

Engaging Hard to Reach Program Participants: A Data-based Comparison across Recruitment Techniques

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ABSTRACT

There are numerous strategies that evaluators have relied upon to encourage customer participation in research studies and evaluations. These recruitment methods are typically based upon a number of variables including: 1) cost effectiveness, 2) statistical analyses, 3) customer population, 4) the measure or intervention being evaluated, and 5) empirical validation of the recruitment strategy. For programs where participant contact information is not captured, traditional recruitment methods for studies might include random digit dialing or mass email surveys. However, for programs where not only are the customers unknown but there are also few participants because the technology is new and expensive, traditional methods may not be sufficient to achieve the desired sample size. One example of such a situation is a retail lighting program targeted at increasing the number of LEDs purchased for residential installation. To compare the effectiveness of various recruitment methods in this type of situation, a study was conducted in which four methods were used to recruit customers for in-home monitoring to determine LED hours of use. This paper provides a data-based comparison of the recruitment rates across each method. Based upon the findings, we will discuss barriers, procedures, results, and suggestions for future evaluations that may benefit from each of the assessed recruitment strategies.

Introduction

From September 2014 to April 2015, a field study was conducted to enable the evaluator to determine appropriate hours of use (HOU) for a southwestern utility's residential lighting program for light emitting diode (LED) bulbs. Based on our evaluation experience related to residential lighting measures, we hypothesized that average HOU for LEDs may be significantly greater than average HOU for other lighting technologies. The basis of our hypothesis is that relatively high retail prices for LEDs (even after utility incentives) – compared to other options such as incandescent bulbs, high efficiency halogens, or compact fluorescent lamps – limits the quantity of LEDs consumers can purchase with a given lighting budget. If a consumer pays a premium price for one LED bulb (or for a few LED bulbs), the consumer probably understands that their return on investment will be maximized by installing the LED(s) in the socket(s) that the person knows to be the highest usage socket(s).

The residential LED program used a market-based approach that provided financial incentives to participating retailers for promoting sales of ENERGY STAR[®] qualified LED bulbs. Due to the nature of the program, end-user contact data were not collected. Thus, the goal of the study was to identify and contact program participants for recruitment into the LED monitoring phase of the study in a timely and cost effective manner. To accomplish this goal, the study utilized the following two phases: 1) an online survey and 2) in-home LED monitoring. The online survey served as a screening and recruitment tool for the in-home monitoring portion of the study, while also capturing installation data valuable to the program evaluation.

During this study, four recruitment methods were employed to motivate completion of the online qualifying survey and to recruit 100 homeowners to host 120 lighting loggers.¹ As suggested by Dillman and Tarnai (1991), a mixed mode recruitment method was utilized to generate the greatest possible response. The four recruitment methods were:

- In-store
- Social media
- Email blast
- Utility in-house

The four recruitment methods discussed in this paper were executed over a six month timeframe. The recruitment methods overlapped several times throughout the study. Figure 1 shows the timeline of the recruitment methods.

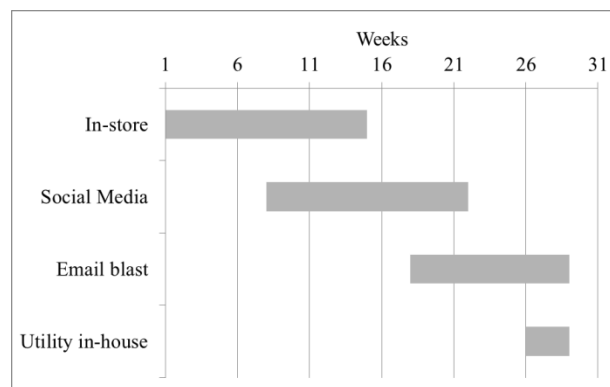


Figure 1: Timeline of Recruitment Method Execution

A Random Digit Dialing (RDD) survey is notably absent from the recruitment methods chosen for this study. Based on the results of the 6th annual national Sylvania Socket Survey, incidence of freestanding LED's was between 9% and 13% from 2010 to 2013 (KCR Research 2013). With this incidence, a survey would cost roughly 10 times more per complete than one where all households were eligible. This would not be cost effective so the other methods were chosen instead.

