

Measuring Shoplifting by Repeated Systematic Counting

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The aim of the present project was to assess the usefulness of measuring shoplifting by repeated, systematic counting of specified minor items (mainly audiotapes, videotapes, headphones, films, and small domestic appliances in this case). The research was carried out in 15 Dixons and 14 Currys stores, chosen mostly because they were thought likely to have a high shoplifting rate. Overall, 13% of these minor items leaving Dixons stores and 7% of items leaving Currys stores were stolen as opposed to sold. One-quarter of all headphones were stolen in Dixons stores, and one-sixth in Currys stores. The value of minor items observed to be sold in the project was similar to and correlated with the average weekly sales of minor items according to stock audits. The observed percentage shoplifting rate by value was significantly correlated with the percentage shoplifting loss of major items recorded by the Security Department. It was concluded that the counting method had sufficiently high validity to be used on a large scale to evaluate the success of experiments designed to reduce shoplifting.

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Aims

A major problem in studying shoplifting is to measure accurately its nature and extent. Stock audits reveal stock "shrinkage," or the disappearance from stores of merchandise that has not been sold, but it is impossible to know how much of this shrinkage is caused by shoplifting, as opposed to other causes such as staff theft, falsified deliveries, shopsoiled goods, system errors, in-store use of items, and items given away to clinch sales. Generally, retailers are able to attribute only a small percentage of their total audit loss to specific causes, leaving most of the loss unexplained. For example, after surveying over 100 retail groups, the Home Office Standing Conference on Crime Prevention (1986, p. 4) concluded that

One key factor to emerge was the surprisingly large number of retailers who held very little accurate information about their losses through theft. With customer theft known to account for 9% of respondents' identified losses in 1985, and staff theft just 2%, 89% remained unaccounted for.

In addition to victim surveys of retailers, shoplifting can be measured using police records (e.g., Burrows and Lewis, 1987; Poyner and Woodall, 1987) or store detectives' records (e.g., Ekblom, 1986). However, all these methods are indirect, biased, and likely to provide a gross underestimate of the true rate of shoplifting. More valid estimates can be obtained from self-reported offending surveys (e.g., West and Farrington, 1977; Cooper, 1989), but these are still indirect and biased, depending on the ability of respondents to remember and their willingness to tell the truth. Better estimates still can be obtained by systematically observing shoplifting as it occurs (e.g., Buckle and Farrington, 1984). However, systematic observation is very expensive in terms of resources: Buckle and Farrington required 115 person-hours of observation time (and many more person-hours of research time before and after observations) to observe only nine shoplifters. Hence, this method may be difficult to implement on a large scale.

None of these measurement techniques is adequate for evaluating the impact of strategies designed to prevent or reduce shoplifting. The most useful technique for this purpose seems to be the repeated, systematic counting of specified items. If items on displays are counted at least once a day, the removal of items can be detected and shoplifting can be inferred if the items have not been sold, given away, used in the store, stolen by staff, damaged, or moved to other

locations. This technique seems to have been pioneered by McNees *et al.* (1976, 1980) in Tennessee. They attached tags or sticky labels to specified items that were removed by the cashier when the items were sold and made daily inventory counts. Similar methods were used by Thurber and Snow (1980) in the Pacific Northwest and by Carter *et al.* (1988) in Sweden. Repeated, systematic counting has also been used as a measurement technique in other criminological contexts. For example, Graham (1981) studied vandalism in penal institutions by counting the number of broken windows twice a day.

The existing studies of shoplifting using systematic counting have two major limitations: First, each project was carried out in only one store, making it unclear how far this method could be implemented on a large scale. Second, our experience of using this method shows that there is great scope for errors by store staff (e.g., in not removing sticky labels) and by those making the counts, unless the whole project is very carefully monitored. There are hints of difficulties in the existing literature; for example, McNees *et al.* (1976) discussed the problem of items being removed from the clothing department (the site of the research) to other parts of the store by customers or store personnel. However, it is not entirely clear that the necessary rigorous quality control was achieved in previous research projects.

The aim of the present project was to assess the usefulness of the systematic counting method in measuring the rate of shoplifting in a large number of stores and to investigate the validity and correlates of this measure of shoplifting.

