitoring devices (VMDs) on a limited basis as a pilot program. Bids were received and the school division accepted an offer to purchase 100 "black boxes" at one hundred dollars each and ten video cameras at $1100 each. If the devices were found to be effective in reducing behavioral problems, the school division would consider installing them on the remaining 300 regular education school buses.

Due to the great expense of video cameras, it was not deemed cost efficient to place one on every bus. At a ratio of one camera to every ten black boxes, the total cost would be $84,000. Since all buses would not carry a video camera at all times, the methodology of this study was designed to determine the effectiveness of the presence of the VMD rather than the camera itself.

The purpose of this chapter is to describe the methods and procedures used to evaluate the effectiveness of VMDs in reducing behavioral problems on school buses. The chapter opens with a description of the research design including methods of selection and assignment of subjects. This section is followed by a segment which provides information for validation of the study. The remainder of the chapter discusses the pretreatment, treatment and posttreatment strategies employed in the study.

## Type of Research

This study utilized a true experimental design with random assignment of school bus drivers and their buses to treatment and control groups. These groups were formed from school bus drivers who serve ten middle schools in the Virginia Beach Public Schools.

There are currently fourteen middle schools in the division. Four of these facilities were excluded from this study because they did not meet the stated operational definition of a middle school. One serves sixth grade students only, a second serves just sixth and seventh graders, a third serves as an alternative school, and the fourth is a rural school in which a large portion of the student body is transported along with high school students.

In August 1993, VMDs were installed through random assignment on ten buses at each of the ten eligible middle schools to form the treatment group (N = 100). The remaining buses at each school were designated as the control group (N = 182) (see Table 3).

One video camera was available to each of the ten middle schools and was rotated within each group in a random fashion at pre-established time intervals. Due to the high cost of video cameras, it was not feasible to place one camera in each black box.

At the conclusion of the treatment period (end of the first semester of the 1993-94 school year), various measurements of student behavior were compared

Table 3

Distribution of Subjects at the Middle Schools

| Middle School Code | Subjects in Treatment Group | Subjects in Control Group | Total Number Subjects |
|---|---|---|---|
| A | 10 | 11 | 21 |
| B | 10 | 23 | 33 |
| C | 10 | 13 | 23 |
| D | 10 | 16 | 26 |
| E | 10 | 15 | 25 |
| F | 10 | 33 | 43 |
| G | 10 | 18 | 28 |
| H | 10 | 19 | 29 |
| I | 10 | 25 | 35 |
| J | 10 | 9 | 19 |
| Totals | 100 | 182 | 282 |

between the treatment and control groups to determine the effectiveness of VMDs. Those measures are described in detail later in this chapter.

Random Assignment Procedure

Due to the limited number of VMDs (100) and the large number of school bus drivers available for the study (282), simple random assignment was employed to form treatment and control groups. All drivers in a given school had an equal and independent chance of being included in the treatment group.

All 282 drivers in the study were assigned a distinct identification number. The identification numbers of the drivers assigned to "Middle School A" were listed and a table of random numbers was consulted to select ten drivers. Those ten drivers were assigned to the treatment group and VMDs were consequently installed on their school buses. The remaining drivers at "Middle School A" were assigned to the control group and therefore did not receive installation of VMDs.

This procedure was repeated with the other nine eligible middle schools (Middle School B through Middle School J). When the random assignment procedure was completed, the treatment group consisted of 100 subjects (10 at each middle school) and the control group included 182 subjects. Whereas the number of drivers at each middle school varied, the number of subjects in the control group at each middle school also varied.

Description of Subjects

The demographic characteristics of subjects in the study are summarized in Table 4. This information may prove helpful for readers to generalize the findings of this study to their school divisions.

A review of Table 4 reveals that the random assignment procedure was effective in creating two groups which were comparable. The significant difference associated with race may reflect the racial composition of the schools. Ten subjects were chosen from middle schools of varied racial composition. Six of the ten schools were staffed by a very high percentage of whites (over 90%), while one school skewed the overall percentage with only 70% white drivers. As a result, the treatment group consisted of a significantly higher percentage of white subjects.

All demographic information for this study was gathered from personnel files in the school division's office of pupil transportation except the socio-economic status (SES) of the middle schools. This information was retrieved from School Profiles, an annual publication produced by the school division's planning center.

## Selection of Criterion Variables

Fifteen experts in the field of pupil transportation, five university faculty members, twenty-one school administrators and thirty-two school bus drivers were requested to identify methods by which to measure student behavior on school buses. The three most frequent responses from those contributors were incorporated into this study: number of daily discipline problems, number of discipline referral forms

Table 4

Characteristics of Treatment and Control Groups

| | Treatment (N = 100) | Control (N = 182) | Total (N = 282) | $x^2$ | *p* |
|---|---|---|---|---|---|
| Gender | | | | -.21 | .83 |
| Female (N) | 93.00 | 168.00 | 261.00 | | |
| (Pct.) | 93.00 | 92.30 | 92.60 | | |
| Male (N) | 7.00 | 14.00 | 21.00 | | |
| (Pct.) | 7.00 | 7.70 | 7.40 | | |
| Race | | | | -2.37 | .02 |
| White (N) | 91.00 | 148.00 | 239.00 | | |
| (Pct.) | 91.00 | 81.30 | 84.80 | | |
| Other (N) | 9.00 | 34.00 | 43.00 | | |
| (Pct.) | 9.00 | 18.70 | 15.20 | | |
| | | | | *t* | *p* |
| Age | | | | -2.07 | .04 |
| Mean | 42.19 | 45.06 | 44.04 | | |
| SD | 11.26 | 11.03 | 11.18 | | |
| Experience | | | | -1.51 | .13 |
| Mean | 9.26 | 10.90 | 10.32 | | |
| SD | 8.01 | 9.08 | 8.74 | | |
| Ridership | | | | .59 | .56 |
| Mean | 41.72 | 41.14 | 41.35 | | |
| SD | 7.71 | 8.00 | 7.89 | | |
| SES* | | | | .82 | .41 |
| Mean | 23.90 | 22.94 | 23.28 | | |
| SD | 10.11 | 8.94 | 9.37 | | |
| Duration | | | | .84 | .40 |
| Mean | 20.13 | 19.44 | 19.68 | | |
| SD | 6.71 | 6.49 | 6.57 | | |

Note. SES indicates the percentage of students at the drivers' middle school eligible to receive free or reduced lunch.

issued by school bus drivers and driver perception of student behavior. An effort to include a fourth variable that measures the students' perception of behavior on their own school buses was rejected as being unreliable. The students were requested to rate the behavior of the students on their school bus on a scale of one to ten (where a rating of ten was considered excellent). A trial run was attempted on two randomly chosen school buses, one in the treatment group and one in the control group. The students were uncooperative. Most of the students discarded the instrument, while a large number collectively decided to mark the lowest score possible.

## Pretreatment Strategy

The following section describes the strategies employed to implement the VMD program. Included are details of VMD installation plus strategies to make school bus drivers, parents, students and administrators aware of the VMD program.

### VMD Installation

The school division purchased VMDs from Kingmoor Supply, Inc., P. O. Box 426, Harrisonburg, Virginia, 22801, which markets these devices as "Student Monitor Surveillance Systems." The system includes video cameras and accessories at a cost of $1100 each and black boxes at $100 each. Training on how to install the devices is included as part of the purchase package.

Each black box is mounted by two angle brackets after cutting a 6.5-inch by 6.5-inch hole in the interior header. The box, once installed, protrudes toward the

interior of the bus approximately three to four inches. Installation takes approximately one hour by a trained garage mechanic, and the box may be easily transferred to a replacement bus.

A sticker provided by the supplier is mounted adjacent to each black box and announces the presence of a video camera. Its purpose is to forewarn students and thwart accusations of invasion of privacy.

Each device is wired to receive power from the school bus battery and provide the driver with access to an off/on switch located on the control panel. In this way, the driver may switch power to the camera only when students are on board, saving limited time on the video tape.

The black box is fronted by a hinged door equipped with a key lock, two-way mirror and a small screened opening which corresponds with the camera microphone. The box was constructed to house the camera snugly with a minimum of vibration.

The school division purchased Panasonic PV-22 VHS compact video cameras. The PV-22 comes complete with a VHS-C adaptor, 60-minute battery, battery charger/power supply, playback pak, remote control and all necessary wires and cable to transfer to standard VHS tapes. The camera has a clock feature that displays time and date. The compact tapes provided with the camera allow up to 1.5 hours of filming.

The school division also painted the bus number on the rear interior header adjacent to the emergency door. This information, along with the time and date

indicated on the video tape, may be used by school officials to positively identify the time and location of any disciplinary problem.

The supplier recommended one video camera for every eight to ten black boxes. The school division opted for the purchase of ten video cameras and 100 black boxes. The results of this study will determine whether the district purchases an additional 30 cameras and 300 black boxes to outfit the entire fleet.

The random assignment procedure was performed in July 1993, and a memorandum was issued to the garage supervisor indicating which school buses would receive installation of black boxes (see Appendix A). All 100 black boxes were installed in August 1993, prior to the opening of school.

School Bus Driver Awareness

The subjects assigned to the treatment group were convened at meetings on August 30, August 31 and September 3, 1993, in order to be briefed on the VMD pilot program (see Appendix A). All 100 subjects attended and appeared to be very enthusiastic about the program. Each driver received a copy of the Pilot Program Guidelines. This document contained the following information:

1. The purpose of this Pilot Program is to determine if students will behave better on buses that have black boxes. If they do work, all of our school buses may get them next year.

