



2009 Herman Goldstein Award for

Excellence

Problem-Oriented Policing Submission

“Trolley Safe”

*“A design based problem solving response to reduce
purse thefts from shoppers in supermarkets”*

Summary

Scanning

In 2006, 13% (595) of crimes committed at shops in Warwickshire were classified as “other thefts”.

Whilst many of these crimes are self evident such as shoplifting and robbery, what constituted “other thefts” remained unclear. Initial analysis, revealed that in 42% (253) crimes of such offences involved victim’s purses or wallets being stolen.

Analysis

Analysis of the 253 crimes revealed:

- i. The highest numbers of offences were at supermarkets, 50%.
- ii. Many purses and wallets were stolen from personal bags or shopping trolleys, whilst shopping in supermarkets.
- iii. Elderly victims had a disproportionately high rate of victimisation.

The identified problem was:

How can thefts of purses and wallets from shoppers’ bags in supermarkets be reduced, especially for the most victimised group, elderly females?

Response

To engage partners to design, implement and evaluate a device for the secure storage of customer’s bags on a shopping trolley.

The design based response was a “trolley safe” which was fitted to the underside of shallow shopping trolleys, which were favoured by elderly shoppers.

A three-month, evaluated trial of the “trolley safe” was completed at Asda supermarket in Warwickshire.

The aims of the trial were twofold:

- i. Primary aim: To assess the suitability of, use and customer response to, the trolley safe in a supermarket setting
- ii. Secondary aim: To consider the impact of the trolley safe on theft levels

Assessment

The evaluation included store visits, user observations, customer surveys and the monitoring of theft levels.

The key findings were:

Primary aim:

- i. The trolley safe was used by 19% of observed customers,
- ii. 85% of survey respondents said they would use the trolley safe again and 93% reported a reduction in the fear of bag theft when using the trolley safe.
- iii. Design and maintenance issues were identified. Consequently the size of the trolley safe and it's position on the trolley requires further consideration.

Secondary aim:

- i. No impact on theft was observed. Theft levels were the same as the previous year both at Asda (the test site) and at the control site. This was attributed to the short time frame for the evaluation.
- ii. However none of the thefts at Asda were from trolleys fitted with the trolley safe.

The evaluation revealed a high level of customer acceptance, ease of use, and reduction in the fear of victimisation, with the potential to reduce crime levels following improvement in design.

State number of words: 397

Description of project

Scanning

In 2006 13% of all crime (595 crimes) committed in Warwickshire, where the location was given as any type of shop, were classified as “other thefts”. Whilst many of the crimes in shops are self evident such as shoplifting, theft from person and robbery, what constituted and had been recorded as “other thefts” remained unclear. If the 13% could be understood, then interventions could be introduced to help prevent such crimes occurring.

Initial analysis of what was stolen revealed that 42% (253 crimes) were victims’ purses or wallets.

It could be presumed that this type of crime would have been recorded as theft from person, but this is in fact not the case. This is explored further in the analysis section.

The thefts of purses and wallets was considered important as this can lead to further crimes when contents such as credit cards are used to commit further offences, for example, fraud and identity theft.

Thefts of purses and wallets was not an unknown problem and had been previously addressed by the distribution of cat bells to attach to purses to both raise awareness and alert owners if they were being unlawfully removed. No evaluation data was found on this approach. Internet research revealed that this approach had been taken in several Police force areas but was not sufficiently evaluated.

Further internet research found an American web site www.bagtheftblog.com, which suggested a number of methods to help prevent bag theft. These include putting chicken wire inside the bag to prevent theft by slashing, (a method not known to the authors or revealed in our data), travel padlocks, cords attached to the purse and the use of alarms.

The British Crime Survey 2006 – 2007 showed that 19% of all thefts from the person occurred inside supermarkets.

An initial scan of our data showed that 50% of the thefts of wallets and purses occurred in supermarkets.

(Appendix A - Figure 1 Location of Thefts of Purses and Wallets 2006)

It was therefore decided to look in depth at this data to define the problem further.

Analysis

The analysis looked at the data for 'other thefts', where supermarkets are the location and the stolen property type was purses and wallets. The crime category 'other theft' differs from 'theft from person', but in reality is similar. To constitute a 'theft from person' the theft must have been known to take place directly from the person and not from a remote location such as a bag in a shopping trolley.

This similarity meant that the response could potentially prevent both types of crime.

The data covering the period 1st January to 31st December 2006 came from the Warwickshire Police crime recording system. Some crime records had data missing resulting in small disparities when crime numbers are quoted. The data was however of sufficient quality to enable some reliable conclusions to be reached.

Victims

86% of the victims were women.

