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Assigned Versus Participative Goal Setting and Response Generalization : Managing Injury Control Among Professional Pizza Deliverers

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ABSTRACT

Safety belt use, turn signal use, and intersection stopping were observed at 3 pizza delivery locations per driver's license plate numbers. After baseline observations, employees at 1 store participated in goal setting targeting complete stops. Employees at the other store were assigned a goal. Over 4 weeks, the group's percentages of complete intersection stopping were posted. Both intervention groups significantly increased their complete intersection stops during the intervention phase. The participative goal-setting group also showed significant increases in turn signal and safety belt use (nontargeted behaviors) concurrent with their increases in intersection stopping (targeted behaviors). Drivers decreased their turn signal and safety belt use concurrent with the assigned goal condition targeting complete stops.

The pizza delivery business has become a particularly dangerous occupation. Indeed, pizza deliverers have a driving accident rate three times the national average (Meagher, 1989). This has resulted in fatalities, personal injuries, and costs amounting to millions of dollars for the communities and corporations involved. Three factors have contributed to the excessive vehicle crashes among pizza deliverers. First, the majority of pizza deliverers are inexperienced drivers ranging in age from 18 to 24, the age where insurance companies compute the most risk into their premiums. Secondly, pizza delivery businesses have developed the product image of "fast-to-your-door," and, until recently, most had offered time-based guarantees. Finally, pizza deliverers are compensated with commissions that are based on number of pizzas delivered, thereby rewarding fast and convenient driving practices that are often unsafe. The present research compared the impact of two goal-setting procedures designed to improve the driving practices of pizza deliverers.

Assigned Versus Participative Goal Setting

Numerous empirical studies (e.g., Fellner & Sulzer-Azaroff, 1985; Komaki, Barwick, & Scott, 1978) have demonstrated the usefulness of goal setting for improving occupational safety. From their review of nearly 500 studies, Locke and Latham (1990) concluded that the influence of goal-setting interventions on behavior is indeed a robust research finding. They also concluded that the method in which goals are set, either assigned or participative, does not affect subsequent performance (see also meta-analyses by Mento, Steel, & Karren, 1987, and Tubbs, 1986). Observed differences between participative and assigned goal setting are presumably due to differences in mediating variables such as goal difficulty (Latham & Saari, 1979a; Latham, Steele, & Saari, 1982; Kernan & Lord, 1988), information (Latham & Saari, 1979b), experimental support (Latham, Erez, & Locke, 1988), and strategy development (Latham, Winters, & Locke, 1994). When these factors are considered, Locke and Latham (1990) found no appreciable differences in performance between assigned and participatory-set goals. The present research compared the impact of assigned versus participative goal setting. Unlike prior research, however, effects on both targeted and nontargeted behaviors were examined.

Response Generalization

In studies reviewed by Locke and Latham (1990), the impact of goal setting has always been operationally defined as observed changes in a targeted behavior. In the real world, however, there are many behaviors that covary, correlate, or otherwise share a functional similarity to one another. Therefore, when a goal-setting intervention seeks to operate on one behavior, it is possible that behaviors similar to the target behaviors but not directly targeted by the goal-setting intervention may also be affected. If the frequency of a nontargeted behavior is observed to change during an intervention targeting another behavior, response generalization has presumably taken place (Ludwig & Geller, 1995).

There is some evidence that response generalization may be a special benefit of intervention programs that promote participant involvement. Ludwig and Geller (1991) observed that after an intervention targeted only safety belt use among pizza deliverers, the use of both safety belts and turn signals increased. For a second intervention study, pizza deliverers promoted safety belt use in the surrounding community. During this intervention, deliverers' safety belt use rose as expected, and turn signal use also increased 20 percentage points above baseline (Geller & Ludwig, 1991; Ludwig, Geller, & Roberts, 1990). An analogous result was found by Streff, Kalsher, and Geller (1993), who targeted the use of safety glasses in an industrial setting. After the successful intervention, employees also increased their use of safety belts 174% over baseline when leaving the plant parking lots in their personal vehicles.