2. There are 100 black boxes and 10 video cameras available for this pilot program. It is very important that you keep the number of cameras a secret. Do not share this information with the students.

3. Ten middle schools were chosen to participate in this pilot program. They are (*Note: For reasons of confidentiality, the middle schools in this study were designated only as School A through School J*).

4. Ten buses at each of those middle schools were chosen at random to receive installation of a black box.

5. There will be only one video camera available to each of the middle schools in the pilot program. Each of you will carry the camera on your school bus twice during the first semester. Please refer to the Camera Rotation Schedule included in your packet of materials.

6. When it is your turn to carry the camera, it will be installed on the Exchange Date (please see the Camera Rotation Schedule). We need some cooperation here. The drivers must make an effort to meet. This may be done in the morning or afternoon at the middle school, or at a location agreed upon by the three drivers involved (the driver getting the camera, the driver who just finished with the camera, and the Group Coordinator). Installation takes only several minutes and will be demonstrated by the Group Coordinator. If you foresee a problem, call Dennis Slavinsky a week in advance; he will make arrangements.

7. You will receive detailed information and instruction on camera installation and care from the Group Coordinator.

8. Whether the video camera is on your bus or not, you are requested to tell the students that you are unsure of its presence. In other words -- FIB! It must remain a mystery to the students.

9. If a student misbehaves on your school bus in the presence of the video camera, you may submit the video tape along with a discipline referral form to the school administrator. You may do this at any of your school assignments.

10. For simplicity, all drivers at the Pilot Program middle schools have been divided into two groups:

APPLES are drivers who have buses with black boxes, and

ORANGES are drivers who do not have a black box.

The apples will be requested to distribute and collect information from the oranges. Please refer to your packet of materials to identify the pairings.

11. The Camera Rotation Schedule cannot be adjusted during the first semester. Please do not request that the video camera be installed nor removed from your school bus.

12. The video tapes are to be rewound after every uneventful bus run. The video tapes are confidential. Only the following authorized personnel may view a video tape: the school bus driver of that particular bus, school administrators and transportation officials. If you are in doubt about this, please contact Dennis Slavinsky.

A question-and-answer period followed the presentation and discussion of the Pilot Program Guidelines. In order to protect its validity, the drivers were not

informed of this formal study, nor were they apprised of all methods by which student behavior were measured. Specifically, they were not informed that discipline referral forms would be counted.

Each driver in the treatment group was also presented with an application to act as a Group Coordinator (please see Appendix A). Forty-two of the drivers submitted applications and ten were chosen; one at each middle school in the study. Those who were selected were notified through a personal phone call while those rejected received a note (see Appendix A). Selection was based on the drivers' experience in operating a video camera and earliest possible arrival time at the middle school site each day.

The Group Coordinators attended several meetings in which they were thoroughly trained in camera operation and installation. The responsibilities of the Group Coordinators included facilitating the camera rotation schedule, instructing the apples in camera installation and care, and collecting data. These volunteers were treated to a group luncheon but refused any further compensation.

Subjects in the control group were informed of the pilot program at a general meeting prior to the opening of school. They received the same information as the treatment group and were briefed on the role that they would play in the study.

Student and Parent Awareness

Students and parents were made aware of the VMD program through several strategies. The school bus drivers in the treatment group made daily announcements

of the presence and purpose of the black box and repeatedly drew the students' attention to the sticker that warns of the presence of a video camera. The public was also notified in advance of the program via newspaper and television reports (see Appendix B).

Administrative Awareness

School administrators were made aware of the VMD program in a memorandum issued on August 19, 1993 (see Appendix A). This information was delivered by both interdepartmental mail and electronic mail.

## Treatment Strategy

The treatment strategy was initiated at the beginning of the 1993-94 school term. This section of the study first details the procedures implemented to administer the program, then describes the variables and data-gathering procedures and data-gathering instruments used to measure student behavior on school buses.

Administrative Procedures

A Camera Rotation Schedule for the treatment groups at each of the ten middle schools was distributed at the meetings prior to the first day of school (see Appendix C). This schedule was designed to allow each subject to carry the video camera for two separate four-day periods at random time intervals. The primary objective was to

create a schedule that would prevent students from predicting when a particular bus was equipped with the video camera.

The Group Coordinators were responsible for transferring the camera between school buses on the exchange dates. On those dates, the coordinators obtained the camera from the previous user and facilitated installation on the next bus. The coordinators provided the drivers with verbal and written instruction on the proper care of the video camera (see appendix C). The written instructions were photocopied on card stock and laminated to reduce wear.

## Variables, Data-Gathering Procedures and Instrumentation

This section of the chapter describes the dependent variables, data gathering procedures, the instruments used to gather data, and methods of analysis.

### *Dependent Variable #1: Daily Discipline Problems*

Subjects in the treatment and control groups were requested to complete three separate Daily Discipline Reports (DDRs). These reports covered three distinct three-week intervals of the study. DDR #1 was completed in the early stages of the program (September 23 through October 13) and was designed to measure the initial impact of the VMDs on student behavior. DDR #2 was completed six weeks later (November 29 through December 17) and was intended to measure the effect of VMDs after two months of implementation. DDR #3 was completed at the end of the first semester (January 3 through January 24) in order to measure the effects of the

program after five months (see Appendix D for copies of the Daily Discipline Reports).

On each DDR, the drivers simply tallied the number of acts of misbehavior performed by their students. The definition of an "act of misbehavior" was left to the drivers discretion; guidance from the researcher was intentionally omitted. It was assumed that randomization would evenly distribute drivers who ignore problems or drivers who "nitpick" among both groups.

The format of the DDRs allowed several subsets of data to be collected. Each day of the week was represented three times in each DDR, and space was provided to tally the number of problems on both morning runs and afternoon runs. This allowed for a comparison of discipline problems among the days of the week and between morning and afternoon runs.

The DDRs were disseminated by the researcher to the Group Coordinators. The coordinators distributed the forms to the drivers in the treatment group, who in turn gave them to designated subjects in the control group. Collection of the DDRs was performed in a reversal of this procedure. Control group members gave their forms to designated treatment group members, who in turn, submitted the forms to the Group Coordinator. The coordinators passed all DDRs on to the researcher.

The researcher, in order to motivate and encourage participation, mailed letters to each driver at the mid-point of the study (see Appendix C for copies of those communications).

The data gathered through the Daily Discipline Reports were used to investigate the following research hypotheses.

Research Hypothesis One. Drivers in the treatment group will experience a lower mean number of discipline problems.

Research Hypothesis Two. There will be no difference between the mean number of discipline problems experienced by drivers during morning routes and afternoon routes.

Research Hypothesis Three. There will be no interaction between group membership and time of day with discipline problems as a dependent variable.

Research Hypothesis Four. There will be no difference between the mean number of discipline problems experienced by drivers and the day of the week.

Research Hypothesis Five. There will be a lower mean number of discipline problems experienced by the treatment group regardless of the day of the week.

Research Hypothesis Six. The mean number of discipline problems will lessen over the three DDR periods, but the decrease will be greater for the treatment group.

*Dependent Variable #2: Discipline Referral Forms*

As a method of maintaining student control, school bus drivers may issue a discipline referral form to a student who has demonstrated repeated misconduct or acted in an unsafe manner. This form is submitted to a school administrator who takes appropriate action.

The number of discipline referral forms issued by school bus drivers in the study were tallied at the end of the first semester (February 1, 1994). In order to protect the validity of the study, drivers were not informed that the referral forms would be counted.

The referral forms were assumed to represent discipline problems of a more serious nature and were therefore treated separately from the data collected on the DDRs.

Research Hypothesis Seven. Drivers in the treatment group will issue a lower mean number of discipline referral forms.

*Dependent Variable #3: Driver Perception of Student Behavior*

The drivers in the treatment and control groups rated the overall behavior of the students on their middle school run. The drivers were instructed to circle one number on a scale of 1 to 10, where 1 = bad, 5 = average and 10 = excellent. The purpose of this information was to determine whether the presence of a video monitoring device affected the drivers' perception of the students' behavior on the school bus.

Research Hypothesis Eight. There will be a higher mean perception score among the drivers in the treatment group.

*Other Variables*

Other variables were integrated to determine their role in the results of the study. Those variables are socio-economic status of the middle school student body, duration of the route, average daily ridership and demographic characteristics of the drivers (gender, race, age and experience). Multiple regression analysis was used to determine which of these factors contributed to the prediction of the three dependent variables.

# CHAPTER IV

## RESULTS AND DISCUSSION

The data gathered through the Daily Discipline Reports (DDRs), discipline referral forms, and driver perception scores represent the dependent variables in this study. These data were analyzed to test the eight research hypotheses presented in Chapter III. The results of those analyses follow.

Research hypotheses one through three were all tested by a two-way repeated measures analysis of variance. The results of that analysis are presented in Table 5.

Research Hypothesis One. Drivers in the treatment group will experience a lower mean number of discipline problems than drivers in the control group.

Means and standard deviations were computed (see Table 5) and differences between the means were analyzed. There was a significantly lower number ($F = 6.24$, $df = 1/280$, $p < .05$) of discipline problems experienced by drivers in the treatment group.

Research Hypothesis Two. There will be no difference between the mean number of discipline problems experienced by drivers during morning routes and afternoon routes. Means and standard deviations were computed (see Table 5) and differences were analyzed by the use of two-way analysis of variance. There were

significantly fewer problems ($F = 170.43$, $df = 1/180$, $p < .01$) on the morning routes (see Table 5).

