

VIDEO CAMERAS AND BUS VANDALISM

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The problem of vandalism on buses is well documented. When Gladstone (1978) asked 584 schoolboys to report on their involvement in vandalism and petty crime, 55% said they had written on the seats or walls of buses in the past six months and 22% said they had slashed bus seats. Rose (1976) conducted a survey of London Transport staff to assess the problem of assault and other difficulties in dealing with the public. Bus conductors said that rowdiness by schoolchildren was one of the three most frequent problems they had to deal with.

One-person-operated buses are particularly vulnerable to this kind of damage. A study by Sturman (1980) found that the location and extent of damage on a bus was related to the amount of supervision that the crew could give. Upper decks on all types of buses suffered more damage than lower decks, and the upper decks on driver-only buses received nearly twice as much damage as upper decks on buses with conductors.

This paper documents the first use of video equipment in Britain on public service buses to deal with the problems of vandalism and general misbehavior. Go-Ahead Northern is a bus company which operates a fleet of 700 buses in northern England. Damage to their driver-only double decker buses was costing the company about 250,000 pounds sterling a year in repair bills. Upper decks were the target for much of this damage, and schoolchildren were considered responsible in many cases.

Although Go-Ahead Northern had no recorded data on the misbehavior of children, some data from another bus company, also in northern England, helps to describe the nature of the problem. Cleveland Transit had maintained records of all incidents reported to their radio controllers by drivers as part of an attempt to deal with violence to bus crews (for a case study on this see Poyner et al., 1988). The table below presents an analysis of incidents reported over a 16 month period from 1/1/85 to 3/5/86.

Schoolchildren were clearly a problem for Cleveland Transit. Together with "rowdy youths," they are responsible for virtually all damage inflicted on buses by passengers, according to this data. The kind of damage or mess caused by schoolchildren on these buses included windows being smashed; seats being slashed or thrown out; paint sprayed; eggs, water, bombs, fireworks, snowballs thrown; vomiting; and spitting. Tampering with the emergency door was another common complaint about schoolchildren on buses.

Troublesome incidents on Cleveland Transit Buses

INCIDENT	NUMBER OF REPORTS	INCIDENTS WHERE BUSES WERE DAMAGED/TRASHED
Passengers refuse to get oil overloaded bus	9	---
Arguments over fares	36	1
Glue sniffing on bus	10	---
Problems with drunks	7	---
Schoolchildren out of control	40	w
Rowdy youth*	26	10
Fighting on bus	11	---
Troublesome passengers	21	---
Encounter with other road users	7	---
Objects thrown at bus	23	»
Damage to bus reported	5	5
Incidents away from bus	7	---
Theft on bus	2	---
Other	4	---
TOTALS	210	52

THE VIDEO BUS

Following discussions with staff representatives at Go-Ahead Northern's Percy Main Depot in North Shields, it was decided to experiment with video cameras on buses. It was hoped that, apart from dealing with vandals, these cameras would also be useful in cases of assault on bus drivers. One bus was fitted with video cameras and recording equipment and monitored over a period of 4- 5 months. Apart from its effectiveness in reducing damage, there were uncertainties about how much the movement of the bus and ambient lighting would effect the quality and usefulness of the recordings. The ability of the cameras to withstand abuse was also a concern.

Two video cameras were fitted on one bus. One camera was positioned at the front of the top deck in an armored glass mounting. From here it was possible to supervise most of the top deck, particularly the rear seats. A second camera was mounted at the front of the lower deck above the driver's head. This camera covered the area

around the driver, but the location of the staircase behind the driver meant that the rest of the lower deck could not be viewed from the camera. Video cassette recording equipment was concealed beneath the staircase in the space previously used to store passengers' bags and pushchairs. The driver had the choice of when the recording equipment was switched on. The video recorder could only record one of the cameras at a time, so the driver had to decide which camera to record. The switch was located out of sight of the passengers behind the driver's seat. When the bus was quiet or virtually empty, the driver would probably switch the recorder off and only switch it on again when a noisy group of passengers, such as schoolchildren, boarded the bus.

