

# Using Survey Results

## Survey Findings

Determining the findings of your survey involves more than simply reporting initial results. Instead, it is important to critically examine survey questions and check for statistical pitfalls to develop accurate findings upon which you can make reliable conclusions.

### *Critically examine questions*

- Critically examine questions, especially when you obtain unexpected results, to see if their wording might be biased or unclear or if the question order might have created bias. Wording also impacts how well a question captures actual differences between respondents. Make sure you have avoided ceiling and floor effects, which occur when respondents frequently encounter upper or lower limits.

### *Check for statistical pitfalls*

- Determine whether the response rate was reasonable based on the size and accessibility of the population you sampled and the survey mode you used. The average response rate is usually greater than 60%.
- Use care when interpreting cross-tabulation results. For example, survey responses of staff participants in a program to incorporate technology into instruction indicate that those who worked on several projects at once were more likely to experience problems than those who worked on one project:

Example:

<b>Challenges</b>	<b>Single Projects (% yes, with 25 respondents)</b>	<b>Multiple Projects (% yes, with 5 respondents)</b>
Technical difficulties resulting in delays	24	40
Getting started late	41	60

- One explanation is that staff attempting multiple projects became overwhelmed with the work involved. Another possibility, however, is that the odds of encountering a problem increased with the number of projects attempted, and that, per project, those involved in multiple projects were not more likely to have technical difficulties or start late than those working on one project. In addition, because of the small number of respondents in the multiple project group, results are more likely to be due to chance and might change with a larger sample.
- Could there be any errors due to sample size? If you have fewer than 25 cases per group, you may lack adequate statistical power to detect differences between groups. On the other hand, if you have very large groups, almost any difference, even a trivial one, will be statistically significant, and could lead you to make unwarranted conclusions. For this reason, you should indicate effect sizes, which allow the readers to judge how meaningful the differences are between/among groups.
- Are you making multiple comparisons between variables? Each additional comparison between groups increases the chance of finding an erroneous relationship due to chance. Decrease errors resulting from multiple comparisons by using a more stringent significance level, adjusting for the number of comparisons made, or using multiple comparison techniques that account for this issue.

## Basic Survey Analysis Tips

- Enter closed-ended survey responses into a data file of an analysis program like Excel, Access, SPSS, or SAS, which can perform statistical analyses and create tables and graphs. Often, you can import data from electronic surveys directly into the analysis software. Code the data by assigning a number for each response choice (for example,

- "strongly disagree" = 1, "disagree" = 2, etc.) and create a key explaining the coding for each question.
- Some survey questions may be worded so that a given response (i.e. "definitely no" = 1) represents an unfavorable rating for one question, but a favorable rating for another. An example would be two questions that asked, "The instructor communicated effectively" and "The instructor communicated poorly." In order to compare or aggregate these survey responses, the inconsistent survey question should be reverse scored. To reverse score, switch the highest and lowest numerical values of a response, then substitute the next highest and lowest values, and so on. Non-numerical responses, such as "other" or "not applicable", should not be included in reverse scoring.

Example:

Question: "The instructor communicated poorly"	
Original Score	
Strongly Agree	4
Agree	3
Disagree	2
Strongly Disagree	1
Reverse Scored	
Strongly Agree	1
Agree	2
Disagree	3
Strongly Disagree	4

### *Open-ended survey responses*

- For open-ended survey responses, identify general themes and noteworthy exceptions to trends. If you have a large amount of text, you may want to code reliability responses to organize content and reveal patterns. With short-answer questions, you can obtain basic information about response frequencies by categorizing responses, assigning a numerical code to each category, and then entering the codes into a statistical analysis program.

### *Recoding answers*

- You may need to recode some answers to questions that have an open-ended "other" response option. For example, one person may answer the question, "Do you consider yourself African American, Caucasian, Asian, Hispanic, or other?" by circling "other" and writing, "Chinese." To maintain consistency, code the answer as "Asian" rather than "other."

### *Inspect the data*

- Inspect the data for errors that can occur during data entry or when a respondent provides inconsistent answers. For large databases, check at least five percent of entered data for accuracy. If you find any errors, check the remainder of the data and correct the errors.

### *Calculate the response rate*

- Calculate the response rate by dividing the number of people who submitted a completed survey (80% or more of questions answered) by the number of people you contacted or attempted to contact to complete the survey.

- For example: If 185 project participants were asked to complete the survey, and 107 responded, the response rate was 107/185 or 58%.
- Consider other formulas for calculating responses rates, such as counting partially completed surveys as responses. In keeping with standards developed by the American Association for Public Opinion Research (2000), you may also need to calculate and report cooperation rates (the proportion of people contacted who participated in the survey), refusal rates (the proportion of people who refused to participate or broke off an interview of all potentially eligible cases), and contact rates (the proportion of all cases in which someone eligible to complete the survey was reached).
- If the response rate is below 70 percent, determine if the sample is representative of the target population by comparing sample and target population means for characteristics that would likely affect responses, such as race, age, grade point average. An unrepresentative sample may produce response bias.
- For example: If 40% of student participants in an instructional program are from the School of Engineering, yet only 10% of survey respondents are from that school, results will not represent the concerns of this subgroup. To address the problem, you might supplement your results by surveying additional engineering students.

*Calculate response frequencies and percentages for each question*

- Count the number of respondents who selected each response choice for a question to obtain frequencies and divide these frequencies by the total number of responses to the question to compute percentages.
- For example: For the question below, the "strongly disagree" response percentage would be calculated:  $10/107 = .09$  or 9%.

Response	Frequency	Percent	
Strongly Disagree	10	9%	24% Disagree
Disagree	16	15%	
Neutral	12	11%	11% Neutral
Agree	41	39%	65% Agree
Strongly Agree	28	26%	
Total	107	100%	

- To create more meaningful categories, combine the "agree" and "strongly agree" categories to obtain the percentage of agreement (65%) and the "disagree" and "strongly disagree" categories to obtain the percentage disagreement (24%).

*Compute cross-tabulations*

- Compute cross-tabulations to see relationships between responses for two survey questions. For example, you may ask students to provide their race in the first question and rate their overall satisfaction with a project in the second question. Display response choices for the first question as column labels and choices for the second question as row labels. A cross-tabulation might reveal that the percentage of participants who were satisfied with a project depended on their race:

Example:

Response	White	African-American
Satisfied	68%	46%
Neutral	17%	22%
Unsatisfied	15%	32%
Total	100%	100%

## Make conclusions

- Evaluate your results based on how well they answer your outcome's questions
- Statistically significant and/or practically significant results should form the basis of your main conclusions.
- Emphasize your strongest findings.
- Consider all possible explanations for results before making conclusions.
- Whenever possible, verify, or triangulate, results from your survey with results from other data sources such as interviews or focus groups that can provide additional insight. Finding similar results using different methods strengthens inferences. On the other hand, differing results call for further analysis.

## Additional Information

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