Testing the Causal Linkage Between Training of Sales Personnel in Retail Lighting and Appliance Stores and Changes in Market Share of ENERGY STAR®-Qualifying Equipment

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ABSTRACT

In 1999, the California Residential Lighting and Appliance Program (Program), a multi-year market transformation program, was launched within the service territories of the four investor-owned California utilities. A primary objective of the Program is to increase the knowledge of sales personnel and increase their motivation to sell energy efficient lighting products and appliances, eventually leading, over time, to an increase in the market share of ENERGY STAR®-qualifying equipment. The evaluation of the Program involved the development of a program theory that describes the various causal linkages among the key activities that define the Program.

Information was collected to test the hypothesized causal linkages between training of sales personnel and increasing the availability of energy efficient products and changes in the in-store experience of consumers shopping for appliances and lighting products.

The analyses support some but not all of the causal linkages examined. Training appears to have successfully transmitted to sales associates basic information regarding energy efficient appliances and lighting products. While the effect of this training on lighting stores that received training was significant, the effect of this training on appliance stores that received training was not. Various explanations for this result are discussed. Finally, the effect on the level of awareness, knowledge, and motivation of sales associates in the general population of retail lighting and appliance stores was only moderate. These results point to the inherent challenges of attaining and maintaining a well trained and motivated sales force as a way of transforming an every-changing market.

Introduction

In 1997, the California Public Utilities Commission (CPUC) declared that the purpose of energy efficiency programs should be to transform the market so that individual customers and suppliers in the future competitive market will make more rational choices. Pacific Gas & Electric (PG&E), Southern California Edison (SCE), Southern California Gas Company (SoCal Gas), and San Diego Gas & Electric (SDG&E) developed designs for the 1999 portfolio of energy efficiency program, with the major programs being statewide. One of these statewide market transformation programs was the California Residential Lighting and Appliance Program (Program), which was designed to improve the availability, promotion, and sales of energy efficient residential lighting and appliances by inducing sustained changes in the behavior of market participants.

Overview of Objectives

The evaluation was planned as a four-phase effort. In the Phase 1 report, submitted December 20, 1999, we measured key baseline market indicators and characterized the market for the relevant appliances and lighting products. The principal analysis tasks completed as part of Phase 1 included:

- Characterization of the residential lighting and appliance markets
- Description of the available lighting and appliance products
- Assessment of baseline attitudes, beliefs, knowledge, and practices among consumers, retail store managers, and retail sales associates
- Identification and assessment of primary market barriers
- Development of market effects indicators
- Development of market effects study methodology for Phases 3 and 4

The Phase 2 report included a study and documentation of the "rationale" behind the new PY2000 Program (i.e., what was planned, why it changed, and the reasons for making those changes). Telling the "story" of how and why the Program evolved from its PY1999 to PY2000 form was helpful to the Implementation Team. In addition, this information and documentation was essential to the evaluation team in making general recommendations regarding the focus of this Phase 3 evaluation effort. This paper is based on the Phase 3 report, which focused on the evaluation of the PY2000 Program and measured the same market indicators addressed in Phase 1, as well as additional relevant indicators, to quantify changes over baseline measurements.

Program Theory

This Study has been designed to follow a theory-driven evaluation approach. One of the first tasks of Phase 1 was to develop initial program theories and hypotheses that would form the basis of the market effects evaluations being conducted as part of this Phase 3 effort (as well as the Phase 4 effort). These evaluations have been informed by the causal theory that underlies the program interventions. In particular, conducting a detailed exploration of program theories was necessary to inform development of data collection instruments, to establish appropriate baseline benchmarks, and to provide a framework for assessing both short- and long-term market effects. In addition, the complexity and size of the residential California appliance and lighting markets argued for multiple measures of key variables. Such complexity virtually guarantees that any one measure of a phenomenon will be less reliable than multiple measures from different perspectives. This approach, often referred to as triangulation, involves the collection of data related to a particular phenomenon from multiple sources, both primary and secondary, in as objective and consistent a manner as possible. In Phase 1, data were gathered from four sources: 1) customers, 2) retail stores via mystery shoppers, 3) retail stores managers, and 4) in-depth interviews with utility program staff and the Implementation Contractor. The Phase 2 effort involved an extensive review of program materials, utility filings, correspondence, related documentation, and tracking data, and interviews with members of the Implementation Team. Phase 3, the subject of this paper, involved data collection from three sources: 1) an appliance floor stock survey, 2) a follow-up mystery shopper survey, and 3) a follow-up retail store manager survey.