Research Hypothesis Three. There will be no interaction between group membership and time of day with discipline problems as a dependent variable.

Means and standard deviations were computed (see Table 6) and differences between the means were analyzed by the use of two-way analysis of variance. The drivers in the treatment group experienced fewer discipline problems overall than the control group ($F = 6.24$, $df = 1/280$, $p < .05$). However, the interaction illustrated in Table 6 and Figure 1 ($F = 5.22$, $df = 1/280$, $p < .05$) indicates that the difference in the mean number of discipline problems between the two groups was significant only on the afternoon routes.

Research hypotheses four and five were tested by a two-factor repeated measures analysis of variance. The results of that analysis are presented in Table 8.

Research Hypothesis Four. There will be no difference between the mean number of discipline problems experienced by drivers and the day of the week.

Means and standard deviations were computed (see Table 7) and differences between means were analyzed. As Table 8 indicates, there is a significant difference ($F = 17.77$, $df = 4/1120$, $p < .01$) between the number of discipline problems experienced by day of the week. Tukey's post hoc tests indicated that any mean

Table 5

Group Comparison of Mean Number of Discipline Problems by Time of Day

| | Treatment Group N = 100 | Control Group N = 182 | Row Means |
|---|---|---|---|
| Morning | | | |
| Mean | 18.11 | 25.29 | 22.75 |
| SD | 28.65 | 31.35 | |
| Afternoon | | | |
| Mean | 48.40 | 70.11 | 62.41 |
| SD | 49.63 | 76.93 | |
| Column Means | 33.25 | 47.70 | 42.58 |

Table 6

Summary Table for Analysis of Variance in Mean Number of Discipline Problems by Time of Day

| Source | df | SS | MS | F-Ratio |
|---|---|---|---|---|
| Group (A) | 1 | 26950.36 | 26950.36 | 6.24* |
| Error | 280 | 1209635.00 | 4320.13 | |
| Time (B) | 1 | 221851.70 | 221851.70 | 170.43** |
| A X B | 1 | 6800.21 | 6800.21 | 5.22* |
| Error | 280 | 364471.20 | 1301.68 | |
| Total (Adj) | 563 | 1829709.00 | | |

*$p < .05$
**$p < .01$

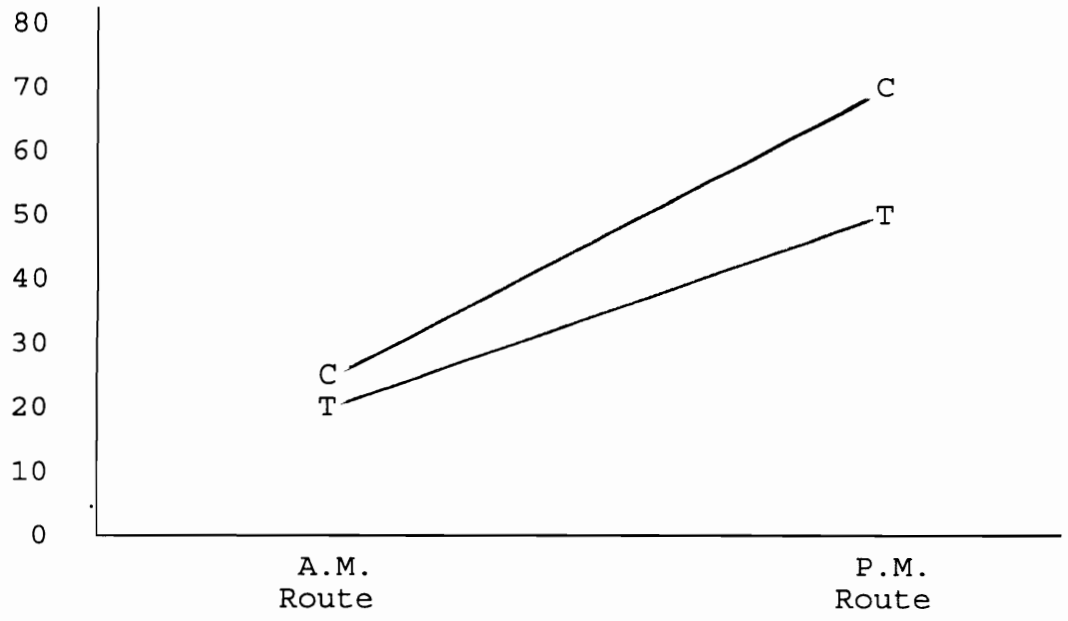


Figure 1

Interaction of Mean Number of Discipline Problems for Both Groups by Time of Day

C C Control Group (N = 182)

T T Treatment Group (N = 100)

Note. Horizontal numbers at left of figure represent mean number of discipline problems.

Table 7

Group Comparison of Mean Number of Discipline Problems by Day of Week

| Day | Treatment Group N = 100 | Control Group N = 182 | All |
|---|---|---|---|
| Monday | | | |
| Mean | 11.99 | 18.02 | 15.88 |
| SD | 14.17 | 18.91 | |
| Tuesday | | | |
| Mean | 12.40 | 17.77 | 15.87 |
| SD | 13.92 | 19.34 | |
| Wednesday | | | |
| Mean | 12.83 | 18.89 | 16.74 |
| SD | 13.77 | 22.10 | |
| Thursday | | | |
| Mean | 14.09 | 19.61 | 17.65 |
| SD | 15.75 | 21.04 | |
| Friday | | | |
| Mean | 15.20 | 21.11 | 19.02 |
| SD | 17.50 | 23.71 | |
| All | | | |
| Mean | 13.30 | 19.08 | 17.03 |

Table 8

Summary Table for Analysis of Variance in Mean Number of Discipline Problems by Day of Week

| Source | df | SS | MS | F-Ratio |
|---|---|---|---|---|
| Group (A) | 1 | 10780.06 | 10780.06 | 6.24* |
| Error | 280 | 483854.10 | 1728.05 | |
| Time (B) | 4 | 2001.62 | 500.40 | 17.77** |
| A X B | 4 | 25.23 | 6.31 | 0.22 |
| Error | 1120 | 31532.40 | 28.15 | |
| Total (Adj) | 1409 | 528193.40 | | |

*$p < .05$
**$p < .01$

difference greater than 1.219 is significant at the .05 level. Pairs of means exceeding this critical value (1.219) are identified in Table 9.

Research Hypothesis Five. There will be a lower mean number of discipline problems experienced by drivers in the treatment group regardless of the day of the week.

Means and standard deviations were computed (see Table 7) and differences between the means were analyzed. As Table 8 illustrates, drivers in the treatment group experienced significantly fewer problems than the control group ($F = 6.24$, $df = 1/280$, $p < .05$) regardless of the day of the week.

Research Hypothesis Six. The mean number of discipline problems will lessen over the three DDR periods, but the decrease will be greater for the treatment group.

Means and standard deviations were computed (see Table 10) and differences between the means were analyzed by the use of repeated measures analysis of variance. As Table 11 indicates, there was a significant difference in the mean number of discipline problems between the groups ($F = 6.24$, $df = 1/280$, $p < .05$) and between the DDR time periods ($F = 38.93$, $df = 2/280$, $p < .001$). However, there was no significant interaction between group assignment and DDR time period (see Table 11).

Table 9

Post Hoc Comparison of Mean Number of Discipline Problems by Day of Week

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| Mean | 15.88 | 15.87 | 16.74 | 17.65 | 19.02 |
| SD | 17.59 | 17.77 | 19.74 | 19.48 | 21.86 |
| Monday | - | - | - | * | * |
| Tuesday | - | - | - | * | * |
| Wednesday | - | - | - | - | * |
| Thursday | - | - | - | - | * |

*$p < .05$

Table 10

Means and Standard Deviations for Number of Discipline Problems in the Three Daily Discipline Report (DDR) Periods.

| Group | DDR 1 | DDR 2 | DDR 3 | Total |
|---|---|---|---|---|
| Treatment (N=100) | | | | |
| Mean | 32.03 | 18.31 | 16.16 | 22.17 |
| SD | 41.62 | 23.84 | 17.49 | 72.53 |
| Control (N=182) | | | | |
| Mean | 40.89 | 30.49 | 24.01 | 31.80 |
| SD | 39.80 | 44.68 | 32.58 | 102.41 |
| Total (N=282) | | | | |
| Mean | 37.75 | 26.17 | 21.23 | 28.38 |
| SD | 40.60 | 38.98 | 28.39 | 93.81 |

Table 11

Summary Table for Analysis of Variance in the Three Daily Discipline Report (DDR) Periods

| Source | df | SS | MS | F-Ratio |
|---|---|---|---|---|
| Group (A) | 1 | 17967.10 | 17967.10 | 6.24* |
| Error | 280 | 806423.10 | 2880.08 | |
| Time (B) | 2 | 40563.69 | 20281.85 | 38.93** |
| A X B | 2 | 661.66 | 330.83 | 0.64 |
| Error | 560 | 291723.80 | 520.94 | |
| Total (Adj) | 845 | 1157339.00 | | |

* $p < .05$
** $p < .01$

Research Hypothesis Seven. Drivers in the treatment group will issue a lower mean number of discipline referral forms.

Means and standard deviations were computed (see Table 12) and differences between the means were analyzed through the use of an independent *t*-test. Drivers in the treatment group issued significantly fewer ($t = -3.20$, $df = 281$, $p < .001$) referral forms than did members of the control group.

Research Hypothesis Eight. There will be a higher mean perception score among drivers in the treatment group.

