Reducing Shoplifting Incidents Through the Use of Signs.

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REDSUCING SHOPLIFTING INCIDENTS THROUGH THE USE OF SIGNS

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THROUGH THE USE OF SIGNS

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by

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B.A., S.U.N.Y. Binghamton, 1976
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ABSTRACT

This study consisted of three experiments designed to reduce the shoplifting rate of targeted merchandise in retail establishments without adversely affecting sales. In the first two experiments, attempts were made to replicate earlier findings suggesting that identifying frequently stolen merchandise would reduce its theft rate. In addition, signs were posted in locations where shoppers contemplated or carried out the act of shoplifting in order to achieve generalized reductions in shoplifting. Neither the signs identifying frequently stolen merchandise nor the signs identifying locations used by shoplifters had a consistent impact on any of the targeted merchandise. The third experiment was designed to eliminate several problems of the initial two experiments by minimizing measurement errors, ensuring the prominence of the signs, and focusing solely on evaluating the signs identifying frequently stolen merchandise. In this final experiment, the shoplifting rate of the targeted merchandise was lower during periods when the signs were posted than during baseline periods. Simultaneously, the sales rate of the merchandise was not affected. The results are discussed in terms of the factors relevant to the potential effectiveness of anti-shoplifting signs.
I. INTRODUCTION

Shoplifting is the willful theft of merchandise from a store or business establishment with the intent of possessing the merchandise without paying its purchase price ("Shoplifting," 1979). Shoplifters successfully stole approximately $8 billion of merchandise in 1978 ("How Shoplifting Is Draining the Economy," 1979), and the cost of stolen merchandise, personnel time devoted to shoplifters, and security measures was $24 billion in 1981 (National Coalition to Prevent Shoplifting, 1982). The number of people who shoplift has also reached outstanding proportions. Studies have consistently found that at least 50% of college students have shoplifted, and that approximately 10% of all shoppers in a store are shoplifters (Beck & McIntyre, 1977; Kraut, 1976; U.S. Dept. of Commerce, 1975). Thus, in addition to its economic impact, shoplifting constitutes a behavior problem affecting millions of people in this country.

The psychological and sociological literature concerning shoplifting has emphasized the etiology and personality variables related to shoplifting. A number of studies have also investigated the effectiveness of treatment approaches.
However, prevention approaches to the problem of shoplifting have received very little attention. The remainder of this section will review these areas of research.

Etiology

Sociological and Psychodynamic Approaches

Two of the most common sociological reasons given to explain the prevalence of shoplifting are the nation's spiraling inflation rate and declining moral values. The impact of the inflation rate has been to increase the number of people for whom successful shoplifting will have a dramatic effect on their standard of living. However, the facts that most apprehended shoplifters have the money in possession to pay for the item (Mapes, 1968) and that shoplifting behavior is found in all economic strata (U.S. Dept. of Commerce, 1975) suggests that economic motivation is only a minor contributor to shoplifting behavior.

While there is disagreement among theorists regarding the psychodynamic causes for shoplifting, several distinct categories of shoplifters have been established (Applebaum & Klemmer, 1974; Beck & McIntyre, 1977; D. Russel, 1973). The most common category includes shoplifting which is reported to be the result of a generalized personality disorder, particularly an anti-social personality disorder (Applebaum & Klemmer, 1974; Arboleda-Florez, Durie, & Costello, 1977).
For a majority of these individuals, shoplifting is only one of a number of anti-social acts which they commit. In other words, the anti-social shoplifter commits a number of illegal acts in addition to shoplifting. Beck and McIntyre (1977) provided support for a character disorder explanation of shoplifting on the basis of MMPI data. These authors found that chronic shoplifters had significantly more sub-scale scores two standard deviations above the mean than nonshoplifters. In addition, chronic shoplifters were differentiated from nonshoplifters by elevated Psychopathic Deviancy and Mania Scales.

Shoplifting may also be the result of a neurotic or psychotic disorder, as opposed to a character disorder (Applebaum & Klemmer, 1974; Russel, 1973). In cases of neurotic disturbance, some theorists emphasize the symbolic importance of the stolen items. For example, according to Arieff and Bowie (1947) stealing writing implements may be indicative of the individual's castration fears. Shoplifting behavior by psychotic individuals is similar to the behavior of the anti-social shoplifter in that shoplifting is generally only one example of the person's illegal or unusual activities.

Kleptomania remains the most publicized of all shoplifting explanations. However, professionals of various disciplines agree that the incidence of true kleptomania is
extremely low (Cameron, 1964; U.S. Dept. of Commerce, 1975). For example, a survey of 873 apprehended shoplifters revealed only one case of kleptomania (Cameron, 1964).

**Summary.** With few exceptions (Beck & McIntyre, 1977; Wright & Kirmani, 1977), studies in this area have been exclusively theoretical and fail to provide data to support their positions. In addition, many of the hypotheses raised are difficult to test in an empirical manner. For example, no objective procedure has been offered to determine the symbolic importance of a shoplifted item. The failure of psychodynamic and sociological explanations to provide data for their conclusions has been responsible for the limited contributions of these explanations in reducing the shoplifting rate. Furthermore, psychodynamic and sociological explanations have not led directly to viable treatment or prevention approaches.

**Behavioral Analysis**

Initial shoplifting behavior can be explained by learning principles. The high percentage of young individuals who shoplift indicates that there are adequate opportunities for this behavior to be learned vicariously. The low apprehension rate suggests that successful shoplifting behavior is usually modeled. Thus, an individual contemplating shoplifting is rarely exposed to the deterrent effects of observing a shoplifter being apprehended.
The shift in merchandising to self-service operations also accounts for some initial shoplifting behavior (D. Russel, 1973). Easy accessibility and attractive displays generally boost sales, but they also increase the likelihood of such items being stolen. Conversely, store managers fear that a "closed shelf" policy will decrease sales to such an extent that its costs will greatly outweigh the benefits of decreased shoplifting.

From a behavioral perspective, once shoplifting behavior has begun, environmental contingencies serve to maintain the behavior. Presently, only one out of approximately 35 shoplifters are detected and caught ("Shoplifting Soars—And Merchants Strike Back," 1979). Thus, fear of detection is ultimately low for most shoplifters, and does not serve as an adequate deterrent to shoplifting behavior (Kraut, 1976).

It is unclear whether a low fear of severe punishment for shoplifting contributes to shoplifting behavior. Teevan (1976) investigated shoplifting behavior and attitudes and reported that respondents who perceived a more severe punishment were not less likely to shoplift than those who perceived a less severe punishment. Kraut (1976), however, found that students who shoplifted most were those who perceived little risk of severe formal and informal sanctions. In reality, the probability of severe punishment for
shoplifting is very low as a result of inconsistent store management policies regarding prosecution and lenient treatment by the court system. In fact, only one out of approximately 1,200 shoplifters is jailed for a shoplifting offense ("How Shoplifting Is Draining the Economy," 1979).

**Summary.** Behavioral analysis accounts for initial shoplifting via modeling of successful shoplifting. Once this behavior is acquired, merchandising techniques, a low probability of detection, and a lower probability of severe punishment serve to maintain shoplifting behavior. These hypotheses of the behavioral analytic approach can be tested to some extent. Thus, they may prove more valuable than sociological and psychodynamic explanations which are not as open to empirical validation. To date, however, the behavioral analytic explanation of shoplifting has not been well researched. Several studies (Kraut, 1976; Teevan, 1976) have investigated the roles of fear of apprehension and punishment, but even these studies have been limited to self-report data.

In summary, hypotheses of a behavioral analytic approach must be subjected to empirical testing. Such investigations should naturally facilitate the development of treatment programs applicable to a large number of offenders as well as providing the retailer with effective prevention programs. Thus, considering the importance of
studying the etiology of shoplifting, further research in this area is clearly warranted.

**Treatment Approaches**

Treatment approaches for shoplifting refers to those approaches which focus on reducing or eliminating the reoccurrence of such behavior in individuals or specified groups (Switzer, Real, & Bailey, 1977). For these individuals, the occurrence of shoplifting or stealing has already been documented. In most cases, the individuals have been apprehended and have incurred criminal charges (Casey & Shuman, 1978; Kellam, 1969; Kraft, 1970; Kurlychek, 1978). However, a few studies have also included non-apprehended self-referrals (M. Russel, 1978) and small groups in which stealing was a problem, but the offenders had not been identified (Switzer, Real, & Bailey, 1977).

**Legal Approaches**

Court treatment of shoplifters has changed dramatically in the past decade. This change is partially due to the emergence of pre-trial intervention programs. Typically, these programs allow adolescent and young adult first-time offenders to undergo an educational/rehabilitative program as an alternative to formal court processing. Criminal charges are generally dropped following successful completion of the program. In one pre-trial program specifically
for first-offense juvenile shoplifters, the participants had a significantly lower recidivism rate than individuals formally processed through the juvenile court (Casey & Shuman, 1979). Thus, pre-trial programs offer a promising treatment setting for first-time shoplifting offenders.

While pre-trial programs offer lenient treatment for the first-time offender, court fines have increased for repeated shoplifting offenses. This change can be attributed to increased demands from the retailing industry to punish repeated shoplifters (Davies, 1977; "Shoplifting Soars—And Merchants Strike Back," 1979). However, while fines have increased, it still remains extremely rare for a shoplifter to receive a jail sentence ("How Shoplifting Is Draining the Economy," 1979).