The victimisation rate increased with age, based on the population figures of Warwickshire. The highest victimisation rates being for the shoppers aged 70 and above.

(*Appendix A - Figure 2 Bag Thefts Victimisation by Age Group 2006*)

The British Crime Survey 2007 – 2008 in considering *theft from the person* reported that women were more likely to have been the victims of theft from the person than men.

Locations

Analysis was conducted to determine in which supermarkets the offences were concentrated.

Tesco Bedworth – 24 crimes

Asda Nuneaton – 23 crimes

Sainsburys Warwick South – 10 crimes

Sainsburys Warwick West – 7 crimes

Asda Leamington - 6 crimes

These 5 supermarkets (from 16 in the data) constituted 55% (70 crimes) of all offences.

Offenders

There was little offender data as most offences were undetected, but understanding how the offender operated would inform the response. The **Modus Operandi** for each offence was read from the crime data and coded by where the purse or wallet was stolen from, if known. Figure 3 below shows that 74 (59%) of the purse or wallet thefts were from trolleys. 23 (18%) were from the owner's handbag or shopping bags.

(Appendix A – Figure 3 Method of Theft of Purses and Wallets Stolen from Supermarkets in Warwickshire 2006)

Visits to supermarkets were made to observe the activity of shoppers with trolleys. In particular it was noted that the elderly used *shallow* trolleys and presented opportunities for theft of, or from, their personal bags if they left their trolleys to fetch goods or turned away from the trolley whilst selecting goods. This preference corresponded with the literature on shopping patterns amongst elderly shoppers.

Summary

From this analysis we formed a view that elderly female shoppers were the most likely victims of the theft of purses or wallets from either trolleys or personal bags in trolleys whilst shopping in supermarkets.

This led us to the conclusion that a means of protecting purses or wallets on the shopping trolley was required. A mechanism to achieve this could be the placement of a secure area in or on the shopping trolley.

This could potentially lead to a reduction in thefts of these items.

Response

How could we encourage guardianship of personal property by supermarket customers?

How could we deter offenders and increase the risk?

When considering the above questions a response that went beyond a short-term prevention solution or an awareness campaign was sought. A long-term, permanent and targeted solution was the objective.

Design Response

Our solution was the creation of a safe storage area within shallow supermarket trolleys (the type that we had observed were favoured by elderly customers). Customers could place their bags, purses or wallets into this safe storage area whilst shopping. Attempting to steal from such a storage area would increase the risks for offenders.

Our initial idea was to cut a hole in the base of the trolley and install a drop box with a flap on the top that could be closed. Supermarket shopping would then be placed on top of the flap creating a natural barrier between bags, purses or wallets and would-be offenders.

Whilst visiting one of our local supermarkets, it was discovered that a global manufacturer of shopping trolleys, Wanzl, was based at Leamington Spa in Warwickshire.

Following an initial meeting with Wanzl, the company was provided with a scoping paper and letters of support from partners. They agreed to help design an industry response that would be trialled within a supermarket environment. They were very enthusiastic about the project.

The initial proposal of a flap in the floor of the trolley leading to a drop box was not feasible due to technical and cost implications. A storage area within the trolley was the next option considered. However, this would have reduced shopping space and Wanzl advised that this would not be acceptable to supermarkets as there is a proven relationship between the trolley volume and the spend in the supermarket per customer.

In early 2008, following the production of two prototypes, and several meetings and testing sessions Wanzl produced a trolley safe that was suitable for a trial. Wanzl offered two versions, one in red and a second in silver. The red version was chosen as it was felt that shoppers were more likely to notice and then use it.

The Trolley Safe

The Trolley Safe is a basket attached to the underside of shallow supermarket trolleys. It is fixed by 3 hooks, which attach directly to the existing chassis. The shopper places their bag in the safe, raises the flap that moves up when the trolley is stacked and then lifts up the safe door, which hooks over the lip of the trolley. The stacking flap then locks down over the safe door.

(Appendix B – Image 1, The Trolley Safe and Image 2, Trolley Safe fitted on Trolley)

Customer instructions were fixed to the safe flap to demonstrate correct use and a notice was fixed on the floor of the trolley to remind shoppers to use the safe.

(Appendix B - Image 3, Trolley Safe Customer Instructions)

Resources

Up to this point Wanzl had provided their expertise at no cost and the authors had absorbed the project work into their daily workload. They had discussed with Wanzl the cost of manufacturing the trolley safe and which supermarkets were Wanzl customers in Warwickshire. This included Asda and Tesco.

Asda were approached to ask if their store at Nuneaton could be the trial site and if they would fund the trolley safes. This supermarket had previously been very proactive in engaging with Warwickshire Police in implementing crime prevention measures and partnership working.