Drivers in both groups were requested to rate the behavior of their middle school students on a ten point scale. A rating of 1 represented "terrible" behavior, a rating of 10 represented excellent behavior, and a rating of 5 indicated average behavior. Means and standard deviations were computed (see Table 13) and differences between the means were analyzed through the use of an independent *t*-test. The drivers in the treatment group rated their students significantly higher ($t = 2.69$, $df = 238$, $p < .01$) than did drivers in the control group.

As a final step, multiple regression was used to determine which factors contributed to the prediction of the three dependent variables (daily discipline problems, discipline referrals issued, driver perception of student behavior). The independent variables were treatment/control group membership, socio-economic status of the students at the middle school served (SES), gender of the driver, years experience driving a school bus (EXP), age of the driver, race of the driver, average

Table 12

Comparison of Mean Number of Discipline Referral Forms Issued by Drivers in the Treatment and Control Groups

| Group | N | Mean | SD |
|---|---|---|---|
| Treatment | 100 | 2.51 | 2.98 |
| Control | 182 | 4.18 | 5.79 |

Table 13

Comparison of Mean Perception Scores of the Drivers in the Treatment and Control Groups

| Group | N | Mean | SD |
|---|---|---|---|
| Treatment | 100 | 7.41 | 1.84 |
| Control | 182 | 6.75 | 2.20 |

daily ridership (RIDE), and route duration in minutes. The descriptive statistics for these variables and the intercorrelation among them is illustrated in Table 14.

Group assignment was entered as the second step in a two-step regression analysis. An incremental *F*-test was performed on the difference between the $R^2$ values of the two regressions to discover whether group assignment explained a significant portion of the variance of each dependent variable.

Results of the multiple regression analysis indicate that there is a relationship between the number of referral forms issued and driver experience, ridership, and route duration. The incremental *F*-test demonstrated that the effect of the treatment was still significant ($F = 10.429$, $df = 1/273$, $p < .01$) after controlling for the effects of the demographic variables.

The regression coefficient of 1.9 (see Table 15) indicates that the average number of referral forms issued by drivers in the treatment group is about two less than for the drivers in the control group. Note that the mean number of referral forms per group as shown in Table 11 was 2.51 and 4.18 for the treatment group and control group respectively, which is a mean difference of 1.67. Also, the percent of variance explained in the number of discipline referral forms increased from 7.6% to 11% when group membership was added to the demographic variables. This increase was significant at the .01 level.

None of the demographic variables was predictive in the drivers' perception of student behavior (see Table 16) or number of discipline problems experienced by the drivers (see Table 17). Incremental *F*-tests indicated that the effect of the treatment

Table 14

Intercorrelation Matrix of Variables

| Var | $\bar{x}$ | SD | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 23.28 | 9.37 | - | .01 | .07 | -.05 | .02 | -.13 | -.18 | -.03 | -.02 | -.04 | -.04 |
| B | * | * | | - | -.18 | .14 | .05 | -.05 | .03 | .01 | .01 | .11 | .08 |
| C | 10.32 | 8.74 | | | - | .67 | -.01 | -.07 | -.12 | .09 | -.02 | -.14 | -.01 |
| D | 44.04 | 11.18 | | | | - | -.02 | .02 | .-07 | .12 | .06 | .01 | -.03 |
| E | * | * | | | | | - | .03 | .01 | .12 | .04 | -.05 | -.01 |
| F | 41.35 | 7.89 | | | | | | - | .07 | -.04 | .12 | .18 | -.12 |
| G | 19.68 | 6.57 | | | | | | | - | -.02 | -.01 | .11 | -.07 |
| H | * | * | | | | | | | | - | .15 | .16 | -.15 |
| I | 85.16 | 93.81 | | | | | | | | | - | .41 | -.52 |
| J | 3.59 | 5.03 | | | | | | | | | | - | -.41 |
| K | 6.98 | 2.10 | | | | | | | | | | | - |

A/SES
B/GENDER
C/EXPERIENCE
D/AGE
E/RACE
F/RIDERSHIP
G/ROUTE DURATION
H/GROUP
I/DISCIPLINE PROBLEMS
J/# OF DISCIPLINE REFERRALS
K/DRIVER PERCEPTION

Table 15

Regression of Referral Forms on Demographic Variables and Group Assignment

| Variable | *df* | *B* | Standard Error | t-value | *p* |
|---|---|---|---|---|---|
| SES | 1 | .014 | .032 | .45 | .6503 |
| Gender | 1 | 1.493 | 1.198 | 1.25 | .2128 |
| Exp | 1 | -.104 | .048 | -2.15* | .0318 |
| Age | 1 | .042 | .038 | 1.13 | .2600 |
| Race | 1 | -1.426 | .820 | -1.74 | .0822 |
| Ride | 1 | .109 | .037 | 2.95** | .0032 |
| Duration | 1 | .089 | .045 | 1.99* | .0466 |
| Group | 1 | 1.987 | .612 | 3.24** | .0012 |
| Analysis of Variance Report | | | | | |
| Source | *df* | SS | MS | *F* | *p* |
| Constant | 1 | 3631.716 | 3631.716 | | |
| Model | 8 | 785.894 | 98.237 | 4.24** | .0001 |
| Error | 273 | 6332.398 | 23.195 | | |
| Total | 281 | 7118.284 | 25.332 | | |
| $R^2$ = .110 | | | | | |

* $p < .05$
** $p < .01$

Table 16

Regression of Driver Perception on Demographic Variables and Group Assignment

| Variable | *df* | *B* | Standard Error | t-value | *p* |
|---|---|---|---|---|---|
| SES | 1 | -.018 | .013 | -1.32 | .1857 |
| Gender | 1 | .769 | .515 | 1.49 | .1355 |
| Exp | 1 | .015 | .021 | 0.73 | .4629 |
| Age | 1 | -.014 | .016 | -0.89 | .3709 |
| Race | 1 | .096 | .353 | 0.27 | .7857 |
| Ride | 1 | -.031 | .016 | -1.96 | .0505 |
| Duration | 1 | -.028 | .019 | -1.47 | .1413 |
| Group | 1 | -.716 | .263 | -2.72* | .0066 |
| Analysis of Variance Report | | | | | |
| Source | *df* | SS | MS | *F* | *p* |
| Constant | 1 | 13748.090 | 13748.090 | | |
| Model | 8 | 71.117 | 8.889 | 2.07* | .039 |
| Error | 273 | 1171.794 | 4.292 | | |
| Total | 281 | 1242.911 | 4.423 | | |
| $R^2$ = .057 | | | | | |

* $p < .05$

Table 17

Regression of Discipline Problems on Demographic Variables and Group Assignment

| Variable | *df* | *B* | Standard Error | t-value | *p* |
|---|---|---|---|---|---|
| SES | 1 | .175 | .610 | 0.29 | .7745 |
| Gender | 1 | -9.537 | 23.139 | -0.41 | .6802 |
| Exp | 1 | -1.257 | .935 | -1.34 | .1786 |
| Age | 1 | 1.034 | .726 | 1.42 | .1542 |
| Race | 1 | 1.299 | 15.844 | 0.08 | .9347 |
| Ride | 1 | 1.346 | .718 | 1.87 | .0609 |
| Duration | 1 | .088 | .866 | 0.10 | .9187 |
| Group | 1 | 28.939 | 11.826 | 2.45* | .0144 |
| Analysis of Variance Report | | | | | |
| Source | *df* | SS | MS | *F* | *p* |
| Constant | 1 | 2045288.00 | 2045288.00 | | |
| Model | 8 | 111622.40 | 13952.80 | 1.61 | .121 |
| Error | 273 | 2361548.00 | 8850.36 | | |
| Total | 281 | 2473171.00 | 8801.32 | | |
| $R^2 = .045$ | | | | | |

* $p < .05$

was still significant in explaining driver perception ($F = 7.35$, $df = 1/273$, $p < .01$) after controlling for the effects of the demographic variables, as well as predicting the number of discipline problems ($F = 6.00$, $df = 1/273$, $p < .01$).

# CHAPTER V

## CONCLUSIONS AND SUMMARY

The purpose of this study was to evaluate the effectiveness of video monitoring devices (VMDs) in reducing incidents of student misbehavior on middle school buses. It was hypothesized that the presence of VMDs would decrease the frequency of behavioral problems encountered by school bus drivers, decrease the number of discipline referral forms issued by the drivers, and improve the drivers' perception of student behavior.

The study utilized an experimental design with random assignment of drivers within schools to treatment and control groups. These groups were formed from a population of 282 drivers who serve ten middle schools for Virginia Beach City Public Schools. In the summer of 1993, through a randomization procedure, VMDs were installed on 100 school buses to form the treatment group. The remaining 182 school buses did not receive installation and were designated as the control group.

All drivers maintained a daily log of the number of discipline problems encountered on their routes for three 15-day intervals. Statistical analysis reveals a significantly lower total number of discipline problems on school buses in the treatment group. Secondary analysis indicates no significant difference in the mean number of discipline problems encountered between the two groups on the morning routes. This is to be expected considering that students rarely engage in acts of misbehavior early in the morning. The VMDs, however, do provide an effective deterrent to behavioral problems on afternoon routes.

The findings indicates that there is a significant difference between the overall mean number of discipline problems encountered by day of the week. Drivers experience a greater number of discipline problems on Thursdays and Fridays. Further analysis, however, shows that there is a significantly lower number of problems in the treatment group regardless of the day of the week.