Figure 1 presents a graphic illustration of the very much simplified Program model. In this Figure, there are 30 linkages that describe a variety of efforts in the environment that are designed to transform the

market. At a minimum, these efforts include: 1) the Program, 2) utility rebate programs, and 3) the ENERGY STAR® Program.

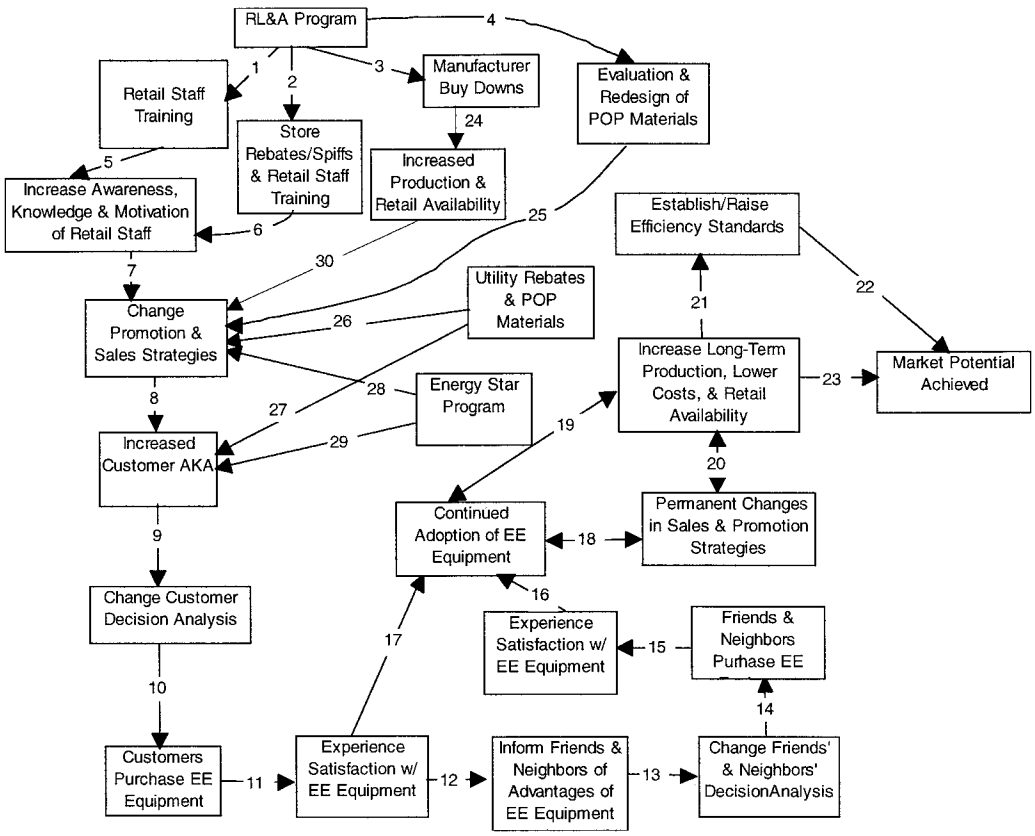

Figure 1. Program Theory

This paper focuses specifically on linkages 1, 2, 5, 6, 7, 24, and 30. Table 2 presents the causal linkages and the associated market-effects hypotheses and indicators.

The following five key pieces of information are used to test these hypotheses:

1. There are approximately 855 retail appliance stores and 840 retail lighting stores in California. Training was conducted in 55% (473) of the appliance stores and 36% (300) of the lighting stores. Pre- and post-tests were administered to each trainee to measure any increases in their knowledge of efficient appliances and lighting products.
2. Floor stock surveys were conducted in early 2000 and again in late 2000 to measure any changes in the availability of ENERGY STAR®-qualifying *appliances*.
3. California Residential Market Share Tracking System, which contains, among other things, market shares over time for ENERGY STAR®-qualifying appliances and lighting products.
4. One hundred eighty-nine mystery shops were conducted in a random sample of targeted retail lighting stores (n=95) and appliance stores (n=94). These mystery shops are designed to assess the extent to which the training translates into changes of sales staff behavior regarding energy efficient appliances and lighting products.