When driving a vehicle, individuals may refer to personal norms or rules governing their behavior. For example, a personal rule to avoid injury from an automobile crash may be achieved behaviorally through the use of vehicle safety belts, as well as by using turn signals or coming to a complete stop at intersections. From this perspective, these behaviors should correlate (Fricker & Larsen, 1989; Ludwig & Geller, 1991, 1995). Similarly, Locke and Latham (1990) suggested that individuals set implicit goals for themselves in the absence of assigned goals. These implicit goals have been shaped over time and can consist of various behaviors functionally related to goal achievement.

When individuals participate in goal setting, they undoubtedly refer to their implicit goals in order to provide opinions about the rationale of the goal-setting process. Referring to implicit goals may also influence their consideration of other functionally related behaviors. If there is a strong previous association between nontargeted behaviors functionally related to the behavior targeted by the goal, the effect of the intervention may generalize to these behaviors. On the other hand, if an assigned goal is perceived as being externally controlled, it might not activate implicit goals. Under these circumstances, it is likely that no other behavior than the target behavior will be promoted by the external consequences. Response generalization would not be expected to occur because implicit goals about related but nontargeted behaviors are not activated.

The present study compared the impact of assigned versus participative goal setting in a field setting where three driving behaviors were unobtrusively observed: intersection stopping, turn signal use, and safety belt use. Employees of pizza delivery stores were exposed to an assigned or participative goal-setting and feedback intervention that targeted only complete intersection stops. We hypothesized that response generalization (i.e., concurrent changes in turn signal and safety belt use) would occur as a result of participative goal setting but not as a result of assigned goal setting.

METHOD

Participants and Settings

Pizza deliverers (*N* = 324) from three different pizza stores (two intervention sites and one control) were observed departing for and arriving from their deliveries. Employees at the stores consisted mainly of college students nearly identical in age (*M* = 21) and education (*M* = 2 years of college). Both intervention stores were owned by the same franchise; however, they were located in separate towns, each servicing a state university. The pizza deliverers at a third store served as a nonintervention control. All employees worked on commission (per total pizzas sold), which averaged approximately $0.58 a delivery plus gratuity. At the time of this study, Virginia had a safety belt use law (BUL) with secondary enforcement and a $25 fine for convicted violators.

All three stores had employee parking lots with entrances and exits connected to four-lane, two-way streets in city limits with a speed limit of 35 mph. Each store was within a mile of a college or university campus and within 200 meters of a shopping complex. The parking lots of each store were also connected to side streets, which also fed into the main four-lane street.

Observation Procedures and Data Collection

During peak business hours (i.e., 5:00 p.m. to 8:00 p.m.), vehicle observations were unobtrusively recorded from windows of nearby businesses overlooking the store parking lots. Data were collected by trained observers using a checklist format developed over a decade of driver observations and over 2 years of observing pizza deliverers (cf. Ludwig & Geller, 1991). The data collectors recorded whether each pizza deliverer, identified by vehicle license plate, used the available shoulder strap. (Two late-model cars with automatic shoulder straps were identified and excluded from data analysis.) Observers also recorded which direction the deliverer turned and whether the turn signal was used.

Observers also recorded the kind of stop the vehicle made while entering the main road at the intersection near each store. One of three types of stops were recorded: (a) a *complete* stop, whereby the vehicle's wheels stopped moving; (b) a *slow rolling* advance, whereby the vehicle slowed to approximately the walking speed of an adult; and (c) a *fast rolling* advance, whereby the vehicle proceeded through the stop with little or no attempt to slow down. At the time of these observations, data collectors also recorded the traffic conditions the driver confronted when entering the main road. More specifically, a simple binary estimate (i.e., yes or no) was made to record whether the oncoming traffic should have affected the deliverer's stopping behavior. It was emphasized that stopping and traffic were, however, mutually exclusive variables (e.g., a deliverer could do a fast rolling advance under traffic conditions in which they should have stopped). This recording method is similar to the extensive measurement of stopping by McKelvie (1986, 1987).

Interobserver reliability data were collected on approximately one third of the observation sessions. During reliability sessions, two data observers collected data concurrently but

independently at a single store. Data collectors were unaware of the scheduling and assignment of the intervention conditions.