**Psychodynamic Approaches**

Several authors claim that treatment for shoplifting might be more effective in groups (Applebaum & Klemmer, 1974; M. Russel, 1978). Russel (1978) cited the importance of groups for providing mutual support networks and increased social interaction opportunities for shoplifters experiencing depression and loneliness. In what appears to be the only published study of group psychotherapy with shoplifters, she investigated the effectiveness of groups consisting of depressed, middle-aged, female shoplifters. Outcome was assessed by comparing an individual's intake
statement with her closing file summary (each compiled by the group leader) along three dimensions: change in interpersonal relations, change in self-image, and change in coping ability. Reportedly, approximately 75% of the women experienced "positive change" along all three dimensions. However, the recidivism rate was not established and no control group was utilized. Therefore, while a group approach might be appealing on the basis of its apparent cost-benefit ratio (i.e., one therapist for a number of clients), Russel (1978) provides little data that this approach is effective for reducing shoplifting.

Applebaum and Klemmer (1974) reported that the treatment of choice for shoplifting should directly follow from the specific etiological factors. Any repeated offenders should undergo a psychological examination before receiving a court sentence. If this examination reveals poor impulse control, Applebaum and Klemmer claim that the punishment administered by the legal system is of little value and that psychological treatment is appropriate. Hospitalization was suggested for those individuals whose poor impulse control is reflected in self-destructive behavior. The authors recommend against psychological treatment for the sociopathic shoplifter, claiming that psychiatric and legal approaches have been ineffective with these individuals.
However, Applebaum and Klemmer (1974) fail to recommend any alternative approaches for sociopathic shoplifters.

**Summary.** Reports of psychodynamic treatment approaches to shoplifting have been infrequent in the literature. The approaches which have appeared have either been vague theoretical descriptions (Applebaum & Klemmer, 1974) or have not included outcome measures of shoplifting behavior (M. Russel, 1978). While the lack of data-based psychodynamic treatment programs does not imply that such an approach is ineffective, there is no substantive evidence that psychodynamic programs have contributed to the reduction of shoplifting.

**Behavioral Approaches**

A variety of behavioral techniques have been employed in cases of chronic shoplifting. Kraft (1979) developed a treatment plan which altered the social contingencies of one client's shoplifting. The client agreed to anonymously reimburse by mail any store from which she subsequently stole merchandise. In addition, she was to return to the store in the immediate future without shoplifting. While the client reported several shoplifting incidents during treatment, she had not stolen any additional merchandise by the end of a one year follow-up period.
Kellam (1969) employed aversive conditioning in the treatment of chronic shoplifting. The female client was administered electric shock while viewing a film of shoplifting scenes in which she was the main character. Since the film was designed to simulate the client being observed shoplifting by others, it appears that the success of the treatment program was based primarily on increasing the client's fear of detection. It should be noted, however, that the client reported a generalized fear and avoidance of stores. These fears were present at a three month follow-up period. This study demonstrates the potential negative side effects of using aversive conditioning to reduce shoplifting.

Kurlychek and Morganstern (1978) investigated both reinforcement and punishment procedures in a single-case experiment. In addition to donating money to a disliked organization following a shoplifting incident, the client was encouraged to purchase a magazine as a reward following proper shopping behavior. Assertive and modified social skills training were also included since the client indicated that shoplifting comprised most of the excitement in her life. Following a 12 month follow-up period, the client reported no recurrences of shoplifting behavior. In addition, she also reported having learned a variety of assertive responses and social skills.
Switzer, Deal, and Bailey (1977) described a group contingency approach to reduce stealing in a classroom situation. The entire class of second graders received praise and extra free time each day if no specified items were stolen, and were punished by the loss of free time if the items remained missing. The number of stolen items dropped dramatically once these procedures were initiated. The drop in the theft rate was achieved without identifying who was responsible for the theft, which is in marked contrast to other treatment procedures.

**Summary.** Behavioral treatment approaches have been successfully used for reducing chronic shoplifting and producing improvement in other areas of general functioning. Thus, these approaches seem appropriate for court- and self-referred shoplifting offenders. However, an emphasis on treatment approaches to shoplifting is likely to have little impact on combatting economic losses due to shoplifting. One reason concerns the low apprehension rate. If only 3% of the total number of shoplifters are apprehended, one can expect an equally low percentage of shoplifting reduction through successful treatment programs. In other words, the overwhelming majority of shoplifters are simply not exposed to treatment programs because they are not apprehended.

The reported success of behavioral programs must also be examined. Most studies have solely involved self-report
data (Kellam, 1969; Keutzer, 1972; Kraft, 1970; Kurlychek & Morganstern, 1978). As a result, the validity of the outcome data can be questioned. Secondly, the lack of a control group or rigorous within-subject experimental control leaves open the question of whether shoplifting was reduced as a function of the behavioral treatment programs. For example, a high percentage of offenders may stop shoplifting as a result of apprehension (Applebaum & Klemmer, 1974). Thus, it is necessary to ascertain the effectiveness of psychological treatment programs in comparison to legal interventions and to no-treatment conditions. Such controlled research has not been reported in the behavioral or psychodynamic literature.

In summary, psychodynamic treatment approaches lack substantive evidence of their effectiveness for reducing shoplifting. Behavioral programs have been more likely to provide relevant outcome measures of effectiveness. However, effective treatment programs, either behavioral or psychodynamic, cannot produce a reduction of shoplifting that is socially and economically significant. The low rate of apprehension implies that only a small percentage of shoplifters will receive legal or psychological treatment. Reducing shoplifting behavior before the need for treatment arises appears to be a more efficient approach for decreasing retail shoplifting. Thus, preventative shoplifting measures are necessary.
Prevention Approaches

Prevention approaches to the problem of shoplifting generally fall into two categories. One approach is the prevention of successful shoplifting in stores through the increased detection of shoplifting incidents. In other words, although shoplifting behavior remains stable, losses are prevented through increased detection and apprehension. An alternate method of prevention is to reduce the frequency of shoplifting behavior. In other words, this method discourages shoppers from even attempting to shoplift.

Increasing Apprehension Rates

The sophistication and extent of store security devices to detect shoplifting have grown as shoplifting losses have increased. In addition to adding security guards, one-way mirrors, etc., stores have become increasingly reliant on more expensive methods. These methods include closed-circuit television and electronic scanners which detect shoplifted items.

Preventing shoplifting through security devices has a poor cost-benefit ratio for several reasons. Of primary importance is that even the most sophisticated systems detect only a fraction of the total number of shoplifters. Second, the cost of security devices must be compared to the cost of the merchandise they protect (Bunyar, 1977). In
other words, some methods are too costly when the value of the merchandise they protect is considered. Finally, even low-cost effective devices must be compared to the cost of apprehending and prosecuting a shoplifter ("Shoplifting Soars--And Merchants Strike Back," 1979). This latter cost includes time in court spent by store personnel as well as the possibility of a lawsuit for false arrest.

A different approach to increasing detection has employed programs to increase the reporting of shoplifting by bystanders who have witnessed the event (Bickman, 1975; Bickman & Green, 1977; Steffensmeier & Steffensmeier, 1977). These studies measured the willingness of bystanders to intervene following a staged shoplifting incident. Intervention can be defined as reporting the thief of a staged incident to the store manager or telling the thief to return the merchandise. To increase the rate of shoplifting reporting, Bickman and Green (1977) posted signs urging shoppers to report a shoplifting incident to the store manager. Bickman and Green (1977) found a high rate of intervention by shoppers who witnessed the theft at the checkout counter of the store. However, when the theft occurred in any other location in the store, intervention rates were low.

Intervention by bystanders who have witnessed a theft provides a low-cost method of detection. Techniques for
increasing such intervention offers a valuable area for future research. However, it must be mentioned that the staged shoplifting incidents of Bickman and Green (1977) were intentionally overt and therefore highly noticeable to shoppers. Actual shoplifting incidents are much less likely to be detected and therefore the opportunities for intervention are reduced. In addition, programs designed to increase the reporting of shoplifting incidents by bystanders have not provided evidence that the actual frequency of shoplifting is reduced by such programs.

Decreasing Shoplifting Incidents

Two general strategies exist for decreasing shoplifting behavior. The community awareness approach describes a variety of multimodal programs designed to reach a large number of consumers of all age groups (Bunyar, 1977; Davies, 1977). Typically, such programs include heightened emphasis by the media sources (radio, television, and newspapers) regarding the problem of shoplifting and often involve schools and religious organizations. The goal of reducing shoplifting through public education is common to each of these programs.

However, the long-term impact of community awareness programs for shoplifting has been limited (McNees, et al., 1976). Similar community programs to increase crime
reporting (Bickman & Green, 1977) and to decrease littering (Burgess, Clark, & Hendee, 1971; Bacon-Prue, Blount, Pickering, & Drabman, 1980) have also had little impact on the respective problems. Bickman and Green's (1977) explanations for the failure of a mass media campaign to increase reporting of shoplifters are also applicable to campaigns designed to decrease shoplifting. For one, relevant communications from the mass media are often encountered very distant from a store setting. In other words, an anti-shoplifting message heard in one's home may have little effect on one's behavior in a department store. Another factor explaining the failure of community awareness programs is that information from pamphlets, newspaper articles, and posters might not be noticed. Even if these communications were noticed, according to Bickman and Green (1977), they might not be recalled in situations in which they would be useful.