Table 2. Causal Linkages, Market Effects Hypotheses, and Indicators

Linkages	Market Effects Hypotheses	Indicators
2 & 6	Providing store incentives/spiffs and training will increase the awareness and knowledge of and motivation to sell energy efficient appliances.	Knowledge and awareness of sales staff with respect to efficient appliances
1 & 5	Training sales staff in retail lighting stores will increase their awareness, knowledge, and motivation.	Knowledge and awareness of sales staff with respect to efficient lighting products
7	Increasing the awareness, knowledge, and motivation of sales staff regarding energy efficient lighting and appliances will result in changes in retail promotion and sales strategies.	Knowledge, awareness, and behavior of sales staff with respect to efficient appliances and lighting products
24	Increased production and lower prices will increase the availability of efficient equipment to retailers.	Number of efficient appliance and lighting models on sales floor
30	Increased availability of efficient equipment will change the sales and promotional strategies of lighting and appliance retailers.	Knowledge, awareness, and behavior of sales staff with respect to efficient appliances

Mystery shoppers were instructed to look for two different appliances or lighting products at each store they visited. When approached by a salesperson, the mystery shopper was to explain that he/she was shopping for these two appliances or lighting products. Mystery shoppers were further instructed to look for three varieties of each of the two products they were shopping for. Inevitably, sales people would ask mystery shoppers about the types of features they desired in each of the products. Depending on which two products the mystery shopper was looking for, he/she was directed to indicate interest in a model with a fixed set of characteristics in order to control for variation in the responses of sales associates due to color, size, and special features. For example, if they were shopping for a clothes washer, they were instructed to shop for a white, standard-sized (not greater than 3 cubic feet) clothes washer

As the salesperson began showing the three selections per product, the mystery shopper was instructed to pay particular attention to whether the salesperson mentioned specific aspects of the product, such as "energy use," "energy efficiency," "rebates," "lifecycle costs," etc. and what, exactly, the salesperson chose to say about such attributes. The mystery shopper was also noting whether the ENERGY STAR® label was on the product itself.

If "energy use" or "energy efficiency" was not mentioned for any of the three product varieties, the mystery shopper was trained to ask a series of questions designed to assess the sales associate's knowledge of energy efficiency in general and the ENERGY STAR® Program in particular.

5. Interviews were also conducted with a subset of 100 managers of the appliance and lighting stores that were mystery shopped. They were asked a variety of questions including questions

about their experience of the Program, the effectiveness of the training provided to their employees by the Program, and product availability.

Results

Using a combination of the five sources of information described earlier, the results are first presented in terms of each linkage (2&6, 1&5, 7, 24, and 30). Linkages 1&5, 2&6, and 24 will be examined first, since if these linkages are hypothesized to lead to changes, *as manifested on the sales floor*, in the knowledge, awareness, and behavior of sales associates with respect to energy efficient products. Finally, the linkage-level results are integrated into a set of conclusions and recommendations.

Linkages 2 & 6: Appliances

Recall that the Program staff trained 1,734 appliance retail sales associates in 200 stores, with each trainee completing a pretest and a posttest. The results are presented below in Table 3.

Table 3. Appliance Training Mean Scores by Utility

		N	Mean Pre	Mean Post	Change
Utility	PG&E	791	0.50	0.92	0.42
	SCE/SCG	692	0.51	0.87	0.36
	SDG&E	251	0.50	0.87	0.37

All the differences are large and statistically significant ($p = .001$). Basic information regarding refrigerators, clothes washers, dishwasher, and room air conditioners appears to have been successfully transmitted to the participating retail sales associates.

This result is supported by the store managers who reported receiving training from the Program. These managers were asked to rate the overall quality of the training. Ratings ranged from 1 (Very Poor, one respondent) to 10 (Excellent, two respondents), with the average rating being 7.3.

Linkages 1& 5: Lighting

Recall that the Program staff trained 1,113 appliance retail sales associates in 151 stores. Each trainee completed a pretest and a posttest. Pretests and posttests were given to trainees in each of the participating lighting stores. The results are presented below in Table 4.

Table 4. Lighting Training Mean Scores by Utility

		N	Mean Pre	Mean Post	Change
Utility	PG&E	509	0.50	0.90	0.40
	SCE	461	0.52	0.90	0.39
	SDG&E	143	0.60	0.91	0.31

All the differences are large and statistically significant (p = .001). Basic information regarding compact fluorescent lights and torchieres and hardwired fixtures that accept compact fluorescent bulbs appears to have been successfully transmitted to the participating retail sales associates.