Experimental Design

The quasiexperimental design was multiple baseline across settings with a nonequivalent control group. After an initial observation period of 6 weeks (i.e., baseline phase), deliverers in the participative group received an intervention consisting of a discussion-based meeting, participative goal setting, and 4 weeks of group feedback. One week after the participative group's initial meeting, employees in the assigned group received an intervention consisting of a lecture-based meeting, assigned goal setting, and 4 weeks of group feedback. The control site received no intervention. After the group feedback was removed from the stores, approximately 4 to 5 weeks of observations were conducted (i.e., withdraw phase). Thus, after a 7- to 8-week hiatus, field observations continued for 10 to 11 weeks (i.e., follow-up phase).

Experimental Conditions

The participative and assigned interventions were designed to be similar in all aspects except for the participation variable. Both groups attended a 1-hr meeting, received the same information, left with the same behavioral goal, and received identical group feedback displayed at similar locations in the store. Planned differences between the interventions were: (a) the participative group generated the information in a discussion format, whereas the assigned group had the same information lectured to them; (b) the participative group participated in the goal setting, whereas the assigned group had the goal (set by the participative group) assigned to them; and (c) after the group feedback was withdrawn, each group received slightly different signs announcing the end of the intervention.

One week before the intervention meeting, the managers at each store used hand counters to record the occurrence of complete intersection stops. This procedure provided behavioral feedback on complete intersection stops for the intervention meeting and set an ostensive precedent for the group feedback during the 4 weeks following the intervention (i.e., to increase the believability that the store manager collected the feedback data).

Before the intervention meetings, the managers from each store met with the facilitator (i.e., the first author) to receive training on the technique to be used at the meeting. During the actual group meeting, the facilitator and manager served as instructors, either lecturing the material (for the assigned group) or leading discussion and prompting goal setting (for the participative group).

Discussion versus lecture format

For the participative group, issues were presented in the form of questions to facilitate group interaction. During the discussion, the facilitator repeated what was said by an employee or asked for other reactions. The following questions were asked to promote discussion:

1. What are situations in which you should come to a complete stop?
2. What are reasons for coming to a complete stop?
3. What are reasons for not coming to a complete stop?
4. How would you respond to these reasons for not stopping completely (referring to responses from Question 3)?
5. Why should pizza deliverers come to a complete stop?

The entire discussion was recorded on videotape. All the information from the discussion with the participative group was written out in a script for the lecture to give the assigned group 1 week later. The lecture format used with the assigned group did not attempt to solicit employee involvement. Instead, the facilitator lectured the same information discussed in the participative session. No questions were asked of the employees.

A content analysis was completed on the videotapes by independent judges who used a structured checklist. The checklist was compiled to assess the degree of overlap between information solicited from the participative group and the information lectured to the assigned group. The videotapes were first viewed by two assistants who noted all content items during the discussion and lecture. All content items were randomly transcribed onto one checklist that was subsequently used to analyze the videotapes.

Participative versus assigned goal setting

After the discussion, the participative group was asked to come to a consensus about the need to come to a complete stop at intersections. Upon affirmation of group commitment, the manager told the employees they came to a complete stop outside the store 55% of the time over the past week. The facilitator asked what group goal should be set for complete stopping over the next 4 weeks. The goal was stated as: “The percentage of complete stops to remain above % for the next 4 weeks.” Every member of the group was encouraged to give their opinion on a goal level. After deliberating, the facilitator then asked each employee to vote publically on the final goal. The participants decided unanimously on a group goal of 75% complete stops.

After the lecture to the assigned group, the manager told the employees their incidence of complete stops had been 55% during the previous week. The manager then announced his decision to increase the incidence of complete stops among the deliverers in his store. The complete stopping goal agreed upon with the participative group (i.e., 75%) was then assigned

in the form of a mandate to the assigned group with no discussion or consensus about the goal (a method used by Kernan & Lord, 1988).

The employees in both intervention groups were shown a poster on which percentages of complete stops would be displayed every 4 days for the following month. The current percentage of complete stops (i.e., ostensively 55%) was marked with a data point and a horizontal line was drawn across the graph at the 75% level.

Postmeeting questionnaire

At the end of the meeting, employees completed a short questionnaire to assess their perceptions of the meeting. Four items on the questionnaire served as a manipulation check. These items assessed perception of participation during the meeting and during goal setting, the perception of the meeting as a discussion or lecture and checked to see if they knew the goal. Other questions were distracters (i.e., questions about driver training) or they assessed the employee's intentions to come to a complete stop.