The video bus became operational in November 1985. It was used on routes regarded as something of a problem, particularly routes carrying children from school. At the end of each run the video bus was checked for damage or graffiti, and if any was discovered, the video cassette was examined. If a child had been recorded damaging or messing up the bus, it proved to be an easy task to work out which school the child attended by the uniform worn or by working out where the child had boarded or left the bus. The tape would then be taken to the school and shown to the headteacher in an effort to identify the culprit and get the parents to pay for the damage. In some cases the tapes have been shown to parents.

A number of incidents were recorded in the first month of operation. They were followed up at school and home. These included a case where a schoolgirl had been recorded writing with lipstick on the inside of a window on the bus. She was identified and her father was contacted. He refused to believe his daughter capable of such behavior, but when confronted by evidence on tape, he had to concede. The company demanded, and he paid 25 pounds in damages. Other incidents, which were followed up, included a boy taking a bus seat out of the bus, kids fighting on the top deck, and one case where a boy was filmed sticking tokens over the camera lens in an effort to avoid being recorded damaging the upper deck.

It was found that once action was taken against a child, it was not necessary to do so again. It was claimed that after a few weeks and only a few follow-up actions, damage to the video bus virtually ceased. Moreover, damage to the other buses, working from the same depot, also reduced.

MORE VIDEO BUSES

As a result of this successful introduction of the video cameras, it was decided to install cameras in more buses at all the company's depots. The cost of installing video in one bus was approximately 3,000. It was not considered feasible to equip all 700 buses in the fleet with the full live system. It was decided to convert 24 buses into video buses, with the intention of fitting the remaining buses with dummy cameras at a fraction of the cost of a live system.

PUBLICITY

One of the reasons for speed of improvement in behavior was that the "video bus" was well publicized. Two months after it began operation, Tyne TV's Northern Life magazine ran an item called TV trap for vandals". It was reported that the company was "getting tough with hooligans." The program showed how the video equipment was used to record acts of vandalism and identify offenders. Clips of youths misbehaving on the bus were shown. The project was said to have "proved highly effective," and bus company staff reported that it had "exceeded our wildest dreams". It was also reported that the company was "thinking of fitting cameras to the entire fleet." More recently, local newspapers have carried stories of Go-Ahead Northern's efforts at reducing vandalism on their buses. One front page headline in 1987 read "Bus spy camera traps thug."

BUS WATCH

At the same time that the video cameras were being introduced, the Deputy Manager at the Percy Main Depot, John Dodds, introduced a program of visits to local schools aimed at encouraging children to treat buses and the staff with more respect. Initially this scheme was called the "Our Bus Scheme," but after a few months this was relaunched in a more developed form as "Bus Watch".

Both schemes were very similar. The video bus would be taken to the school. John Dodds would give a short presentation to the children with the help of simple flip charts to describe the bus operation and describe the cost of damage to buses and its implications. The children would then be taken for a ride on the bus on the top deck, during which they were given a competition in the form of a quiz, each of them having to work out a series of answers on a piece of paper. They were then taken to the bus depot and shown around.

The high spot of the visit was when they reboarded the bus to be taken through the bus wash, an experience which always created a good deal of excitement. During both the ride to the depot and the bus wash, the video camera would be switched on, and when the children were taken back to the school, they were shown the video recording. In this way it was hoped they would learn about the risk of being caught misbehaving on buses. The children were also told that cameras were fitted to all buses. They were told that the mirror, which had always been provided for the driver to see what was happening on the top deck, was a one-way mirror behind which was a camera watching them.

The video cameras have proved useful not only in cases of vandalism by schoolchildren, but also in cases such as driver assault, fare evasion, complaints of bad driving, and also for carrying out passengers surveys. Following the experience of Go-Ahead Northern, many more bus companies have installed video equipment. At least one company has installed a live system in every bus in its fleet.