A meeting was held with a senior member of the Asda security team. A member of Wanzl marketing team also attended and a trolley safe was taken to demonstrate. The meeting focused on the proposed trial from retail, as well as a crime perspective.

Asda agreed to allow their store in Nuneaton to host the trial and to purchase the trolley safes that would be used during the trial. Wanzl arranged for the manufacture and fitting of a trolley safe to all 285 shallow trolleys at Asda.

Evaluation

It was recognised that the evaluation of the trial was critical to provide evidence to influence the future design and manufacture of shopping trolleys. The authors did not have the skills to complete a comprehensive, credible evaluation. They had the skills to project manage the process and collect data, but were less confident in understanding exactly what data we should collect and its interpretation. Assistance from an external partner was required. Government Office West Midlands was approached and offered funding for the evaluation.

UCL Jill Dando Institute of Crime Science was appointed to advise on the trial and evaluation.

Project Implementation

It was agreed that the trolley safe trial would last for 3 months, commencing Monday 27th October 2008.

A full briefing meeting was held with the management of Asda at Nuneaton prior to the commencement of the trial. The store has front of house staff called "greeters". They agreed to pass on a questionnaire to any one they saw using the trolley. The local Community Safety Partnership and Police were fully briefed on the project.

The trial had a media launch led by the Chairman of the County Community Safety Partnership. (*Appendix B – Image 4*). The launch gave some positive press coverage to Asda and marketed the trial to the residents of Nuneaton. BBC TV attended and the trial was featured on the Regional news and in local and national newspapers. Both the BBC and the local newspaper web site also featured a video of how to use the trolley safe. It has also found its way onto [‘Youtube’](#).

The Trial

Trolley Safe flyers and general advice about purse safety were circulated to the elderly in Nuneaton via a distraction burglary initiative and a group working with elderly people. Local Neighbourhood Watch featured the initiative in their magazine circulated to 6,500 residents. An A2 poster was displayed in the main entrance foyer to Asda asking shoppers to use the trolley safe. A talking sign to remind customers to use the trolley safe was considered but there were too many trolley bays to do this.

The aims of the trial were:

(i) Primary aim:

- a. Assess the suitability and customer response to the trolley safe in a supermarket setting.
- b. Assess the extent to which the trolley safe was used
- c. Assess the actual design of the trolley safe in its working environment

(ii) Secondary aim:

- a. To consider the impact of the trolley safe on crime levels (although it was recognised that 3 months was too short a period to draw any substantive conclusions).

Assessment

The Evaluation

The evaluation had 3 elements.

1. User Observation Form

To assess if the trolley safes were being used correctly and whether they were being used as intended. Collecting information about the users and non-users was also important to record any feedback such as why the trolley safe was not being used.

The store was visited once each week. Observation forms were completed covering all days of the week.

2. User Questionnaire

To obtain user feedback on the trolley safe design and customer perceptions on fear of crime.

Store staff and observers distributed the questionnaire to anyone that they saw using the trolley safe.

The observation and survey forms were developed from those designed for another project, which evaluated the use of Chelsea clips, designed to secure bags against theft in bars in London.

3. An impact evaluation

To review the impact the trolleys had on theft levels, using recorded crime data and collecting extra information from the trial site, this being, if there were any purse thefts during the trial period, then, what sort of trolley was the victim using.

A "control site", Tesco at Bedworth, an adjacent town was agreed. This "control site" had similar level of victimisation. This allowed for a comparison of crime trends.

The authors, UCL and Wanzl held monthly review meetings. Regular contact was maintained with Asda staff at the trial site.

Evaluation Results

User Observation

Thirteen weekly observation visits were made and 231 shoppers were observed using shallow trolleys with the trolley safe attached.

Of these, 203 shoppers had bags with them, either in a trolley safe or elsewhere, made up of 68.8% (159) individual female shoppers, 14.7% (34) male and female pairs and 4.3% (10) single male shoppers.

Regrettably, the estimated age of customer was only recorded in 45% of cases. Of those, the most common group observed using the shallow trolleys were those aged 35-60 years (46, 19.9%) and over 60 years (26, 11.3%).

Trolley Safe Usage

Of the 203 observations 39 were observed using the trolley safe: **a usage rate of 19.2%**, all except one using the safe as intended. (It was used to store goods purchased elsewhere).

Compared to other design-based interventions this usage rate is encouraging. Sidebottom et al. (unpublished) found that out of 317 customer surveys in 14 pubs only 2% reported using Chelsea clips.

The usage rate for the trolley safe gradually declined over time. In the week in which the trolley safe was first implemented, half of all customers observed with a bag using a shallow trolley, were using the trolley safe. By week 13, no customers were observed using the trolley safe.