As discussed in Chapter II, some transportation officials hold the opinion that the VMDs would lose their effectiveness soon after implementation. In order to test that assumption, the school bus drivers maintained a daily log of the number of discipline problems for three 15-day periods. These Daily Discipline Reports (DDRs) encompassed three distinct time intervals. DDR #1 was completed in the early stages of the program (September 23 through October 13) and was designed to measure the initial impact of the VMDs on student behavior. DDR #2 was completed six weeks later (November 29 through December 17) and was targeted to measure the effect of VMDs after two months of use. DDR #3 was completed at the end of the first semester (January 3 through January 24) in order to measure the long term effect of the VMD program.

As the drivers established rapport and control throughout the experiment, both groups experienced an expected decline in the number of discipline problems. The treatment group, however, recorded a lower number of discipline problems during each of the three 15-day intervals. This indicates that the students do not become desensitized to the presence of the VMDs after five months of implementation.

As a method of maintaining student control, school bus drivers may issue a discipline referral form to a student who has demonstrated repeated misconduct or acted in an unsafe manner. This form is submitted to a school administrator who takes appropriate action.

The number of discipline referral forms issued by school bus drivers in the study were counted at the end of the first semester (February 1, 1994). The discipline referral forms were assumed to represent discipline problems of a more serious nature and were therefore treated separately from the data collected on the DDRs. The tally and analysis of the number of discipline referral forms issued by the drivers reveals that those who drive a school bus equipped with a VMD experience significantly fewer disciplinary problems of a severe nature.

At the conclusion of the study, the drivers rated the overall behavior of the students on their middle school route. The drivers were instructed to circle one number on a scale of 1 to 10, where 1 = very bad, 5 = average and 10 = excellent. This scale was provided to the drivers as a part of DDR #3.

This driver perception of student behavior rating was included as a measurement of student behavior to complement the tally of discipline referral forms. It was assumed that some drivers may not issue discipline referral forms because they either choose to ignore problems or perceive a lack of administrative support at the school. Statistical analysis indicates that drivers on school buses equipped with VMDs rate the overall behavior of their students more highly.

Finally, multiple regression indicated that of all independent variables, group membership explains the greatest percentage of variance in and is the best predictor of all three dependent variables: number of behavioral problems, discipline referral forms issued, and driver perception of student behavior.

In conclusion, this study shows that VMDs are indeed effective in decreasing the incidence of discipline problems encountered by school bus drivers, decreasing the number of discipline referral forms issued by drivers, and improving driver perception of student behavior. Due to the limitations of this study, however, the following recommendations for study are suggested.

This experiment encompassed only the first semester of the school year. It is suggested that a study be conducted to determine the effectiveness of VMDs over the course of one year or longer. How long will it take, if ever, for the students to become desensitized to the presence of the VMDs?

This study focused on students of middle school age only. Will the VMDs be less, equally, or more effective on elementary and high school buses? Will they be as effective on school buses that transport students to special programs such as alternative schools, centers for at-risk students and after-school activities?

It is highly suggested that this study be replicated by another researcher under different conditions. There are many variables that can not be controlled, such as the absence or presence of "bad" students on particular days of the week or times of the day.

Given the assumption that VMDs reduce behavioral problems and consequently decrease driver distractions, will the presence of VMDs reduce the frequency of school bus accidents?

Will the safer school buses create a new problem of increased ridership and the need for additional school buses?

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Appendix A

Pretreatment Strategy Correspondence

**INTER-OFFICE MEMORANDUM**

**TO:** Bob Clinebell, Garage Supervisor

**FROM:** Dennis A. Slavinsky

**SUBJECT: BLACK BOXES**

**DATE:** August 3, 1993

*Here is the list of buses in which black boxes are to be installed. Thank you very much for your cooperation in this endeavor.*

| | | | | |
|---|---|---|---|---|
| *09* | *086* | *166* | *308* | *380* |
| *16* | *088* | *184* | *309* | *385* |
| *18* | *101* | *185* | *311* | *390* |
| *28* | *103* | *199* | *315* | *398* |
| *32* | *109* | *212* | *317* | *406* |
| *45* | *113* | *221* | *321* | *423* |
| *46* | *114* | *229* | *325* | *426* |
| *54* | *117* | *236* | *326* | *428* |
| *55* | *119* | *243* | *327* | *497* |
| *58* | *124* | *264* | *333* | *499* |
| *60* | *125* | *275* | *335* | *504* |
| *61* | *134* | *278* | *336* | *508* |
| *62* | *140* | *286* | *340* | *512* |
| *65* | *142* | *287* | *343* | *515* |
| *67* | *145* | *289* | *355* | *518* |
| *69* | *146* | *290* | *358* | *544* |
| *73* | *148* | *292* | *361* | *553* |
| *79* | *153* | *293* | *368* | *558* |
| *80* | *159* | *303* | *376* | *560* |
| *82* | *161* | *307* | *378* | *563* |

*/ka*

***MEMORANDUM***

***TO:*** *Certain Special Drivers*

***FROM:*** *Dennis A. Slavinsky, Assistant Supervisor*
*Administrative Support Services*
*Office of Transportation Services*

***SUBJECT: PILOT PROGRAM***

***DATE:*** *August 19, 1993*

*I have great news for you! You have been selected to have a special device installed inside your school bus. This device is called a "black box" and it is designed to hold a video camera. In all, 100 of our school buses will be outfitted with these devices. Just think of the possibilities! You won't hear Johnny say, "I didn't do it, the bus driver's just picking on me."*

*To learn more about this great opportunity, you are requested to attend a meeting with me. I have scheduled meetings in different locations around the city (the dates, times and locations are listed below). You need to attend only one of these meetings. You may pick the meeting that is closest to you or most convenient time-wise. However, it is important that you do attend one of them.*

*Please call Mrs. Kimberly Allison at 437-4909 to let us know which meeting you will attend. Please call before August 27, 1993. I look forward to seeing you!*

| ***DATE*** | ***TIME*** | ***LOCATION*** | ***ROOM*** |
|---|---|---|---|
| *August 30* | *9:00 AM* | *Red Mill Elementary* | *Cafeteria* |
| *August 31* | *9:00 AM* | *Kempsville Middle* | *Auditorium* |
| *September 3* | *2:00 PM* | *Plaza Middle* | *Cafeteria* |

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## *GROUP COORDINATOR APPLICATION*

*Name* _____ *Date* _____

*Bus #*_____ *Middle School Assignment* _____

___ *1. Do you know how to operate a VCR?*

___ *2. Do you know how to operate a video camera?*

___ *3. If you were taught how to operate a video camera, would you be willing to serve as the Group Coordinator at your middle school?*

September 4, 1993

Dear _____;

Although you were not selected as a Group Coordinator in the Black Box Pilot Program, I would like to extend my sincere gratitude to you for offering your services. After long and serious deliberation, the final selections were based on two criteria: experience in operating a video camera and earliest arrival at the middle school.

Your offer to serve proved to me that you are as excited about this Pilot Program as I am. Please carry that enthusiasm over to the "Oranges" that have been assigned to you and help make this program a successful endeavor.

Sincerely,

Dennis A. Slavinsky

***MEMORANDUM***

***TO:*** *School Administrators*

***FROM:*** *Dennis A. Slavinsky, Assistant Supervisor*
*Administrative Support Services*
*Office of Transportation Services*

***SUBJECT: PILOT PROGRAM***

***DATE:*** *August 19, 1993*

*The pupil transportation staff is pleased to inform you of an interesting pilot program to be implemented during the 1993-94 school year. One hundred of our school buses will be equipped with video monitoring devices--commonly known as "black boxes." These devices, installed in the interior of the bus, may conceal a video camera.*

*The purpose of these devices is to assist school administrators and school bus drivers in maintaining effective student management in transit. We feel that the presence of these video monitoring devices will prove to be a potent deterrent to student misconduct on our school buses. The video tapes may also provide valuable support in disciplinary matters involving parents who express disbelief concerning their child's alleged misbehavior.*

*The devices have been installed on the school buses through random selection and assignment, therefore, the number of school buses so equipped will vary from school to school. If the video monitoring devices prove to be effective, they may become standard equipment on all of our school buses in the future.*

*Be assured that a thorough research of the legality of the use of video monitoring on school buses has been conducted. This technology is <u>not</u> considered an invasion of privacy. So feel free to use the video tapes to maintain proper student conduct!*

*Please feel free to call me at 437-4909 if you have any questions.*

*DAS:ka*

*BLACK BOX/VIDEO CAMERA*
*PILOT PROGRAM*

1. *The purpose of this Pilot Program is to assist school administrators and school bus drivers in promoting effective student management while the vehicle is in transit. The program's effectiveness will be evaluated at the close of the 1993-1994 school year.*

2. *There are 100 black boxes and 10 video cameras available for this pilot program. The black boxes have been mounted in the interior of the bus above the driver's head. A video camera may be concealed within the black box behind a two-way mirror. The students cannot determine if the camera is present. It is assumed that the mystery of the camera's presence will influence the behavior of the students.*

3. *The video cameras will be rotated among the school buses equipped with black boxes in a random fashion and at random time intervals. This schedule has already been determined.*

4. *One hundred school buses were randomly selected to receive installation of the black boxes, therefore, the number of school buses so equipped will vary from school to school. Please refer to the attached list of buses and school assignments to determine which buses at your school are involved in this pilot program.*

5. *The drivers with video cameras will video tape both their morning and afternoon runs. If a severe disciplinary problem occurs, the drivers have been instructed to submit the tape along with a discipline referral form to the appropriate school administrator.*

6. *If there are no problems, the driver will rewind and erase the tapes at the end of each day.*

7. *Please contact Dennis Slavinsky at 437-4909 if you seek further information.*

Appendix B

Media Coverage

From the Virginia Beach Beacon, September 2, 1993

By W. Kevin Armstrong, Editor

**VIDEOTAPING THE BOISTEROUS ON THE BUS:**

**SIT DOWN, AND SMILE**

It isn't primarily, school officials say, to discourage the boisterous on the bus, but the new tool the Beach will be using on school buses ought to help drivers keep their eyes on the road and students stay on their better behavior.