Group feedback

After the all-employee meeting, the managers at each store continued observing their deliverers' complete intersection stops. Complete stop percentages were graphed every 4 days on the large in-store poster. To assure both intervention stores received the same feedback, the complete stop percentages posted were not a calculation of actual field observations. Instead, the percentages posted every 4 days at each store were randomly chosen from percentages ranging from 78% to 90% with a mean of 83%. The percentages posted for the assigned group were identical to the percentages posted for the participative group 1 week earlier. Feedback was posted for 4 consecutive weeks. After 4 weeks, the feedback posters were replaced by posters appropriate for the intervention condition: “Congratulations, you have exceeded the goal which you have set for yourselves” (participative group) or “Congratulations, you have exceeded the goal which was set for you” (assigned group). After 4 more days, these posters were removed from the stores and follow-up data were collected for 5½ months.

RESULTS

Interobserver Reliability

Interobserver agreement percentages were calculated by dividing the total number of observations agreed upon by two independent data collectors for a particular data category (i.e., complete stops, safety belt use, and turn signal use) by the total number of agreements and disagreements and multiplying the result by 100. The percentages for days when reliability data were collected were then averaged to give overall interobserver reliability estimates.

Reliability data were collected for 104 data collection sessions (i.e., days), representing 25% of all observation sessions. Overall reliability (or percentage agreement) was 86% for observations of complete stops, 91% for observations of safety belt use, and 87% for turn signal use. There were no differences in reliability results across the three experimental sites.

Content Analysis of Intervention Meetings

Two raters viewed the videotapes of the intervention meetings and agreed 85% of the time on specific topics presented at a particular meeting. The two raters reported a 94% and an 86% overlap of information, respectively, between the intervention sessions for the participative and the assigned groups. In addition, raters confirmed that the words *safety belt, seat belt, turn signal,* or *blinker* were never verbalized by either group leaders or employees throughout both intervention sessions.

The amount of employee participation was also measured. The participative meeting lasted 49 min, 2 s, and the assigned meeting lasted 49 min, 31 s. Employees spoke a total of 13 min, 53 s during the participative meeting and only 5 s during the assigned meeting. Interrater reliability was 100% for each duration (accomplished by using the videoplayer counter).

Manipulation Checks

There was a significant relationship, χ^2 (1, N = 31) = 10.4, $p < .01$, between the type of intervention meeting (i.e., participative or assigned) and whether the meeting was described as a discussion or lecture in the postmeeting questionnaire completed by employees. Furthermore, attendees of the participative meeting felt they "participated in the goal setting" significantly more than did the attendees of the assigned meeting, t (29) = 2.25, $p < .05$. They also felt they participated marginally more during the overall discussion, t (29) = 1.89, p = .06. Finally, according to a nonsignificant trend in the data, attendees of the assigned meetings stated they intended to come to a complete stop more than did attendees of the participative meetings, t (29) = −1.91, p = .06. No other questions differentiated between the assigned and participative meetings.

Repeated Measures Analysis

The results presented in the repeated measures analysis represent only the data observed from pizza deliverers observed in each of the baseline, intervention, and withdraw phases and also observed at least six times per phase. (Data from the follow-up phase were not used in this data analysis because few participants met the criteria in the follow-up phase (n = 29). Percentages observed during the follow-up phase, however, are presented in accompanying figures.)

There were 40 participants whose data conformed to these criteria (participative group, n = 20; assigned group, n = 11; control group, n = 9). Therefore, only about 10% of the 324 different

deliverers observed in this study met the criteria and were included in this analysis. However, because these employees were observed most often during the study, the 10% of individuals used in the repeated measures analysis actually represented over 50% of the 28, 915 total behavioral observations recorded.

Daily percentages of behavioral data per deliverer were averaged to arrive at a phase percentage. The data points were calculated in each group by averaging individual subject means. Means and standard deviations of behavioral data and manipulation checks are presented in Table 1. The repeated measures analysis using the individual as the level of analysis instead of the treatment setting added precision. It is noteworthy that analyses using all 324 participants yielded essentially the same results as analyses using the 40 participants conforming to the stated criterion.