A plausible explanation is that initial uptake immediately following implementation reflected heightened publicity surrounding the introduction of the trolley safe. A reason for the decline in usage was that the trolley safes progressively became damaged over time and unusable. (discussed later).

Trolley Safe Non-User Profile

Of those observed using shallow trolleys but not putting their bag in the trolley safe, the majority 40% (62) were found to be keeping their bag on their shoulder.

(Appendix A - Figure 4, Non Users of Trolley Safe Observed During Trial, Location of Bag (154 observations))

Comments made to Observers

Understanding why customers failed to use the trolley safe was important and comments solicited by the observers explain this. 67% (156) of customers offered comments.

(Appendix A - Figure 5, Customer Comments to Observers During Trial)

31% (48) of these customers said that their bags were too large to fit in the trolley safe.

This is an important finding as it indicates that nearly a third of all customers observed at the trial site were unable to use the intervention because their bag was too large to fit within the current dimensions of the trolley safe. This occurred because the size and location of the trolley safe was constrained so that the volume of the trolleys was not affected. Fitting the intervention underneath the trolley thus limited the size of the trolley safe so as not to affect the trolley stacking procedure. Selecting what size the trolley safe should be, therefore had to take account of the needs of the retailers balanced against trying to maximise usage, some of which might impact the effectiveness of the intervention. (Figure 6 below)

Therefore, finding that nearly a third of customers could not use the intervention because of its current size is an important result for improving the current design.

24% (38) of customers preferred to keep bags on their person.

The observers when speaking to shoppers felt that there was a strong element of security in being able to have physical contact with their shopping bag.

27% (42) responded that the trolley safe was a good idea.

This suggests that the measure was well received.

Customer Surveys

47 customer surveys were distributed to trolley safe shoppers, 28 surveys were returned, a response rate of 60%. 61% (17) of the respondents were aged 60 or over. 96% (27) of respondents were women,

Survey Results

One person indicated that they had been the victim of a bag theft from a supermarket in the last 12 months.

What Drew Your Attention to the Trolley Safe?

(Appendix A – Table 1, Means by Which Users Were Alerted to the Trolley Safe)

68.6% (24) indicated that they saw the trolley safe without any prompting from the researcher. Of those respondents (see Table 2 above), 54.3% (14) reported that they instantly noticed the trolley safe on taking their shallow trolley.

This is important as it suggests that the intervention was successful in terms of communicating to potential users the presence of the trolley safe.

A further 17.1% (6) reported that they were alerted to the trolley safe by supermarket staff. This finding reinforces the benefits of working in partnership with stakeholders who support crime prevention schemes, and in this instance were motivated to alert and encourage customers to the interventions existence.

Future Use of the Trolley Safe?

85 % (23/27) of respondents reported that they would use the trolley safe again.

This implies that the intervention was well received and did not affect the shopping experience of respondents.

Rating the Trolley Safe?

Customers were then asked to rate the design and ease of use of the trolley safe on a scale of 1 to 5. 5 being the lowest. The figures given are means.

Visibility

The highest rating 1.42 (range 1 to 4) was for the visibility of the trolley safe.

This suggests the decision to use the red colouring for the trolley safe succeeded in attracting customer attention.

Ease of Use and Practicality

When asked about the *ease of use* and *practicality*, the mean response was 1.50 (range 1 to 4) and 1.56 (range 1 to 5) respectively indicating that few had problems using the intervention.

Appearance and Design

Finally, when asked to rate the trolley safe for its *appearance and design*, the mean response was 1.92. (range 1 to 4)

The ratings show that from a design, functionality and visibility perspective, encouragingly few respondents indicated that they had trouble noticing, accessing or operating the trolley safe.

Instructions

89.3% of those surveyed reported that the instructions on the trolley safe were useful.

Consumer Issues

These responses are important in being able to convince the supermarket industry to invest in adding trolley safes to their shopping trolleys.

89.3% of users classified themselves as frequent shoppers of the Nuneaton Asda store.

Customers were asked if the availability of the trolley safe would affect the choice of which supermarket they visited.

39.3% did report that it would affect their choice of supermarket because the trolley safe increased their perceived security against bag theft whilst shopping.

This is important from a retail perspective as a means of encouraging (or retaining) customers in a competitive market.

Those that said it would not affect which supermarket they shopped at justified this by stating they always shopped at this particular store.

One customer reported to an observer that they were dismayed to find that on a visit to Asda in Exeter the trolley safe had not been fitted to trolleys in all stores.

Fear of Crime, Fear of Bag Theft

Respondents were asked as to whether the trolley safe affected their fear of crime and fear of bag theft.