EVALUATION

It was decided to focus this evaluation on the depot from which the first video bus began operating in November 1985, the Percy Main depot in North Shields. Altogether, about 80 buses run from this depot. In August 1986, a second bus at this depot was fitted with live video equipment and three other buses fitted with dummy cameras. The "Our Bus" visits to schools began in April 1986, and "Bus Watch" began in September 1986.

Video tapes, recorded on the two buses, were not systematically stored. Cost would be prohibitive. A potential source of objective data, which could be used to monitor misbehavior on the buses, had been lost. However, a master tape had been compiled of all those cases followed up in the first few months of the first video bus. Although no objective analysis could be made of tapes, it was quite clear from viewing the master tape, talking to those involved in monitoring the tapes, and viewing the tapes currently being recorded that behavior had very significantly improved on the buses.

Having failed to find a suitable method of monitoring the change of behavior directly from the tapes, the researchers sought alternative evidence of the change. One source of data, which was recorded and had been kept for a while, was the workshop record of seat repairs. Unfortunately, these records are only kept for a limited period. At the time of the study the earliest records only went back to the beginning of 1986, so it was not possible to describe the situation before the first video bus began operation. Neither was it possible to breakdown figures for individual buses. However, what figures were available turned out to be so dramatic that their imperfections did not invalidate the research effort. The figure below shows the total number of bus seat cushions repaired each month at the Percy Main depot between January 1986 and May 1987.

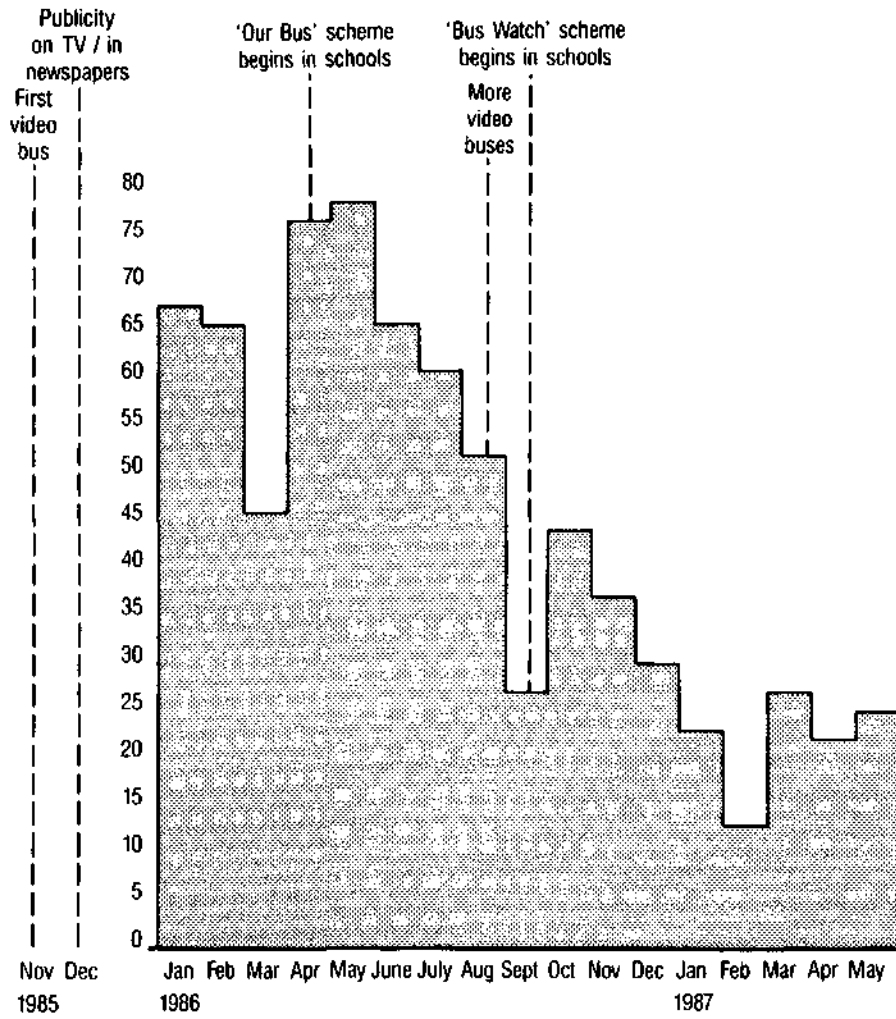
The figure on the next page shows a substantial reduction in damage to seat cushions on buses operating from Percy Main depot. This reduction is not a sudden drop but is a progressive decline over a period of nine months. By May 1987, seat repairs at this depot were a third of what they were one year earlier.