This result is also supported by the store managers who reported receiving training from the Program. Store managers who participated in this training were asked to rate the overall quality of the training. Ratings ranged from 5 (on a scale from 1 to 10, 10 being excellent) to 10, with the average rating being 8.0.

Linkage 24

Floor Stock Surveys. As mentioned earlier, floor stock surveys were conducted to identify changes in energy efficient appliance floor stock over time (i.e., from 1999 to 2000). As summarized below in Table 5, increases in the energy efficient floor stock for appliances were observed in each utility's service territory:

Table 5. Floor Stock Survey Results

	Baseline	Follow-up	Percent Change
PG&E[1]			
Refrigerators	5.94%	10.77%	81.0%
SCE[2]			
Refrigerators	3.58	7.60	111.0%
SDG&E			
Refrigerators	2.64%	6.64%	151.0%
Clothes Washers	9.01%	14.34%	59.14%
Dishwashers	21.56%	30.74%	42.6%
Room Air Conditioners	2.86%	22.13%	377.3%

[1] Only refrigerators were addressed in the PG&E service territory

[2] Note that for clothes washers, dishwashers, and room air conditioners a baseline was not established in the SCE service territory. However, the floor stock survey conducted in November 2000 found that 13% of the clothes washers, 31% of the dishwashers, and 8% of the room air conditioners were energy efficient

While one should be careful in interpreting these results since they are based on somewhat small sample sizes, these results are reasonably consistent with data reported in the first interim report produced by the California Residential Market Share Tracking System. Data from this report indicate that in 1999 the market share of ENERGY STAR®-qualified units increased 70% for refrigerators, 60% for clothes washers, 137% for dishwashers, and 50% for room air conditioners.

Store Manager Surveys. On average, Phase 3 retailers state that they are stocking about the same percentage of energy efficient appliances as compared to Phase 1 retailers, with the exception of room air conditioners. That perception is inconsistent with both the floor stock surveys and the California

Residential Market Share Tracking System might be due to some confusion on the part of the store managers regarding the definition of energy efficient.

Linkages 7 & 30

The next question is whether the provision of training and increasing the floor stock of energy efficient units led to any changes in the shopping experience.

Mystery Shops: Appliances. Each mystery shopper was initially shown approximately 2.1 units on average with about .72 units on average being voluntarily described by the sales person as energy efficient (i.e., 33% of the units shown). Approximately .60 units (or 29%) on average were ENERGY STAR®-qualifying.

Approximately 57% of the shoppers were not shown units that were voluntarily described as energy efficient. Of these, approximately 14% of the shoppers were shown additional units (usually, two additional units). Of these additional units, 35% were described as energy efficient with 31% of these additional units qualifying as ENERGY STAR®. In addition, approximately 12% of the sales associates mentioned energy efficiency a great deal in their sales pitch. Of these, lower utility bills and annual operating costs were most frequently mentioned.

These results compare to Phase 1 as follows:

- The average percent of units voluntarily described by the sales person as energy efficient increased by 38% (24% in Phase 1 to 33% in Phase 3). Similarly, the average percent of units that were ENERGY STAR ®-qualifying increased by 81% (from 16% in Phase 1 to 29% in Phase 3).

- Overall, the percent of all units shown that were described (with and without prompting) as energy efficient increased by 25% (from 40% in Phase 1 to 50% in Phase 3).

Mystery shoppers were also instructed to evaluate the extent to which salespeople were knowledgeable about energy efficiency, the ENERGY STAR ® Program, and various rebate programs. Only 13% of the sales associates were viewed as knowledgeable about energy efficiency. An even lower 4% were viewed as knowledgeable about ENERGY STAR ®. Finally, only 2% were considered knowledgeable about utility rebate programs.

The assessment of sales staff interactions and awareness and knowledge of energy efficiency involved a collection of single questionnaire items that are intended to measure the extent to which staff associates are well trained and motivated. A more valid and reliable indicator of this is one composed of *multiple* awareness, knowledge and behavioral items. This index was created using a combination of five items from the mystery-shopping questionnaire. The index ranges from 1 to 4, with a four indicating the highest level of awareness, knowledge, and motivation. The Phase 1 result for this index was 2.01 while the Phase 3 result was 2.04. This difference is not statistically significant.

Effectiveness of Training. While the effect of training on the population of all retail appliance appear small, the question remains as to whether the training made a difference for stores that were trained. Information was available for each of the 94 retail appliance stores that were mystery shopped.