Research Design

The research was carried out in Dixons and Currys electronic and appliance stores in England in 1990. Dixons and Currys are both owned by the Dixons Group. While some of the same types of small electrical goods are sold in both types of stores, Dixons stores specialize in electronic merchandise such as stereos, video recorders, and televisions, while Currys stores specialize in domestic appliances such as washing machines, dishwashers, and refrigerators (see, e.g., Burrows, 1988). In the Dixons Group, small items such as audiotapes and films are referred to as "minors," whereas larger items such as televisions or washing machines referred to as "majors." The shoplifting of minor items is unlikely to be noticed, unless a large number disappear in a short time from one

particular store location. The shoplifting of a major item may be noticed and reported to the Security Department (which maintains a database on reported shoplifting), but, often, store staff will surmise that missing items must have been sold.

At the time of the research, there were 349 Dixons stores (mostly in city centers), 460 Currys city center stores, and 84 Currys superstores. The superstores typically have a much larger sales area and are located on the edges of towns and cities rather than in the centers. For example, in 1990, the average sales area was 2102 square feet for Dixons stores, 1847 square feet for Currys city center stores, and 6560 square feet for Currys superstores. Most of the stores protected large valuable items with loop alarms, kept small valuable items in locked cabinets, and had closed-circuit television cameras (which were not always working). The aim of the research was to measure the shoplifting of specified minor items.

The intention was to select stores for the research that were likely to have high rates of shoplifting, with the restriction that there should be an equal number in each of the four regional divisions of the company (South East, South West, Midlands, North/Scotland). The choice of stores was based on regional security managers' nominations of high-risk locations, recorded shoplifting losses, and on recent stock audit results showing high average monthly loss figures. In total, 81 stores were nominated. It was originally planned to measure shoplifting in 32 stores, eight in each region, half Dixons and half Currys (half city center stores and half superstores). It was anticipated that four management trainees in each region would each spend a full trading week (6 days) in each of two stores in that region. The eight stores in each region judged to have the highest risk were chosen for study.

For a number of reasons, the design had to be modified. One management trainee from the Midlands division dropped out, which meant that two Midlands branches were lost (Currys superstores in Stevenage and Cambridge). One management trainee had travel difficulties, so to accommodate her problems the Stevenage Dixons was replaced by the Colchester Currys. Four other chosen branches had closed, and so they were replaced by other branches that were convenient for the trainees; it seems likely that the branches that had closed had high audit losses because they were undergoing their final audits. The changes meant that four of the trainees spent 1 week in their "home" stores (the Blackburn and Colchester Dixons, the Nottingham Currys, and the Bristol Currys superstore). Altogether, 15 trainees measured shoplifting in 30 stores.

Method of Measurement

Shoplifting was essentially measured by repeatedly and systematically counting specified minor items each day and by detecting disappearances of items that could not be otherwise explained. A small sticky label was attached to all such items on open display and not protected by loop alarms. Labels of different shapes and colors were used to identify different types of items in different store locations. The management trainees were asked to label audiotapes, videotapes, films, headphones, and small domestic appliances. They were not asked to label plugs and batteries, but some did. There was some inconsistency between trainees in labeling items behind the cash desk and in locked cabinets; some trainees labeled these items as well as those on open display in front of the cash desk in the main store selling area, but most only labeled items on open display and accessible to customers. In general, the results of this project show only the shoplifting rate of specified "minor" items on open display, not of all such items.

Whenever an item was sold, given away, or used in the store, the staff were asked to peel off the label and stick it on a tally sheet held by the cash register. The trainees counted and recorded the number of each type of item in each store location and attached labels on the day before the project began (the preparation day). They then counted and recorded the number of each type of item at the start and end of each day. By comparing the number of missing items with the number sold, given away, or used in the store, a measure of the number of items shoplifted was obtained. The trainees were also asked to check the cash register rolls to ensure that items had not been sold without staff peeling off the labels. At the end of each day, the trainees completed a daily summary sheet showing the numbers of each type of item sold and stolen and mailed it to David Farrington in Cambridge. They were required to do this each day so that potential problems could be detected and rectified at an early stage.

The management trainees were responsible for replenishing stock, making sure that all relevant items on display were labeled, and that the staff were efficient in removing the labels. They also monitored any rearrangement of displays and any transfer of minor items into or out of the store. They were told that they were not there to sell, but those in their "home" stores felt under some pressure to sell. Staff theft from the displays was unlikely during the week of the project, since the staff knew that the displays were being checked each day and the managers were asked to increase the frequency of staff searches dur-

ing the project week. With only one exception, all trainees were visited during the project by a member of the research team to check that the measurement was being carried out efficiently and to discuss and resolve any difficulties in particular stores. All trainees came to Cambridge for a detailed briefing day just before the project started and for a detailed debriefing day just after it had ended. These days were very important for ensuring the quality of their work, resolving questions, and establishing the validity of the data collection.