The school system has bought 10 cameras that will actually record and 100 boxes that film nothing, but the riders won't know that. Cameras and boxes will be rotated at random among buses that roll primarily to and from middle schools. Out of concern for privacy, film of uneventful rides should be erased.

Those can be particularly troublesome years for students, school authorities and parents; and until the novelty wears off and the reality of its serious purpose kicks in, a few riders may be tempted to cavort for the camera.

But the cameras do have serious purposes, one of which is to persuade parents otherwise unconvinced when their child has acted out in ways that distract the driver, may endanger himself and other kids, and need helpful attention.

From "The Road Warrior," a weekly feature in the Virginia Beach Beacon, September 9, 1993.

**SMOOTHER RIDING ON SCHOOL BUSES SHOULD RESULT FROM NEW CAMERAS**

The Road Warrior's got two words for this week that all the lil' darlin's are back in school -- YEE HAW!

Instead, the school system and the bus drivers have been charged with their care for the next nine months. Gotta love that. What's even cooler is that even the bus drivers are getting a break this year, too.

For the first time in its history, the Virginia Beach School System has installed boxes and video cameras on buses to monitor student behavior.

The school system decided to do it this way: 100 of the school's buses are outfitted with a black box that holds an 8mm video camera. There will be 10 cameras rotated between the 100 buses.

The boxes have two-way glass so students can't tell when they're actually being filmed.

The buses make runs that include elementary, middle and high school students. No particular area or district has been singled out.

Now that's what Road calls getting down to their level to solve problems.

See, cameras don't lie. Children know that. Heck, even teenagers and adults know it, so you can bet there's going to be a LOT of angelic kids riding on buses this year.

Speaking of buses, did you know that Virginia Beach bus drivers drove 8 million miles in the 1992-93 school year? It's true.

From the Virginian-Pilot/Ledger-Star, September 11, 1993.

By Lori A. Denney

**KIDS, WATCH OUT: SCHOOLS INSTALLING CAMERAS ON BUSES**

School children across Hampton Roads are under surveillance. In the hopes of improving behavior and safety, school officials are aiming video cameras at students.

Every Hampton Roads city except Chesapeake is equipping school buses with cameras this year. Chesapeake plans to have them installed before the start of the 1994-95 school year.

Virginia Beach alternates 10 video cameras on the city's approximately 600 school buses. One hundred of the buses are equipped at the same time with $75 black boxes that house a camera behind one-way glass.

"Students won't know whether they're being filmed or not," said David L. Pace, the schools' transportation director. Only the bus driver knows whether a camera is actually on-board.

The $800 cameras are mounted in 10 randomly assigned middle school buses, which also serve other elementary and high schools.

"Driving conditions have gotten worse, not necessarily discipline problems, on the buses," Pace said. "Hopefully this will increase the safety factor and, secondly, improve any behavioral problems."

Behavior problems will be dealt with the same as usual. A driver writes up offending students, and a vice principal dishes out punishment. Only now, with the

help of the cameras, there won't be many questions about who is involved and who wasn't.

"The cameras are not designed to take the place of a disciplinarian," Pace said. "Technically, this is just giving the driver another resource to rely on."

Norfolk schools are installing and rotating 10 cameras on 50 buses, said Dale Williamson, the schools' transportation director.

Last year the city experimented with one camera. "It did wonders, believe me," said Williamson, an 11-year transportation veteran. "This is another tool that has been put out by the industry to help us deal with discipline, and today, we use every tool you can find."

Norfolk is installing cameras on buses that experienced behavior problems last year, Williamson said. The drivers, as well as students, aren't likely to know when the camera is on-board.

Williamson hopes eventually to have all 125 of the city's buses outfitted with cameras and black boxes, he said.

Because the program is new, some particulars, like whether to review the tapes daily, have yet to be worked out in Norfolk.

Portsmouth experimented with one camera last year, and that prompted officials to set aside $17,620 to install black boxes in all 125 buses this year, with four rotating cameras, said Sidney Duck, director of operations for the schools.

Newport News' experiment with cameras last year went so well that money was allotted in its budget to add cameras and black boxes this year.

Suffolk schools had the cameras and black boxes installed last year on all of their buses, rather than treat the first year's use as a pilot program.

"From the bus drivers to all concerned, the response has been tremendous," said Larry E. Garland, Suffolk schools' transportation supervisor. "It has decreased (our bus) vandalism tremendously."

From "The Road Warrior," a weekly feature of the Virginia Beach Beacon,

December 24, 1993.

**SYMPHONY FOR A SCHOOL BUS CAMERA**

*(To the tune of "Winter Wonderland")*

Cameras are there -- are they working?

Or is it just our chain they're jerking?

Are you filmed or ignored?

When you step aboard?

Walking in a school bus movieland.

Smile real hard -- the camera's candid.

Catching pranksters and school bus bandits.

They'll catch you on tape

Unless they're just fake.

You never know in school bus movieland.

Appendix C

Treatment Strategy Correspondence

## CAMERA ROTATION SCHEDULE

## "_____" MIDDLE SCHOOL

| BUS | DATES WITH CAMERA | EXCHANGE DATE |
|---|---|---|
| 1 | SEPTEMBER 17, 20, 21, 22 | SEPTEMBER 23 |
| 2 | SEPTEMBER 24, 27, 28, 29 | SEPTEMBER 30 |
| 3 | OCTOBER 1, 4, 5, 6 | OCTOBER 7 |
| 4 | OCTOBER 8, 11, 12, 13 | OCTOBER 14 |
| 5 | OCTOBER 15, 18, 19, 20 | OCTOBER 21 |
| 6 | OCTOBER 22, 25, 26, 27 | OCTOBER 28 |
| 7 | OCTOBER 29, NOVEMBER 1, 2, 3 | NOVEMBER 4 |
| 8 | NOVEMBER 5, 8, 9, 10 | NOVEMBER 15 |
| 9 | NOVEMBER 16, 17, 18, 22 | NOVEMBER 23 |
| 10 | NOVEMBER 24, 29, 30, DECEMBER 1 | DECEMBER 2 |
| | | |
| 6 | DECEMBER 3, 6, 7, 8 | DECEMBER 9 |
| 7 | DECEMBER 10, 13, 14, 15 | DECEMBER 16 |
| 8 | DECEMBER 17, 20, 21, 22 | JANUARY 3 |
| 9 | JANUARY 4, 5, 6, 7 | JANUARY 10 |
| 10 | JANUARY 11, 12, 13, 14 | JANUARY 18 |
| 5 | JANUARY 19, 20, 21, 24 | JANUARY 25 |
| 4 | JANUARY 26, 27, FEBRUARY 1, 2 | FEBRUARY 3 |
| 3 | FEBRUARY 7, 8, 9, 10 | FEBRUARY 11 |
| 2 | FEBRUARY 14, 15, 16, 17 | FEBRUARY 18 |
| 1 | FEBRUARY 22, 23, 24, 25 | TBA |

EXCHANGE DATE: We need some cooperation here. The drivers must make an effort to meet. This can be done in the morning or afternoon at the middle school, or at a location agreed upon by the three drivers involved (the driver getting the camera, the driver who just finished with the camera, and the group coordinator). If you foresee a problem, call Dennis Slavinsky a week in advance--he will make arrangements.

GROUP COORDINATOR: The group coordinator at your middle school is the driver of Bus #_____ . This driver will show you how to install and operate the camera.

LUNCH TIME: Please make a note of the two sets of dates that you will carry the camera. Then eat this sheet (if that doesn't sound appetizing, just shred it up and throw it away).

DO NOT LET THIS SHEET FALL INTO THE HANDS OF THE ENEMY!

## CAMERA INSTALLATION DIRECTIONS

1. MAKE SURE THAT THE ENGINE IS OFF, THE KEY IS OFF, AND THE "CAMERA" SWITCH ON THE INSTRUMENT PANEL IS OFF.

2. REMOVE THE RUBBER COVER FROM THE BLACK BOX.

3. UNLOCK THE BLACK BOX, OPEN THE DOOR, LEAVE THE KEY IN THE LOCK.

4. CONNECT THE CAMERA WIRE TO THE WIRE INSIDE THE BLACK BOX.

5. SLIDE THE SWITCH ON THE BACK OF THE CAMERA OVER TO THE **"CAMERA"** POSITION. YOU MUST PRESS THE TINY BUTTON IN THE MIDDLE WHILE YOU DO THIS!

6. TURN THE IGNITION KEY TO "ON." THE CAMERA WILL START TO RECORD - SO WATCH YOUR LANGUAGE!
   **NOTE: THE CAMERA IS PRESET TO RECORD WHEN IT RECEIVES POWER.**

7. PUSH THE BACK SIDE OF THE BIG "ZOOM" BUTTON DOWN FOR 10 SECONDS. IT HAS A BIG LETTER "W" ON IT. THIS MAKE SURE THAT THE CAMERA IS ON "WIDE ANGLE." YOU WILL THEN BE ABLE TO VIDEOTAPE ALL OF THE LITTLE RASCALS ON YOUR BUS.