Table 1
Means and Standard Deviations for Each Driving Behavior Across Phases and Within Groups, and for the Postmeeting Questionnaire Items

	Overall		Participative		Assigned		Control[a]	
Measure and phase	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Complete stops (%)								
Baseline	51.4	15.9	54.1	11.6	45.2	23.4	48.7	17.1
Intervention	58.2	21.8	65.9	12.9	68.5	12.8	49.0	31.9
Withdraw	52.5	22.6	60.0	18.5	59.0	18.2	38.6	23.2
Follow-up	48.3	19.5	53.5	18.5	41.8	14.6	46.6	23.9
Turn signal use (%)								
Baseline	64.4	21.5	68.1	17.2	66.3	13.5	56.4	16.4
Intervention	65.1	25.3	76.1	14.6	61.8	21.7	54.6	32.1
Withdraw	63.9	26.3	78.5	19.4	52.7	23.1	47.7	24.2
Follow-up	62.5	23.0	71.6	14.6	51.3	16.5	53.5	30.9
Safety belt use (%)								
Baseline	58.8	38.8	75.4	28.4	57.0	39.8	38.6	43.6
Intervention	62.5	39.9	84.9	21.8	56.2	36.9	31.0	44.7
Withdraw	63.9	34.2	83.8	24.1	58.3	33.0	37.0	31.3
Follow-up	71.7	35.8	88.9	18.5	60.6	44.8	35.8	40.7
Meeting participation[b]	1.65	4.9	1.31	.48	1.92	.28		
Goal participation[c]	3.15	1.31	3.69	1.38	2.61	1.04		
Discussion participation[d]	3.65	0.98	0.40	1.0	3.3	.85		
Intention to stop[e]	4.58	0.76	4.3	.95	4.8	.38		

[a] Did not participate in postmeeting questionnaire. [b] 1 = *no* and 2 = *yes*. [c] 1 = *not at all* and 5 = *very much*. [d] 1 = *not at all* and 5 = *very much*. [e] 1 = *never* and 2 = *every time*.

Means and Standard Deviations for Each Driving Behavior Across Phases and Within Groups, and for the Postmeeting Questionnaire Items

Figure 1 depicts group means of complete intersection stops over four experimental phases. Participants in both the participative group and the assigned group increased their percentage of complete intersection stops across the intervention phases, showed some maintenance during the withdraw phase, and returned to baseline levels during the follow-up phases. The control site maintained an average of 46% complete intersection stops throughout the study.

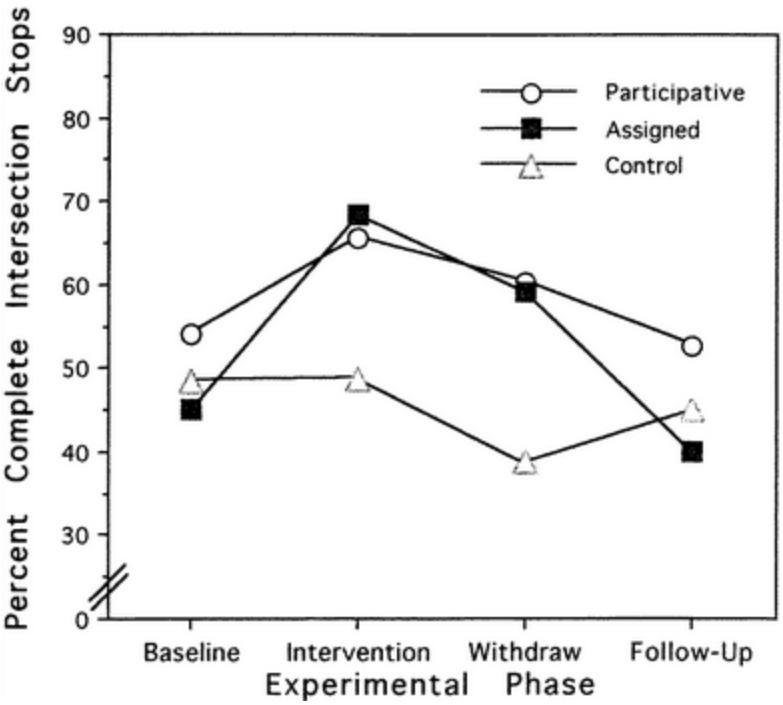

Figure 1. Percentage of complete stops across four experimental phases. Open circles represent the participative goal-setting group, filled squares represent the assigned goal-setting group, and open triangles represent the control group

Because this data could potentially contain restriction of variance because of the use of percentages as the dependent variable, an arcsine transformation was completed on the data before statistical analysis. A 3 intervention condition (participative, assigned, control) × 3 phase (baseline, intervention, withdraw) repeated measures analysis of variance (ANOVA) on complete stopping did not show a significant interaction between experimental condition and phase, $F(4, 78) = 1.9$, $p = .12$. Separate ANOVAs for the two intervention groups showed significant main effects of phase; participative: $F(2, 38) = 3.12$, $p < .05$; assigned: $F(2, 20) = 3.35$, $p < .05$.