The following section outlines the recruitment survey and related incentives. The subsequent sections present the barriers, cost effectiveness, and LED monitoring recruitment summary statistics for each of the participant recruitment methods. The execution details are provided for each recruitment method used in this study, followed by the comparative effectiveness of each method. This paper concludes with recommendations for future studies in which customer recruitment may prove to be a challenge.

LED Monitoring Study Online Survey

Each of the recruitment methods discussed in this paper directed purchasers of LED bulbs to an online survey. An online survey method was chosen based on a recently published U.S. Census Bureau report (File & Ryan 2014) that indicated that 74.4 percent of U.S. households reported internet usage

¹ Sample size: $n_0 = \frac{Z^2 cv(y)^2}{p^2} = \frac{1.645^2 0.5^2}{0.075^2} = 120$ lighting loggers with the assumption of installing 1.2 lighting loggers per household.

during 2013. The online survey was designed to capture data essential to the program evaluation effort. Additionally, the online survey functioned as a screening tool to determine eligibility and willingness to participate in the second phase of the study, an in-home monitoring study. The objectives of the online survey were the following:

- Determine LED installation locations in participating customers' homes;
- Determine installation timeframe, i.e., the average number of days from LED purchase to installation;
- Determine shelving rate, i.e., the fraction of LED bulbs that are not promptly installed, but are shelved or stored for later installation;
- Determine rate class of the building for which the LED was purchased; and
- Qualify respondents for the in-home monitoring phase of the study²

There were two screening questions at the beginning of the survey asking respondents to identify their utility, and if they had purchased a program LED. Only customers from the correct utility that had purchased an LED were allowed to complete the survey. For completing the online survey, respondents received a \$5 gift card to a participating retail store. During the survey, if the participant qualified for in-home monitoring, they were asked to participate in the second phase of the study. Participants who qualified and agreed to in-home LED monitoring were contacted to schedule the lighting logger installation. The lighting loggers were installed in each home for approximately two to four weeks. To incentivize monitoring, participants received either a gift card (\$20 for one device, \$25 for two or more devices) or two free LED bulbs.³

In-Store Recruitment Method

The UCLA Office of the Human Research Protection Program (OHRPP) published a guide to recruitment and screening methods for studies involving human subjects (UCLA 2012). OHRPP provides guidance for directly recruiting participants through interpersonal interaction and recruitment letters. For direct recruitment, the OHRPP recommends that the recruiter is someone who is:

- Thoroughly knowledgeable about the study;
- Able to answer questions;
- Trained in the voluntary nature of research participation; and
- The most appropriate person to contact prospective participants.

For the first step in this study, the evaluators visited participating retailers to determine if retail store staff would be willing to assist in the recruitment of study participants. Of seven retail outlets visited, only one store manager committed to actively distributing a recruitment flyer to customers buying LED bulbs. At one of the major retailers visited, the regional manager stated that corporate approval was needed for any in-store activity and that the approval was not likely to occur. During this stage of the recruitment effort, flyers were left with the head lighting associate at five participating retail outlets. After two weeks of monitoring recruitment activity, it was determined that retail store staff were not effective in recruiting participants for the study.

² The in-home phase of the study required lighting loggers to be installed in customers' homes for the duration of two to four weeks; the main reason for disqualification was that lighting loggers were not to be installed in private areas of customers' homes, such as bedrooms or bathrooms.

³ To mitigate customer complaints due to disappointment related to exclusion from the study, LEDs were distributed to participants that agreed to in-home monitoring, but were determined to not have LEDs actually installed in their home.

To increase response to the retail level recruitment effort, two additional in-store actions were launched simultaneously. For publicly posted recruitment materials, OHRPP suggests information that should be included in an advertisement such as:

- Name and address of researcher and/or research facility;
- Person to contact for further information
- Purpose of study; and
- Payment, if any

Additional signage was added to in-store displays at 17 stores of a large retail chain. The signage included two components: a tear pad and a wobblers.⁴ The tear pad was a bound pad of the recruitment letter that had previously been left with lighting personnel. The wobblers was designed to catch the LED purchaser’s attention by clearly promoting the monitoring study incentive amount and then directing the LED purchasers to the tear pad.