8. FLIP THE INSTRUMENT PANEL TO "OFF." THE CAMERA WILL STOP RECORDING.

9. SLIDE THE CAMERA ALL THE WAY INTO THE BLACK BOX. TUCK THE WIRE IN. DO NOT LET THE WIRE COVER THE LENS,

10. BRACE THE CAMERA WITH THE TWO FOAM PIECES. LOCK THE BOX AND REMOVE THE KEY. DO NOT LOSE THE KEY.

11. REPLACE THE RUBBER COVER -- YOU'RE READY TO GO.

12. THE VIDEOTAPE WILL LAST ONLY 90 MINUTES. PLEASE REWIND THE TAPE AFTER EACH UNEVENTFUL RUN.

## TAPING THE KIDS

* IT IS UP TO YOU TO DECIDE WHEN TO TURN THE CAMERA ON. IT WILL TAPE FOR ONLY A TOTAL OF 90 MINUTES. IF YOU PLAY IT SMART, THE TAPE WILL LAST ALL DAY.

* WHILE THE BUS IS RUNNING, ALL YOU NEED TO DO TO START TAPING IS FLIP THE "CAMERA" SWITCH ON THE INSTRUMENT PANEL. REMEMBER, IF THERE IS NO POWER FROM THE ENGINE, THE CAMERA WON'T WORK.

* IF YOU WANT TO TURN THE TAPE INTO THE SCHOOL:
  1. SLIDE THE BLUE EJECT BUTTON TO THE SIDE. THE SIDE DOOR OF THE CAMERA WILL POP OPEN.
  2. REMOVE THE CASSETTE, PAY ATTENTION TO HOW IT FITS IN!
  3. PUT THE REPLACEMENT CASSETTE IN; CLOSE THE CAMERA DOOR.

## AT THE END OF THE DAY

* YOU **MUST** REMOVE THE CAMERA AND TAKE IT HOME WITH YOU EVERY NIGHT!

* WHILE THE POWER IS ON, SLIDE THE CAMERA PARTIALLY OUT OF THE BOX.

* PRESS THE "STOP" BUTTON ON TOP OF THE CAMERA.

* PUSH THE "REW" BUTTON TO REWIND THE TAPE.

* DISCONNECT THE CAMERA WIRE FROM THE WIRE IN THE BLACK BOX.

* CLOSE THE BOX'S DOOR AND LOCK IT. REPLACE THE RUBBER COVER. **TAKE THE CAMERA HOME WITH YOU!**

Appendix D

Daily Discipline Reports

DISTRIBUTION AND COLLECTION
OF DAILY DISCIPLINE REPORTS

1. YOU HAVE BEEN ASSIGNED TO WORK WITH SEVERAL OTHER DRIVERS AT YOUR MIDDLE SCHOOL. THEY ARE CALLED "**ORANGES**." YOUR ORANGES ARE THE DRIVERS OF BUSES:

2. PLEASE DISTRIBUTE DAILY DISCIPLINE REPORT #___ TO YOUR ORANGES ON _____.

3. ORANGES WERE ASSIGNED TO YOU IN A RANDOM MANNER. IF THEY ARE TOO FAR AWAY FROM YOU IN LINE, OR YOU DON'T GET ALONG, YOU MAY TRADE WITH EACH OTHER. PLEASE MAKE ME AWARE OF ANY CHANGES!

4. PLEASE COLLECT DAILY DISCIPLINE REPORT #___ ON _____.

5. ENCOURAGE YOUR ORANGES TO KEEP THE REPORTS UP TO DATE.

6. DO NOT LET THE STUDENTS KNOW THAT WE ARE KEEPING TRACK!

*November 3, 1993*

*Dear _____:*

*Thank you for completing Daily Discipline Report #1. We are trying to learn if the Black Boxes and cameras on school buses really work in making students behave. One way to do this is to compare the number of problems on school buses that <u>have</u> that equipment, with the number of problems on school buses that <u>do</u> <u>not</u> have it. If they do seem to work, we will try to get them for all drivers!*

*When you returned that paper, it showed that you understand how important this information is. And guess what! It's time to do it again. When you return this form, I won't ask you to do it again until January (and <u>that</u> will be the last time).*

*Thank you and please keep up your high level of involvement in this worthwhile matter.*

*Sincerely,*

*Dennis A. Slavinsky*
*Assistant Supervisor*

*DAS/ka*

*November 2, 1993*

*Dear _____:*

*I hope you will consider completing the next Daily Discipline Report for me. We are trying to learn if the Black Boxes and cameras on school buses really work in making students behave. One way to do this is to compare the number of problems on school buses that <u>have</u> that equipment, with the number of problems on school buses that <u>do</u> <u>not</u> have it. If they do seem to work, we will try to get them next year for all drivers! Therefore, it is very important that I get feedback from you.*

*I did not receive the first Daily Discipline Report from you in October. Perhaps yours was lost or perhaps you didn't fully understand its importance. Please take a little time each day to complete this form and the final one that will be distributed in January. Please feel free to call me if you have any questions or concerns.*

*Sincerely,*

*Dennis A. Slavinsky*
*Assistant Supervisor*

*DAS/ka*

*DAILY DISCIPLINE REPORT #1*

*Driver:*_____ *Bus#*_____ *Turn in on October 14th.*

*Middle School Assignment* _____ *Apple Bus#*_____

1. *This form is to be completed by all drivers at the middle schools participating in the pilot program.*

2. *At the end of each middle school run, AM and PM, simply write in the number of acts of misbehavior performed by your students.*

3. *Please submit this form to the driver of Bus#*_____ *on October 14, 1993.*

4. *Thank you very much for your cooperation.*

| *MONDAY* | *TUESDAY* | *WEDNESDAY* | *THURSDAY* | *FRIDAY* |
|---|---|---|---|---|
| *September 20* | *September 21* | *September 22* | *September 23*<br>*AM*_____<br>*PM*_____ | *September 24*<br>*AM*_____<br>*PM*_____ |
| *September 27*<br>*AM*_____<br>*PM*_____ | *September 28*<br>*AM*_____<br>*PM*_____ | *September 29*<br>*AM*_____<br>*PM*_____ | *September 30*<br>*AM*_____<br>*PM*_____ | *October 1*<br>*AM*_____<br>*PM*_____ |
| *October 4*<br>*AM*_____<br>*PM*_____ | *October 5*<br>*AM*_____<br>*PM*_____ | *October 6*<br>*AM*_____<br>*PM*_____ | *October 7*<br>*AM*_____<br>*PM*_____ | *October 8*<br>*AM*_____<br>*PM*_____ |
| *October 11*<br>*AM*_____<br>*PM*_____ | *October 12*<br>*AM*_____<br>*PM*_____ | *October 13*<br>*AM*_____<br>*PM*_____ | *October 14*<br>*COLLECTION DAY* | *October 15* |

*DAILY DISCIPLINE REPORT #1*

*Driver:*_____ *Bus#* _____ *Turn in on October 14th.*

*Middle School Assignment*_____ *Apple*
*Bus#*_____

1. *This form is to be completed by all drivers at the middle schools participating in the pilot program.*

2. *At the end of each middle school run, AM and PM, simply write in the number of acts of misbehavior performed by your students.*

3. *Please submit this form to the driver of Bus#*____ *on October 14, 1993.*

4. *Thank you very much for your cooperation.*

| *MONDAY* | *TUESDAY* | *WEDNESDAY* | *THURSDAY* | *FRIDAY* |
|---|---|---|---|---|
| *September 20* | *September 21* | *September 22* | *September 23*<br>*AM*_____<br>*PM*_____ | *September 24*<br>*AM*_____<br>*PM*_____ |
| *September 27*<br>*AM*_____<br>*PM*_____ | *September 28*<br>*AM*_____<br>*PM*_____ | *September 29*<br>*AM*_____<br>*PM*_____ | *September 30*<br>*AM*_____<br>*PM*_____ | *October 1*<br>*AM*_____<br>*PM*_____ |
| *October 4*<br>*AM*_____<br>*PM*_____ | *October 5*<br>*AM*_____<br>*PM*_____ | *October 6*<br>*AM*_____<br>*PM*_____ | *October 7*<br>*AM*_____<br>*PM*_____ | *October 8*<br>*AM*_____<br>*PM*_____ |
| *October 11*<br>*AM*_____<br>*PM*_____ | *October 12*<br>*AM*_____<br>*PM*_____ | *October 13*<br>*AM*_____<br>*PM*_____ | *October 14*<br>*COLLECTION DAY* | *October 15* |

*DAILY DISCIPLINE REPORT #2*

*Driver:*_____ *Bus#* _____ *Turn in on December 20th.*

*Middle School* _____ *Oranges*_____ *Coordinator #*_____

1. *This form is to be completed by all drivers at the middle schools participating in the pilot program.*

2. *At the end of each middle school run, AM and PM, simply write in the number of acts of misbehavior performed by your students.*

3. *Please submit this form, plus those you collected to the coordinator on December 20, 1993.*