Turn signal use

Figure 2 depicts group means of turn signal use over four experimental phases. The participative group showed an increase in turn signal use between the baseline and intervention phases and a continued increase during the withdraw phase. The assigned group showed no prominent changes in turn signal use across phases, although there seems to have been a general decreasing trend. The control site showed no marked changes in turn signal use across phases.

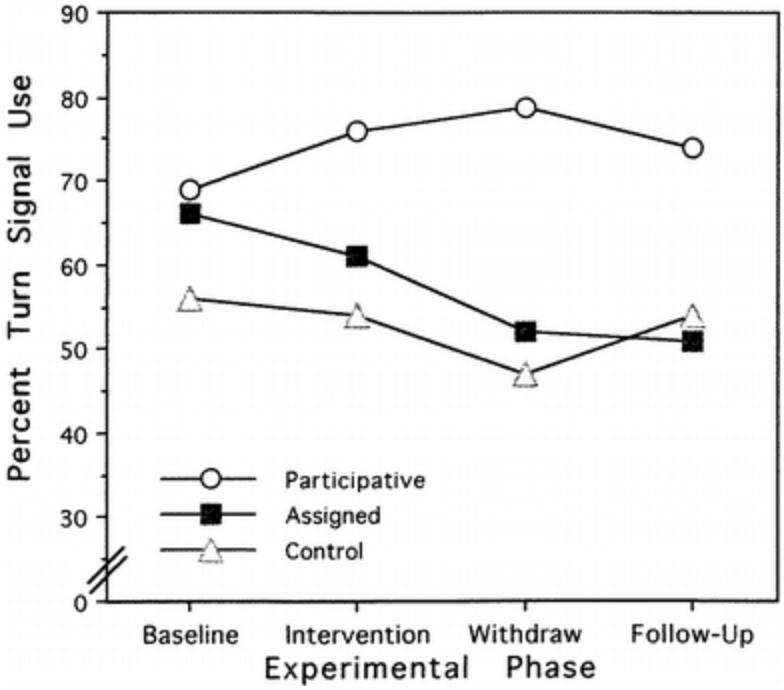

Figure 2. Percentage of turn signal use across four experimental phases. Open circles represent the participative goal-setting group, filled squares represent the assigned goal-setting group, and open triangles represent the control group

An arcsine transformation was completed on the data before analysis. A 3 intervention condition (participative, assigned, control) × 3 phase (baseline, intervention, withdraw) repeated measures ANOVA on turn signal use showed a significant interaction between experimental condition and phase, $F(4, 78) = 3.38$, $p < .05$. A 2 intervention condition × 3 phase repeated measures ANOVA on the participative and assigned groups showed a significant Group × Phase interaction, $F(2, 56) = 5.69$, $p < .05$. Separate one-way repeated measures ANOVAs per intervention group indicated a significant main effect of phase for the participative group, $F(2, 38) = 6.30$, $p < .05$, but not assigned group, $F(2, 18) = 1.69$, $p = .21$.

Safety belt use

Figure 3 depicts group means of safety belt use over four experimental phases. The participative group showed an increase between baseline and intervention phases, and maintenance during the withdraw phase. The assigned group showed no changes in safety belt use between baseline, intervention, and withdraw phases. The control site showed minimal variation across the four phases.