We focused first on those stores that received training and attempted to determine whether one's score on the AKI was a function of 1) the mean change score for each store (from the pre-test to the post-test), 2) the mean post score the utility, 3) the total number of appliance sales staff at each store, and 4) the percent of appliance sales staff that received training at each store. A variety of regression model specifications were tried. Only the total number of sales associates trained was even moderately significant (p=.09). This makes some sense because the chances that a shopper would encounter a trained sales associate at a given store increases as the number of associates who are trained increases.

Next, we addressed the question as to whether the AKI was a function of 1) whether a store received training, 2) the utility, 3) the percent of sales staff trained, and 4) the total number of appliance sales staff. While the signs of the coefficients are in the right direction, only one variable, total number of sales staff trained, had even a moderate impact on the AKI (p=.07).

It is important to note that the AKI was based on data collected after 2000 and thus represents a post measure. There is no information on what the AKI would have been if we took a pre measure. Thus, we have no way of statistically correcting for possibility that the fact that stores that received training may have had higher or lower AKIs in the pre period than stores that did not receive any training. The assumption underlying this analysis is that the AKIs would have been the same for stores that received training and those that didn't.

Store Manager: Appliances. Store managers were asked specifically how the training affected staff knowledge and motivation and the sales of energy efficient appliances. The effectiveness of the training on staff knowledge received the highest average rating (8.0), followed by staff motivation (7.6), and sales of energy efficient appliances (6.5). This result is inconsistent with the experience of the mystery shoppers.

Given the somewhat conflicting results of the mystery shops and the store manager surveys, we tend to give more weight to the mystery shop data because they are based on a greater number of retail stores and were collected systematically by trained observers. This result suggest that the increase of 81% increase in the percent of units shown to shoppers that are ENERGY STAR®-qualified may at least partially due more to the increased share of ENERGY STAR® appliances on the salesroom floor rather than to the training provided.

Mystery Shops: Lighting Products

Each mystery shopper was initially shown approximately 1.9 units on average with about .61 units on average being voluntarily described by the sales person as energy efficient (i.e., 31% of the units initially shown). Approximately .52 units (or 27%) on average were ENERGY STAR ®-qualifying. This outcome may in part be due to the possibility that there is a lag in getting ENERGY STAR ® labels and other promotional materials into the stores. In addition, unlike appliances, the ENERGY STAR ® label is not usually on a hardwired fixture or a torchiere but on the packing box, which is not always visible since they are sometimes stored under the counter or, in the backroom storage area.

Approximately 60% of the shoppers were not shown any units that were voluntarily described as energy efficient. Of these, 44% of the shoppers were shown additional units (usually, two additional units). Of these, 20% of the units were described as energy efficient and 8% qualified as ENERGY STAR®. In addition, on average, 8% of the sales associates mentioned energy efficiency a great deal in their sales pitch. Of those who mentioned energy efficiency, lower utility bills, annual operating costs, and equipment reliability were most frequently mentioned.

These results compare to Phase 1 as follows:

- The average percent of units voluntarily described by the sales person as energy efficient increased by 63% (19% in Phase 1 to 31% in Phase 3). Similarly, the average percent of units that were ENERGY STAR®-qualifying increased from 14% in Phase 1 to 29% in Phase 3.

- Overall, the percent of units described (with and without prompting) as energy efficient (of all units shown) increased by 33% (from 27% in Phase 1 to 36% in Phase 3).

Mystery shoppers were also instructed to evaluate the extent to which salespeople were knowledgeable about energy efficiency and the ENERGY STAR® Program, and various rebate programs. Only 5.3% of the sales associates were viewed as knowledgeable about energy efficiency. An even lower 3% were viewed as knowledgeable about ENERGY STAR®.

As in the case of appliance stores, an awareness and knowledge index (AKI) of energy efficiency technologies was created using a combination of five items from the mystery-shopping questionnaire. The Phase 1 result for this index was 1.76 while the Phase 3 result was 1.89. This difference was statistically significant. However, while statistically significant, the practical significance of a change of this magnitude seems small.

Effectiveness of Training. While effect of training on the population of all retail lighting stores appear small, the question remains as to whether the training made a difference for stores that were trained. Information for each of the 95 retail stores that were mystery shopped. We focused first on those stores that received training and attempted to answer the question as to whether one's score on the AKI was a function of 1) the change from the pretest to the posttest, 2) the total number of sales appliance staff, 3) the total number of sales staff trained, and 4) the length of the training session. A variety of regression model specifications were tried. Only the number of the total number of sales associates trained was even moderately significant (p=.09). Again, this makes some sense because the chances that a shopper would encounter a trained sales associate at a given store increases as the number of associates who are trained increases.