The cost considerations for the in-store recruitment materials included the printing costs of the materials, as well as the time and travel cost to post the materials. A local print shop was able to print the in-store materials in less than a week for under \$200. The more costly aspect of this recruitment effort was the travel and time cost associated with posting materials in the retail locations. On average, the travel time associated with each in-store posting was approximately an hour. No barriers were encountered when posting the in-store materials at retail outlets.

For the second in-store recruitment activity, potential participants were identified through in-store, face-to-face interaction. The in-store intercept recruitment consisted of a recruiter setting up a table display with program bulbs at a program participating retailer. When retail customers passed by the table display, the recruiter explained that the utility was currently incentivizing certain LED bulbs that were marked with the utility logo. The customer was then informed about the LED monitoring study and the incentives available for LED monitoring study participation. Lastly, the recruiter asked the customer for their contact information in order to be emailed a link to the recruitment survey. If the customer declined to supply their contact information, the recruiter handed the customer a letter that contained the recruitment survey URL, a QR code that provided smartphone access to the survey, and language that described the incentive structure for monitoring study participation.

There were several barriers to conducting the in-store intercept recruitment method. First, there were corporate policy barriers to this method at all but one of the participating retail chains. The second barrier was the cost effectiveness of the recruitment method. It was determined after four in-store recruitment efforts during peak retail hours that it would be cost prohibitive for a recruiter to spend the amount of time that would have been required to recruit a statistically valid sample, greater than 100 households, from a table display at retail outlets. The summary data for the in-store recruitment method are shown in Table 1.

Table 1: In-store Recruitment Summary Statistics

Eligibility Milestone	Count	Percentage
Completed Online Recruitment Survey	19	100%
Monitoring Study Eligible	17	89%
Indicated Willingness for In-home Monitoring	17	89%
Participated in Monitoring	17	89%

⁴ In-store recruitment materials shown in Appendix A.

Social Media Recruitment Method

Following the in-store recruitment effort, the evaluators launched an online recruitment method that leveraged the utility’s social media presence. The hypothesis was that customers who follow the utility on social media platforms are aware of their energy use, and therefore may be early adopters of energy saving measures such as LED bulbs.

During execution of the social media recruitment method, there was only one minor barrier encountered; approval from the utility’s corporate communications department on the specific recruitment language contained in the social media posting. As the utility staff was accustomed to marketing their energy conservation programs through social media, the utility was highly receptive to this recruitment method. The utility posted the recruitment materials twice on each of their social platforms.⁵ The costs to conduct this recruitment method were negligible. The summary data for the social media recruitment method are shown in Table 2.

Table 2: Social Media Recruitment Summary Statistics

Eligibility Milestone	Count	Percentage
Completed Online Recruitment Survey	31	100%
Monitoring Study Eligible	23	74%
Indicated Willingness for In-home Monitoring	10	32%
Participated in Monitoring	6	19%

Email Blasts from Utility Recruitment Method

Due to the low response rate from the social media posting, an email blast⁶ to the utility’s customers was proposed as another LED monitoring study recruitment option. Email based studies have been noted for their ability to offer very rapid surveying (Bachman, Elfrink & Vazzana 1996). During execution of the email blast recruitment method, three barriers were encountered. First, the email blast had to be approved by the utility’s corporate communications department. Second, the utility was hesitant to send out emails on the scale requested because an overwhelming response had the potential to generate customer complaints due to unmet monitoring installation demand. Thirdly, the utility would not send out any reminders as recommended by Dillman (2000). The utility began with a pilot by sending out small batches of email blasts until concluding that the response rate for a large email blast would generate a manageable number of participants. The costs to conduct the email blast method were on the same negligible scale as the social media postings.