92.9% indicated that the trolley safe made them more aware of the location of their bag. Importantly, 67.9% qualified this by adding that it didn't make them feel more afraid of crime per se, but rather, 92.9% reported a reduction in fear of bag theft victimisation through using the trolley safe.

This is particularly relevant given the intended target audience for intervention, "senior women, are found to display heightened anxiety about victimisation compared to other age groups" (Beaulieu et al. 2007; Schaffer et al. 2006).

Cost-effectiveness

The cost of producing and fitting one trolley safe was estimated at £17.50.

A recent report by Dubourg et al. (2005) put the average cost of theft from a person (excluding vehicle theft) at £634. Using these estimates, a supermarket fitting 200 trolleys with safes would cost £3,500. To reap economic savings, this would require a reduction of only 6 bag thefts, albeit aware that such costs are not felt by the supermarket but rather criminal justice costs and victim costs.

Crime Analysis: All Bag Thefts

All bag thefts were analysed to assess the overall impact on bag theft at the conclusion of the trial.

(Appendix A – Table 2 Comparison of Impact on Bag Theft Before and During the Trial)

Both test and control sites displayed a similar volume of bag theft in the period following the trial and there is no pattern to suggest bag theft at the trial site fell beyond what would have been expected. This is demonstrated below which compares bag theft count across the two sites before and after implementation. In the trial and control site respectively, 11% and 10% of recorded bag thefts occurred in the after period.

The conclusion is the trial had no impact on thefts from trolleys during the trial period. However this was attributed to the short time scale and limited number of supermarkets available for evaluation. On a positive note, none of the thefts from trolleys during the trial were from shallow trolleys.

At the conclusion of the trial the safes were removed.

Next Steps

Wanzl and Asda have received the evaluation. Both have said they wish to continue to be involved in the development of the trolley safe. The Project Team has met with Wanzl and agreed the design changes required to the trolley safe based on the trial.

The Designing Out Crime Alliance will be contacted to ask if they will assist in promoting the trolley safe.

Enquiry at the store reveals at least 60 people, mainly the elderly, have asked where the trolleys safes were, which suggests it was valued and is now being missed.

Conclusion

The trolley safe as a mechanism to store valuables whilst shopping in supermarkets is a workable solution. The project has provided good feedback to refine the design.

The customer feedback is strong in terms of being able to convince the supermarket industry that there is some commercial advantage in using this design-based intervention.

A future trial would take place over a longer time period so as to provide a better test of the impact of the trolley safes on crime levels, with the added value of also potentially reducing "theft from person" as well as "other theft" crimes.

The project showed that, industry, the retail sector, the public and the public sector can work in partnership to design out crime.

