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Behavioral Impact of a Corporate Driving Policy: Undesirable Side-Effects Reflect Countercontrol

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ABSTRACT

Pizza deliverers at two stores received turn-signal policy statements with two paychecks in an AB1B2 multiple baseline design. At Store A turn-signal use rose from a baseline mean of 70% to 78% after the first policy statement and to 84% after the second policy statement. At Store B turn-signal use rose from a baseline mean of 46% to 51% after the first policy statement and to 59% after the second policy statement. Concurrent observations of safety-belt use showed decreases from 78% to 65% at Store A and 74% to 59% at Store B after the first policy statement.

ARTICLE

A policy statement issued by a company specifies expected behaviors on the part of an employee. As an antecedent it prompts the individual to engage in these behaviors. Some employees may have experience with the consequences of non-compliance with a company policy. These could have been managerial comments, disciplinary action, or loss of job. For these employees, the policy statement also serves as a discriminative stimulus for compliance.

Field observations suggest that governmental attempts to increase safe driving behaviors through laws have been successful. For example, safety-belt use increased dramatically after states passed a safetybelt use law (Zeigler, 1986; Campbell, Stewart, & Campbell, 1988). However, after an extensive review of the literature, no time series data could be found on the behavioral impact of a safety policy used within the context of a work setting. The present study reports such data on a company policy that required the use of vehicle turn signals.

Many companies have safe-driving policies in place for corporate owned vehicles, but few have policies in place for privately-owned vehicles. Pizza deliverers, for example, are usually required to use their own vehicles, and safe driving behaviors are rarely mandated by their employing corporation. However, these employees are a population, because of their age, who are more prone to at-risk driving and vehicle crashes. At the time of this study, the target population (i.e., pizza deliverers) worked for a franchise corporation that promised fast delivery and rewarded rapid deliveries by paying employees a commission per each pizza delivered. Therefore, a policy statement from the company that prompted safety and implied negative consequences of at-risk driving was unique and salient.

COUNTERCONTROL

Recent studies of the driving practices of pizza deliverers have shown that when one safety-related behavior was targeted, the frequency of other safety-related behaviors changed significantly (Ludwig & Geller, 1991, 1997, in press; Ludwig, Geller, & Clarke, 1999). When the intervention process involved the employees in designing and implementing the procedures, response generalization (Kazdin, 1973; Martin & Pear, 1996) occurred. In other words, the nontargeted safety-related behavior(s) increased concomitant with increases in the frequency of the target behavior. However, when the intervention process was mandated from management with minimal employee participation, the occurrence of nontargeted safety-related behaviors actually decreased (Ludwig & Geller, 1997).

The occurrence of undesired behaviors following a mandated intervention has been referred to as countercontrol (Miller, 1991; Skinner, 1953). Mawhinney (1999), for example, presents data, which appear later in this issue, of some telemarketers who decreased their number of phone calls in response to a mandated quota. Another applied example of countercontrol was observed by Geller, Casali, and Johnson (1980) who found that as safety-belt inducements systems (i.e., light, buzzer, and/or ignition interlock) became more intrusive (e.g., louder or longer), individuals were more likely to defeat the system by either sitting on a connected safety belt or disconnecting the system. Alternatively, individuals may engage in other undesirable behaviors not targeted by the intervention in order to avoid the aversive nature of the external control (Balsom & Bondy, 1983). This was demonstrated by Ludwig and Geller (1997) whereby some pizza deliverers received assigned goals and a mandated intervention.

The present study evaluated the impact of a company mandate to increase the use of turn signals by pizza deliverers. Both turn-signal and safety-belt use were observed systematically using a multiple baseline design across two pizza delivery stores.

METHOD

Participants and Settings

Pizza deliverers at two pizza stores (*n* = 36 at Store A; *n* = 24 at Store B) were observed unobtrusively when they departed for and arrived from their deliveries. Both franchises were from the same national corporation. The stores were located in adjacent towns (pop. 30,000 and 40,000) in southwest Virginia. Store A was the only establishment that used a parking lot with two exits onto a four-lane road. Store B shared a parking lot with one other business that had two exits leading to different two-lane roads. The parking lots from both stores were connected to roads posting a 35 mph speed limit. Store A was within one mile of a state university serving 25,000 students. Deliverers were paid on commission (per total pizzas sold), which averaged approximately $.75 per delivery plus gratuity.