The email blast phase of the study lasted from 1/27/15 to 3/25/15. This extended field period was due in part to the need for a pilot email blast, as well as the need for each request to be reviewed by one department of the utility and executed by another. This delay ranged from 1 to 3 weeks for each wave of e-mails. Similarly, these delays made it difficult to send a second e-mail to the same address in a timely manner. The information gathered from this survey will help with planning in the future; such as knowing the response rate. Therefore, the pilot can be avoided and a whole survey protocol submitted for approval. With a more comprehensive plan from the outset, similar results could be accomplished in as few as 2-3 weeks.

Among the recruitment efforts, the email blast sent by the utility reached the most potential survey respondents. The email list was compiled from utility customers who had used the utility’s web

⁵ Social media recruitment materials shown in Appendix B.

⁶ Email blast recruitment materials shown in Appendix C.

portal in the prior 45 days. Approximately 40,000 emails were sent in four batches of increasing size, resulting in 910 respondents completing the online survey. Of those 910 respondents, 663 were eligible for the monitoring study, and 251 agreed to participate. To schedule monitoring installations for the 251 qualified respondents, at least two e-mails were sent and up to four phone calls were placed to each potential participant. Of the 251 qualified respondents, 142 did not participate in the monitoring study because they were unresponsive to contact attempts, required prohibitive travel costs, refused to participate after more detailed discussion of the study, or had scheduling and eligibility issues. The summary data for the email blast recruitment method are shown in Table 3.

Table 3: Email Blast Recruitment Summary Statistics

Eligibility Milestone	Count	Percentage
Completed Online Recruitment Survey	910	100%
Monitoring Study Eligible	663	73%
Indicated Willingness for In-home Monitoring	251	28%
Participated in Monitoring	109	12%

Utility In-house Recruitment Method

Following execution of the first round of the email blast method, the study was still short of the statistically valid target of greater than 100 households. Though the email blast method eventually recruited an adequate number of participants, the deadline for recruitment was approaching rapidly, so recruiting study participants from the population of utility employees was investigated. To recruit the utility employees, the URL for the online survey was distributed. The only barrier encountered in conducting this method was the availability of the utility staff for logger installation appointments. The cost to carry out this method was negligible as the utility handled the recruitment of their employees internally. The summary data for the email blast recruitment method are shown Table 4.

Table 4: Utility In-house Recruitment Summary Statistics

Recruitment Method	Count	Percentage
Completed Online Recruitment Survey	45	100%
Monitoring Study Eligible	35	78%
Indicated Willingness for In-home Monitoring	17	38%
Participated in Monitoring	4	9%

The primary concern related to including utility employees in the study was the potential for biased monitoring results. After data collection, the unadjusted mean daily HOU for utility employees was 2.93 HOU and 3.81 for the rest of the study population. The difference in HOU between these two subsets of the study population was not statistically significant.⁷

Conclusions and Recommendations

The recruitment methods employed in this study proved to be viable recruitment strategies and each method generated participants for the in-home monitoring phase of the study as shown in Table 5. The email blast from the utility generated the most participants for our study. This can be attributed to

⁷ n = 216, 17.5 df, p = 0.2756

the sheer volume of potential participants reached with each email blast. However, the conversion rate from the online survey completion to final in-home monitoring was low when compared to in-store and social media recruitment methods. Conversion rate was calculated as percentage of survey respondents that participated in the in-home monitoring. Conversion rates for each recruitment method are presented in Table 6: Conversion Rate by Recruitment Method.

Table 5: Recruitment Method Comparative Statistics

Recruitment Method	Count of Contribution to Monitoring Study	Percentage
In-store Recruitment	17	13%
Social Media	6	4%
Email Blast from Utility	109	80%
Utility In-House	4	3%
Total	136	100%

Table 6: Conversion Rate by Recruitment Method

Recruitment Method	Survey Completes	Participants	Conversion Rate
In-store Recruitment	19	17	89%
Social Media	31	6	19%
Email Blast from Utility	910	109	12%
Utility In-House	45	4	9%

Comparing conversion rates across the recruitment methods outlined in this paper, the in-store interaction at a display table had the highest conversion rate. While there were fewer unique initial touches with this method, 89% of the people that provided their contact information in the store participated in the study. This method is recommended for a study that requires a small sample size or whose budget allows for a large amount of time in store.