Operant principles may also explain the failure of community-based programs. Television announcements, newspaper articles, etc., can be viewed as discriminative stimuli which the campaign promoters hope will be attended to by potential shoplifters. Once attended to, the promoters expect the messages to subsequently evoke anti-shoplifting behavior, i.e., discourage shoplifters. However, in practice, the campaign's messages serve as
discriminative stimuli solely (if at all) when presented. Since these stimuli are presented outside of the store, the likelihood of them serving as evoking stimuli to discourage shoplifting is minimal.

Within-store methods of reducing shoplifting incidents provide an alternative to community-based programs. Certain devices mentioned earlier which are employed to increase detection and apprehension also have the capacity for reducing shoplifting behavior. These devices include television monitors, prominent mirrors, and security guards. Other methods, however, are used solely for reducing shoplifting behavior. Examples of these methods are the "dummy" television monitor and shoplifting posters.

Devices designed solely to reduce shoplifting behavior are relatively low-cost investments and, therefore, are appealing to the retailer. However, as with community awareness programs, empirical tests of their utility have been limited by inadequate measurement systems (McNees, et al., 1976). For example, outcome measures such as inventory losses and hidden price tickets (Bunyar, 1977) are relatively unreliable or invalid measures of losses due to shoplifting. Inventory losses may reflect employee theft, accidental damage, or accounting errors. Therefore, these losses from theft, damage, or errors cannot be distinguished from shoplifting losses. Using the shoplifting apprehension
rate as an outcome measure also has severe limitations. Apprehension rate may reflect improved detection procedures and may not be the result of changes in the shoplifting rate.

Another issue concerning the utility of shoplifting reduction devices is their degree of prominence. Signs of low prominence have little value as discriminating or evoking stimuli. Studies have shown that such signs have little impact on committing shoplifting (McNees, et al., 1976) and reporting shoplifting (Bickman & Green, 1977). However, many store managers are reluctant to display prominent signs. While they generally believe that these signs would discourage shoplifting, they fear that the signs would evoke legitimate shoppers to become offended and shop elsewhere. In other words, losses in sales may be a side effect of prominent shoplifting signs ("How Shoplifting Is Draining the Economy," 1979). Such retailers claim that greater perceived surveillance by shoppers and subsequently less theft must be compared against less perceived surveillance and more sales.

Measurement problems and retailers' fears concerning prominent shoplifting signs must be addressed by programs designed to prevent shoplifting by decreasing the number of shoplifting incidents. Measurement techniques other than inventory losses, hidden price tickets, or apprehension
rates are needed to measure shoplifting behavior. Prevention programs involving prominent signs must also demonstrate that these signs will not evoke a decrease in the sales rate of merchandise.

A study of McNees, et al. (1976) dealt directly with the issue of prominent shoplifting signs and their relationship to sales. The authors used a multiple-baseline design in which two categories of frequently stolen merchandise (women's clothing) were successively identified by prominent signs and stars. The theft rate of each category was successfully reduced following the posting of the signs. Simultaneously, the signs and stars had no apparent effect on the sales rate of the merchandise. In other words, prominent shoplifting reduction methods apparently did not discourage legitimate shoppers.

Another important contribution of the McNees, et al. (1976) study was the development of a reliable and valid system for measuring the shoplifting rate. This system provided a daily record of the number of targeted items stolen and sold.

The use of a multiple-baseline design by McNees, et al. (1976) presents convincing evidence that the interventions were responsible for the reduction of shoplifting of the targeted items. However, two issues may be raised concerning the generalizability of the findings of the study. One
major issue is raised by Thurber and Snow (1980), who found that prominent signs specifically identifying cigarettes as frequently stolen merchandise led to an increase in the theft rate of cigarettes in a retail supermarket. Thurber and Snow (1980) also found that signs displaying a general message ("EVERYONE pays for SHOPLIFTING") also increased the theft rate when compared to a baseline (no signs) period, although the increase was not as large as with the specific message signs. In short, these authors claim that signs identifying frequently stolen merchandise or having any other message may evoke the opposite effect of the signs in the McNees, et al. (1976) study.

Thurber and Snow (1980) suggest that their results may be unique to products like cigarettes which are relatively easy to shoplift and have both stable and high demand characteristics. Stable demand suggests that shoppers desire the item on a regular basis and high demand implies that the item is frequently purchased. The authors also believed that anti-shoplifting signs may be discriminative stimuli for stealing by adolescents when the merchandise is appealing to the adolescent age group.

A second issue concerning the results of McNees, et al. (1976) is that a reduction in shoplifting was limited to items specifically identified by prominent signs. There was no reduction in shoplifting of a contrast group of items
which were not identified by such signs. In other words, there was no generalization of reduced shoplifting to other merchandise in the same department.

Operant principles offer an explanation for the failure of McNees, et al. (1976) to produce a generalization of shoplifting reduction across all merchandise. The signs in the study served as discriminative stimuli which evoked a theft reduction of the designated merchandise. However, other merchandise did not have a discriminative stimulus available to discourage shoplifting. Thus, the signs' value as discriminative stimuli was very limited.

Signs must be present and noticed where individuals are contemplating shoplifting in order to produce an overall reduction in shoplifting. One means by which to achieve this reduction is by placing prominent signs in locations where the concealment of merchandise is likely to occur. Dressing rooms, mirrors, and visually-obstructed corners are examples of these locations (Cameron, 1964). An overt sign positioned at the entrance of a department or store may also have the ability to reduce shoplifting through providing information at a time when decisions regarding shoplifting are being made. However, considering the Thurber and Snow (1980) study, further research is necessary to determine whether signs in these "high-risk" locations will have the opposite effect or simply fail to achieve greater
generalization than the methods used in the McNees, et al. (1976) study.

In summary, McNees, et al. (1976) demonstrated that the shoplifting rate of one particular category of frequently stolen merchandise can be reduced. However, there were several unresolved questions which future shoplifting prevention studies should address. One issue is whether the signs of McNees, et al. (1976) would serve as evoking stimuli to discourage shoplifting when placed on various kinds of merchandise or in situations other than in a department store. In other words, replications with different merchandise and environments are necessary. Second, techniques are needed which will stimulate department- or store-wide reductions in shoplifting. These techniques must be assessed by a reliable and valid measurement system. In addition, techniques which are employed must not discourage legitimate shoppers.
II. PROBLEM

The present series of experiments had two major purposes. One objective was to perform replications of the McNees, et al. (1976) study to determine whether the methods they used to reduce shoplifting of specific merchandise would be effective in different environments. The present experiments also evaluated a program designed to reduce department- and store-wide shoplifting. This program involved the use of signs in locations where decisions regarding shoplifting are made or carried out by potential shoplifters. These locations included visually obstructed sites, dressing rooms, mirrors, and the entrance of the store. Throughout all phases of the experiment, the sales rate of selected merchandise was monitored to ascertain any negative impact on sales by the anti-shoplifting signs.

Prior to the experiment, a representative(s) from each store chose several categories of merchandise which he/she believed had high theft rates. The theft rate of each category was monitored during a baseline period. Categories with the highest theft rates during the baseline period were also monitored during the following experimental phases. Categories with extremely low theft rates during the baseline period were eliminated from the experiments.
The following conditions, characterized by the lack or presence of certain signs, were compared for their impact on the shoplifting rate of the designated categories of items: (1) no signs (baseline), (2) signs identifying frequently stolen merchandise, (3) signs identifying locations frequently used by shoplifters for concealing merchandise, and (4) signs identifying frequently stolen merchandise as well as signs identifying locations frequently used by shoplifters. The messages of the signs were selected on the basis of brevity and comprehensibility. References to prosecution and other penalties were avoided. Thus, it was expected that the signs would serve as discriminative stimuli through increasing the potential shoplifter's fear of detection. However, it could not be empirically established whether an increase in the fear of detection was solely responsible for any effects, and was beyond the scope of the experiments.

In each store, a single-case design was utilized to evaluate the signs' effectiveness. In Experiments I and II, both multiple baseline and withdrawal procedures were used. In the multiple-baseline procedure, a sign identifying frequently stolen merchandise was added to one category, while a no-sign baseline continued for a second frequently stolen category. This step allowed an evaluation of the signs' effectiveness on the first category, while the theft
rate of the second category was not expected to change. In the next phase, as the sign remained on the first category, a sign was added to the second category. At this point, the theft rate on the second category was expected to decrease while the shoplifting rate on the first category was expected to remain stable. Thus, with this strategy, the impact of the signs could be investigated on two different categories without removing any signs.

In the reversal procedure, a baseline period of no signs was followed by the introduction of a sign(s), and then the sign(s) was removed to create another baseline period. This strategy evaluated the effectiveness of a sign by comparing a category's theft rate during a phase when a sign was posted with the phases immediately preceding and following the sign's posting.

Phases remained in effect until a stable measure of the theft rate was obtained. However, in some cases there proved to be little regularity in loss rate during a phase. Therefore, a decision to change phases was sometimes based upon collection of an adequate amount of data and by store management's policy and availability.

The experiments also investigated the reasons for an ineffective intervention. Questionnaires were administered to determine the likelihood that shoppers noticed the signs and to what extent the message was remembered. Thus, the
questionnaires yielded information regarding whether the
signs were being noticed but did not evoke anti-shoplifting
behavior or whether the signs were simply not noticed. The
importance of this issue was raised by Bickman and Green
(1977), who found that half of their subjects could not
recall seeing any signs despite the display of prominent
anti-shoplifting signs.