Behavioral observations of turn-signal and safety-belt use took place during peak business hours (i.e., 5:00-8:00 pm). Turn-signal use was recorded by observing the right and left-turn signal blinkers on the lower front and rear of the vehicle. Safety-belt use was recorded by observing the position of the shoulder belt for the driver's seat. No vehicles had automatic shoulder belts.

Both turn-signal and safety-belt use were recorded using a simple ''yes'' or ''no'' coding. Additionally, license plate numbers were collected during each observation. Data were collected by trained observers blind to the scheduling and assignment of the intervention conditions. Located in hidden positions overlooking the parking area of each pizza store, observers collected data using a behavioral checklist format applied extensively for these types of vehicle observations (Ludwig & Geller, 1991, 1997). Approximately 1/3 of the observation sessions were staffed by two research assistants who recorded data independently, thus enabling assessment of interobserver agreement.

Experimental Design

An AB1B2 multiple baseline design across two stores was used. After 8 weeks of baseline observations, all employees at Store A received the following turn-signal policy statement in their paychecks on pink paper: ''It is the policy of (name of franchise) that all drivers use their turn signal at every intersection when making a delivery.'' On a Friday, the paychecks were put in boxes designated for each pizza deliverer and picked up at their discretion (usually the same day). The same policy statement appeared in employees' next paychecks available two weeks later, also on Friday. No further policy statements were distributed with paychecks after this point.

Two weeks after Store A employees received their first policy statement, employees at Store B received their first turn-signal policy statement in their Friday paycheck. The Store B employees received a second statement in their subsequent Friday paycheck two weeks later. Follow-up observations did not continue after Week 14 due to high turnover of employees at both stores which corresponded to the winter break at two nearby universities.

Three weeks after follow-up data collection concluded at both stores, a brief survey was distributed to the pizza deliverers' boxes. This manipulation check asked if they had received a pink sheet of paper with their paychecks, and, if so, what did it say. Deliverers were instructed to turn the survey back to a centrally located box.

RESULTS

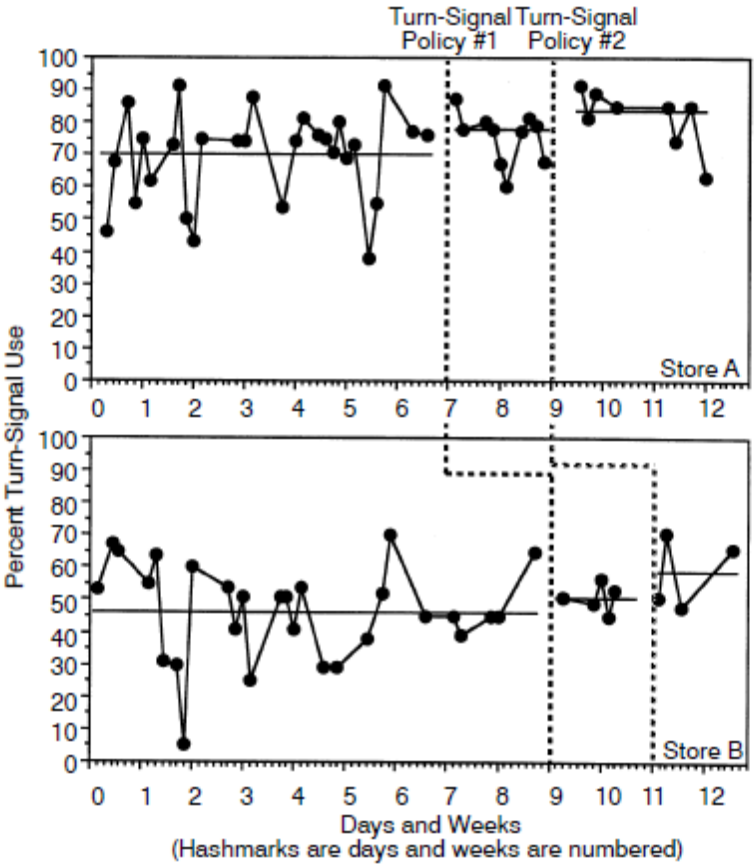
A total of 5711 vehicle observations were conducted over a 13-week period on the 60 different pizza deliverers who were observed within each phase of the study. Data from an additional 57 deliverers were not used because they were not observed during all of the phases. A total of 1664 turn-signal observations were conducted at Store A and 1354 at Store B. A total of 1659 safety-belt observations were conducted at Store A and 1034 at Store B. An average of 34.5 (ranging from 9 to 72) turn-signal observations and 32.6 (ranging from 9 to 65) safety-belt observations occurred in a single observation session. Data collection sessions that yielded less than 9 observations were not included in the data analysis because this created additional variability in the time-series analysis.