State number of words used: 3889

Appendix A – Graphs and Charts

Figure 1 – Location of Thefts of Purses and Wallets 2006

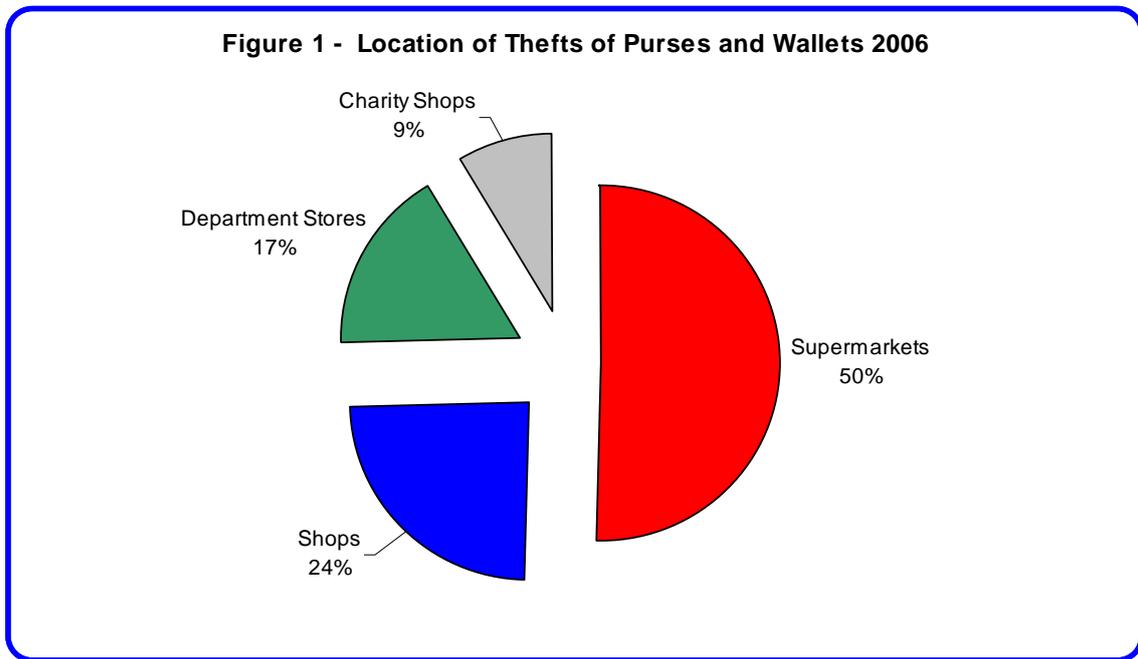


Figure 2 – Bag Thefts – Victimization by Age Groups

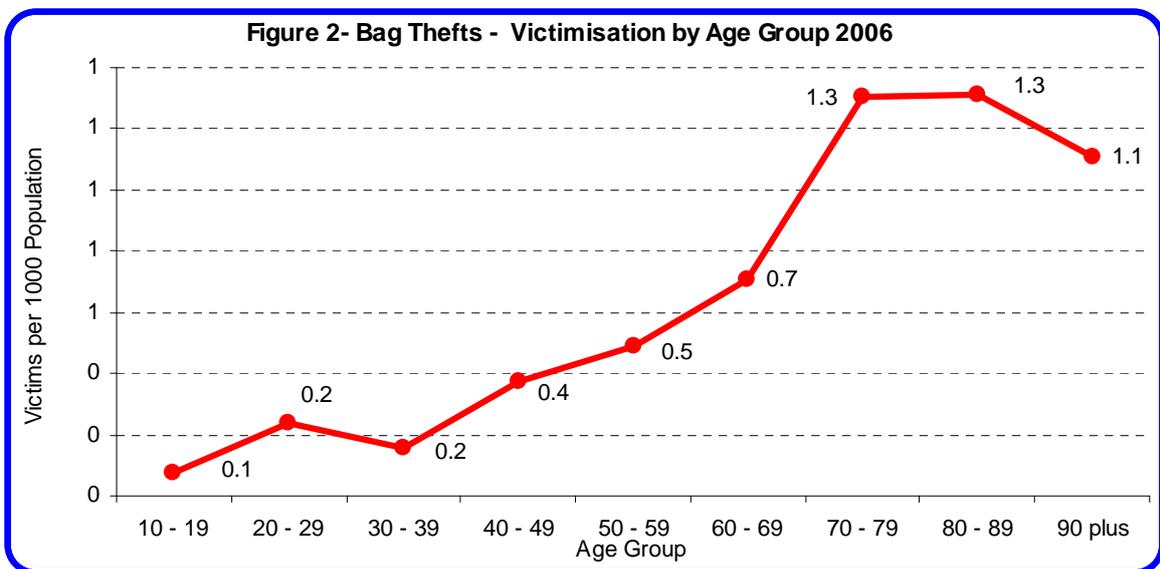


Figure 3 – Method of Theft of Purses and Wallets Stolen from Supermarkets in Warwickshire 2006

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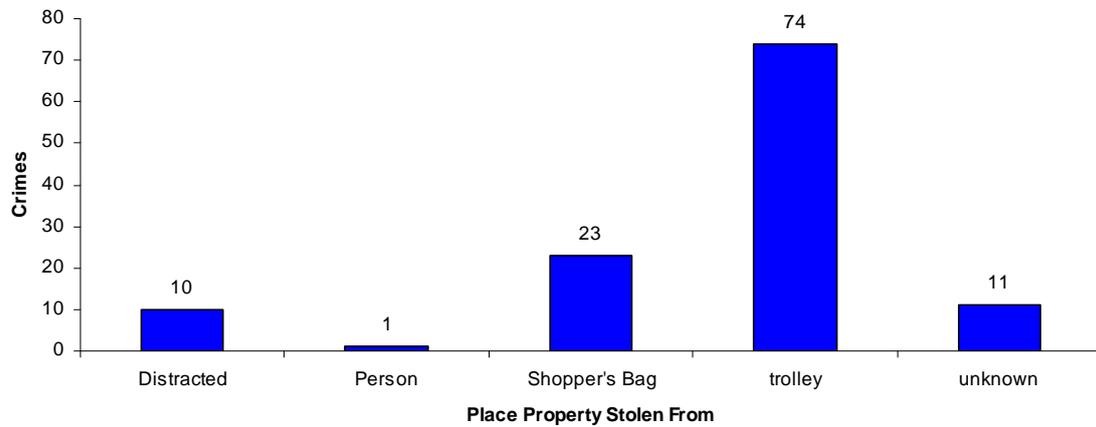