It was hypothesized that signs identifying frequently
stolen merchandise would reduce (from a "no-sign" condition)
the theft rate of that particular merchandise without
affecting the theft rate of the other categories not identi­
fied by such signs. Such results would support the findings
of McNees, et al. (1976). Since none of the categories in
the experiment included stable, high demand merchandise as
in Thurber and Snow (1980), the signs were not expected to
serve as stimuli to increase the shoplifting rate.

Signs identifying frequently stolen merchandise were
expected to produce a shoplifting rate reduction for that
particular merchandise which was greater than the reduction
evoked by signs identifying locations used by shoplifters.
The following example illustrates the explanation for this
prediction. Suppose a shopper plans to steal an item of a
particular category. A sign identifying that category as
frequently stolen merchandise is likely to serve as a
discriminative stimulus for discouraging shoplifting due to
the sign's proximity and specificity to that merchandise. A shoplifting location sign which is positioned further away and whose message is non-specific to that merchandise is less likely to be a discriminative stimulus for that particular category.

Similar results were expected between conditions comparing the effects of signs identifying frequently stolen merchandise to the combined effects of signs identifying frequently stolen merchandise and signs identifying shoplifting locations. It was expected that signs identifying shoplifting locations would help to further decrease the shoplifting of merchandise which was already identified as being frequently stolen merchandise. For example, a shopper may take merchandise from a rack and plan to conceal it shortly afterwards. However, the shopper may then be discouraged by a sign positioned in the location where the act of concealment was planned.

Signs identifying locations used by shoplifters were predicted to have a greater impact on store-wide shoplifting (i.e., greater generalization) than the specific signs identifying frequently stolen merchandise. It was hypothesized, therefore, that the theft rate of categories not specifically identified by signs would decrease when location signs were introduced. However, these same categories would not be affected by other categories being identified by "frequently stolen merchandise" signs.
The sales rate was expected to remain stable across all phases for each category. However, if significant seasonal or economic events occurred during the experiment, it was expected that such events would have a systematic influence across all categories.

With respect to the questionnaire data, it was expected that a low percentage of shoppers would report seeing shoplifting signs during phases in which no signs were present. More shoppers were expected to report noticing signs during phases in which signs identifying frequently stolen merchandise were solely present. The majority of shoppers who were expected to notice signs during these phases were those who contemplated the purchase (or theft) of that merchandise. During phases in which signs identifying shoplifting locations were present, a significantly greater number of shoppers were expected to report seeing shoplifting signs, since more shoppers were expected to pass through an identified shoplifting location than to have contemplated the purchase or theft of an identified category of merchandise.
III. EXPERIMENT I

Method

Setting

This experiment was conducted in a retail supermarket in Kansas City, Missouri. The security director of the store, who was contacted through a merchant's association, agreed to the experiment and identified this store as having one of the most serious shoplifting problems among the stores in the chain.

Stickers which were present in the store prior to the experiment remained in the store during the experiment. These stickers carried a general message (e.g., "Shoplifters Will Be Prosecuted"), measured either 7.5 cm. by 9.5 cm. or 2.5 cm. by 11.5 cm., and were posted approximately seven feet high. The store utilized no other formal methods for shoplifting prevention.

Measurement of Shoplifting

Prior to the experiment, the store manager selected four categories of merchandise which he believed had high shoplifting rates. Each category was comprised of at least several different products in order to increase the likelihood that an item would be stolen from the category. The
categories included hair care kits (three products), nursing bottles (three products), snack pies (four products), and processed meats (five products). Because each of the categories experienced losses during Phase One, no category was eliminated from the experiment.

At the store's opening each day of the experiment (or immediately prior to the store's closing the night before), a member of the investigation team counted the number of items on the shelf for each category. This amount was subtracted from the previous day's shelf counts, yielding the number of items having disappeared through either being sold or stolen.

The use of electronic cash registers by the store provided an extremely reliable sales tracking system. A cashier would "ring up" the designated merchandise and all other merchandise by rubbing the Universal Product Code (UPC) numbers on the package of the item across a screen. The sale of an item was electronically tallied and cumulatively recorded. Each morning a print-out was obtained for each item of the experiment, providing information which yielded the number of items sold the previous day. By subtracting the number of items sold from the number of items missing from the shelf, the theft rate was determined. For example, suppose 20 units of a product were on the shelf one morning, and the next morning only 15
remained. If the print-out indicated that three items had been sold, then the number of stolen items would be
\[ 20 - (15 + 3) = 2. \]

Inventory errors, accounting procedures, and computer failure on several occasions caused the loss of data from several days. For example, an 11-day third phase may have produced 11 days of data for three categories and 10 days of data for the remaining category.

**Phases**

The conditions for each category by phase are shown in Table 1.

**Phase One.** Daily sales and theft rate monitoring for each category began and were continued throughout the experiment. Employees were given an explanation of the experiment at this time. Certain employees were given forms by which to keep a record of new merchandise added to the shelf.

No signs were posted during this phase.

**Phase Two.** Two identical signs were attached perpendicular to the shelf containing the hair care kits, since this category had the highest theft rate during Phase One. The message of the signs is shown in Figure 1.

Each sign was printed in black letters on a yellow background, and the message was printed on both sides of the
Table 1
Sign Conditions for each Category
in Experiment 1

<table>
<thead>
<tr>
<th>Phase</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hair Kits</td>
<td>A</td>
<td>B</td>
<td>B</td>
<td>B+C</td>
<td>A</td>
<td>B+C</td>
<td>B</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>Nursing Bottles</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>B+C</td>
<td>A</td>
<td>B+C</td>
<td>B</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>Snack Pies</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>Processed Meats</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>A</td>
</tr>
</tbody>
</table>

Note. "A" indicates no signs were present, "B" indicates signs identifying frequently stolen merchandise were present, and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
ATTENTION
SHOPPERS & SHOPLIFTERS:

This merchandise is frequently stolen by shoplifters.

Figure 1. A representation of the sign used to identify frequently stolen merchandise.
sign. The dimensions of the sign were 13.5 cm. by 16.5 cm. The shelf to which the signs were attached was approximately 62 cm. in length.

The purpose of this phase was to determine whether the specific signs would reduce the shoplifting rates of the hair care kits. No other signs were introduced during this phase.

Phase Three. In this phase, two signs were attached perpendicular to the 47 cm. shelf containing the nursing bottles. The signs were identical to those used in Phase Two.

The signs posted during Phase Two remained on display in Phase Three. By using this multiple-baseline procedure, only the theft rate of the nursing bottles was expected to change during this phase.

Phase Four. Signs were added at the store's turnstile entrance and in locations which the store management believed shoplifters hid merchandise. The message of the sign at the store's entrance is stated in Figure 2. The message of the "location" signs is shown in Figure 3.

Five of these signs were displayed in designated corners of the store and in two aisles with low visibility.

All of the signs were either 22 cm. by 56 cm. or 43 cm. by 28 cm. in dimension. Thus, the signs were equal in area,
WELCOME

WE ARE INVOLVED

IN A PROGRAM TO

CUT SHOPLIFTING.

Figure 2. A representation of the sign used at a store’s entrance.
ATTENTION

SHOPPERS & SHOPLIFTERS:

THIS LOCATION IS FREQUENTLY USED BY SHOPLIFTERS TO CONCEAL MERCHANDISE.

Figure 3. A representation of the sign used to identify shoplifting locations.
but they varied in dimension in order to conform to the space where they were displayed. The message of these double-sided signs was printed in black letters on a yellow background.

The signs in Phases Two and Three remained posted during Phase Four. The theft rates of all categories were expected to decrease slightly (hair care kits and nursing bottles) or dramatically (snack pies and processed meats) by continuing the multiple-baseline procedure.

**Phase Five.** All signs were removed during this phase, thus withdrawing the previous interventions. This phase investigated the signs' effectiveness by determining whether the shoplifting rate would increase for all categories when the signs were removed.

**Phase Six.** In this phase, signs identifying the two categories of most frequently stolen merchandise as well as the entrance sign and shoplifting location signs were re-posted. Therefore, the conditions of Phase Six were identical to the conditions of Phase Four. The purpose of this phase was to determine whether the re-introduction of the signs would reduce shoplifting.

**Phase Seven.** This phase was identical to Phase Three. In other words, the only signs present during this phase identified frequently stolen merchandise. The purpose of
this strategy was to determine if the removal of the location signs would increase the theft of snack pies and processed meats.

**Phase Eight.** This phase was the only phase in which the entrance sign and shoplifting location signs were present by themselves. No signs were used to identify frequently stolen merchandise. In doing so, the theft rates of the hair care kits and nursing bottles were expected to increase since the specific signs were removed, while the location signs were expected to reduce shoplifting in the remaining categories.

**Phase Nine.** In this phase, the signs of Phase Eight were withdrawn. Therefore, no signs were present. The purpose of this phase was to determine whether the theft rates of all categories would increase.