Interobserver agreement percentages were calculated on 36% of the observation sessions by dividing the total number of observations agreed upon for a particular data category by the total number of agreements and disagreements, and multiplying the result by 100. Interobserver agreement averaged 92.4% for belt use (ranging from 79.8% to 96.6%) and 92.6% for turn signal use (ranging from 80.1% to 98.3%).

Figure 1 depicts daily percentages of turn-signal use by pizza deliverers at the two stores. The average daily turn-signal use was determined by calculating the mean percentage for each day across all deliverers observed that day. The average for each experimental phase represents the average of all daily means during that phase. At Store A, mean turn-signal use was 70% (ranging from 36% to 93% per session) during 1014 observations over a seven-week baseline period, 78% (ranging from 61% to 87%) during 382 observations in the twoweek period between the first and second policy statement, and 84% (ranging from 76% to 91%) during the 268 observations conducted in a four-week period after the second policy statement.

At Store B, mean turn signal use was 46% (ranging from 4% to 67% per session) during 1072 baseline observations over a nine-week period, 51% (ranging from 45% to 56%) during 380 observations in the two-week period between the first and second policy statement, and

FIGURE 1. Percent turn-signal use before and after two turn-signal policy statements were inserted into deliverer's paychecks. Although data were not collected on every day, the hashmarks represent consecutive days and the Friday of each week is numbered. Deliverers received paychecks on every odd numbered Friday and the vertical lines in the graph indicate when paychecks were accompanied by the turn-signal policy.

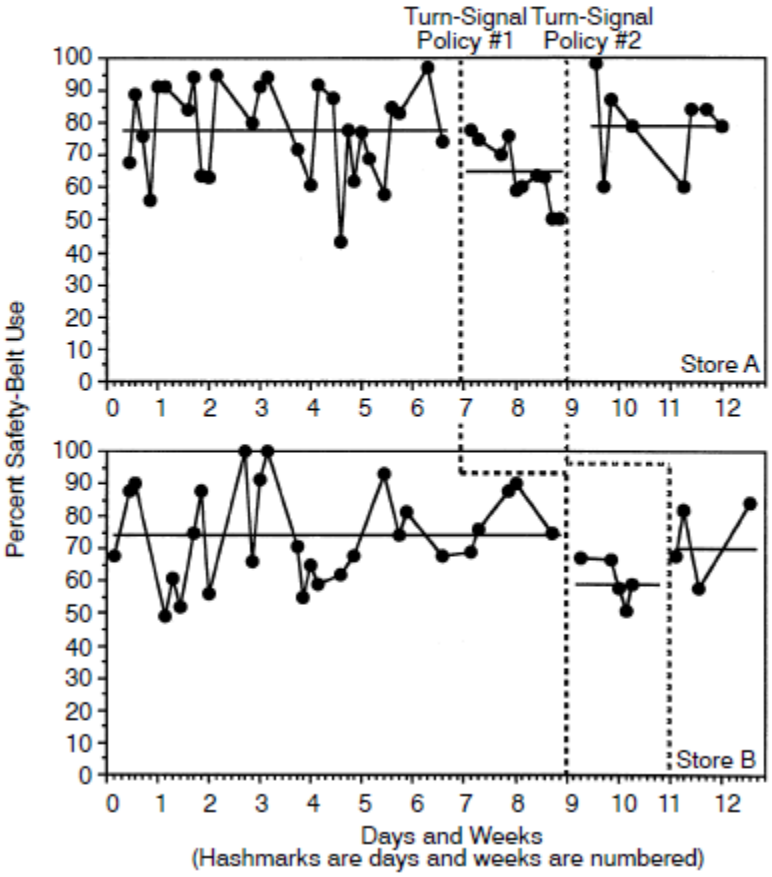


59% (ranging from 47% to 71%) during the 302 observations conducted in the two-week period following the final policy statement.