Figure 4 – Non Users of Trolley Safe Observed During Trial – Location of Bag

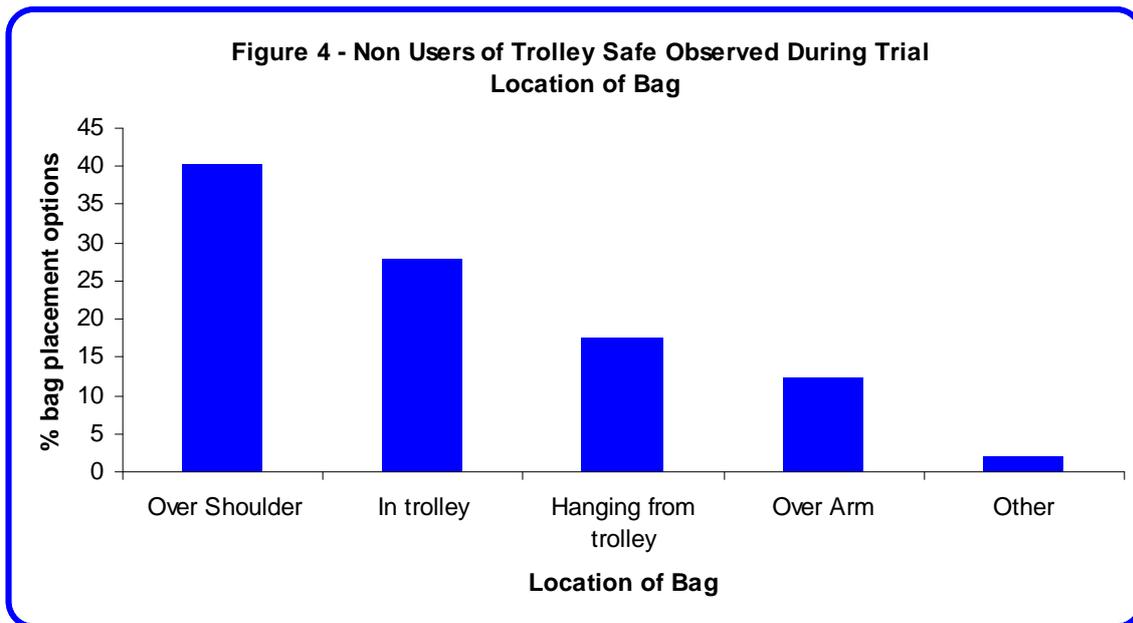


Figure 5 – Customer Comments on Trolley Safe to Observers During Trial

Figure 5 - Customer Comments on Trolley Safe to Observers During Trial

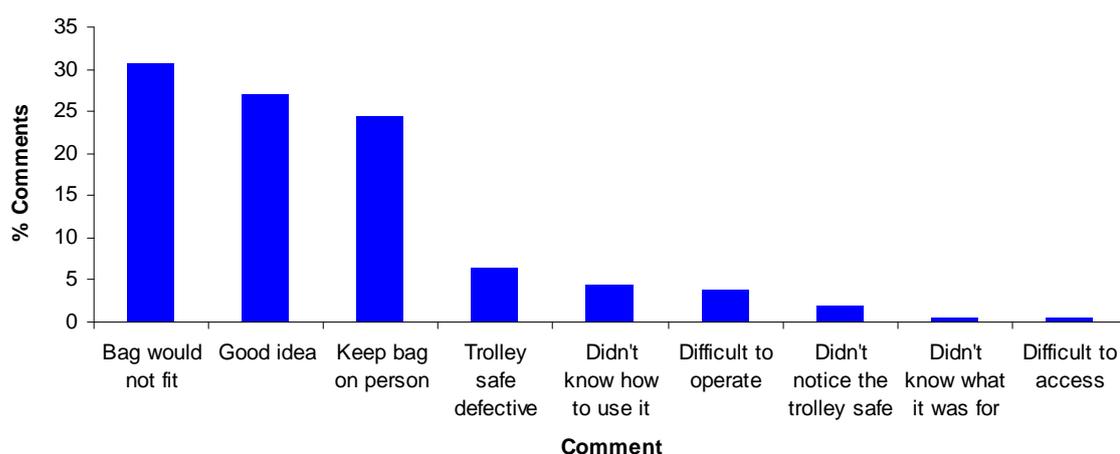


Table 1 – Means by Which Users Were Alerted to the Trolley Safe

Table 1 - Means by Which Users Were Alerted to the Trolley Safe		
Alert Method	Frequency	%
I noticed it directly as I took my trolley	19	54.3
Supermarket staff pointed it out	6	17.1
I read the sign on the trolley	3	8.6
Another customer was using one	2	5.7
A police officer pointed it out	1	2.9
Other	4	11.4
Total	35	100