This systematic counting method had previously been piloted by John Burrows in 16 Dixons stores in 1987. This pilot work highlighted the importance of careful monitoring by the trainees to ensure that the staff complied with the instructions to remove the labels of items sold, given away, or used in the store. Without careful monitoring, there was a danger that such items might be incorrectly counted as stolen. Ideally, it would be desirable to have at least one preparatory day in which items were counted but the results not included in the analysis, but this was not possible in practice.

One of the 30 stores (a Dixons in Newcastle) had to be eliminated from the analysis because of the invalidity of the data. The staff in this store were hostile to the project and were not only inefficient in removing the labels but deliberately removed items from the sales area to confuse the trainee and spoil the measurement. The validity of the data collection was considered to be very high in 26 of the remaining 29 stores. The other three stores had some worrying features, suggesting that the trainee may not have been sufficiently careful, possibly leading to some slight overrecording of shoplifting in the Wolverhampton Dixons and some slight underrecording in the two Bristol Currys. However, these three stores were retained in the analysis because, in the light of all the available information, their validity was considered to be acceptably high.

Measuring Shoplifting

Table 1 shows the number of counted items sold and stolen in each store during the trading week and the value of items sold and stolen. (Note: East Ham, Lewisham, Peckham, Streatham, Holloway, Putney, Southall, and Walworth are all areas of London.) The percentages show the proportion of specified items (both in number and in value) stolen, out of all the items leaving the store (sold or stolen). For example, in the worst store (the Bradford Dixons), more than one-third (35%) of minor items leaving the store were

stolen and 36% of the stock by value was stolen. Interestingly, this store was also the worst (out of 16 Dixons) in the 1987 pilot study, with 24% of minor items stolen by value at that time. This replication over time increases our confidence in the validity of the systematic counting method.

Other stores with very high shoplifting rates were the Altrincham Dixons (29% of items stolen, 31% loss by value) and the Glasgow Currys (29% of items stolen, 33% loss by value). Generally, results obtained by focusing on the number of items stolen were very similar to those obtained from the value of items stolen. In fact, the percentage of items stolen correlated .98 with the percentage stolen by value, showing that essentially the same conclusions would emerge from using either method. The focus in the remainder of this section is on the number of items stolen rather than on their value.

Generally, the stores with the highest shoplifting rates were either in shopping centers or in poor inner-city areas and attracted a rough clientele. The Bradford, Altrincham, Wolverhampton, and Manchester stores were located in shopping centers that had gangs of youths roaming around. The Glasgow, Walworth, Peckham, and Portsmouth stores were located in poor inner-city areas. Of the nine stores with the highest proportion of items stolen (14% or greater), the only exception was the Reading store, which was located in an affluent area.

Over all 29 stores, 11% of specified items leaving the stores were stolen as opposed to sold (i.e., 474 out of 4361). The percentage of items stolen was twice as high in the Dixons stores as in the Currys stores (13% as opposed to 7%). The average Dixons store sold 171 of these items during the week and had 25 stolen, while the average Currys store sold 95 items and had seven stolen. The five Currys superstores had a particularly low shoplifting rate (429 items sold and 15 items stolen, or only 3% stolen). This is probably because of their locations on the edges of towns and cities. Customers usually make a special effort to drive to them for major domestic appliances, so they attract a more respectable clientele in comparison with the city center stores.

Table 2 shows the shoplifting rates for the different types of items. Audiotapes, videotapes, and headphones were counted in virtually all stores, the major exceptions being where headphones were kept in locked cabinets. Films were counted in virtually all Dixons stores, and small domestic appliances in all Currys stores; Currys did not sell films, and Dixons did not sell small domestic appliances. Headphones were the most likely type of item to be stolen in both types of stores. Over all the Dixons stores, one-quarter