Next, we addressed the question as to whether the AKI was a function of 1) whether a stored received training, 2) the utility, and 3) the total number of sales appliance staff. The results indicate that training had a significant impact on the AKI (p=.02). Receiving training increased a store's AKI by .69. The same caveat made regarding the lack of pre AKIs for both stores that received training and those that did not applies in the case of retail lighting stores.

Store Manager: Lighting Products. When asked specifically how the training affected staff knowledge and motivation and sales of energy efficient lighting products, the effectiveness of the training on sales

received the highest average rating (8.0), followed by staff motivation (7.4), and knowledge (7.1). This result is reasonably consistent with the mystery shopper data and the regression analyses.

Summary and Conclusions

This study found evidence that supported some but not all of the causal linkages examined. Clearly, the training in both appliance and lighting stores successfully transmitted basic information regarding energy efficient products to retail sales associates. Also, it seems clear that the energy efficient floorstock, at least for appliances, has increased. In comparing *lighting* stores that received training with those that did not, we found that the training had a significant impact on sales staff. However, the general level of awareness, knowledge and motivation of sales associates in a representative sample of retail lighting stores, while increasing from Phase 1 to Phase 3, remains only moderate. In comparing *appliance* stores that received training with those that did not, we found that the training had no significant impact on the sales staff. In addition, the general level of awareness, knowledge and motivation of sales associates in a representative sample of appliance lighting stores did not increase from Phase 1 to Phase 3 and remains only moderate.

There are several explanations for the moderate level of awareness, knowledge and motivation among appliance and lighting stores in general and in appliance stores in particular. The first plausible explanation is staff turnover that affects all retail stores. If sales associates who were trained move out of state or abandon their careers in retail appliance sales, then the percent of the sales force in the targeted stores would decrease. Turnover in retail sales is higher than in other occupations. Recently, the U.S. Bureau of labor statistics reported that opportunities for retail salespersons are expected to continue to be good because of the many job openings created each year due to the need to replace the large numbers of workers who transfer to other occupations or leave the labor force. To keep the sales associates well trained requires an on-going effort.

The second explanation is that the percent of retail appliances stores and retail lighting stores that received training were 55% and 36%, respectively, with 65% of the sales staff trained on average. That means that the chances of any given consumer encountering a store that has received training and a sales associate who have been trained are estimated to approximately 37% for appliance stores and 23% for lighting stores. This not to say that the Program staff was not effective but that the size of the task, especially in light of sales associate turnover which requires an enormous on-going effort

In addition to these challenges, appliance stores faced two additional problems. For the appliance portion of the Program, a sales incentive (spiff) reimbursement was provided by the Program for each qualifying appliance sold. However, the training was conducted in organizations with existing reward structures, business plans, levels of employee motivation, and ways of motivating employees. Since the Program had little power to change any of these, and thus cannot reasonably be expected to have a significant impact on the overall level of staff motivation.

This point was underscored recently in a market Transformation Symposium Working Session held in March 2001. One of the participants, the North American Retail Dealers Association (NARDA) pointed out that, while there may be some value in using SPIFs to bring a new products to market and jump-start sales, there is some concern about allowing outside influences into retail stores. The store manager or owner should be in control of his or her salespeople. NARDA goes on to point out that problems arise

when the product with the incentive is not the product that is most profitable for the company to sell. Note that interviews with retail store managers in Phase 3 revealed that very few store managers provide any financial incentives for selling energy efficient units. Clearly, there are a number of critical elements in the causal chain between training and improved sales-floor interactions that are beyond the control of the program.

A final explanation is that the composition of the retail stores from Phase 1 to Phase 3 has changed in ways that would diminish the effects of the training. During the period October 2000 through February 2001, Montgomery Wards and Home Base closed their doors, and Circuit City, while remaining in business, ceased selling white goods. All of these retail chains were targeted for training in 2000. Whether the sales associates who may have been trained in these stores remained in retail appliance sales, or if they did, whether they remained in the three regions is not known.

These results point to the enormous challenge to attaining and maintaining a reasonably high-level awareness, knowledge, and motivation. Even if training is effectively transmitting useful knowledge, the sheer number of sales associates needed to be trained, staff turnover, an inability to affect the structure and culture of retail sales organizations, and the constant change taking place in the retail market pose considerable barriers.

References

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