Figure 2 depicts the daily percentages of safety-belt use by pizza deliverers at the two stores. The average daily and phase safety-belt use percentages were calculated in the same way as the means for

turn-signal use. At Store A, mean safety-belt use was 78% (ranging from 41% to 96% per session) during 1010 observations over a seven week baseline period, 65% (ranging from 47% to 77%) during 366 observations in the two-week period between the first and second

FIGURE 2. Percent safety-belt use before and after two turn-signal policy statements were inserted into deliverer's paychecks. Although data were not collected on every day, the hashmarks represent consecutive days and the Friday of each week is numbered. Deliverers received paychecks on every odd numbered Friday and the vertical lines in the graph indicate when paychecks were accompanied by the turn-signal policy.



policy statement, and 79% (ranging from 59% to 98%) during the 253 observations conducted in the four-week period following the final policy statement.

At Store B, mean safety-belt use was 74% (ranging from 48% to 100% per session) during 1051 observations over a nine-week baseline period, 59% (ranging from 48% to 65%) during 159 observations in the two-week period between the first and second policy statement, and 70% (ranging from 68% to 83%) during the 94 observations conducted in the two-week period following the final policy statement.

All 60 deliverers whose data were analyzed in this study received the two paychecks with the policy statements. No information was available on precisely when each deliverer picked up their paycheck and the policy statement. However, interviews with the managers of the stores indicated that over 90% of their employees pick up their paychecks the night they are issued or early the next day. This is logical since most employees were college students in need of the extra cash. At the end of the study ten employees at each store completed the brief manipulation check. Each of these individuals remembered the ‘‘pink slip’’ and mentioned that it was about turn-signal use.

DISCUSSION

At both stores, turn-signal use increased marginally over the two administrations of a turn-signal use policy. Small but consistent increases in turn-signal use after the first policy statement were followed by further increases after the second policy statement. It is possible a ceiling effect limited a beneficial change in turn-signal use at Store A (since usage was already 70% during baseline), but a similar small impact was found at Store B where baseline usage was only 46%. The lack of long-term follow-up observations made it impossible to determine if the modest increases in turn-signal use associated with the policy statements showed any maintenance. However, because there were no programmed cues associated with policy compliance, it is likely that additional policy statements would be needed to maintain an improvement in the target behavior, and perhaps lead to further stepwise increases.

Concurrent measures of safety-belt use showed prominent reductions after the first turn-signal policy at both stores. These decreases in belt use reversed back to the baseline levels after the second policy statement. Thus, while some pizza deliverers increased their turn-signal use, perhaps to avoid undesirable consequences of disobeying the new policy, they also decreased their practice of another safe-driving behavior, at least temporarily.

The transient undesirable change in a nontarget behavior seems related to countercontrol (Skinner, 1953). In this case, these results suggest that the policy mandate, printed on a pink slip (commonly used for dismissal notices), was aversive and reflected top-down control. Exhibiting countercontrol by disregarding this policy statement would risk discipline, including removal from the job. However, the deliverer could exhibit countercontrol in another non-targeted behavior that is functionally related to the targeted behavior in some way (Balsom & Bondy, 1983). This is a possible explanation for the decrease in safety-belt use that occurred immediately after the delivery of the first turn-signal policy statements at each store. Both turn signal and safety-belt use are functionally related to safe driving. Some deliverers may have decided not to buckle-up in order to counteract the

aversive nature of the external mandate on turn-signal use.

A risk-compensation notion (Piltzman, 1975; Wilde, 1994) might also be used to explain these results. This theory proposes that people's levels of risk are relatively constant, and when they do something that decreases their perception of risk, they perform other behaviors that increase this risk. Thus, it is possible that some deliverers felt more safe when using their turn signal and thus perceived less need to buckle-up. This would not explain, however, the transient nature of this effect, unless repeated use of a turn signal leads to a reduction in the perceived safety associated with initial performance of this behavior. Previous studies using this population have shown increases in untargeted safety behaviors that have not been associated with effects that resemble risk compensation (Ludwig & Geller, 1991, 1997, in press). Therefore, we are skeptical that risk compensation occurred in this study.

Although the theoretical implications of our findings are interesting, this study does have some obvious limitations. Follow-up investigation is clearly warranted. For example, we would have liked to observe greater increases in turn-signal use after the policy statements. Perhaps a more strongly worded policy statement that specified undesirable consequences for non-compliance (e.g., ''suspension or dismissal from work'') would have lead to greater increases in turn-signal use. To further increase the impact of the policy intervention, employees could be required to sign a copy of the policy to confirm their knowledge of the new rule. At any rate, the apparent undesirable impact of a policy intervention on a nontargeted behavior is provocative, and calls for a more ecological approach to intervention evaluation (Geller, 1987; Willems, 1974) and an analysis of ''undesired side effects'' (Geller, 1991; Schwartz & Baer, 1991).

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