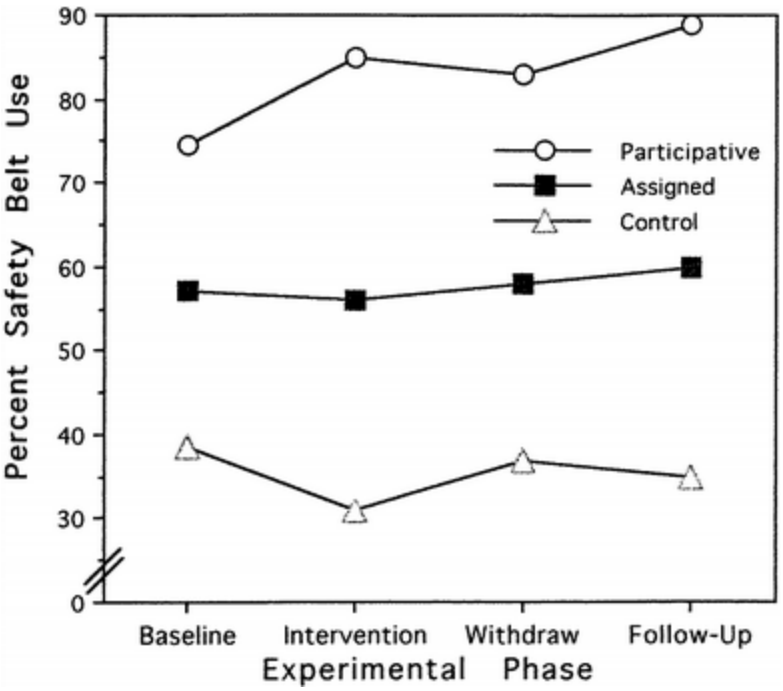

Figure 3. Percentage of safety belt use across four experimental phases. Open circles represent the participative goal-setting group, filled squares represent the assigned goal-setting group, and open triangles represent the control group

An arcsine transformation was completed on the data before analysis. Additionally, 5 subjects (3 from the participative group and 2 from the control group) who had a baseline safety belt use of 100% were removed from the analysis. A 3 intervention condition (participative, assigned, control) × 3 phase (baseline, intervention, withdraw) repeated measures ANOVA on safety belt use showed a significant interaction between experimental condition and phase, $F(4, 68) = 2.87$, $p < .05$. A 2 intervention condition × 3 phase repeated measures ANOVA for the two intervention groups showed a trend albeit nonsignificant interaction between these groups and phase, $F(2, 50) = 1.91$, $p = .15$. One-way repeated measures ANOVAs per group showed that the participative intervention influenced a significant change in deliverers' safety belt use across phases, $F(2, 32) = 6.10$, $p < .05$, whereas the assigned goal-setting intervention did not, $F(2, 18) = .23$, $p = .79$. Finally, a significant difference in baseline safety belt use was found among the three groups, $F(2, 43) = 3.19$, $p < .05$.

DISCUSSION

The data analyses showed that both variations of the goal-setting and feedback intervention increased safe intersection stopping. These findings are consistent with the experimental literature on the efficacy of goal setting as a robust research finding (Locke & Latham, 1990). This study also supported the conclusions of Locke and Latham (1990) and Latham and Lee

(1986), in that it provided no evidence that goals set participatively by subjects improved target performance any more than goals that were assigned.

Response Generalization

By observing two behaviors in addition to the behavior targeted by the intervention, the current study investigated generalized intervention impact across behaviors (Stokes & Baer, 1977). This type of analysis has seldom been used in goal-setting studies in particular or in applied psychology research in general. This is the case despite the urging of some researchers to take a greater ecological perspective in applied research. For example, Willems (1974, 1977) challenged applied researchers to anticipate and investigate second- and third-order consequences of interventions (see also Eisenberg, 1972; Rogers-Warren & Warren, 1977). Indeed, perspectives on social validity have called for an evaluation of unpredicted side effects (Schwartz & Baer, 1991) or the undesired behaviors which occur concurrent with an intervention program (Geller, 1987, 1991).

Response generalization was operationally defined in this study as a change in a nontargeted behavior (i.e., turn signal and/or safety belt use) during an intervention that targeted another behavior (i.e., complete intersection stopping). Although they were not directly targeted, turn signal and safety belt use were found to increase concurrently with intersection stopping during the participative goal-setting intervention. In contrast, the assigned intervention site showed sustained decreases in these nontargeted behaviors over the same period of time. Whereas increases in safety belt use were sustained after the participative intervention, the percentage of safety belt use dropped below baseline levels after the withdrawal of the assigned intervention.