Table 1. Specified Minor Items Sold and Stolen in Each Store

Store	No. Items			Value in £		
	Sold	Stolen	% Stolen	Sold	Stolen	% Stolen
Dixons						
Altrincham	72	30	29.4	557	256	31.5
Blackburn	187	8	4.1	1,507	80	5.0
Bournemouth	261	14	5.1	1,630	99	5.7
Bradford	110	59	34.9	784	441	36.0
Colchester	240	0	0.0	1,959	0	0.0
East Ham	93	12	11.4	481	56	10.4
Leeds	227	30	11.7	1,581	188	10.6
Lewisham	201	16	7.4	724	79	9.8
Manchester	189	35	15.6	1,311	384	22.7
Nuneaton	99	2	2.0	830	24	2.8
Peckham	247	45	15.4	1,628	469	22.4
Portsmouth	158	26	14.1	1,090	198	15.4
Reading	194	39	16.7	1,569	299	16.0
Streatham	82	10	10.9	484	32	6.2
Wolverhampton	199	54	21.3	1,292	358	21.7
Total Dixons	2559	380	12.9	17,427	2963	14.5
Currys						
Aberdeen (SS)	54	0	0.0	632	0	0.0
Bristol	60	1	1.6	654	8	1.2
Bristol (SS)	50	0	0.0	578	0	0.0
Cardiff	209	1	0.5	1,958	5	0.3
Cardiff (SS)	159	6	3.6	1,801	50	2.7
Colchester	71	2	2.7	813	18	2.2
Glasgow	57	23	28.8	435	212	32.8
Holloway	62	7	10.1	308	45	12.7
Leeds (SS)	60	0	0.0	887	0	0.0
Northampton (SS)	106	9	7.8	516	49	8.7
Nottingham	94	4	4.1	1,035	29	2.7
Putney	83	3	3.5	613	13	2.1
Southall	147	13	8.1	1,055	83	7.3
Walworth	116	25	17.7	1,025	275	21.2
Total Currys	1328	94	6.6	12,310	787	6.0
Grand total	3887	474	10.9	29,737	3750	11.2

SS = superstore.

of all headphones were stolen and one-sixth of all headphones were stolen in Currys stores. The Walworth Currys had more headphones stolen than sold in the project week (11 as opposed to nine), while the Bradford Dixons had the same number stolen as sold (11) and the Altrincham and Manchester Dixons had nearly as many stolen as sold.

Table 3 shows the number of items sold and stolen on different days of the week. It can be seen that many more items were sold and stolen on Saturday than on any other day. However, the percentage of items stolen (out of all those sold and stolen) was no greater on Saturdays, despite the fact that the stores were more crowded. In fact, in the Dixons stores, the

percentage stolen was lowest on Saturdays. In both Currys and Dixons, the shoplifting rate was greatest on Thursdays and Fridays.

The Validity and Correlates of Measured Shoplifting

It was possible to compare the measured rate of shoplifting in this project with stock audit losses and shoplifting incidents reported to the Security Department. First, Table 4 shows the average value of minor items observed to be sold (averaging about £1,000 in each store) and stolen (averaging about £200 in each Dix-

Table 2. Types of Items Sold and Stolen

Item	Dixons				Currys			
	Stores	Sold	Stolen	% Stolen	Stores	Sold	Stolen	% Stolen
Audiotapes	15	966	117	10.8	13	249	9	3.5
Videotapes	14	656	113	14.7	14	326	29	8.2
Films	13	403	65	14.5	—	—	—	—
Headphones	11	162	50	23.6	11	71	14	16.5
Dom. app.*	—	—	—	—	14	444	19	4.1
Plugs	5	164	16	8.9	4	189	16	7.8
Batteries	2	152	12	7.3	2	41	7	14.6
Other*	7	56	7	11.1	4	12	0	0.0
Total	15	2559	380	12.9	14	1328	94	6.6

*Dom. app. = small domestic appliances (toasters, irons, kettles, food processors, hand whisks, hair dryers, shavers, fryers, mixers, coffee makers, etc.). Other = computer disks, cassette care, personal stereo, photo albums, camera bags, etc.