**Questionnaires**

Ten shoppers in each phase were asked to complete a brief questionnaire (see Appendix). Shoppers were approached by the investigator at the checkout counter (in cooperation with a request by the management) if their shopping basket contained four or more items, thus ensuring that the shopper had spent some time passing through the store. Eligible shoppers were asked if they would participate in a survey concerning the store.
Reliability Checks

On one day during each phase, the merchandise on the shelf was counted by a second observer independently of the first observer. This estimate was given to the first observer after the latter had counted the units of merchandise. The reliability of the system used for determining the number of items stolen was computed as follows:

\[
\frac{\text{number of agreements on items stolen across all categories}}{\text{number of agreements plus disagreements on items stolen across all categories}}
\]

Overall, the average reliability for the nine reliability checks was .97. Since the store had a computerized check-out procedure, reliability checks regarding the number of items sold were unnecessary.

Results

Shoplifting Rates

The number of items shoplifted daily for each category is shown in Figure 4. The day of the experiment is on the abscissa, while the ordinate represents the number of stolen units. The vertical dotted lines indicate a change in the condition for a particular category. Note that a phase change does not imply a condition change for all categories. For example, when a phase changed as a result of a specific
Figure 4. Number of items stolen from each category in each phase of Experiment I. "A" indicates no signs were present, "B" indicates signs identifying frequently stolen merchandise were present, and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
sign being added to one category, only the condition of that one category changed. The condition for each category throughout the experiment is represented by a letter (A, B, or B+C) corresponding to the legend included below the figure. When the solid line is broken within a condition, the break represents a day on which no data were available for that category.

Table 2 is essentially a phase-by-phase summary of the number of items stolen and the number of data points available for that phase. For example, during Phase One, a total of seven hair-care kits were shoplifted in 10 observation days.

Inspection of Figure 4 and Table 2 indicates that nursing bottles was the only category which showed even a trend towards lower theft rates when specific and/or location signs were posted. For hair care kits, no systematic changes in theft rate as a function of the different conditions were noted. In other words, roughly the same number of hair kits were stolen daily when specific or location signs were posted as when no signs were posted. The theft rate of both the snack pies and processed meats categories were relatively low during baseline phases and failed to decrease further when location signs were posted. For example, an average of .19 items were stolen daily from the processed meats category during baseline periods and .22
Table 2
Summary of Number of Items Stolen per Phase
in Experiment 1

<table>
<thead>
<tr>
<th>Phase</th>
<th>Hair Kits</th>
<th>Nursing Bottles</th>
<th>Snack Pies</th>
<th>Processed Meats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>B</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>B+C</td>
<td>B</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>4</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>5</td>
<td>B+C</td>
<td>B+C</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>B</td>
<td>B+C</td>
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</tr>
<tr>
<td>9</td>
<td>C</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

Note. The upper number in each box refers to the number of items stolen during the phase; the lower number refers to the number of data points available for that phase. "A" indicates no signs were present; "B" indicates signs identifying frequently stolen merchandise were present; and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
items were stolen daily when the location signs were on display.

With respect to the nursing bottles, an average of .79 items were stolen daily during the baseline phases, .50 items were shoplifted daily when the specific signs were posted with the bottles, .00 items were stolen daily when location signs alone were posted, and .19 items were stolen daily when both the specific and location signs were present. However, Phases I and II were both the same condition (baseline) for the nursing bottles, and collapsing the data from these phases yields a loss of 15 units in 21 days. This rate did not differ substantially from the shoplifting rate in the subsequent experimental phase. Thus, clear-cut changes in the level of the dependent variable between baseline and experimental phases did not consistently occur for the nursing bottles. In single-case studies, systematic changes from one condition to another are best reflected not only by changes in the level of the dependent variable between conditions, but also by a change in trend. In other words, a definitive change would include both changes in the frequency of the dependent variable as well as a change in the direction of the pattern of the dependent variable between conditions. For example, one can be more certain of the impact of an intervention if the frequency of the dependent variable steadily increases during a baseline
condition and then begins to consistently decrease once the intervention is introduced. In the case of the nursing bottles, inspections of Figure 4 shows no clear changes in trend from one condition to the next. Therefore, this pattern suggests further caution in the interpretation of the nursing bottles data. Finally, identical ranges (0-4) in the number of nursing bottles stolen daily during both baseline and experimental phases also indicate the limited effectiveness of the signs. If there were clear differences between the conditions, the upper limit of the range for the experimental phases should have been lower than the upper limit of the baseline phases.

Sales Rates

A summary of the number of items sold during each phase according to the number of observation days available for that phase is shown in Table 3. As the table indicates, there were no patterns of the sales rates for each category, according to the phases. In other words, the presence of signs did not affect the sales rate of merchandise. The large increase in the number of snack pies sold in the final baseline phase was the result of those items being on sale during the final three days of the phase.

It was necessary to determine whether the sale of items accounted for a large part of the variance in the shoplifting data. A Pearson r was computed for each category to see if there was any significant correlation between a
Table 3  
Summary of Number of Items Sold per Phase  
in Experiment I

<table>
<thead>
<tr>
<th>Phase</th>
<th>Hair Kits</th>
<th>Nursing Bottles</th>
<th>Snack Pies</th>
<th>Processed Meats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>B+C</td>
<td>A</td>
</tr>
<tr>
<td>1</td>
<td>8/10</td>
<td>20/11</td>
<td>7/11</td>
<td>5/8</td>
</tr>
<tr>
<td>2</td>
<td>6/10</td>
<td>12/11</td>
<td>4/11</td>
<td>5/8</td>
</tr>
<tr>
<td>3</td>
<td>5/10</td>
<td>35/11</td>
<td>34/11</td>
<td>45/8</td>
</tr>
<tr>
<td>4</td>
<td>21/10</td>
<td>34/11</td>
<td>24/10</td>
<td>22/8</td>
</tr>
<tr>
<td>5</td>
<td>8/11</td>
<td>14/7</td>
<td>21/8</td>
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<tr>
<td>9</td>
<td>21/7</td>
<td>7/7</td>
<td>28/7</td>
<td>19/7</td>
</tr>
</tbody>
</table>

Note. The upper number in each box refers to the number of items sold during the phase; the lower number refers to the number of data points available for that phase. "A" indicates no signs were present, "B" indicates signs identifying frequently stolen merchandise were present, and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
category's sales rate and theft rate. The data for the correlations were the daily number of items sold and stolen for each category. The correlation coefficients proved to be not significant at a probability level of .05 for the hair care kits ($r = .08, df = 74, \text{n.s.}$), nursing bottles ($r = .11, df = 74, \text{n.s.}$), snack pies ($r = -.04, df = 73, \text{n.s.}$), and the processed meats ($r = .15, df = 73, \text{n.s.}$). These data indicate that the sale of items did not covary with the shoplifting rate for any category.

**Questionnaire Data**

The number of individuals who reported (on the questionnaire) seeing any signs regarding shoplifting in each phase is shown in Table 4. No shoppers reported having seen signs in the initial baseline period, while signs were noticed in the following two phases (Phases Two and Three) as expected. However, an expected increase when location signs were posted in Phase Four did not materialize, nor did an expected decrease occur in Phase Five when no signs were posted. In fact, in the baseline periods of Phases Five and Nine, there were shoppers who reported seeing signs, suggesting either a bias toward affirmative answers or reports of seeing signs posted during a previous period. Overall, the percentage of shoppers across all phases who reported seeing signs was relatively low.
Table 4
Number of Shoppers Who Reported Seeing Signs in Experiment I

<table>
<thead>
<tr>
<th>Phase</th>
<th>Conditions</th>
<th>(Maximum of Ten)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>A or B</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>A or B</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>B+C or C</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>A</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>B+C or C</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>A or B</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>A</td>
<td>2</td>
</tr>
</tbody>
</table>

Note. "A" indicates no signs were present, "B" indicates signs identifying frequently stolen merchandise were present, and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
IV. EXPERIMENT II

Method

Setting

This experiment was conducted in a department store of a major retailer in Lawrence, Kansas. As in Experiment I, the security director selected this particular store since it experienced greater losses than the other stores of the Kansas City area.

The security director volunteered his services to help coordinate the experiment. The store management also required employees in relevant departments to assist in the experiment through making daily inventory counts and monitoring the sales of targeted merchandise.

Prior to the experiment, the store did not have any signs posted pertaining to shoplifting. The main method used to discourage shoplifting was the presence of convex mirrors in selected corners throughout the store.

Measurement of Shoplifting

The women's clothing and cosmetics departments were the areas of the store with the most serious theft problems, according to the store management. Therefore, the managers of these departments selected the merchandise for the
experiment. The cosmetics department manager designated one brand of sunglasses, eye pencil, make-up finish, and lip gloss as frequently stolen merchandise. The merchandise selected in the women's clothing department (which was adjacent to the cosmetics department) included pinky rings, button-down shirts, and brassieres. By the end of the second phase, the lip gloss and pinky rings categories had not lost a single item and were therefore eliminated from the study.

All employees were given a flyer outlining the sales monitoring process and describing the targeted merchandise. At the store's opening each day, the in-store project coordinator (or her assistant) provided a monitoring form to each register where the merchandise could be purchased. The form listed each category of targeted merchandise and a space in which the cashier could write a tally mark every time that merchandise was purchased. The form also had a space for identifying the cash register. Thus, the store operations manager (or his designee), who collected the forms at the end of the day, was provided with a monitoring system for the forms themselves. The store operations manager totaled up the tallies across all the forms and arrived with a daily sales record for each category.

The daily shelf counts were done by the department managers or their assistants. Using these inventory data
and the sales records, the number of items stolen daily was computed in the same manner as in Experiment I.