The social media recruitment method conversion rate was greater than that of the utility email blast method. The limiting factor for the social media recruitment method appeared to be the population size of the utility’s social media following. For a study with access to a larger social media population, this method could be a cost-effective strategy.

For the utility in-house recruitment, there are some considerations that should be accounted for. The utility employee participants should only be a subset of an overarching recruitment strategy because there could be a perception of bias in a study if only utility employees are sampled. The utility employee participants required more precise scheduling of installation appointments when compared to other study participants; this resulted in the lowest conversion rate in the study.

For a study facing challenges similar to the program discussed in this paper, the email blast is recommended as the most cost effective method for generating study participants when a large contact list is available. If a large contact list is not available, the other recruitment strategies are potential components of a portfolio of recruitment methods. Table 7 presents the strengths and weaknesses of each of the recruitment methods outlined in this paper.

Table 7: Comparison of Recruitment Methods

Recruitment Method	Strengths	Weaknesses
In-store	<ul style="list-style-type: none">• High conversion rate	<ul style="list-style-type: none">• High labor cost• Small number of customers reached
Social Media	<ul style="list-style-type: none">• Low cost• Easy to execute	<ul style="list-style-type: none">• Limited to size of social media following
Email Blasts	<ul style="list-style-type: none">• High volume• Low cost	<ul style="list-style-type: none">• Low conversion rate• Requires large contact list• Delays in implementation due to approvals needed
Utility In-house	<ul style="list-style-type: none">• Ease of contact	<ul style="list-style-type: none">• Limited availability for scheduling installations• Potential to introduce bias

Appendix A: In-Store Recruitment Materials

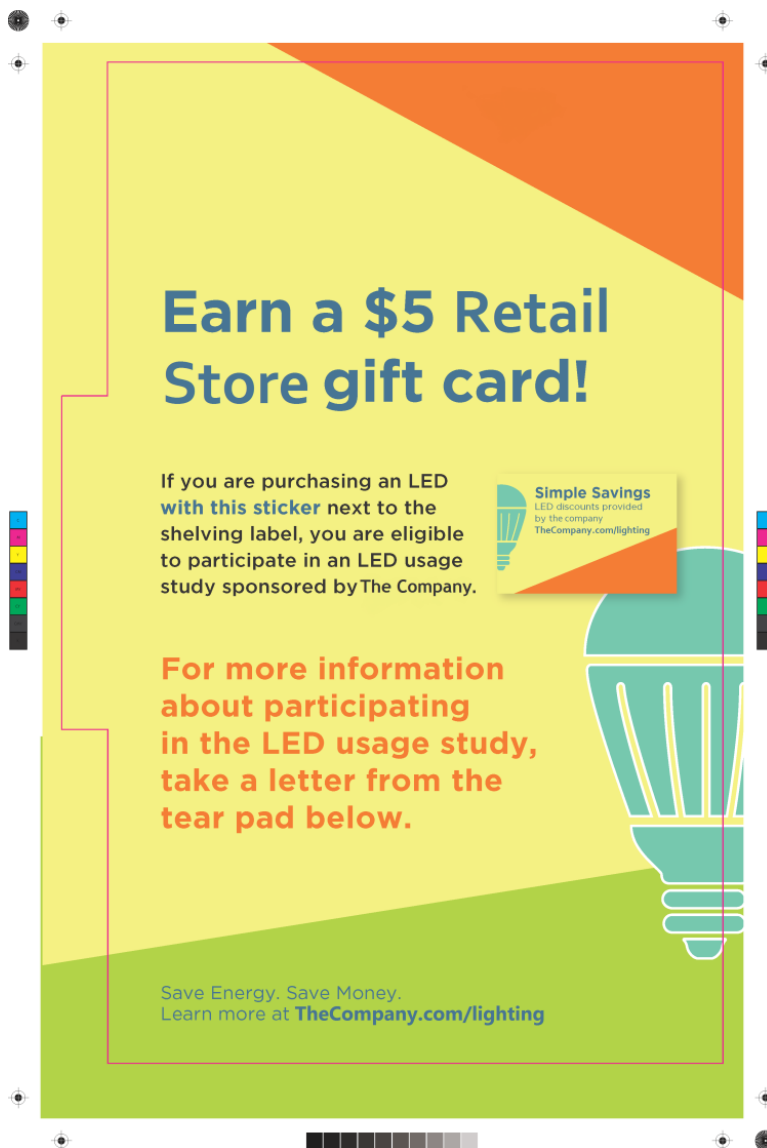


Figure 2: In-Store Recruitment Wobbler

[THE COMPANY LOGO]