Table 3. Shoplifting on Different Days of the Week

Day	Dixons			Currys		
	Sold	Stolen	% Stolen	Sold	Stolen	% Stolen
Monday	373	68	15.4	203	12	5.9
Tuesday	298	48	13.9	144	8	5.3
Wednesday	329	38	10.4	163	4	2.4
Thursday	283	62	18.0	164	14	7.9
Friday	316	63	16.6	166	21	11.2
Saturday	960	101	9.5	488	35	6.7
Total	2559	380	12.9	1328	94	6.6

Table 4. Summary Statistics for Sales and Losses

	Dixons' Average	Currys' Average
Observed sold (£)	1,162	879
Observed stolen (£)	198	56
% Stolen	14.4	6.7
Audit period (weeks)	67	60
Av. weekly sales—minors (£)	1,478	1,646
Av. weekly sales—majors (£)	34,269	55,060
Av. weekly loss (£)	832	787
% Loss	2.4	1.8
1-week sales (£)	26,994	33,538
1-year recorded theft (£)	2,006	807
% Recorded theft	0.10	0.03
Sales area (sq. ft.)	2,463	3,797
No. staff	5.9	5.2

ons store and about £50 in each Currys store) in the project week. When the value of items stolen was expressed as a percentage of the value of items (sold + stolen), this averaged 14.4% in Dixons stores and 6.7% in Currys stores. (Note that these average percentages are slightly different from the total percentages in *Table 1*, based on total values sold and stolen.)

Stock audit figures were obtained for at least 1 year before the last date of stocktaking before the project. *Table 4* shows that the average stock audit period was 67 weeks for Dixons stores and 60 weeks for Currys stores. From the stock audit figures, the average weekly sales of minor and major items and the average weekly audit loss were calculated for each store. *Table 4* shows that, an average, about £1,500 worth of minor items and £44,000 of major items were sold each week in

each store. Also, the average weekly audit loss was about £800 per store. When this audit loss was expressed as a percentage of the total value of items leaving the store (majors + minors + loss), it averaged 2.4% in Dixons stores and 1.8% in Currys stores. The total sales of each store were also obtained during the week of the project. Table 4 shows that the Dixons sales were slightly below average in this week (£26,994 as opposed to £35,747), while Currys sales were considerably below average (£33,538 as opposed to £56,706). Exactly 3.4% of total sales by value were of minors according to the audit figures (£1,558 out of £45,864) and according to the project results in relation to the week's sales (£1,025 out of £29,902), suggesting that valid information was collected in the project.

The recorded shoplifting loss of each store during the year before the project was also obtained. As already mentioned, stores only report shoplifting losses to the Security Department if they notice large and/or costly major items disappearing and if they cannot attribute this disappearance to any other cause. Table 4 shows that the average recorded shoplifting loss in this year was about £2000 in Dixons stores and about £800 in Currys stores. Comparing these figures with the average audit loss of about £800 per week shows that only about 3% of the stock audit loss could be accounted for by recorded shoplifting losses of major items. However, the project discovered average losses of minor items in 1 week of about £200 in Dixons stores and £50 in Currys stores; these figures suggest that about 25% of the audit loss in Dixons stores and 7% in Currys stores might be attributable to the shoplifting of minor items.

The recorded shoplifting loss was also expressed as a proportion of the total stock by value (average

weekly sales of majors + minors + shoplifting loss). On average, recorded shoplifting accounted for only about 0.1% of Dixons stock and only 0.03% of Currys stock. Table 4 also shows the average sales areas of the stores (according to Dixons Group records) and the average number of staff usually on duty in each store during the week (according to the management trainees).

Table 5 shows the intercorrelations among all these different measures. Significant correlations are indicated by asterisks. Notably, the percentage shoplifting rate of minor items in the project was significantly correlated with the recorded shoplifting loss expressed as a percentage of the total stock by value ($r = .52, P = .004$). Hence, the stores with high recorded shoplifting rates for major items also tended to have high observed shoplifting rates for minor items in the project. This increases our confidence in the validity of the project measurement of shoplifting and also suggests that the major determinant of all kinds of shoplifting might be the type of area and clientele of the store.

However, the percentage shoplifting rate in the project was not at all correlated with the percentage audit loss ($r = .03$). The percentage audit loss was significantly correlated with the percentage recorded shoplifting loss ($r = .41, P = .029$). These results suggest that stock audit losses are influenced more by the shoplifting of major items than by the shoplifting of minor items, or possibly that store personnel who are aware of high audit losses are particularly likely to report any shopliftings that they detect in order to minimize any suspicions of staff theft or mismanagement.