Table 2 – Comparison of Impact on Bag Theft Before and During the Trial

Table 2 – Comparison of Impact on Bag Theft Before and During the Trial				
		Trial site	Control Site	Total
Before the trial (time period 24 months)	Count	33	26	59
	%	89	90	
During the trial (time period 3 months)	Count	4	3	7
	%	11	10	
Totals		37	29	66

Appendix B – Pictures

Image 1 - Trolley Safe

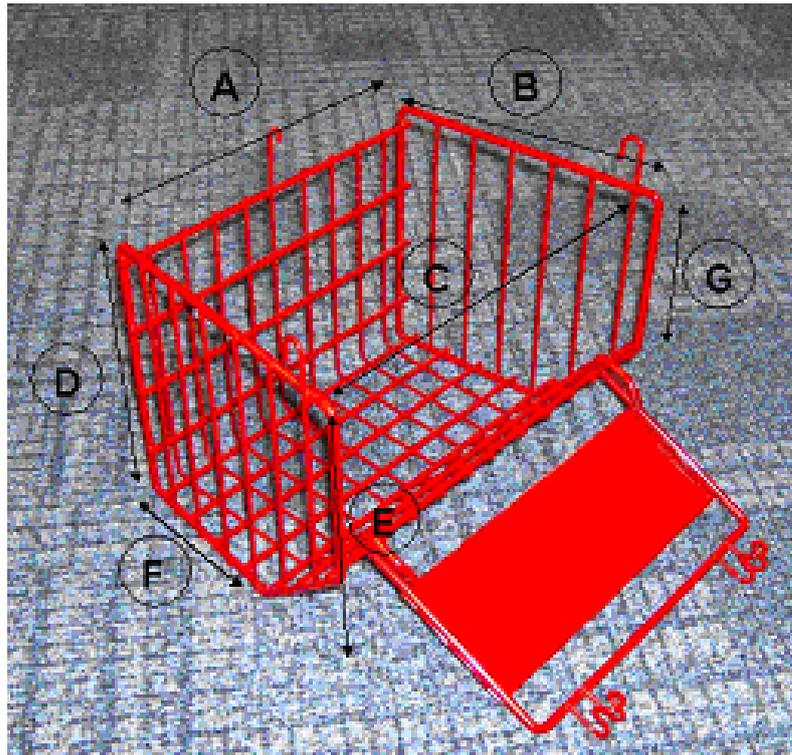


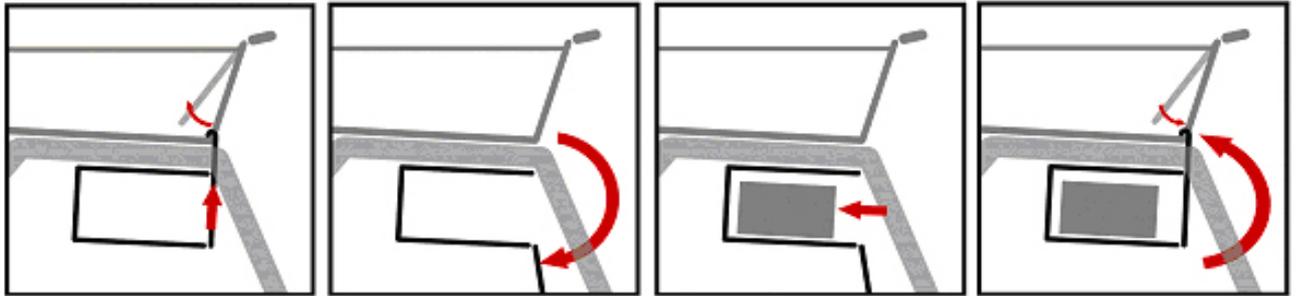
Image 2 - Trolley Safe Fitted to Shallow Trolley



Image 3 - Customer Instructions on Trolley Safe Flap

TrolleySafe

PUT YOUR BAG BEHIND BARS



Wanzl Ltd. Europa House Heathcote Lane Warwick CV34 6SP tel. 01926 - 451951

wanzl

Image 4 - Project Launch



Author and Project Information

Agency and Officer Information

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Comments in support of the submission

Warwickshire Police

"I have followed the progress of this project from when the authors first attended their course. They have worked hard to engage all the other partners and bring what was just a concept to fruition. I support this application."

David Whitehouse: Head of Community Protection

Warwickshire County Council Community Safety Partnership

"Warwickshire County Council and partners are always on the look-out for innovative ways to help make the County an even safer place to live. I was present at the launch of the trolley safe trial at Nuneaton and was impressed by this very innovative approach. I support this application."

Councillor Richard Hobbs: Portfolio Holder Community Protection