The functional control (cf. Kazdin, 1973) of the participative goal setting (i.e., targeting complete intersection stops) on each nontarget behavior was evident and implies a causal relationship between the intervention and the nontargeted behaviors. According to statistical analysis, response generalization occurred only at the site which received the participative intervention. These results suggest that a beneficial side effect of the participative intervention was a desirable change in related, nontargeted behaviors, whereas the assigned intervention may have produced undesired side effects in nontargeted behaviors. This finding has provocative implications worthy of substantial follow-up research.

Participative Versus Assigned Goals Revisited

A major contribution of this research was the impact of goal setting on a whole class of behaviors. Most goal-setting research has focused on the efficacy of differential goal-setting strategies to promote a desired change in the behavior targeted by the goal. Not one of the more than 500 studies reviewed by Locke and Latham (1990) examined the effects of goal-setting interventions on nontargeted behaviors. Indeed, Locke and Latham concluded, “Further research on the motivational effects of different goal setting methods would appear to have

limited value" (p. 172). It is an unfortunate possibility that if research were to cease on participative goal setting, the nonobvious beneficial side effects could be overlooked.

The generalization of effect in the participative intervention supported our hypotheses. It is possible the participative intervention facilitated the activation of implicit rules, which, in turn, influenced behavior beyond the external consequences of the intervention. Streff et al. (1993) used a similar explanation to interpret their observation of an increase in a nontargeted behavior (i.e., vehicle safety belt use) after a participatory intervention increased workers' use of safety glasses on the job.

In contrast, during the assigned intervention, the deliverer may have been motivated to come to a complete stop by the external contingencies provided by the mandated goal, feedback, and managerial observations. The deliverers in the assigned group may have actively sought to avoid probable undesirable consequences of disobeying their manager. However, some drivers seemingly showed reactance to the overt control by decreasing related safe-driving behaviors not directly associated with the manager's mandate. This is consistent with the theory of psychological reactance (Brehm & Brehm, 1981) and the notion of countercontrol (Skinner, 1953).

As an explanatory mechanism for this phenomenon, the discussion of implicit goals is reminiscent of the research on intrinsic motivation even though it is not consistent to argue that safe driving behaviors are intrinsically motivated. Deci and Ryan (1985) argued that when a previously intrinsically motivated behavior is associated with external contingencies, the behavior becomes extrinsically motivated. This extrinsic motivation undermines or replaces intrinsic motivation. If an individual's implicit goal includes an entire class of behaviors (e.g., safe driving made up of complete intersection stopping, turn signal use, and safety belt use as well as many others such as not exceeding the speed limit and maintaining a safe vehicle following distance), then it is possible an intervention with strong external control (e.g., assigned goals) may replace this implicit goal and no longer activate behaviors not targeted by the intervention.

This study does not provide data to discriminate between potential theoretical mechanisms. Deliverers were not asked about their implicit driving goals before or after the intervention. In fact, Latham et al. (1994) argued the need to measure the strategies developed by participants of the participative and nonparticipative conditions. Such questions were not asked in this study, in order to avoid potentially prompting participants to engage in the nontargeted behaviors. However, we suggest future studies of this type consider inquiring about changes in implicit goals at the conclusion of data collection.

The issue of response generalization has important ramifications for external validity. Too often applied researchers only measure a specific target behavior and thereby fail to investigate the rich information available from a more ecological approach. Behavioral ecology (Rogers-Warren & Warren, 1977) directs the researcher to ask specific questions about the target behavior, related behaviors, and setting events which could naturally support the target behavior. In fact, Wahler and Fox (1981a, 1981b) asserted that prolonged naturalistic observation of behavior and setting events is a must for applied research.

Two nontargeted behaviors studied here were found to be related to the targeted behavior of complete intersection stopping. There are undoubtedly more behaviors in this response class that could have been influenced by the intervention process. Vehicle following distance and speed in relation to posted limits come to mind. An understanding of how behaviors fit together under the rubric of response class may move applied research beyond simple demonstration projects or epidemiological surveys to a systematic analysis of intervention effectiveness, response generalization, and natural maintaining contingencies.

In summary, this study introduced some new field methodologies and presented noteworthy findings worthy of further investigation. The research exemplified the need to venture beyond short-term demonstration projects, to continue investigating participative goal setting as an applied intervention strategy, and to study response generalization and its implications.

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