The observed sales of minor items recorded by the management trainees in the week of the project were

Table 5. Intercorrelations of Shoplifting Measures

	Obs. Sold	Obs. Stolen	% Stolen	Minors Sales	Majors Sales	Audit Loss	% Loss	1-Week Sales	1-Year Theft	% Theft	Sales Area
Obs. stolen	20	X									
% Stolen	-14	87*	X								
Minors sales	49*	-20	-32	X							
Majors sales	26	-33	-39*	53*	X						
Audit loss	-09	-03	-06	-03	-04	X					
% Loss	-22	-01	03	-23	-42*	84*	X				
1-week sales	40*	-09	-26	26	84*	06	-29	X			
1-year theft	-10	35	37*	-09	-19	38*	28	-04	X		
% Theft	-25	42*	52*	-32	-52*	29	41*	-38*	83*	X	
Sales area	15	-37*	-46*	32	80*	-09	-40*	61*	-18	-43*	X
No. staff	49*	04	-17	43*	31	-02	-23	42*	01	-21	16

The figures show correlations $\times 100$. Obs. = Observed in research project.

* $p < .05$, two-tailed.

significantly correlated with the average weekly sales of minor items in the previous year or so according to stock audit figures ($r = .49, P = .007$). Similarly, the observed sales of minor items during the week of the project were significantly correlated with the total recorded sales of the stores during that week ($r = .40, P = .037$). All these results suggest that the trainees were recording valid information about sales and losses due to shoplifting.

The percentage shoplifting rate observed in the project was significantly negatively correlated with the sales area of the store ($r = -.46, P = .012$), showing that the larger stores (and especially the Currys superstores) had lower shoplifting rates. Similarly, the percentage audit loss was negatively correlated with the sales area ($r = -.40, P = .033$), as was the percentage recorded shoplifting loss ($r = -.43, P = .021$). Also, the percentage observed shoplifting rate ($r = -.39, P = .036$), the percentage audit loss ($r = -.42, P = .023$), and the percentage recorded shoplifting rate ($r = -.52, P = .004$) were all negatively correlated with average weekly sales of major items, which were greatest in the Currys superstores. Table 5 shows a very high correlation ($r = .80, P < .0001$) between the sales area and the average weekly sales of major items. Interestingly, none of these measures of shoplifting was significantly correlated with the number of staff in the store. However, the number of staff was significantly correlated with the observed number of sales of minor items in the project ($r = .49, P = .007$), with the average weekly sales of minor items ($r = .43, P = .02$) and with the total sales during the week of the project ($r = .42, P = .027$).

Conclusions

This method of repeated, systematic counting of items revealed high rates of shoplifting. In the worst store, more than one-third of minor items leaving the store were stolen. One in eight of all items leaving Dixons stores was stolen, compared with one in 14 of all items leaving Currys stores. Generally, the stores with the highest shoplifting rates were located either in shopping centers or in poor inner-city areas and attracted a rough clientele. The Currys superstores had low shoplifting rates, probably because their locations on the edge of towns and cities meant that their clientele was more respectable. The most vulnerable items were headphones. One-quarter of all headphones were stolen in Dixons stores and one-sixth in Currys stores. In both types of stores, the shoplifting rate was greatest on Thursdays and Fridays.

It must be remembered that the 29 stores studied

in this project were in most cases chosen because they were thought to be at high risk of shoplifting. Hence, the results cannot necessarily be generalized to all Dixons and Currys stores. However, the existence of the project was likely to suppress the usual rate of shoplifting for two reasons: The first is that the mere presence of the management trainee might significantly increase the number of staff in a store who could see a shoplifter; in some of the smaller stores, there were usually only two or three regular staff on duty. The second is that the regular staff might have become more sensitized to the possibility of shoplifting, especially if the trainee informed them that specific items had been stolen. There may be a tendency in some stores to explain away missing items by saying that they must have been given away or used in the store, because staff may feel that shoplifting reflects badly on them; even one of the trainees wrote that "the project has been successful in that little has been stolen." Taking all things into consideration, it is unlikely that the rate of shoplifting measured in this project is an overestimate of the true rate in these stores.

The counting method has considerable scope for errors by store staff and management trainees, and careful instructions and monitoring of and by the trainees is essential in order to collect valid data. Generally, the present data seemed to have high validity. The value of minor items observed to be sold was similar to and correlated with the average weekly sales of minor items according to stock audits. The observed percentage shoplifting rate by value in the project was significantly correlated with the percentage shoplifting loss of major items recorded by the Security Department. Overall, it can be concluded that the counting method has sufficiently high validity to be used on a large scale to evaluate the success of experiments designed to prevent or reduce shoplifting.

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