4. *Thank you for your cooperation and encourage your Oranges to update their reports!*

| *MONDAY* | *TUESDAY* | *WEDNESDAY* | *THURSDAY* | *FRIDAY* |
|---|---|---|---|---|
| *November 29*<br>*AM*_____<br>*PM*_____ | *November 30*<br>*AM*_____<br>*PM*_____ | *December 1*<br>*AM*_____<br>*PM*_____ | *December 2*<br>*AM*_____<br>*PM*_____ | *December 3*<br>*AM*_____<br>*PM*_____ |
| *December 6*<br>*AM*_____<br>*PM*_____ | *December 7*<br>*AM*_____<br>*PM*_____ | *December 8*<br>*AM*_____<br>*PM*_____ | *December 9*<br>*AM*_____<br>*PM*_____ | *December 10*<br>*AM*_____<br>*PM*_____ |
| *December 13*<br>*AM*_____<br>*PM*_____ | *December 14*<br>*AM*_____<br>*PM*_____ | *December 15*<br>*AM*_____<br>*PM*_____ | *December 16*<br>*AM*_____<br>*PM*_____ | *December 17*<br>*AM*_____<br>*PM*_____ |
| *December 20*<br>*COLLECTION DAY* | *December 21* | *December 22* | *December 23* | *December 24* |

*DAILY DISCIPLINE REPORT #2*

*Driver:*_____ *Bus#* _____ *Turn in on December 20th.*

*Middle School Assignment*_____*Apple Bus #*_____

1. *This form is to be completed by all drivers at the middle schools participating in the pilot program.*

2. *At the end of each middle school run, AM and PM, simply write in the number of acts of misbehavior performed by your students.*

3. *Please submit this form to the driver of Bus* _____ *on December 20, 1993.*

4. *Thank you very much for your cooperation.*

| *MONDAY* | *TUESDAY* | *WEDNESDAY* | *THURSDAY* | *FRIDAY* |
|---|---|---|---|---|
| *November 29*<br>*AM*_____<br>*PM*_____ | *November 30*<br>*AM*_____<br>*PM*_____ | *December 1*<br>*AM*_____<br>*PM*_____ | *December 2*<br>*AM*_____<br>*PM*_____ | *December 3*<br>*AM*_____<br>*PM*_____ |
| *December 6*<br>*AM*_____<br>*PM*_____ | *December 7*<br>*AM*_____<br>*PM*_____ | *December 8*<br>*AM*_____<br>*PM*_____ | *December 9*<br>*AM*_____<br>*PM*_____ | *December 10*<br>*AM*_____<br>*PM*_____ |
| *December 13*<br>*AM*_____<br>*PM*_____ | *December 14*<br>*AM*_____<br>*PM*_____ | *December 15*<br>*AM*_____<br>*PM*_____ | *December 16*<br>*AM*_____<br>*PM*_____ | *December 17*<br>*AM*_____<br>*PM*_____ |
| *December 20*<br>*COLLECTION DAY* | *December 21* | *December 22* | *December 23* | *December 24* |

*DAILY DISCIPLINE REPORT #3*

*Driver:*_____ *Bus#* _____ *Turn in on January 25th.*

*Middle School* _____ *Oranges*_____ *Coordinator #*_____

1. *This form is to be completed by all drivers at the middle schools participating in the pilot program.*

2. *At the end of each middle school run, AM and PM, simply write in the number of acts of misbehavior performed by your students.*

3. *Please submit this form, plus those you collected to the coordinator on January 25th, 1994.*

4. *PLEASE LOOK AT THE BACK OF THIS SHEET!*

| *MONDAY* | *TUESDAY* | *WEDNESDAY* | *THURSDAY* | *FRIDAY* |
|---|---|---|---|---|
| *January 3*<br>*AM*_____<br>*PM*_____ | *January 4*<br>*AM*_____<br>*PM*_____ | *January 5*<br>*AM*_____<br>*PM*_____ | *January 6*<br>*AM*_____<br>*PM*_____ | *January 7*<br>*AM*_____<br>*PM*_____ |
| *January 10*<br>*AM*_____<br>*PM*_____ | *January 11*<br>*AM*_____<br>*PM*_____ | *January 12*<br>*AM*_____<br>*PM*_____ | *January 13*<br>*AM*_____<br>*PM*_____ | *January 14*<br>*AM*_____<br>*PM*_____ |
| *January 17*<br>*Lee Jackson King Day* | *January 18*<br>*AM*_____<br>*PM*_____ | *January 19*<br>*AM*_____<br>*PM*_____ | *January 20*<br>*AM*_____<br>*PM*_____ | *January 21*<br>*AM*_____<br>*PM*_____ |
| *January 24*<br>*AM*_____<br>*PM*_____ | *January 25*<br>*COLLECTION DAY* | *January 26* | *January 27* | *January 28* |

*Dear "Apple"*

*Thank you very much for participating in this pilot program. As you are aware, it takes the cooperation of everyone involved to make such an endeavor a success. The short survey below is not the last bit of information I will need from you. A detailed questionnaire concerning your feelings about the Black Box and Video Cameras will be sent to you in a couple of weeks. But for now, please read these three questions, think about them, and answer them on Collection Day, January 25, 1994.*

1. *How many minutes does it take in the morning from your first pupil stop until you unload at this middle school?*

   _____ *MINUTES*

2. *How many minutes does it take in the afternoon to travel from this middle school to the last pupil stop?*

   _____ *MINUTES*

3. *On a scale of 1 to 10, how would you rate the overall behavior of the students on this middle school run? Please circle <u>one</u> number on the scale below.*

   *1 2 3 4 5 6 7 8 9 10*
   *BAD AVERAGE EXCELLENT*

*<u>Note</u>: This information was typed on the back of the previous page.*

*DAILY DISCIPLINE REPORT #3*

*Driver:*_____ *Bus#* _____ *Turn in on January 25th.*

*Middle School Assignment* _____ *Apple Bus #* _____

1. *This form is to be completed by all drivers at the middle schools participating in the pilot program.*

2. *At the end of each middle school run, AM and PM, simply write in the number of acts of misbehavior performed by your students.*

3. *Please submit this form to the driver of Bus* _____ *on January 25th, 1994.*

4. *PLEASE LOOK AT THE BACK OF THIS SHEET!*

| *MONDAY* | *TUESDAY* | *WEDNESDAY* | *THURSDAY* | *FRIDAY* |
|---|---|---|---|---|
| *January 3*<br>*AM*_____<br>*PM*_____ | *January 4*<br>*AM*_____<br>*PM*_____ | *January 5*<br>*AM*_____<br>*PM*_____ | *January 6*<br>*AM*_____<br>*PM*_____ | *January 7*<br>*AM*_____<br>*PM*_____ |
| *January 10*<br>*AM*_____<br>*PM*_____ | *January 11*<br>*AM*_____<br>*PM*_____ | *January 12*<br>*AM*_____<br>*PM*_____ | *January 13*<br>*AM*_____<br>*PM*_____ | *January 14*<br>*AM*_____<br>*PM*_____ |
| *January 17*<br>*Lee Jackson King Day* | *January 18*<br>*AM*_____<br>*PM*_____ | *January 19*<br>*AM*_____<br>*PM*_____ | *January 20*<br>*AM*_____<br>*PM*_____ | *January 21*<br>*AM*_____<br>*PM*_____ |
| *January 24*<br>*AM*_____<br>*PM*_____ | *January 25*<br>*COLLECTION DAY* | *January 26* | *January 27* | *January 28* |

*Dear "Orange"*

*Thank you very much for participating in this pilot program. As you are aware, it takes the cooperation of everyone involved to make such an endeavor a success. The short survey below is the last bit of information I will need from you. I promise! Please read these three questions, think about them, and answer them on Collection Day, January 25, 1994.*

1. *How many minutes does it take in the morning from your first pupil stop until you unload at this middle school?*

   _____ *MINUTES*

2. *How many minutes does it take in the afternoon to travel from this middle school to the last pupil stop?*

   _____ *MINUTES*

3. *On a scale of 1 to 10, how would you rate the overall behavior of the students on this middle school run? Please circle <u>one</u> number on the scale below.*

   *1 2 3 4 5 6 7 8 9 10*
   *BAD AVERAGE EXCELLENT*

*<u>Note</u>: This information was typed on the back of the previous page.*

# VITA

Education

Dennis Allan Slavinsky was born March 19, 1951 in Pittsburgh, Pennsylvania. In 1969, he graduated from Sto-Rox High School in McKees Rocks, Pennsylvania. He then entered California State College (Pennsylvania) and in 1973 earned a Bachelor of Science degree in Education with a major in Earth and Space Sciences. In 1985, he received the Master of Arts degree in Supervision and Human Relations from George Washington University, Washington, D.C. He completed requirements for the Doctor of Education in Educational Administration at Virginia Polytechnic Institute and State University in the Spring of 1994.

Experience

Upon his graduation from California State College in 1973, he moved to Virginia Beach, Virginia to pursue a career as a teacher of earth/space science and physical science at Bayside Junior High School. During the 12 years he taught at that school, he also served a five year stint on the adjunct faculty at Tidewater Community College as a geology instructor. In addition, he assisted the school division by teaching science concept courses to the district's elementary school teachers.

In 1985, he transferred to Kellam High School, where he taught earth science and oceanography. He also acted as a volleyball and track coach during the three years he served at that school.

In 1988, he was promoted to his current position as a supervisor in the pupil transportation department of the Virginia Beach City Public Schools. In this capacity,

he serves as the supervisor of 130 of the school division's 550 school bus drivers. He is certified by the Commonwealth of Virginia as a school bus driver instructor and is responsible for the recruitment, training, and retention of school bus drivers.

Professional Associations

During his professional experience, he was a member of the Virginia Beach Reading Council, Virginia State Reading Association, Virginia Association of Science Teachers, the National Geographic Society, and the Virginia Association of Pupil Transportation.