

Five Steps for Designing an Effective Survey

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Surveys are a valuable and informative operational management tool which can be used to collect specific likes, dislikes and other data to help mold key decisions. Communities use surveys to collect quantitative data for a variety of purposes such as customer satisfaction, new service introduction, customer attitudes and perceptions, measuring pricing changes, and bundling services. In addition, several surveys can be conducted over a period of time to benchmark results, providing valuable trend data.

When creating surveys, it is important to eliminate errors with proper survey design. Following these five important steps when designing and conducting surveys will help ensure your results are informative and accurate.

1. Select a representative population sample to be analyzed. This step is critical. If a representative sample is not selected, results will be in error. In the example below, my co-workers were not a representative sample of the entire American population.

A variety of methods can be used to achieve a proper sample. For example, in a residential customer satisfaction survey of electric users, one option would be to select every tenth customer from the entire customer database.

2. Properly design survey questions. Watch out for questions that lead respondents to the desired answer. This is critical for both written surveys and phone interviews. Interview bias can be unknowingly introduced by the person conducting the survey. Acquiring skilled phone interviewers is a good solution. In addition, test both written and verbal surveys to eliminate unclear and misleading questions.

A few years ago, I needed demographic and other data about the American population. To obtain it, I performed a survey. I embarked on the data collection process by designing a few questions and randomly interviewed my coworkers. The results were startling. The survey concluded that

- 33% of Americans are married.
- 67% of Americans have been divorced.
- 33% of Americans have children.
- 67% of Americans went to college for Electrical Engineering.
- 100% of Americans have cell phones.
- 100% of Americans work for a manufacturer of radio equipment.
- 100% of Americans that are working live in Winnipeg, Manitoba.

Obviously, the results of my survey were invalid. Why? There are many reasons. The main one is a *representative sample* of the American population was not surveyed in this example. Unfortunately, in the real world, identification of errors is not as easy. (*The purpose of this survey was to stress the importance of following these five survey design steps.*)

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3. Ensure that an adequate number of responses are obtained. The required number of responses is a function of population size and number of survey respondents. The relationship of the total population and the number of responses received will impact the “tolerance” of survey results. The tolerance is the expected range of the proportional survey data. For example, a survey may indicate that 60% of households in a particular community have Internet access with a +/- 10% tolerance. This means we can conclude that the actual number of households will be between 50% and 70%. Typically, we recommend setting a goal of obtaining a +/- 5% survey tolerance.
4. Verify responses to achieve a representative population sample. Sometimes, response data statistical tests (see step 5) are used to verify a representative population sample. This is a critical mistake. Statistical tests do not verify if responses were received from a representative sample of the population, instead they determine the “shape” of the response data.

A variety of methods can help verify a representative sample. One of the most popular is to ask demographics (age or income) or other known data in the survey. By comparing the response data with the known data, it is possible to analyze whether responses represent the population and what possible skews may be present.

5. Test data results to determine margin of error. This is the statistical test discussed in step 4. Most surveys are designed to obtain a “normal distribution” (bell shape of the plotted responses). If a normal distribution is obtained, expect a 5% margin of error. That is, 19 of 20 times, survey results will indicate the correct conclusion for proportional survey data.

Following these steps can help ensure surveys will result in accurate and unbiased results. Skipping or overlooking these steps can lead you to conclude that all Americans who work live in Canada.

For more information on using surveys for market research, please contact Thomas Asp at 410.964.5700 or at tasp@internetCTC.com.

About the author: Thomas Asp has been serving public power systems for over 20 years. Tom is recognized as an expert in evaluating and offering recommendations regarding municipal broadband communications systems. He has been actively involved with telecommunication market research and feasibility analysis for over a decade.

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