Green tape was placed on the hooks of hangers on which targeted shirts were hung. The visibility of this tape facilitated both the morning counting and sales monitoring processes.

More data were lost in Experiment II than in Experiment I. The increase in lost data was primarily due to the lack of a computerized sales monitoring system and the use of store personnel as members of the investigation team.

Phases

The conditions for each category by phase is shown in Table 5.

**Baseline Period: Phase One.** Daily sales and theft rate monitoring began. No signs were posted.

**Phase Two.** Signs were posted in holders on the eight racks which held women's button-down shirts. The signs were the same as those which identified frequently stolen merchandise in Experiment I (see Figure 1), but their dimensions were 22 cm. by 28 cm. The signs were expected to reduce the theft of the shirts without reducing the theft of the remaining categories.
Table 5
Sign Conditions for each Category in Experiment II

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shirts</strong></td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>B+C</td>
<td>A</td>
<td>B+C</td>
<td>C</td>
</tr>
<tr>
<td><strong>Sunglasses</strong></td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td><strong>Eye Pencils</strong></td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td><strong>Make-up Finish</strong></td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td><strong>Brassieres</strong></td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

Phase

Note. "A" indicates no signs were present, "B" indicates signs identifying frequently stolen merchandise were present, and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
Phase Three. Signs were removed during this phase in order to determine whether the signs' removal would increase the shoplifting of the shirts.

Phase Four. Signs were again added to the women's shirts to see if the shoplifting rate would decrease again.

Phase Five. Location signs were added during this phase. One sign was placed on a wire strung across the entrance to the women's dressing room. This sign was 28 cm. by 44 cm. Three signs, 22 cm. by 28 cm., were placed in visually obstructed corners and aisles in the women's department. The four signs described above all carried the same message as in Figure 3.

Two signs were placed inside the entrance of the store, and this area was part of the cosmetics department. Entry was possible from two separate doors of this single entrance. Approximately 3.2 m. from each door, a sign similar to the one in Figure 2 was placed in a metal floor stand.

The sign measured 28 cm. by 36 cm. and had brown letters on a white background.

The signs on the women's shirts remained on display during this phase. While the shirts' shoplifting rate was expected to decrease slightly, the main purpose of this
Phase was to see if the rate of the remaining categories would be reduced as a function of the location signs.

**Phase Six.** All signs were removed during Phase Six. This withdrawal procedure was to determine if the theft rates of all categories would increase.

**Phase Seven.** Towards the end of Phase Six, the store management informed the investigator that a change in the national policy for this retail chain dictated major changes to be made in the store, although the date had not been set. These changes included the removal of nearly all of the targeted women's shirts, in addition to a re-arrangement of the floor layout. It was believed that time remained for only one more phase. In order to gather comparison data regarding the effectiveness of location signs versus the use of location plus specific signs versus the use of no signs, Phase Seven involved the posting of location plus specific signs. In other words, this phase was identical to Phase Five.

**Phase Eight.** Location signs alone were posted during this phase. However, the phase lasted only four days as a result of the new store policies being implemented.
Questionnaires

Questionnaires were to be administered from two registers, one in the cosmetics department and one in the women's clothing department. However, only the women's clothing department regularly administered the questionnaires.

Reliability Checks

Reliability checks on the inventory counting process were done in seven of the phases. The average reliability for the seven checks was .96.

Results

Shoplifting Rates

The number of items shoplifted daily for each category is shown in Figure 5. Table 6 is a summary of the number of items stolen and the number of observation days for each category.

Inspection of the data suggests that while some categories (shirts, sunglasses, eye pencils) had slightly lower theft rates when signs were posted than during baseline periods, both the size of the difference in rates and the pattern of losses as a function of experimental conditions suggest that the signs failed to have a consistent effect. An examination of the shirts category phase by phase helps to illustrate the signs' ineffectiveness. Following the
Figure 5. Number of items stolen from each category in each phase of Experiment II. "A" indicates no signs were present, "B" indicates signs identifying frequently stolen merchandise were present, and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
Table 6
Summary of Number of Items Stolen Per Phase
in Experiment II

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>A</th>
<th>B</th>
<th>B+C</th>
<th>A</th>
<th>B+C</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shirts</td>
<td>14/11</td>
<td>11/12</td>
<td>15/8</td>
<td>19/11</td>
<td>5/9</td>
<td>10/8</td>
<td>11/10</td>
<td>9/4</td>
</tr>
<tr>
<td>Sunglasses</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>16/10</td>
<td>8/7</td>
<td>17/6</td>
<td>18/12</td>
<td>14/12</td>
<td>8/8</td>
<td>7/10</td>
<td>6/4</td>
</tr>
<tr>
<td>Eye Pencils</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>5/13</td>
<td>2/13</td>
<td>0/9</td>
<td>0/13</td>
<td>0/12</td>
<td>0/8</td>
<td>0/10</td>
<td>0/4</td>
</tr>
<tr>
<td>Make-up Finish</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>2/14</td>
<td>3/13</td>
<td>0/9</td>
<td>1/13</td>
<td>1/12</td>
<td>1/8</td>
<td>3/10</td>
<td>0/4</td>
</tr>
<tr>
<td>Brassieres</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>2/12</td>
<td>2/13</td>
<td>0/7</td>
<td>1/11</td>
<td>3/12</td>
<td>4/8</td>
<td>2/9</td>
<td>0/3</td>
</tr>
</tbody>
</table>

**Note.** The upper number in each box refers to the number of items stolen during the phase; the lower number refers to the data points available for that phase. "A" indicates no signs were present, "B" indicates signs identifying frequently stolen merchandise were present, and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
initial baseline phase, the theft rate decreased slightly when specific signs were introduced in Phase Two. The shoplifting rate rose again in Phase Three when the signs were removed, suggesting perhaps that the specific signs had had an impact. However, the rate did not decrease again as expected when the specific signs were removed in Phase Four. In Phase Five, the shoplifting rate became lower as both specific and location signs were posted, and the rate increased when the signs were removed in Phase Six. Thus, the transition from Phase Four to Phase Five and the transition from Phase Five to Phase Six suggested that the signs may have reduced shoplifting. However, the theft rate did not decrease when the signs were re-introduced in Phase Seven and rose dramatically when the location signs alone were present in Phase Eight. Overall, therefore, the shirts category lacked consistent changes in trend or level according to the posting of signs.

An average of 1.40 sunglasses were stolen daily during the baseline phases, and 1.03 sunglasses were stolen when the location signs were posted. However, similar to the shirts, inspection of Figure 5 and Table 6 shows that there was no clear change in trend or level following the introduction of a sign (Phase Five) or a sign's removal (Phase Six). The eye pencils, make-up finish, and brassieres categories had low baseline theft rates and therefore were
unlikely to be substantially reduced by the introduction of signs.

Sales Rates

A summary of the number of items sold during each phase according to the number of observation days available for that phase is shown in Table 7. Inspection of the data shows that sales decreased during the second half of the experiment, and this decrease was due specifically to a reduction in the sales of sunglasses and women's shirts. Since each of these categories was seasonal merchandise, the sales reduction was likely the result of the last four phases occurring between mid-July and mid-August. Overall, there was no evidence that the presence of signs affected the sales rate of merchandise.

Pearson r's were computed to determine the correlation between a category's sales rate and shoplifting rate. The correlation coefficients were not significant at the .05 probability level for the shirts (r = .02, df = 71, n.s.), sunglasses (r = .02, df = 68, n.s.), eye pencils (r = -.03, df = 78, n.s.), make-up finish (r = -.06, df = 81, n.s.), and brassieres (r = .13, df = 73, n.s.) categories. The failure to find significant correlations suggests that the sales rate for any category did not account for an appreciable amount of the variance in its shoplifting rate.
Table 7
Summary of Number of Items Sold Per Phase
in Experiment II

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>A</th>
<th>B</th>
<th>B+C</th>
<th>A</th>
<th>B+C</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shirts</td>
<td>23/11</td>
<td>27/13</td>
<td>26/9</td>
<td>35/12</td>
<td>22/11</td>
<td>8/8</td>
<td>20/10</td>
<td>7/4</td>
</tr>
<tr>
<td>Sunglasses</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>16/10</td>
<td>21/11</td>
<td>17/8</td>
<td>27/12</td>
<td>7/12</td>
<td>10/8</td>
<td>4/10</td>
<td>0/4</td>
</tr>
<tr>
<td>Eye Pencils</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>0/14</td>
<td>0/11</td>
<td>0/9</td>
<td>2/13</td>
<td>0/12</td>
<td>0/8</td>
<td>0/10</td>
<td>0/4</td>
</tr>
<tr>
<td>Make-up Finish</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>3/14</td>
<td>0/13</td>
<td>0/9</td>
<td>0/13</td>
<td>0/12</td>
<td>0/8</td>
<td>0/10</td>
<td>0/4</td>
</tr>
<tr>
<td>Brassieres</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>4/13</td>
<td>1/13</td>
<td>0/9</td>
<td>3/12</td>
<td>7/12</td>
<td>2/8</td>
<td>7/10</td>
<td>4/3</td>
</tr>
</tbody>
</table>

**Note.** The upper number in the box refers to the number of items sold during the phase; the lower number refers to the data points available for that phase. "A" indicates no signs were present, "B" indicates signs identifying frequently stolen merchandise were present, and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
Questionnaire Data

Table 8 displays the number of shoppers who reported seeing shoplifting signs in each phase of Experiment II. Following the initial baseline (Phase One) when no shoppers saw any signs, there was an increase of shoppers reporting signs in Phase Two when specific signs were posted. The number of shoppers decreased when the signs were removed in Phase Three, and the reporting rate increased again when the signs were re-introduced in Phase Four. This pattern was similar in Phases Five, Six, and Seven, depending on whether or not any signs were present. Thus, it was clear that shoppers were more likely to notice the signs during experimental periods and that more shoppers noticed these signs in Experiment II than in Experiment I. However, there were too few comparisons to determine whether specific signs were more likely to be noticed than location signs in Experiment II.