Dear LED purchaser:

Thank you for purchasing light-emitting diode (“LED”) light bulbs for which The Company has provided instant rebates. The Company has contracted with ADM Associates, Inc. (“ADM”) to evaluate how LED light bulbs are used by customers and to quantify the associated energy savings.

To understand how LED light bulbs are being used, we would be grateful if you will complete a brief online survey which will take about five to ten minutes. After completing the LED survey, we will thank you for your courtesy by providing you a \$5 gift card for The [Retailer].

The LED survey can be filled out online at www.TheSurvey.com. After completing the LED survey online, you may be notified that you are qualified to participate in the LED in-home monitoring study for which an additional \$20 or \$25 incentive will be offered. Qualifications are listed at the bottom of this letter.*

If you have any questions regarding the LED survey online or the LED in-home monitoring study, please use one of the following options to contact us:

- ADM may be contacted directly at (123) 456-7890 or TheCompanyLED@admenergy.com.
- The Company may be contacted directly at (123) 456-7890 or JDoe@TheCompany.com.

We thank you again for your courtesy,

Sincerely,

John Doe
Energy Efficiency & Conservation
The Company

Complete survey online
(www.TheSurvey.com)
or scan this QR code:



* Qualifications include the following. Approximately 100 [Retailer] customers will be invited to participate in the LED in-home monitoring study; customers will be invited on a first-come, first-served basis. The objective of the in-home monitoring study is to gather LED hours-of-use data for usage areas such as kitchens and living rooms. Please note that private areas such as bathrooms and bedrooms will not be monitored. The data loggers used for the in-home monitoring study are small, discrete devices that are quickly installed next to an LED bulb to record when it is turned on and off during a two week to three week installation period. A \$20 [Retailer] gift card is provided for monitoring LED bulbs installed in a single usage area such as a kitchen; a \$25 [Retailer] gift card is provided for monitoring LED bulbs installed in multiple usage areas such as a kitchen and living room.

Figure 3: In-Store Recruitment Letter from Tear Pad.

Appendix B: Social Media Recruitment Materials



Figure 4: Facebook Recruitment Posting



Figure 5: Twitter Recruitment Posting

Appendix C: Email Blast



Let's shed some light on LEDs.

The Company would love to know what you think about LED lighting. If you'll [take our brief survey](#), we'll send you a \$5 gift card to a home improvement store as our way of saying thanks.

Want to earn a \$20 gift card to a home improvement store or two free LED light bulbs on top of the first gift card?

Take [our survey](#) and at the end, you may be invited to join our official LED Home Study. It's short, free and easy, and the lighting habits you share with us will go a long way towards encouraging energy efficient lifestyles among all our customers.

What you'll get:

 or 

2 free LED bulbs \$20 home improvement store gift card

The LED Home Study works like this:

- A Company technician will professionally install a small light-sensitive 'logger' next to each LED in your family room, living room or kitchen
- Each logger is about half the size of a playing card, and will be installed at a time that's convenient for you
- After two or three weeks, we'll make an appointment to remove the lighting loggers – and give you a \$20 gift card to a home improvement store or two LED bulbs in return

[Take Our Survey](#)

and start helping the environment and save \$\$!

Participating in our LED Home Study is not only effortless, it's also a great way to make a difference in energy efficiency. We'd greatly appreciate your help.

Either way, please be sure to take our survey! Please click on the link below, or copy and paste it into your browser: <http://SurveyLink.com>

Thank you again for your interest in saving energy. With your help, we're getting our area to see energy efficiency in a whole new light.

Sincerely,
The Company

Figure 6: Email Blast

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