An additional piece of information, which provides more evidence of reduced vandalism on these buses, is that (in this period) the number of bus cleaners at Percy Main was reduced from six to two. There was no longer work for them.

CONCLUSIONS

It is very clear that the number of seat repairs dropped dramatically -- to a third of what it was the previous year, and the number of cleaners has been reduced by a similar proportion. The company would claim this is due to the video cameras and their program of school visits. It has also been pointed out that deregulation of bus services could have led to lower standards and, hence, less repairs and lower cleaning standards. However, the standards for running buses are set by the Traffic Commission at the Department of Transport. Their inspectors still carry out the same

SEAT CUSHION REPAIRS AT PERCY MAIN DEPOT



inspections as before deregulation. Changes in local management could not be reflected in changes in repair and cleaning of buses. Another possibility was that the number of passengers using the buses might have reduced over this period, but, in fact, there has been a slight increase in passengers over this period.

The conclusion that must be drawn is that Go-Ahead Northern's measures to reduce vandalism and misbehavior on their one-person operated double-decker buses have been very successful. It is estimated that the cost of installing live video systems in two buses, dummy cameras in three buses, and conducting a program of work in schoolsoveraperiodof one year has been about 20,000 pounds. Savings inseat repairs over a period of one year are calculated to be something in the region of 17,000 pounds. The savings made by not employing so many cleaners could amount to something like 30,000 pounds each year. There is no doubt that these measures have proved very cost-effective.

The issue of displacement and rational choice

It is perhaps surprising that so few cameras were necessary to achieve these results in a depot operating approximately 80 buses. The school children whose behavior has been changed appear to have been convinced that the risk of being caught, doing damage, or misbehaving has been significantly increased with the introduction of cameras. The method was a combination of several powerful mechanisms, including TV news features and programs of school visits. Effective mechanisms were employed. The first was the school visits to the bus depot in which the effectiveness of the video was demonstrated directly to the children. Second, several individuals were caught and action taken through the schools. Because of the nature of the local community, and the fact that this applied to specific local schools, it is easy to understand how the message was communicated amongst the children.

A further and perhaps surprising finding is in relation to the issue of displacement. A widely held view argues that much crime prevention does not prevent crime but merely displaces it to other locations (see for example Trasler, 1986). The evidence in this case study is the complete reverse of this theory. Damage and other misbehavior was not only reduced on the five buses with live or dummy video cameras, but damage and cleaning problems reduced throughout the whole fleet of 80 buses. It has not been a question of displacing crime from the point of intervention, but that the controlling effect of theintervention has had a much wider effect that might have been expected.

The explanation for this can be related to rational choice theory. The children have learned from the information presented to them, no doubt reinforced by effective communication within their local sub-culture, that the cameras will enable misbehaving individuals to be picked out and that action will be taken. However, what they do not know is how extensive the risk is. They appear to believe that most buses have cameras, or at least they are uncertain about which buses have cameras. The possibility of being caught appears to be too great to be worth the risk, so their

behavior has improved on all buses. It is possible, in time, they may become sophisticated in their understanding of how the system works. They may learn to discriminate between the buses with and without video. Their behavior may become less controlled on buses without video. It would be interesting to find out if this happens.

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