Discussion of Experiments I and II

As expected, the presence of the signs did not discourage legitimate shoppers and reduce sales. In addition, the signs did not increase the theft rate of any merchandise, as in Thurber and Snow (1980). However, with respect to the major experimental hypotheses, neither the specific nor the location signs led to a consistent reduction in the
Table 8

Number of Shoppers Who Reported Seeing Signs in Experiment II

<table>
<thead>
<tr>
<th>Phase</th>
<th>Conditions</th>
<th>Shoppers Seeing Signs (Maximum of Ten)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>A or B</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>A or B</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>B+C or C</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>A</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>B+C or C</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>C</td>
<td>2</td>
</tr>
</tbody>
</table>

**Note.** "A" indicates no signs were present, "B" indicates signs identifying frequently stolen merchandise were present, and "C" indicates signs identifying locations used by shoplifters and store entrance signs were present.
shoplifting rate in either experiment. Even if it is claimed that the nursing bottles tended to have a lower theft rate while signs were posted, the nursing bottles pattern may simply have been a chance occurrence. In other words, with nine categories of merchandise overall between the two experiments, one category might have been expected to have a significant reduction by chance alone.

The shoplifting data from the experiments were in contrast to the experimental hypotheses and to the findings of McNees, et al. (1976). Therefore, it is necessary to speculate why there was a failure to obtain the expected results.

As suggested by the questionnaire data, one contributing factor in the signs' failure was the lack of prominence of the signs. For example, the base of the hair care kit shelf was 4.8 cm. above the floor, so the specific signs were posted at this relatively low level. Thus, shoppers contemplating the theft or purchase of this awkwardly placed merchandise may not have noticed the signs posted beneath the merchandise. The signs' prominence was also diminished by the presence of a number of other signs on the sales floor, particularly in Experiment I. Both location and specific signs competed with other signs for a shopper's attention. Winett (1977) found signs prompting energy conservation to be ineffective when posted in the midst of
other signs and announcements. It was unsurprising, therefore, that the store in Experiment II had few competing anti-shoplifting signs when compared to Experiment I.

Measurement errors also affected the results of the two experiments, particularly in Experiment II. For example, if a shopper purchased a targeted item and a careless or new cashier failed to tally the sale of the item on the monitoring form, the removal of the item was eventually recorded as a theft. In addition, if both tallying errors and inventory counting errors occurred on the same day, the computed theft rate would have been lower than the actual rate. In other words, measurement errors served mostly to falsely elevate the shoplifting rate, although occasionally the errors could have had the opposite effect.

A third factor influencing the experiments was the relatively low baseline theft rates of the majority of the categories. By having initially low rates, there were limitations in being able to demonstrate that the posted signs would reduce the theft rate. In other words, it was difficult to reduce a rate which already was low. Similarly, any measurement errors which occurred seriously affected the average daily theft rate since the rates were relatively low.

A final factor which influenced the experiments was the number of comparisons which were attempted. In each
experiment, comparisons were attempted between baseline versus specific signs phases, baseline versus location signs phases, baseline versus specific plus location signs phases, and specific versus specific plus location signs phases. By trying to gather information regarding several comparisons, the amount of information available concerning any one particular comparison was reduced. This paucity of information both heightened the effects of measurement errors as well as made it more difficult to ascertain the effectiveness of the intervention.

The third experiment was designed in response to the difficulties encountered and the issues raised by Experiments I and II. One major change was to focus solely on investigating the effectiveness of specific signs in reducing the shoplifting of non-stable, low- to moderate-demand merchandise. As noted in the Introduction, the theft rate of merchandise which most shoppers demand on an irregular and infrequent basis was expected to be reduced in the first two experiments when specific signs were posted, and location signs were expected to add to the reductions. The data from Experiments I and II suggested that one issue which had to be addressed first was whether the effects of the specific signs demonstrated by McNees, et al. (1976) could be replicated. Therefore, Experiment III consisted solely of baseline periods and phases during which specific signs were posted.
Employee participation was minimized in the third experiment. The investigator was responsible for the inventory counting process. To reduce errors in the sales monitoring process, a simpler and more obvious tagging system was used for targeted merchandise. Since no serious problem with the questionnaire administration occurred in the first two experiments, employees remained responsible for administering the questionnaires in the third experiment.

In the initial two experiments, phase changes were to occur following the stabilization of the theft rate in the phase. As noted, theft rates did not become more stable as the phase progressed. Thus, in the third experiment, two changes were made in response to the lack of stable theft rates found in Experiments I and II. One change was to make the phases more uniform in length. There was a three-week initial baseline period, followed by five one-week phases. A second change eliminated the daily sales and inventory counts and introduced a weekly count (at the end of each new week) to determine the number of items sold and stolen for that week. The first two experiments demonstrated that knowing the number of items stolen each particular day offered little additional information to the data summarized according to the phases.

Since the merchandise of Experiment III was non-stable, low-demand merchandise as in McNees, et al. (1976), and
since no category in Experiments I and II had an increase in shoplifting (Thurber & Snow, 1980), it was expected that the theft rates in this experiment would be lower during phases when specific signs were posted than during baseline periods. The rate reductions in Experiment III were to be facilitated by choosing a store with fewer competing stimuli (i.e., fewer non-shoplifting signs). Reducing employee participation and measurement errors were also expected to facilitate reductions in the shoplifting rate.

The sales rates in Experiment III were expected to be comparable during both baseline and experimental periods. There were no indications from Experiments I and II that suggested a decrease in sales as a function of experimental periods.

With respect to the questionnaires, it was expected that shoppers would be more likely to notice signs during the experimental phases. Since only specific signs were posted and location signs were eliminated from the experiment, the percentage of shoppers noticing signs even during the experimental phases was expected to be relatively small. However, the questionnaires were included in the event that either an extremely high percentage or very low percentage of shoppers reported noticing the signs. Such findings would strongly affect the interpretation of the results.
V. EXPERIMENT III

Method

Setting

This study was conducted at a convenience store in an ethnic neighborhood in Minneapolis. The sales area of the store was much smaller than the grocery and targeted departments of Experiments I and II, respectively. No other signs were posted in the aisles of this store except for an occasional sign identifying an item on sale. Convex mirrors were the only formal shoplifting prevention device used by the store.

Measurement of Shoplifting

The store manager selected canned meat and fish, cold cuts, stockings, frozen dinners, and chocolate candy as the most frequently stolen items in the store. After the baseline period, the chocolate candy category was eliminated from the study since the shipping of the candy to the store proved to be irregular. While only the canned meat/fish and cold cuts categories were identified by specific signs, the other two categories remained under observation in the event that their theft rates became higher following the initial
baseline. If the rates had increased, specific signs would have been added to these categories.

Targeted merchandise was identified by a coded tear-off sticker placed near the item's price tag. The sticker was both obvious to the cashier and easily removable. Employees were instructed to place the sticker when an item was purchased in a box next to the cash register. The investigator collected these stickers at the beginning of each new week of the experiment when shelf inventory counts were also made. The number of items sold and stolen during each phase was determined in the same manner as in Experiment I.

**Phases**

The conditions for each category by phase is shown in Table 9. As indicated, the first three phases utilized a multiple-baseline procedure, while reversal procedures were used in the final three phases.

All phases were one-week in duration following the initial three-week baseline. As indicated, the first three phases utilized a multiple-baseline procedure, while reversal procedures were used in the final three phases.

**Baseline Period: Phase One.** No signs were posted during this three-week phase. Theft and sales data were gathered at the end of each week.
Table 9
Sign Conditions for each Category in Experiment III

<table>
<thead>
<tr>
<th>Category</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canned Meat/Fish</td>
<td>A</td>
</tr>
<tr>
<td>Cold Cuts</td>
<td>A</td>
</tr>
<tr>
<td>Stockings</td>
<td>A</td>
</tr>
<tr>
<td>Frozen Dinners</td>
<td>A</td>
</tr>
</tbody>
</table>

Note. "A" indicates no signs were present and "B" indicates signs identifying frequently stolen merchandise were present.
Phase Two. Two specific signs were posted on the targeted canned meat and fish products. The signs were identical in shape and message to the specific signs in Experiment I (see Figure 1). They were posted perpendicular to the shelf, which made them visible to a shopper who stood at no closer than the end of the aisle.

The signs were posted on only the canned meat and fish to see if this category's shoplifting rate would decrease while the rates of the remaining categories would stay stable.

Phase Three. Two specific signs were posted on the cold cuts. The signs on the canned meat and fish products remained on display. The cold cuts' theft rate was expected to decrease, while the other categories remained stable.

Phase Four. The signs on the canned meat and fish products were removed. The purpose of the phase was to see if this category's shoplifting rate would increase.

Phase Five. The signs on the canned meat and fish products were re-posted. The signs on the cold cuts were removed. These changes were made in order to determine whether the presence or removal of the signs would change the theft rates accordingly.
Phase Six. The signs on the cold cuts were removed to see if its shoplifting rate would increase again.

Questionnaires

Ten questionnaires were administered in each phase by a cashier.

Reliability

Six reliability checks on the inventory counting process resulted in an average reliability of .99.

Results

Shoplifting Rates

The number of items shoplifted during each phase is shown in Figure 6. Inspection of the figure indicates that the specific signs reduced the theft rate of the canned meat and fish and the cold cuts categories. Six items from the canned meat and fish category were stolen during the first week of the experiment, and five items were shoplifted from this category during each of the following two weeks. When signs were posted on the canned meat and fish products, only one item was stolen during each of the next two weeks. The shoplifting rate increased again (four items) when the signs were removed in the sixth week, and no items were stolen when the signs were re-introduced in the seventh week. Finally, during the last baseline in the eighth week, the
Figure 6. Number of items stolen from each category in each phase of Experiment III. "A" indicates no signs were present and "B" indicates signs identifying frequently stolen merchandise were present.
shoplifting rate increased again. Overall, 4.40 items were stolen weekly during baseline periods and .67 items were stolen during phases when signs were posted.

In the cold cuts category, a relatively consistent number of items were shoplifted each week during the first four weeks of the experiment. When specific signs were introduced in Weeks 5 and 6, only one item was stolen during the two-week period. The shoplifting rate increased in the seventh week when the signs were removed, although the rate decreased slightly during the final week of the experiment. Overall, 3.33 items were stolen weekly during baseline periods and .50 items were shoplifted weekly when signs were posted.

One item was stolen weekly from the stockings category and .86 items were shoplifted from the frozen dinners. Neither of these categories were identified by specific signs at any time in the experiment. It is interesting to note that the theft rate of these categories remained fairly stable when signs were posted on the canned meat and fish and cold cuts. This pattern suggests that reductions in shoplifting were specific to the items which were identified by signs.

Sales Rates

Table 10 is a summary of the number of items sold during each week of Experiment III. As the table
Table 10  
Number of Items Sold per Week  
in Experiment III

<table>
<thead>
<tr>
<th></th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 6</th>
<th>Week 7</th>
<th>Week 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canned Meat/Fish</td>
<td>A A A A</td>
<td>B B A B</td>
<td>A B A A</td>
<td>13 5 2</td>
<td>17 18 10</td>
<td>3 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold Cuts</td>
<td>A A A A</td>
<td>B B A A</td>
<td>8 0 4 4</td>
<td>6 4 4 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stockings</td>
<td>A A A A</td>
<td>A A A A</td>
<td>0 0 0 4</td>
<td>0 1 2 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frozen Dinners</td>
<td>A A A A</td>
<td>A A A A</td>
<td>5 6 2 0</td>
<td>0 1 0 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. "A" indicates no signs were present and "B" indicates signs identifying frequently stolen merchandise were present.
indicates, sales did not systematically change when a specific sign was posted for a category.

A correlation coefficient was computed for the sales and theft rates of each category. The coefficients were not significant at a probability level of .05 for the canned meat and fish \((r = -0.05, \text{ df } = 7, \text{ n.s.})\), or cold cuts \((r = -0.23, \text{ df } = 7, \text{ n.s.})\) categories. Therefore, sales did not account for an appreciable amount of the variance in the shoplifting data.

**Questionnaire Data**

Table 11 presents the number of shoppers who reported seeing signs in each phase. After the initial baseline period in which no shoppers reported seeing signs, shoppers saw signs in the following four phases when specific signs were posted. No shoppers saw signs in the last phase when the signs were removed. In summary, therefore, the signs were noticed in all phases except for the two baseline periods. This pattern suggests that the signs were noticed and were probably the factor responsible for the reductions in the theft rates during the experimental phases.
Table 11

Number of Shoppers Who Reported Seeing Signs in Experiment III

<table>
<thead>
<tr>
<th>Phase</th>
<th>Conditions</th>
<th>(Maximum of Ten)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>A or B</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>A or B</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>A or B</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>A or B</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>A</td>
<td>0</td>
</tr>
</tbody>
</table>

Note. "A" indicates no signs were present and "B" indicates signs identifying frequently stolen merchandise were present.
VI. DISCUSSION

The shoplifting rate of the targeted merchandise in Experiment III was clearly lower when the specific signs were posted than during baseline phases. In all likelihood, reducing competing visual stimuli by choosing a store with fewer posted signs was a major factor for the signs' effectiveness in Experiment III. However, an explanation is necessary regarding how the specific signs could have reduced shoplifting if fewer than half the shoppers reported seeing these signs. This finding is not surprising when the signs and the type of merchandise is considered. Since only specific signs were used and the signs were posted on low-to moderate-demand merchandise, the only individuals likely to notice the signs would be people contemplating the theft or purchase of this merchandise. Thus, while a high percentage of shoppers planning to steal or buy the targeted merchandise probably saw the signs, only a low percentage of the store's total customers would have noticed the same signs. Different questionnaire results from those found in Experiment III could be expected if only shoppers who bought the merchandise were given questionnaires.

When the data from the three experiments are reviewed, several conclusions can be reached. First, as found in
Experiment III, the shoplifting rate of merchandise can be reduced by signs identifying the merchandise as being frequently stolen. These results were similar to the findings of McNees, et al. (1976). The failure to replicate the findings in the first two experiments demands some qualifications of this conclusion. The major differences in Experiment III from Experiments I and II were the reduction in measurement errors through minimizing employee participation, higher baseline theft rates, and signs of greater prominence.

Probably the most important reason for the success of the signs in Experiment III was their prominence and subsequently their ability to function as discriminative stimuli. The signs' value as discriminative stimuli are dependent on several factors. The signs must be immediately proximal to the merchandise, must be easily noticed by shoppers contemplating the theft of the merchandise, and must not be masked by a multitude of competing stimuli. These factors can be considered as stimulus saliency and stimulus background variables, and such characteristics have been repeatedly identified as significant in a variety of human and animal perceptual and learning experiments (e.g., Estes, 1972). In short, therefore, perceptual and learning principles offer help in undertaking the signs' effectiveness in Experiment III in contrast to the findings of the first two experiments.
The data from these experiments suggest that retailers' fears regarding anti-shoplifting signs having a negative impact on sales may be unfounded. There was no consistent relationship between the presence of specific signs and the sales rate for any of the categories.

Future research in this area should address several remaining issues. One major issue concerns the findings of Thurber and Snow (1980), which suggested that specific signs may serve as discriminate stimuli to encourage shoplifting, rather than discourage such behavior. Studies must determine whether specific signs effectively reduce shoplifting only for non-stable, low- to moderate-demand merchandise, and whether the same signs would increase the theft of stable, high-demand merchandise. The most effective manner by which to investigate these relationships and to control for relevant variables would be to post specific signs on both low- and high-demand merchandise in the same, single-case study. Understanding these relationships would allow the investigator (and ultimately, the retailer) to utilize the signs with appropriate discretion.

A second major issue which future research should address concerns the ability of signs to reduce store-wide shoplifting. While the location signs in Experiments I and II failed to serve as discriminative stimuli to discourage theft, a recent study by Reiter and Samuel (1980) showed
that anti-littering signs were effective when the signs were prominent, free from competing stimuli, and in locations where littering was more likely to occur. Since Experiments I and II suffered from having a multitude of competing stimuli, a study in a store relatively free of other signs would determine whether location signs can have an impact on store-wide shoplifting.

Finally, future shoplifting research must investigate other possible relevant variables which may determine the effectiveness of anti-shoplifting signs in a particular situation. Merchandise characteristics, such as perceived value, popularity among youth, and the ease with which the product can be shoplifted should be examined. Different sign messages may have a more dramatic impact, especially those which increase the threat of apprehension or of serious punishment (Kraut, 1976). The store layout, the presence of additional shoplifting prevention devices in the store, and the types of shoppers who frequent the store all may potentially influence the effectiveness of anti-shoplifting signs.
REFERENCES


How shoplifting is draining the economy. Business Week, October 15, 1979, 119-123.


Kraft, T. Treatment of compulsive shoplifting by altering social contingencies. Behavior Research and Therapy, 1970, 8, 393-394.


To catch a thief. Newsweek, Sept. 23, 1974, pp. 79-80.


APPENDIX

QUESTIONNAIRE
1. In this store, have you noticed any signs about shoplifting?

   YES          NO             (Circle One)

2. If you noticed any signs, please write as much of the sign's message as you can remember in the space below.

   THANK YOU FOR YOUR HELP!
VITA

Jeffrey Allan Gottlieb was born in Queens, New York, on January 15, 1954. He graduated from Elmont Memorial High School in Elmont, New York, in 1972. He then attended the State University of New York at Binghamton and graduated with a Bachelor of Arts degree in 1976. In 1979, he received his Master of Arts degree in psychology at Louisiana State University. He is presently a candidate for the Doctor of Philosophy degree at Louisiana State University.
EXAMINATION AND THESIS REPORT

Candidate: Jeffrey Allan Gottlieb
Major Field: Psychology
Title of Thesis: Reducing Shoplifting Incidents Through the Use of Signs

Approved:

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Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signature]

[Signature]

[Signature]

[Signature]

Date of Examination: July 19, 1982